"Performance measurement - does ERP systems measure up?"

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ARTICLE INFO	Krister Bredmar (2011). Performance measurement - does ERP systems measure up?. *Problems and Perspectives in Management*, *9*(3)
RELEASED ON	Tuesday, 29 November 2011
JOURNAL	"Problems and Perspectives in Management"
FOUNDER	LLC "Consulting Publishing Company "Business Perspectives"

NUMBER OF REFERENCES	NUMBER OF FIGURES	NUMBER OF TABLES
0	**0**	**0**

SECTION 2. Management in firms and organizations

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Abstract

The development of performance measurement methods and integrated information systems, such as enterprise resource planning (ERP), can be seen as being mutually dependent on each other. In light of this, it is interesting to study the extent to which modern ERP systems are capable of providing management control and performance measurement users demand for information. This study focuses on describing the areas that management control and performance management needs access to information and the extent to which ERP systems are able to provide the information. The study begins with an examination of the areas that are essential for modern management control and performance management. It, then, continues by comparing these areas with four major ERP systems. The result shows that most of the software suppliers work with pre-defined software packages and the unique needs of businesses (demand) come secondary.

Introduction

Efforts to develop performance measurement in organizations today has largely become a matter of defining information need. This development, which started with the concept of Balanced Scorecard, for the past 20 years have focused on the process to identify the key areas of the company. These key areas, largely based on non-financial dimensions, are then compiled to form the basis for management planning and decision making. A first step to performance measurement within an organization is to understand which areas are critical to the operation's long-term success. Then develop ways to measure the extent to which operations are performing as planned. Organization's long-term development is then focused on defining the areas where critical information gathering is needed; information that will form the basis for planning and decisions. The development of performance measurement in a business is, therefore, largely a question of defining the management information needs.

Computerized information systems have made an increasing amount of data available. The treatment of large volumes of information can be described with the help of a market metaphor. The systems offer the user data and the internal needs of the various functions, such as planning and monitoring, form a requirement, which can be identified as a basic market condition of a supply and demand. The system vendors emphasize computer programming ability to provide the user with information while the user develops an understanding of what information is needed or advisable. Here two conflicting forces and interests are identified. The software providers who want to sell a standardized package and the users within the organization who have a

unique information need. The computerized systems offer great opportunities in terms of access to a wealth of information, but presented and packaged in ready-made information system. At the same time developing the end-user requires an understanding of how they look at performance measurement within the organization.

Developing performance measurements and large information systems are in different ways dependent on each other (Emmanuel, Otley and Merchant, 1990). Performance measurement is dependent on a continuous access to relevant information. Information systems have gradually come to act on issues based on management's challenges. The work with modern management tools such as the balanced score card requires advanced information in order to function (Olve, Roy and Wetter, 1999). The integrated information systems, such as ERP systems, have the properties and the ability to conduct advanced planning and decision-making that can clearly be related to performance measurement. The work with developing performance measurements creates criteria for what information is needed. The development of information systems creates the conditions to satisfy the information needs of management. This approach is in itself nothing new, Rockart (1979) studied executives information need under the concept of Critical Success Factors. However, the evolution has created increasingly complex systems and has provided the conditions for modern management in general and performance measurement in particular.

In light of this, it is interesting to study the extent to which modern information systems are capable of satisfying performance measurement requirements for access to information. Its goal is to compile quantified reports of what a business has performed. Information systems, such as ERP systems, are to a large extent standard system, which is then modified

to suit a particular operation (Alter, 1999). The systems must, as far as possible, integrate and manage the information handled in a business. This study focuses on describing areas in which performance measurement needs access to information and the extent to which modern information systems are able to provide the information.

1. Key performance measurement areas and ERP systems

Traditionally management accounting and control has largely focused on measuring variables that can be expressed in financial terms. Criticism by Johnson and Kaplan (1987) and others led to that much of the planning and follow-up, today, are more about the variables and areas that are not primarily measured in financial terms. This leads to a challenge faced by information systems developers. Traditionally information systems have handled large amounts of transactions, mainly based on the accounting, while today's managers are more interested in information about non-financial measures.

