Moderate impact of ERPS on management accounting: a lag or permanent outcome?

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The currently most advanced administrative corporate IT solutions have emerged in the form of enterprise resource planning systems (ERPS). The number of adopters of this new integrated information technology is increasing rapidly. Still, we know very little about the practical consequences these new systems have for managerial accounting and control, and thereby corporate management. The purpose of this study is to explore the effects of integrated, enterprise-wide information systems on management accounting and management accountants’ work. Data for the analysis were gathered through a field study of ten companies (e.g. ABB and Nokia) that have experience of integrated information systems in Finland. Our findings indicate that, so far, the ERPS projects have led to relatively small changes in management accounting and control procedures. Also, in most of the cases, advanced management accounting techniques—and many of the traditional ones too (e.g. annual budgeting)—are operated in separate systems. For management accountants, ERPS have in some cases left more time for analysis instead of routine tasks. The reasons for these findings are discussed and ideas for further research are presented.

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Introduction

The currently most advanced administrative corporate IT solutions have emerged in the form of enterprise resource planning systems (ERPS). All around the industrialized world we can observe an increasing number of implementations of these integrated software packages (e.g. SAP R/3, Baan, J.D. Edwards, Oracle). These
implementations represent considerable investments in any company’s information system budget, in terms of both monetary and intellectual resources. The fast diffusion of this technology represents an important societal phenomenon as well, as it is connected to discussions of virtual organizations and the network society (Castells, 1996; Sotto, 1997). However, so far there exists little published scientific evidence on the implementation processes and their effects on management accounting in particular.

The link to management accounting appears important since one set of benefits from integrated systems is assumed to flow from easy and fast access to operational data, management accounting being essential for conveying such data in a managerially relevant and usable form (e.g. Cooper and Kaplan, 1998). Also, it is a common practice that when major scale changes are carried out regarding information systems, the logic of accounting also becomes a subject of evaluation and possible change (e.g. Sutton, 1999). Moreover, there appears to be a lack of studies examining the organizational and behavioural aspects of these systems or their management control implications in general, even though many changes could be expected due to increased centralization of system coordination and homogenization of control practices in complex organizations (cf. Chapman and Chua, 2000; Quattrone and Hopper, 2000). As Chapman and Chua (2000, p. 207) put it, ‘[…] there is virtually no published material that studies accounting and this [ERP] technology. The need for research into these issues is great since ERP-type technologies are rapidly spreading and at the same time evolving’. On the other hand, it is also a fact that so far, only a few firms have experience of these systems from a longer time period. Most of the implementation projects still tend to be ongoing. We felt, however, that now is exactly the right time to start a study of these issues, as actual developments in firms can be observed. We are not forced to rely on accounts of what happened a long time after the fact.

The purpose of the study is to examine the effects of integrated, enterprise-wide information systems on management accounting and management accountants’ work. The analysis is concerned with the current global discussion on the value adding capabilities of management accounting systems, i.e. here as well, the question is whether ERPS alleviate or limit the added value gained from management accounting systems for organizational decision making and control. The assumption that ERPS should possibly have an impact on management accounting practice derives from several claims, such as:

…the adoption of ERP systems is widespread. […] Yet, we know very little about how well these systems have actually facilitated improvements. […] What are the long-term effects on organizational structures, organizational culture, and the workers within these organizations? There are many questions related to ERP systems and little research that provides potential answers to these questions. ERP systems radically change the way accounting and business information exists within organizations and the effects are likely to be quite significant (Sutton, 1999, p. 5, emphasis added).

…automation and integration that characterize ERP-type technology dramatically reduces the necessity for employing management accountants to collect information, prepare reports, and police adherence to agreed standards and operational procedures. The enhanced possibilities for control […] of integrated information environments has been well documented.

The call for more field-studies in accounting is hardly new, however, the development and increasing spread of ERP-type technologies, with their potential to radically alter the field of accounting, does add a new urgency (Chapman and Chua, 2000, pp. 204 and 207, emphasis added).
The computing revolution of the past two decades has so reduced information collection and processing costs that virtually all technical barriers to design and implementation of effective management accounting systems have been removed (Johnson and Kaplan, 1987, p. 6, emphasis added).

Our first research task is to find out whether the implementations of ERPS have somehow changed management accounting methods or managerial control in the companies studied. For example, activity-based costing (ABC) is the typically in-built standard solution for costing in the new systems. Does the adoption of ERPS mean that companies are turning to use ABC? Or, if a company is already using ABC, is it configured into ERPS or is it a stand-alone system? And, if the ABC model is configured into the ERP-system, is the content somehow different from the earlier application due to the technical complexities of ERPS? Our working hypothesis in this regard is that a well-built data warehouse underlying the corporate information system should make it easier to build new management accounting constructions. We also aim to provide insights on why these changes take place or why they remain unrealized. In addition to management accounting methods, we consider the impact of the new systems on management control. Also, we aim to find out how the new systems affect the basic budgetary process and performance measurement in the companies studied. We will also present some explanations for the impacts observed.

Our second research task is to find out the implications of the new systems for the management accounting profession. There is a vivid discussion going on around the expanding role of the management accountant from ‘bean-counting’ towards business-oriented change agency (Olve, 1990; Kaplan, 1995; Sillince and Sykes, 1995; Cooper, 1996a,b; Friedman and Lyne, 1997; Granlund and Lukka, 1998a). Relevant questions in this context include the following: does the new system allow more time for analysis and lighten the burden of routine reporting? Does an integrated information system enhance cross-functional communication within organizations and the process perspective in general? Does the new system have impacts on the organization of the management accounting function and the autonomy of the accountant? Explanations for the relationship observed between ERPS and the management accounting profession are provided along with the analysis of the results.

As we aim to explain the impacts ERPS have on management accounting, our study builds on the recent literature on management accounting change and continuity. Conventionally, change has been seen in terms of organizational reform and improvement (see Hopwood, 1987). Changes in management accounting systems have been explained in economic terms (Feltham, 1972; Demski, 1980; Hogart, 1993; Waller, 1995) or as a reform resulting from e.g. advances in manufacturing technology (Kaplan, 1985; Johnson and Kaplan, 1987; Anderson, 1995). On the other hand, changes in accounting systems have been observed to relate to social conflicts and power struggles inside organizations (Cooper et al., 1981; Covaleski and Dirsmith, 1988; Capps et al., 1989). Recent studies have also shown how management accounting practices change as a result of diffusion of innovations (Björnenak, 1997; Gosselin, 1997; Malmi, 1999). Diffusion studies suggest that the explanation for management accounting change, at the level of a single firm, may vary from economic reasoning to the pursuit of fashions and fads, depending on the firm and the phase of the diffusion. Fashion and fads relate back to institutional isomorphism as an explanation for change (DiMaggio and Powell, 1983; Granlund and Lukka, 1998b).
It has been argued that management accounting practices are slow to change (Scapens, 1994; Granlund, 2001). This stability may be explained in economic terms as well; proposed changes are not expected to produce net benefits. Instead of an economic explanation for continuity, recent writings have emphasized the routine nature of accounting. Organizational routines that reflect institutionalized practices are slow to change and such changes often face resistance. Similarly, relatively stable accounting systems are said to enable decision-making and control in an unstable world. Hence, the stability of management accounting practices can also be explained by its institutionalized nature (Burns and Scapens, 2000). We will apply the institutional framework to explain some of our observations (see especially DiMaggio and Powell, 1983; Granlund and Lukka, 1998b). This framework has been demonstrated to offer a credible and intelligible basis for the analysis and explanation of the forces that may drive accounting change and continuity (e.g. Granlund et al., 1998; Granlund, 2001). In this paper, we argue that the relatively small impact ERPS have had on management accounting can best be explained in economic terms, whereas institutional factors seem to play a smaller role in this context.

Method
With regard to methodology, we first considered the survey method to provide a general understanding of the effects of ERP systems on management accounting. Previous literature expects changes to occur, but is not specific about what sort of effects we should see. As the roots of ERP systems are elsewhere than in managerial accounting and these systems are not primarily designed to facilitate management accounting, we were unsure whether there would be effects and if so, of what sort. Furthermore, as there was no scientific evidence on the research topic, we were not able to determine what we should ask in the questionnaire in specific terms. On the other hand, since we still wanted to get a wide and comprehensive picture of the new phenomenon, we ended up with an exploratory field method instead of a deeper analysis of a single case firm. This type of multi-organization field study may be seen as a first step in a research process aiming to define what sort of impacts ERPS have, or do not have, on management accounting. Field studies may also provide valuable clues to explain such impacts or lack of them.

Such field studies may not be especially strong in providing results that are generalizable across organizations. Neither are they particularly strong in studying complex managerial control issues.1 Despite these potential limitations, they provide insights about where to focus on surveys, case studies and analytical work in novel research areas. In other words, exploratory case studies are particularly suitable for novel research areas where neither prior research guides empirical enquiry nor is there enough understanding of phenomena to base empirical enquiry on a certain theoretical standpoint. They may be used when there are no definite expectations of what to find, as is the case in this study. We regard exploratory field studies as incapable of providing definite explanations. But what they can do is to build some order to a new field of inquiry by raising some issues while downplaying others. Therefore, the value of exploratory field studies may be in their ability to generate relevant questions rather than answers. The time for more definite explanations will come in the latter phases of the research process.

1This holds when field studies are compared to in-depth case studies.
Impact of ERPS on Management Accounting

We applied triangulation of data collection methods, and used every opportunity to increase the credibility of our findings. At this point, we can conclude that none of the many practitioners with whom we have discussed our findings have doubted our descriptions and explanations.

The primary data for the analysis were gathered through interviews and from written documents. The companies included in our sample are all large and almost exclusively SAP R/3 adopters. This is due to the fact that R/3 is also the clear market leader in the Finnish ERPS market (see e.g. Davenport, 1998; Booth et al., 2000; Maccarone, 2000), and most R/3 adopters are known to have already gained quite long experience of the new technology. We also included one Oracle ERPS case in our sample. The case firms are ABB Industry, Borealis Polymers (plastics raw materials), Compaq (information technology), Fazer Bakeries, HK Ruokatalo (meat refining), Kesko (retail chain), Metsä-Serla (paper), Nokia (telecommunication), PerkinElmer Life Sciences/Wallac (diagnostic devices and chemicals), and Sonera (former Telecom Finland). In two of these companies, it appeared to us during the study that, at least so far, only the accounting modules of the software have been implemented. We may question whether these cases can be regarded as true ERPS adopters (see the next section for the discussion of ERPS). They are included in this analysis, however, as these organizations claim to have adopted integrated software and as our aim is to get a wide and comprehensive picture of what is going on in practice.

Altogether 16 people were formally interviewed in 1999–2000, including accounting personnel (CFOs, controllers), project managers, and IT managers. The method followed the format of theme interviews. The interviews lasted from one to two and a half hours. In this interview round, we have not used a tape-recorder as we were not able to picture in advance what sort of issues emerge during the research process. It was felt that not using a tape-recorder perhaps makes it easier for the interviewees to express themselves more freely on delicate issues. Interview reports were written after each interview and they were discussed and cross-checked by the authors in order to avoid researcher biases (see McKinnon, 1988). We have also had dozens of informal discussions with representatives from the case companies. These persons come from different levels of the case organizations. We have also greatly benefited from material and contacts obtained in in-house training, master’s thesis supervision, and executive seminars. All individuals and findings attached to a certain case firm are presented anonymously due to mutual agreement.

Integrated technology as an ‘agent’

ERPS are defined as module-based integrated software packages that control all the personnel, material, monetary and information flows of a company (Bancroft et al., 1997; Curran et al., 1998; Davenport, 1998). ERPS use integrated client-server technology and are built on a large integrated data warehouse where all data are

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2In Finland, a large number of master’s theses in management accounting currently result from development projects in companies. The authors have been closely involved with development projects related both to ERPS and management control in the case companies.
entered only once, typically where the data originate.\textsuperscript{3} Thereby, as all data are integrated and applicable to people at any time, all over the organization, so are all faults in the data. The implementation of such a total system is typically costly and time consuming. However, it is a fact that updating the old heterogeneous system platform is costly as well. The technical arguments speaking for ERP-implementation typically include the year 2000 problem, transfer to the euro-currency, and problems with updating possibly dozens of different information systems of different sophistication/generation. Firms may also aim at business model improvements via adoption of ERPS. They may try to solve, for instance, logistics problems with an ERPS, which can basically be said to represent a process-oriented information system based on value chain thinking.