1.1. Performance measurement. Several areas are of interest to study each being critical for the success of the business in one way or another. The main challenge is to be able to quantify information that has not been previously quantifiable and to have it provide continual updates. There are some areas that have attracted different authors' interest when it comes to non-financial performance measurement. These areas will be presented in the following section and will be the basis for the analysis of the different ERP systems.

1.1.1. Processes. A business can be described as a process that consists of a number of activities (Alter, 1999). Processes and activities can then be the basis for an assessment of how effective a business is (Hee Han, Gu Kang and Song, 2009; Lam, Ip and Lau, 2009). In the next step the process can be used to understand how value is created, for example in models like the value chain (Porter, 1985) or how the performance in an supply chain can be measured and evaluated (Bhagwat and Kumar Sharma, 2007). Planning and control of processes is also a natural starting point for discussing other areas of management such as accountability and decision making. The organization is then divided into different areas or units each having responsibility for a particular process and where different managers have decision-making authority (Anthony, 1965; Emmanuel et al., 1990). Decisions and responsibility can then be evaluated based on what the process has performed.

1.1.2. Customers. Each business has a purpose, which in a profit driven organization is, to get customers to pay for a product or service (Chi and Gursoy, 2009). There are other ways to look at a business, especially, if the priority isn't about creating a profit. However, even in these cases the major task is to manage some kind of resource where the customer is understood as a value, a customer capital (Yang and Kang, 2008). Ultimately, it is the customer who decides whether a business is successful or not. If the customer is interested in a product range and/or a service being offered, it is very important that the customer's perspective is a part of the performance measurement. The customer's behavior can be a way to follow up performance. If the customer returns or if the customer chooses to buy a larger volume, it is a good score of how the business is performing (Keramati, Mehrabi and Mojir, 2010). If, however, the customer makes complaints it can also be the basis for an assessment of how the business is performing. Customer behavior, relationship and value, is an important area to monitor and evaluate for most businesses (Richards and Jones, 2008; Spiteri and Dion, 2004).

1.1.3. Quality. To retain a customer and to attract new ones, the company must be consistent in terms of its product quality, services and price. There may be several other reasons why a customer will return or why the company's new products are selected, such as lack of competitors or habit or established traditions. But in a market where various goods and services are offered there is also a movement between different suppliers which makes consumers perception of quality crucial (Brady, Cronin Jr. and Brand, 2002). It is, therefore, important for a company to follow up and measure quality so that the customers experience what they have been promised. The quality can be measured in several stages and classes (De Toni, Nassimbeni and Tonchia, 1995). In the first stage the quality of the incoming resources, including raw materials, can be assessed. Then the quality of a production process can be monitored and finally the product or service overall quality can be assessed. The quality then becomes an expression of the business performance with the help of its production process (Kaynak, 2003).

1.1.4. Financial perspectives. Although the financial perspective has been criticized, it is still a very important part in the evaluation of a business (Epstein and Birchard, 2000). Modern management accounting and control has, in many cases, chosen to emphasize a non-financial perspective. This can be understood as a reaction to the fact that there has been a strong emphasis on the financial perspectives in the past. Non-financial variables need to be developed but the profitability and the relationship between assets and debt is still one of the most important ways to evaluate how a business has performed. Working with performance measures also stimulates better financial results (Davis and Albright, 2004).

The financial perspective is still a very important base for how a business is to be evaluated and how their sustainability is to be judged.

1.1.5. Strategy. The core of a company's operations is the long-term strategy the company has chosen to work with (Macintosh, 1994). For many companies this may be a strategy that is not always explicit or clear, but it still exists in order to manage the business long term. For modern businesses it has become increasingly important to formulate and express a strategy that can be worked with and translated into short-term goals (Gimbert, Bisbe and Mendoza, 2010). The strategic work needs to be grounded in the organization and in their daily work (Abernethy, Horne, Lillis, Malina and Selto, 2005). This is something new because traditionally the long-term strategic aims have been something that the top-management, exclusively, have been working with (Anthony, 1965). Gradually, when the responsibility for the work with the strategic aims have become a task for lower level operations and management, it has become important to be able to monitor and revise strategies continuously. This makes the core of a business, its strategy, gradually adaptable to the changes taking place around a company and its activities (Fleming, Chow and Chen, 2009).