An ERP-system is implemented by implementation partners that have their own implementation methodologies. ERPS implementation methodologies typically also include a business process development program (kind of BPR, Business Process Re-engineering) that starts with an overall business process analysis. The implementation is typically organized around the modules of the system to be implemented. As regards the accounting modules, the primary responsibility for their configuration falls to accountants. Standard accounting modules in ERPS include many different features. Basically, one can find in their menus everything from bookkeeping to product profitability analysis to asset and cash management. In practice, it is up to the firm to decide which functions to implement. The second part of this decision is then whether to implement and what functions to include in the ERPS and what to leave to separate software. It may be that a firm has recently invested in other software and spent a lot of resources to make it fully operational. The implementation of ERPS is typically described as at least cumbersome (Davenport, 1998). Because ‘everything depends upon everything else’, the configuration work becomes problematic. Problems in the configuration of one module may prohibit or delay configuration work of some other modules.

More generally speaking, ERPS represent part of a wider ‘electronic revolution’ that is currently taking place in the form, for example, of electronic commerce, the Internet and intranets. Most of the ERP-solutions are already operated through web browsers. The common issue for this phenomenon is integration. The integrated information platform facilitated by ERPS and Internet solutions is supposed to drive changes in corporate management (Davenport, 1998). The precise nature of these changes is still unclear.

Being at the core of this discussion, the notion of integration obviously deserves some further consideration here. Integration of information systems can basically be achieved not only with an ERPS, but also basically by linking separate software together. The development of system interfaces is then the key issue, while in the ERPS environment interfaces are not needed; there is only one system. However, the ERPS environment interfaces may also have to be developed for separate software because the ERPS may not include all the functionalities needed. In general, the level of system integration can be said to be a continuum. In cases where a company implements only some modules of the ERPS, it is somewhere in the middle of the continuum that goes from a collection of stand-alone systems to a wholly integrated system.

\textsuperscript{3}See e.g. Davenport (1998) for the anatomy of an ERPS and the history of ERPS, based on MRP-systems (material requirements planning and manufacturing resource planning).
Currently, integration is increasingly needed in the business environment. This need emerges from the efficiency and synergy requirements necessary in a complex and turbulent environment. In other words, integration is needed to facilitate co-ordination, which is again related to the building of competitive advantages. As Beretta (2001) puts it, ‘ERPs support the management of organisational interdependencies by enabling cross-functional information flows, language sharing and cognitive integration among functional units’. Integration may thus take place at many levels (cf. Booth et al., 2000): e.g. data, information, cognition, etc. The integration of data and information flows is obviously facilitated by the new technology, but it may be that the ERPS offer a vehicle of conceptualization that is used for wider, social and cultural purposes, e.g. for setting standards for appropriate action.

Several references were presented in the Introduction that implied an effect that ERPS could have on accounting practice. We assume that ERPS have the potential for both direct and indirect effects on management accounting practice (cf. Luft and Shields, in press). Direct effects emerge as the implementation of an ERPS changes directly, for instance, reporting practices: for example, content, form and scheduling. Indirect effects occur when the change to management accounting comes via a changed management practice and/or changes in business processes, initiated by the ERPS implementation (Figure 1). These effects may sometimes be invisible to the accounting personnel if their practices are not touched, while the application of the reports they produce changes. It is also important to notice that the arrows in Figure 1 may possibly not be realized at all. It can still be argued that the change potential exists. There could also be a return impact from management accounting to ERPS, but these relationships are not the focus of this early study. Hence, we are studying here a rather unidirectional relationship between ERPS and management accounting. This is because ERPS are commonly difficult to modify (Davenport, 1998). Therefore, it is the organizational practices that are typically changed to fit the new technology, not *vice versa*.

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Our view of management accounting as such is broad. We acknowledge that there is both a technical and a social angle to management accounting systems, which together constitute a complex socio-technical whole. Our analysis is concerned with both of these perspectives, but due to the chosen research strategy concentrates mainly on the technical aspects, and does not even try to reach in-depth analysis. However, this does not mean that we had not examined issues like changes in responsibilities and accountability relationships.

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Figure 1. ERPS as a change ‘agent’.
Empirical results

Our analysis and reporting follows the theme interview guide that was built around the following major themes: what ERPS, why and how; management accounting and control vis-à-vis ERPS; management accountants and ERPS. Naturally, we also discussed themes such as organizational structures and their possible changes, organization of the accounting function and corporate strategic issues. The main trends were compressed into a Table (Appendix 1), which was then used in analysing the common and differentiating features regarding the case sites. The following description is structured along the central interview themes as regards management accounting practice vis-à-vis ERPS. We first assess the direct impact of ERPS on management accounting and control system characteristics, then the indirect impact, and finally the direct impacts on management accountants' work.

The direct impact of ERP-systems on management accounting and control

Cost and profitability accounting. In half of the interviewed companies, product or customer level cost and profitability accounting was handled in the ERP environment. Those who operated cost accounting outside the ERPS used stand-alone software or spreadsheets and had had either no time for configuring costing into the ERPS or had recently invested in separate software and had currently no intention of integrating it with the ERPS. In both cases it was brought out that the situation was not optimal regarding data collection in the new system environment. Those firms that operated cost accounting in the ERPS had simply transferred the previous principles into the new system: ‘The way costing is carried out now is not smarter, it’s only faster…although even the speed depends, in the end, on the people who use the system, not on the system’ (Controller, case B). Eight out of ten companies applied ABC in at least some parts of their organization, but generally these ABC systems were not configured into ERPS. There was one exception where ABC has been implemented, but not according to the procedure offered by the ERPS. ABC was in this case retailed into the system ‘so that the ERPS vendor would probably not recognize their system beyond it’ (Controller, H).

One reason the interviewees mentioned for not including ABC models in ERPS was the current ERPS system complexity for these purposes. Further explanation for the non-inclusion may be found among the very reasons for adopting ERPS. Most of the respondents referred to platform change as one of the main motivations for implementing an integrated system. These projects are laborious and time consuming. Therefore, the features that are the most vital for basic operations and survival are configured first. Later, more sophisticated systems may be built upon this platform, including ABC. It appears that companies are even ready to suffer from the lower level of functionality (at least initially) caused by the new standard package, even in those modules covering basic operations, to secure a seamless function of operations after implementation of ERP. We interpret this to be a result of the functional-economic fact that the amount of time and effort required for implementing even the basic version of such a system may exceed the available capacity. Few adopters would therefore risk the timely execution of the project by adding complexity to functionality.

In assessing the influence of ERPS on management accounting methods, ERPS did not influence these companies’ decisions to adopt ABC as many of these firms...
were already familiar with the concept. Similarly, as costing systems were kept out of ERPS, ERP3 complexities did not influence accounting logic in these firms. Two companies, however, indicated that they will update their ABC and build it into ERPS as soon as the next version of the software containing provisions for more advanced ABC is released.

Although the cost accounting logic as such does not seem to be influenced by ERPS, new systems allow analysis of profits in new dimensions. For example, in one company (G) sales reporting was possible by product category prior to ERPS, but not by country. ERPS made it possible to easily produce reports by country as well. Another case (C) involved restructuring of an organizational form from pure business units to profit groups. Balance sheets and cash-flow statements for these internal profit groups were difficult to produce in the old system environment. ERPS solved the problem for that company. Moreover, some interviewees emphasized the improved drill-in potential provided by ERPS. Hence, the content of data may not be logically different, but the increased access to the data may also improve management accounting.

With respect to access to data, there were also some contradictory opinions. Some interviewees reported that the database is basically suitable, but access not always easy. One company (F) created an additional data warehouse independent of ERPS to facilitate area-based profitability analysis. Hence, based on our empirical evidence, the impact ERPS have on access to data appears inconsistent. Time will tell whether the ERPS will become flexible enough as databases to allow various types of reports or will companies implement separate data warehouses, also incorporating other than internal company transaction data as a primary source of data for end-users.

**Performance measurement.** Internal SBU reporting is one element of management accounting where the introduction of ERPS may also facilitate changes in accounting logic. One of the companies interviewed indicated that they aim for single figures in business-unit profit reporting. In other words, they wanted to be rid of coordinating financial accounting and management accounting reporting. Hence, it is management accounting that is changed to conform to the external reporting requirements in that company. Of course, accountants were fascinated by this change, as it reduces the amount of their routine work: ‘It is truly marvellous that now we can use the spare time left from synchronizing work for more important activities’ (Controller, C).

Balanced Scorecards have been widely applied in Finland during recent years (Malmi, 2001). However, so far ERPS do not seem to play a major role in these applications, even though ERPS are likely to provide easier and faster access to (standardized) operational data, which again can be facilitated in building a BSC. A typical answer in this regard was that the ERPS might be helpful later on in building BSCs: ‘We are probably going to build the BSC into the ERPS, if it will allow it’ (Project Manager, G). BSCs are maintained in a spreadsheet or Lotus Notes environment or by using special software designed for that purpose. ERPS vendors are currently entering that arena by developing modules called strategic enterprise management (SEM), but in this study all those companies (five out of ten) applying BSC relied mainly on spreadsheets to cope with BSC reporting. Although some of the information contained in BSC comes from ERPS, there are usually a number of sources of information other than ERPS. Hence, it currently appears that ERPS provide some of the information contained in BSCs, although BSCs are maintained
outside ERPS. Therefore, we may say that ERPS have not yet had a major influence on the development of BSCs.

*Other strategic management accounting implications.* Another theme vividly discussed among accounting scholars during recent years is strategic management accounting. Although it would appear at first sight that operational data processing in ERPS and strategic management accounting would not have much in common, two interesting observations were made. One of the managers interviewed (F) explained that their adoption of ERPS was partly made on the assumption that ERPS would dominate operational data processing throughout the whole value-chain. Hence, having similar systems throughout the whole value chain may help to speed up information flows. Although this is not to say that ERPS would then enhance strategic management accounting, analyses similar to some of the strategic management accounting may play a role in justifying ERPS investments. Moreover, faster information flows may allow more timely management accounting to be conducted than before the era of ERPS. Yet another interesting notion regarded target costing. In one company (J), ERPS had helped new product development by allowing cost simulations, even though no definite product structure for the new product was available yet. Cost simulation possibilities in the production development phase may strengthen the role of management accounting in this important field.

*Budgeting and forecasting.* As far as more traditional management accounting tools like budgeting and forecasting are concerned, only fairly minor changes have taken place. Forecasting was said to have become more accurate after the introduction of ERPS by the representatives of one company (D). Moreover, one company (A) claimed that the ERPS enabled them to implement rolling forecasting globally. Budgeting was done in the ERPS environment in four companies, while in the rest various other tools like spreadsheets and Hyperion were used. Our interpretation is that the choice to operate budgeting in a separate system is mostly related to the functionality and quality of existing tools.

There was one large organization (G) where every business unit was free to choose whatever ERPS they considered suitable. This is understandable, as the business logic between various parts of that organization varies quite a lot. As not all units use the same ERPS, budgets cannot be consolidated in a single ERP. Hence, it is reasonable to use the existing system for consolidation. While the consolidation may have become easier in some organizations, the content, or process of budgeting has not changed due to the introduction of ERPS. One company (H) had abandoned budgeting in its conventional form, but this was not related to ERPS implementation. We may conclude that ERPS have had some implications for enhanced forecasting, but only a limited effect on budgeting.

*The indirect impact of ERPS on managerial control*

Although ERPS seem to have a limited impact on the measurement systems used, or budgeting as such, the accountabilities and control in organizations may change due to the impact of ERPS on organizational structure or the division of tasks between the units. In one company (G), the introduction of ERPS led to formation of a new division. This was decided as a result of an in-depth analysis of the operations to be configured into ERPS. The new division will inevitably mean...
new accountabilities for those responsible for this new entity, irrespective of the means used to control the unit. In other words, ERPS may change the control and accountabilities in organizations, but not necessarily the means to implement these controls, i.e. management accounting.

In another company (E), ERPS facilitated a move from an organizational form consisting of pure business units specializing in a certain type of products to a company that makes various types of products in most business units. To optimize such an integrated production environment, some of the authority concerning what to produce and in what quantities was shifted from units to the corporate management. Business units are still responsible for profits, although some of their autonomy concerning their ability to influence profits was lost. Hence, there was again basically no change in the management control tools used, although responsibilities were changed in the context of ERPS.