1.1.6. Employees. Modern businesses are increasingly dependent on its employees (Nordström and Ridderstråle, 1999). Traditionally fixed assets, to be used over time, were highly valued. Common examples of fixed assets are real estate and machinery. To a large extent accounting deals with how to value and manage these fixed assets. In recent years, a different kind of asset based on the employees has started to be discussed as intellectual capital (Edvinsson and Malone, 1997). This consists of a structural capital and human capital. The skills and knowledge possessed by the staff is crucial to business success. Based on this idea it is also important to be able to monitor how the intellectual capital is performing. This is not just about what the employees are performing, but how to manage employees as a resource and asset. Variables to measure how the employees are performing and how the employees, as resource, are managed is essential to assess how a business as a whole is performing (Ukko, Tenhunen and Rantanen, 2007).

1.1.7. Causal and logical relations. When developing modern performance measurement tools, such as the balanced scorecard, it is based on the assumption of cause and effect relationship, a causal relationship (Abernethy et al., 2005; Olve et al., 1999). Kaplan and Norton (2004) describe this relationship in strategic map where different performances are linked to each other in relations. If you act in a certain way in one part of the business the idea is that you get a cer-

tain result in a different part of the business. In many cases, it is about trying to understand what the critical success factors are and then follow them through different measures, which can be called the "key performance indicators" (Broadbent, 1999). By thinking through and identifying logical links between performance measures, management can derive ways to achieve a certain strategy by breaking it down into smaller components or activities within a business. To achieve a certain overall performance, which should ensure that the long-term strategy is reached, it requires that the previous steps in this process are monitored by means of an active performance measurement (Kaplan and Norton, 1996; Otley, 1997).

1.1.8. Management and governance. The purpose of developing an advanced performance measurement system in a business is that management should be able to plan and control its activities in a better way (Olve et al., 1999). This means that if the performance measurement system itself is to be evaluated, it could be based on the extent it can be tailored for the conditions and requirements of the management (Masquefa, 2008). A particular solution doesn't have a self-purpose but its task is to enable management to better manage with the help of performance measurement. It may, for example, be that the system suits the presentation of the performance after the areas that company management would like to focus on. Another issue is that the information is updated with an appropriate interval, or that it has the level of aggregation so that it won't be to aggregated or to detailed information. The context in which performance measurement should be used is therefore critical to how it will ultimately be designed.

1.2. The enterprise resource planning concept. Over the last 20 years there has been a development of various business software solutions. Early solutions often produced and processed a large amount of transactions thus automating the routine work of a business (Langefors, 1995). The work with the day-to-day accounting is a clear example of this. In the next phase, systems were developed that would handle different types of functions within an organization. It would deal with functions such as logistics and personnel management. These systems would make certain parts of the administrative work more efficient, but basically it continued to compile and process large amounts of transactions. Systems developed during the third phase largely have been responsible for integrating the various subsystems, whereby creating a comprehensive business system, e.g., Enterprise Resource Planning systems. Previously, administrative information has focused on different parts or functions of an organization but has now increasingly become focused on the big picture and to develop systems that support a comprehensive approach to business.

As new systems are developed the areas in which they are meant to be used are being developed. In several cases the names and concepts that the systems gets were intended to signal what functions they should have. Such systems were named MIS referring to management information systems; DSS means decision support systems; EIS are executive information systems and BI is business intelligence (Alter, 1999). All of them summarized and presented information in an accessible way, which made it easier for the user to act upon the information. Most of them were systems that created an interface with other systems that stored large amounts of transactions.