The implementation of ERPS is frequently seen to demand business process developments, or re-engineering, as well. This may lead to process management (see e.g. Armistead and Rowland, 1996). Quite surprisingly, out of the ten companies we interviewed only two indicated that their ERPS project was clearly connected with a BPR initiative. Most of the respondents regarded changing IT systems and business processes simultaneously too challenging: 'ERPS implementation and improvement of operations do not fit together...it is a too big a bite to digest at the same time' (Logistics Manager, J). Two companies (A, D), indicating their ERPS project was connected to BPR, mentioned logistics problems as one reason for adopting ERPS. These were mainly businesses that were growing fairly rapidly. Old systems were inadequate to handle growth, leading to poor schedule accuracy and increased inventories. In one of these companies (D), BPR was done before the ERPS project. In another (A), logistics were developed in various projects not closely connected to the ERPS project. ERPS was then supposed to support the new model of doing business. In addition to these two organizations, there was one more organization (B) in which BPR took place before the ERPS project. In sum, adoption of ERPS does not seem to lead to business process re-engineering, nor does BPR seem to promote ERPS adoptions. However, minor changes in how some things are done have been made in most companies.

An additional observation concerning managerial control in large diversified companies relates to the choice among ERPS. Recall that one of the companies (G) emphasized that every major unit is free to choose whatever ERP they find suitable. The corporation will not push units to adopt a single system, the reasons being the diverse types of businesses and the fact that for every piece of software 'there needs to be someone who pays the bill' (Project Manager). This reflects clear profit responsibility. But it also shows that ERPS do not have an impact on the management control exercised by the headquarters of the major businesses in this case.

In sum, our evidence suggests that there has been no major direct or indirect impact so far by ERPS on management accounting and management control systems of a firm. Though in a couple of cases some changes have taken place with regard to organizational autonomy and responsibilities, these changes have not led to changes in the logic of the management accounting and control techniques in use. It appears that so far, the greatest benefits of the new systems for accounting imply enhanced mass processing of documents. As one Site Controller (H) put it, 'integration as such has had little significance regarding management accounting... by and large, ERPS facilitate
processing of the document mass’. In addition, the same person concluded, ‘we still talk too much about the new system instead of the potential for doing financial analyses in new ways’. The true decision support has thus remained limited. Similarly, we do not observe major shifts in managerial control systems due to ERP implementations. One of the main reasons for companies not including sophisticated management accounting tools in ERPS lies in the current ERP system complexity (technical, functional-economic explanation). Current management accounting tools such as ABC and BSC do not seem to work well within current ERP-system versions. It appears that special software for ABC and BSC is more user-friendly and flexible regarding analysis and reporting. Moreover, in some ERPS there is practically no such functionality or coding structure to build these tools conveniently into the system (cf. Maccarone, 2000; Willis, 2001). We can thus again find a functional-economic reason underlying the observation. However, ERP-vendors are reducing the gap to special software vendors, as they are introducing new SEM-products to be connected to the basic ERPS. Another reason for the limited impact seems to be the colossal amount of implementation work needed for even basic functionalities, which represent a functional-economic explanation. The implementation processes are long and the business reporting issues seem to drag behind the initial configurations with a time lag of a couple of years. Still, even in the two cases where the ERPS was purchased as a pure accounting tool, the new system has had no effect on the logic of management accounting.

The direct impact of ERPS on management accountants’ work
Changing role and new challenges. Our second research question asks what are the implications of the new systems for the management accounting profession. First of all, data integration has meant a decrease in multiple data entries and the work involved in consolidation. This is largely due to the fact that data are entered only once in the shared ERPS database. The ERPS implementation has (though partly together with some other influences) directed more attention to the processes of management accounting, elimination or increasing the automation of internal transactions, analysis of information needs and redesign of reports, and the design and implementation of new system interfaces. The last issue refers to the fact that not all (if any) management accounting tools are operated within ERPS. Therefore, management accountants have to work on—in addition to the development of the management accounting tools (e.g. ABC, BSC, reporting tools) as such—the interfaces between the separate solutions and the ERPS.

Integration has also had some other direct, though more general impacts on accountants’ work. What our interviewees emphasized was that many of the implementation problems become visible and accumulate for the team working with the accounting module. The role of the accounting department as the nerve centre of the firm is emphasized. For example, problems and faults in the configuration of the sales and distribution module may be invisible to that team, but become visible in the accounting module as the invoicing process is being configured: ‘All the trash

As far as financial accounting work is concerned, more substantial changes towards process orientation were observable in some cases (B and E). For example, in case B an accountant had earlier dealt with all kinds of financial accounting issues of one subsidiary. After the ERPS implementation s/he concentrated only on the accounts payable and receivable process throughout the whole company.
becomes visible in the accounting department, since we are the ones who detect all the errors’ (Controller, B), and ‘problems accumulate in the accounting function because it plays a mediating role’ (Site Controller, H). This issue is related to the financial accounting module, but it may possibly also have some implications for the work of management accountants if they have to participate in discussions where technical problems are to be solved.

In general terms, the ERP-implementation experiences of accountants demonstrate the need for a good understanding of the business, management and accounting processes, and communication and team working skills, especially because implementation necessitates a lot of cross-functional cooperation. The need for these talents is further enhanced due to the fact that ‘the ERPS project never ends…it is always ongoing, now and in the future’ (Development Manager, F). The role of accountants in implementing and developing ERPS varied across the case firms. Whereas in some cases their intervention was limited only to accounting issues, in other cases accountants were also responsible for larger process complexes and also had an important role in the system selection. While in all cases senior accountants had a major education responsibility within their function, in two cases accountants were also responsible for teaching more general ‘audiences’ about non-accounting ERPS issues. This variance can be explained with purely contextual issues. The role of management accountants ranges in the case firms from that of ‘bean-counters’ to more business-oriented roles that expand the book-keeper and watchdog roles: consultant roles, educator roles, membership in managerial teams (see e.g. Granlund and Lukka, 1998a). The same variation applies to their competencies, responsibilities, and attitudes towards change.

The general role change of management accountants has recently been a topic of much writing (e.g. Kaplan, 1995; Cooper, 1996a,b; Granlund and Lukka, 1998a). Practice analyses of management accountants’ work (e.g. Siegel and Sorensen, 1999) also testify to the trend of and need for a change in job description, often comprising the notion ‘from bean-counters to business analysts’. Our working hypothesis in this regard was that ERPS would give controllers more time to devote to business support, i.e. more sophisticated analyses. Indeed, this has been the target among management accountants in all of the firms studied, including the two firms where only the accounting modules were implemented. However, realization of this has remained something to be reached in the future in half of the cases studied. The reason for this seems to be a functional-economic one; system implementation and development, and also securing the reliability of basic accounting functions take quite a while in ERPS projects. Those firms with longer experience of the system have already been able to take advantage of the new system in this respect; the role of accountants has expanded towards more active, business-oriented roles. For the rest of the companies ERPS is still used mainly for improved processing of the document mass.

The organization of the accounting function. Regarding the organization of the accounting function, we can conclude that ERPS implementation has so far caused only a few changes in the organizations studied. Shared service centres (SSC) (see e.g. Malcolm, 1999), for instance, have been introduced together with ERPS in only one case (G), as far as management accounting tasks are concerned. A SSC dealing with financial accounting tasks has been established in one company (A). This observation seems
to be best explained by the fact that the firms have neither been aware of the idea
of SSCs, nor have they had time to consider such reorganizations and their bene-
fits. As to centralization *vis-à-vis* decentralization in general, it appears that the ERPS
has mainly driven companies towards centralized coordination of data processing.
Centralization has, however, also taken place in some cases with regard to specific
finance functions (e.g. accounts payable and receivable, and payment transactions).
But, concerning specifically management accounting functions, the question of how
to organize the management accounting staff is largely unrelated to the ERPS imple-
mentation, and is more closely related to decisions concerning the organization struc-
ture of the firm as such.

At this point, it would be useful to consider the future role of accountants in
firms using ERPS. On the one hand, due to ever-increasing automation there is less
need for accountants to handle routine tasks. Some of them are needed in more
analytical tasks, while others will be laid off. In half of the case companies, some
accountants had already been trained for more analytical tasks as their earlier tasks
had been automated by ERPS. In two firms (B, D) radical layoffs of accounting
personnel were carried out for the same reason. The promise that managers will
have unlimited opportunities to create their own reports is also worth further
pondering. The amount of data stored in the integrated system is huge. It is true
that with advanced on-line analytical processing (OLAP) tools it is possible to
process the data in many ways. However, our study showed that in most cases
managers do not have the skills and/or time for this. It seems that accounting experts
will always be needed for information production: in the transformation of data
into information and ultimately knowledge (see also Granlund and Salmela, 2000).
Furthermore, management accounting tasks as such do not seem to be devolving to
non-accountants. The non-accountants we interviewed or spoke with never indicated
that they would now perform management accounting tasks.

Discussion and conclusions

The purpose of this field study was to map the effects of ERPS technology on
management accounting practices. The results are summarized in Appendix 1. One
of the main results of this study has been the fact that so far ERPS, contrary
to many expectations, seem to have had little impact on both the management
accounting methods and managerial controls used. In most of the cases studied
advanced management accounting techniques—and many of the conventional ones,
too (e.g. annual budgeting)—are operated in separate systems. We observed changes
in organizational structure and lines of responsibilities in some of the companies.
The methods of control, however, were not affected and there were also only minor
effects regarding the use of existing control systems. This is surprising, as it is
generally assumed that at least some sort of changes, be they replacement of methods
or e.g. intensification in the use of existing control systems, would take place.
At least the *potential* of ERPS to alter management accounting even substantially
has been pointed out many times, or expected on the basis of survey material
(e.g. Chapman and Chua, 2000); see recent surveys on the future of the profession
conducted by IMA and CIMA, and by Malmi *et al.* (2001, for example). ERPS have
in some cases left management accounting professionals with more time for analysis
instead of routine tasks. Therefore, we suggest that the overall effects of ERPS on management accounting practices seem to be modest. Moreover, those effects appear to be inconsistent across organizations; two similar ERPS projects do not exist.

How do we explain the relatively minor impact of ERPS on management accounting practices? We cannot conclude that management accounting was ‘perfect’ in the companies studied, and therefore should not have been changed. In all the companies studied there were many aspirations to develop management accounting in both technical and process terms, and the potential of ERPS in this regard was referred to continuously. Moreover, we do not claim that there were no developments in the management accounting of the organizations studied in the ERPS era—we just argue that the impact of ERPS on these developments has been modest (refer to Figure 1). Hence, the explanation for this minor impact of ERPS on management accounting is to be sought elsewhere.

First, integration—as was described earlier in this paper—can be both a promise and a peril. Because the implementation of an integrated ERPS is a complex puzzle where some parts have to wait until other parts are first put in place (and then these other parts have to wait for reworking and so on), ERPS implementation processes are typically quite long. Many of the companies interviewed in this study were in a fairly early phase of their implementation. There is lot of functionality that needs to work well in order for a company to keep up with its basic activities and to meet legal requirements. Hence, such value-adding features as management accounting do not have first priority when such systems are built. Perhaps their time will come. Still, as such changes were not even planned at this stage, it is unlikely they will be implemented in the (near) future. Building a new platform, and not jeopardizing it by adding extra complexities in the first phase, seems to be a dominant logic in organizations.

Second, the complexity and modest quality of certain functionality of current systems seems to hinder the introduction of more sophisticated applications such as ABC into ERPS. Not until now have there been integrated modules to support various types of managerial needs. The fact that management accounting tools included in ERPS do not offer such user-friendly functionality as the most sophisticated accounting software may make accountants reluctant to promote ERPS adoption. According to Hyvönen’s (2000) survey results, accountants have preferred investments in stand-alone software to ERPS when they have been involved in information system development projects. In conclusion, it seems that the best part of the relatively small impact of ERPS on management accounting can pertinently be explained in functional/economic terms (DiMaggio and Powell, 1983; Granlund and Lukka, 1998b). This would also be one of the main questions for further research: is the limited impact of ERPS on management accounting a more general observation and if so, is it to be explained by long project times, scarce resources and system complexity?

It is interesting to note that factors such as system complexity, interface problems and long project times, which are suggested here to explain the relatively minor impact that ERPS have on management accounting, have been associated, together with other factors, with information system implementation failures in the earlier IS literature (see e.g. Lyytinen, 1987). We would like to differentiate this study from those earlier IS implementation studies as we do not necessarily consider this minor impact of ERPS on management accounting as a failure. Our aim was not to study the success or failures of ERPS. This research set out to study whether there are impacts
on management accounting, as assumed in the previous literature. As we could not clearly outline at the outset of this study what sort of changes we should expect, the observation that there are only minor and inconsistent impacts may not be regarded as a failure.

Another interpretation for our observations, taking a different perspective on change and continuity, suggests that ERPS may actually have had a stabilizing effect on management accounting practice and its development. Instead of analysing effects only in terms of changes, we can also identify effects in terms of whether the new technology maintains prevailing practices. Although we cannot know how management accounting practices would have evolved without ERPS in the case companies, our findings suggest that ERPS may have played a stabilizing role with regard to the innovative development of up-to-date management accounting systems. One explanation for this could be the functional-economic fact that the very laborious ERPS project turns attention away from other important development initiatives. Again, it is a task for further research to determine whether accounting developments have been more modest in organizations adopting ERPS than in non-adopting ones and if so, is it the functional-economic explanation suggested here that explains this relative stability of management accounting among ERP adopters.

The only notable changes that we observed in the practice of management accounting vis-à-vis ERPS related to the role of management accountants. ERPS projects seem to drive, among other things, the role change of management accountants discussed earlier. In economic terms, ERPS have reduced, or are going to reduce, the amount of routine work related to transaction handling. ERPS have in some cases already facilitated a shift from routine work towards more analytical work, i.e. accountants have more time for performing value-adding activities related to managerial control and decision-making. Other factors driving the role change include, among others, institutional factors such as accountants’ professionalization (networking, etc.) and up-to-date university research and education (Granlund and Lukka, 1998a, b).

It is also evident that the new technology has effects on the organization of accounting activities. We already have evidence for the enabling role of ERPS as companies establish financial SSC to provide more effective accounting activities with lower costs and better quality (Beretta et al., 2000; Fahy et al., 2000). The studies made so far testify that such reorganizations are largely economically motivated. Also, it seems that, so far, the established SSCs deal only with financial accounting activities, while management accounting is left to the operating units (Tuomela and Partanen, 2000). Thus, this phenomenon relates back to the discussion of the role of management accountants. Also, the SSC trend seems to support the objective that management accountants increasingly concentrate on better managerial support. More research is also needed in this area, as we still know relatively little of the processes, benefits and problems related to these developments. Of particular interest is how organizations use the time and resources of accountants made available by ERPS; are resources actually used for better managerial support or do organizations go for cost reductions by lowering headcount?

Let us next consider a few more issues that might prove fruitful avenues for further research. At a general level, what ERPS technology brings about is real-time reporting.

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6E.g. Giddens (1979) points out that every analysis of change must also include an account of stability and continuity, which ensures the connection between past, present and future.
of factual data (Cooper and Kaplan, 1998). Many authors have related this potential of ERPS explicitly to the uncertainty stemming from the current turbulent operating environment surrounding companies (e.g. Cooper and Kaplan, 1998; Davenport, 1998). For example, Wallander (1999) has argued that Swedish Handelsbanken has succeeded by abandoning budgeting and relying on an information system, though not really an ERP-system, that provides timely data for decision-making. ERPS systems providing real-time ‘facts’ concerning the current situation, combined with a less predictable trend in a number of industries, may actually lead to changes in conventional modes of budgetary control. Whether this will happen, and if not why, are questions for further research.

Embedded in the above discussion is also the issue of management by facts. This refers to the general role of accounting systems in reducing the space for intuitive decision-making. As the capacity to store, collect, and analyse data increases, the potential to report multidimensional information increases. Thereby, corporate management will be able to increasingly rely on factual data produced with the new technology. One of the most interesting research questions relates to the fact that managers have long received and produced more information than they can use. However, most discussion and literature regarding ERPS ignores the user perspective. It seems evident that the new technology cannot remove impediments to information usage that derive from human and social issues (see e.g. Mintzberg, 1975). The question then remains, are ERPS any different from the earlier attempts to solve managerial problems by building new information systems? Also, we may ultimately question whether the nature of managerial work actually changes due to the adoption of the new technology (see Mintzberg, 1980)?

Based on this study, it seems that overall, ERPS are not driving the adoption of new accounting and control techniques (see also Booth et al., 2000). This may change, however. The introduction of so-called SEM modules may provoke companies to adopt methods that they have not used earlier. We have evidence suggesting that ideas of technical renewals tend to come via a number of routes. The role of institutional forces in this respect appears important. These forces are realized through consulting operations, executive and university education, imitation of leading companies’ operations, and professional networking (Malmi, 1999; see also Abrahamson, 1991). An interesting issue for further research is whether the offerings of ERP vendors, like SEM modules, will convert themselves into institutional forces. In other words, as SEM packages start to be a part of a normal ERPS offering, will this induce companies to change the logic of their accounting and control practices? Given the complexity and costs associated with any ERP module implementation, it would be difficult to claim that such adoptions are based on low cost, i.e. the economic explanation for adoption. Or will it turn out that ERP vendors’ SEM modules will not be adopted and the more advanced management accounting and control functions remain in separate systems? Should this turn out to be the case, the obvious question would be why.

Further analysis, based among others on longitudinal in-depth methodologies, is needed concerning the connection between ERPS and management accounting change and continuity. Only after a few years can we draw conclusions on this

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7 For the economic and institutional drivers of management accounting practices, see Granlund and Lukka (1998b).
issue. Analysing accounting praxis as institutionalized routines could turn out to be fruitful with regard to an understanding of the very nature of management accounting change and continuity (Burns and Scapens, 2000). Such analysis of institutionalization turns attention to the process through which accounting change takes place or does not take place. However, we should not overlook rational behaviour and economic explanations in this context. Our observations indicate that the reasons for the fact that ERPS adopters have not used the new technology—admittedly containing much potential—in their attempts to develop management accounting can best be explained by economic factors (e.g. system complexity and lack of resources). Such factors as organizational resistance, corporate culture, or the like seem to have less explanatory power in this case. Whether the explanation for limited impact of ERPS on management accounting suggested in this study applies elsewhere, and will be valid in later phases of the ERPS era, remains to be studied.

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References


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8One question to consider in further analyses is what is to be regarded as change. Maccarone (2000) claims in his field study of Italian companies that the implementation of ERPS (SAP R/3) has led to refinements of management control activities. While not questioning that such changes have taken place, it is a relevant question to ponder their meaning and importance in the future. In fact, our findings seem to imply more changes than we currently suggest. However, we have not regarded small changes, refinements without any impact on the logic of accounting, as true changes.


Cooper, R., 1996b. Look out, management accountants (Part 2), Management Accounting (US, June), 35–41.


## Appendix 1

Basic characteristics of the ERPS-projects studied.

<table>
<thead>
<tr>
<th>Case</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ERPS</strong></td>
<td>SAP R/3</td>
<td>SAP R/3</td>
<td>SAP R/3</td>
<td>SAP R/3</td>
<td>SAP R/3</td>
</tr>
<tr>
<td><strong>Motivation</strong></td>
<td>Logistics problems</td>
<td>System heterogeneity, Y2K</td>
<td>Overall obsolescence of the old accounting IT</td>
<td>Logistics problems, fragmented IT platform, Y2K</td>
<td>Part of reformulation of business strategies, old obsolete systems, Y2K</td>
</tr>
<tr>
<td><strong>Explicit objectives</strong></td>
<td>Solution to logistics problems: integration, world-class fin. functions</td>
<td>IT infrastructure simplification, integration</td>
<td>Overall renewal of accounting IT</td>
<td>Integration and reduction of complexity, centralization, (globally launched by HQ)</td>
<td>Standardization, integration, centralization</td>
</tr>
<tr>
<td><strong>Main modules (so far)</strong></td>
<td>Logistics, materials mgt., production planning, accounting</td>
<td>Logistics, materials mgt., production planning, accounting</td>
<td>Accounting</td>
<td>Logistics, materials mgt., production planning, accounting</td>
<td>Materials mgt., maintenance, accounting</td>
</tr>
<tr>
<td><strong>Accounting sub-modules (so far)</strong></td>
<td>GL, accounts payab./rec., cost centre acc., profit analysis</td>
<td>GL, accounts payab./rec., costing, cost centre acc., PC-acc., capital asset mgt., budgeting</td>
<td>GL, budgeting, profit analysis, cash flow acc.</td>
<td>GL, accounts payab./rec., PC-accounting</td>
<td>GL, basic budgeting procedures (not consolidation)</td>
</tr>
<tr>
<td><strong>Other accounting IT tools</strong></td>
<td>Hyperion, spreadsheets</td>
<td>Old retail systems, spreadsheets</td>
<td>Old retail systems, spreadsheets (e.g. BSC in Lotus Notes)</td>
<td>Hyperion, spreadsheets</td>
<td>Hyperion, Gentia, spreadsheets</td>
</tr>
<tr>
<td><strong>Direct impact on MA and control</strong></td>
<td>ERPS enabled move to rolling forecasting globally (ABC not in ERPS)</td>
<td>Faster reporting in general (ABC project to be launched)</td>
<td>More flexible reporting for division needs (ABC not in ERPS)</td>
<td>General improvements in forecasting activities (ABC not in ERPS)</td>
<td>None (ABC not in ERPS)</td>
</tr>
<tr>
<td><strong>Indirect impact on managerial control</strong></td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>ERP seen as inflexible: local information needs suffer from centralization</td>
<td>Changes in the autonomy of business units</td>
</tr>
<tr>
<td><strong>Impact on accountants’ work</strong></td>
<td>Target: less routines (partly realized already), first: better quality of information, SSCs built/to be built, enables acc. with lean staff, easier to answer ad hoc queries</td>
<td>Target: less routine, partly process oriented accounting</td>
<td>Target: less routine</td>
<td>Lean accounting staff: great help in routines, more time for analysis now, people transferred to financial planning activities</td>
<td>Overall rationalization of acc. activities: more time for analysis, total integration of acc. activities: process orientation</td>
</tr>
</tbody>
</table>
## Appendix 1 continues

<table>
<thead>
<tr>
<th>Case</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>J</th>
<th>K</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERPS</td>
<td>SAP R/3</td>
<td>SAP R/3</td>
<td>SAP R/3</td>
<td>Oracle</td>
<td>SAP R/3</td>
</tr>
<tr>
<td><strong>Motivation</strong></td>
<td>Y2K in corporation level, logistics handled with tens of different systems</td>
<td>Earlier systems tailored, no experts available, business growing and changing</td>
<td>Merger, one company approach; BPR</td>
<td>Obsolescence of the old system, Y2K, euro</td>
<td>Obsolescence of the old accounting information system technology</td>
</tr>
<tr>
<td>Explicit objectives</td>
<td>Launched by HQ, integration</td>
<td>Platform change</td>
<td>Savings in operations and automation of activities, strong IT expertise</td>
<td>Integration, standardization, EDI</td>
<td>Solely updating of accounting IT</td>
</tr>
<tr>
<td>Main modules (so far)</td>
<td>Logistics, materials mgmt., production planning, accounting</td>
<td>Logist., material mgmt. prod. planning, quality mgmt., project mgmt., accounting</td>
<td>Logistics, materials mgmt. Production planning, accounting</td>
<td>Logistics, materials mgmt. production planning, accounting</td>
<td>Accounting</td>
</tr>
<tr>
<td>Accounting sub-modules (so far)</td>
<td>GL, accounts payable/rec., PC-accounting, profitability analysis</td>
<td>GL, accounts payable/rec., asset mgmt., cash mgmt., budgeting</td>
<td>GL, accounts payable/rec., fin. reporting, cash mgmt., cost centre acc., ABC, project acc., profitability analysis/reporting</td>
<td>GL, accounts payable/rec., costing, asset mgmt.</td>
<td>GL, accounts payable/rec., invoicing, product costing, profit center acc., managerial reporting, project costing</td>
</tr>
<tr>
<td>Other accounting IT tools</td>
<td>Retailed systems, spreadsheets, DW</td>
<td>Consolidation of group companies done in Intime, spreadsheets</td>
<td>Hyperion, Access, spreadsheets</td>
<td>Retailed systems, Hyperion, spreadsheets</td>
<td>ORAS, spreadsheets</td>
</tr>
<tr>
<td>Direct impact on MA and control</td>
<td>Practically none, expected customer profitability analysis a disappointment (ABC not in ERPS)</td>
<td>Former sales reports by product groups, now e.g. by market areas, ABC expected in next version</td>
<td>Reporting problems, ABC model transferred into the ERPS with a lot of effort</td>
<td>Cost simulation possibilities better in helping new product development</td>
<td>Functional working accounting system supporting fast growth, reporting; faster, standardized and cleaner (ABC not in ERPS)</td>
</tr>
<tr>
<td>Indirect impact on managerial control</td>
<td>None</td>
<td>New division (3–&gt;4)</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Impact on accountants’ work</td>
<td>Initially more work, workload in accounts receivable and payable will decrease, hardly capable to move more challenging jobs</td>
<td>Less routines, time for other activities, (SSCs for fin. acc. tasks)</td>
<td>Target: less routine, more work to clear the mess, centralization of many fin. acc. activities to Belgium will change the role of local accountants</td>
<td>Enables the expected faster reporting rhythm (and handling of the increased document mass) with lean acc. staff, less routine, more analysis, improved productivity and communication</td>
<td>Target: less routine</td>
</tr>
</tbody>
</table>