This study focuses on general ERP systems that are not about a specific function or a type of storage and processing of data. The systems have an integrated character, which means that they are linking different subsystems, thereby making information accessible through one single interface. These systems can also be described as having an overall business perspective. They should be able to reflect the entire business and the different variables or performance generated. By that they are comprehensive and will cover several different parts of a process and they are complex in nature. A traditional definition of an ERP system is presented by Lee and Lee (2000), an ERP is a "enterprise wide packages that tightly integrate business functions into a single system with a shared database." Another dimension of the ERP definition is presented by Dechow and Mouritsen (2005) "Enterprise wide resource planning systems attempt to integrate all corporate information in one central database, they allow information to be retrieved from many different organizational positions, and in principle they allow any organizational object to be made visible". The ERP solution represents a new way of collecting and presenting business wide information from a variety of sources that makes it vital tool for supporting management tasks.

2. Research design and method

This study aims to compare the requirements of performance measurement when it comes to information supply to the possibilities that advanced ERP systems can provide. The study can best be described in two phases. The first phase summarizes what areas the performance management activities are based on. The materials which constitute the sources are literature and articles on the subject. In the second phase different ERP systems are evaluated through the questions formulated as an operationalization of the theoretical framework. The ERP systems are not compared with each other but rather the evaluation deals with to what extent the needs of the performance measurement ideas are meet. This study's contribution will primarily be focused on (1)

how far the development of ERP systems has evolved compared to the development of performance measurement; and (2) if the new ideas in performance measurement are supported by ERP systems.

A substantial part of text that an organization produces is about how other stakeholders around the organization should perceive them and the products they launch (Atkinson and Coffey, 1997). One way to try to understand the social phenomenon taking place in an organization is based on an analysis of the texts that is produced by the organization (Silverman, 1993). If you want to study the accounting function and the social phenomenon around accounting, one starting point can be to study the accounting records produced in the organization (Coffey, 1994). The text produced becomes part of the reality and the knowledge that the organization wants to create about themselves (Bloomfield and Vurdabakis, 1994). When a text is studied as an expression or an image that an organization wants to present the text in itself becomes a form of empirical data that can be analyzed (Atkinson and Coffey, 1997). The text is presented and communicated as a description that represents what the organization wants to convey.

The software reviewed in this study has been analyzed with the help of textual analysis, based on content analysis and an analysis of semiotics (Silverman, 1993). The simplest form of content analysis is based on word count and identification of different categories, which is commonly used when mass media communications are analyzed. This form of analysis can then be combined with a qualitative text analysis where the contents of a text is analyzed, since words and sentences signal a certain meaning. This form of analysis is based more on a semiotics approach. This study uses a number of key words associated with performance measurement to analyze texts that different software vendors use in order to identify the extent to which their products supports performance measurement.

2.1. The selection of ERP solutions. This study is descriptive in nature. It is based on current research and application in the field of performance measurement and describes how the subject relates to the modern computer systems − ERP systems. In the first stage, it is more interesting to try to describe if there are any relationship, at all, between performance measurement and ERP systems. The selection of software was made with the help of a consultancy ranking, Data Research DPU, where 600 users of different systems rank them. The users were asked to comment on the systems functionality, price, usefulness, and how the suppliers of the systems were perceived. Among the top systems there were two system suppliers that stood out, Oracle with three systems among the five top systems and SAP/R3 primarily based on

their size. In this study, Oracle's three systems and SAP/R3 were included mainly because of the market dominance. However, it is interesting that SAP/R3 only took third place. Sören Janestål, who is in charge of the ranking, stated that there are several reasons why it only came in third. A major problem is that it is a complex system and it is hard to adapt to an organization. Usually it is hard to integrate SAP/R3 with other systems and that makes it slightly less attractive. Another disadvantage is that it costs much more than similar systems according to Janestål. The ERP solutions that were chosen are Oracle E-Business Suite, PeopleSoft, SAP, and JD Edwards World.

2.2. Performance measurement areas and ERP system assessment. The areas which have been presented in Section 1 are the basis for the review of the various ERP systems, which is the aim of this study. Based on the previously described concepts seven questions have been formulated, which is an operationalization of Performance Measurement that can be used to asses the ERP systems:

1. What ways can the processes and activities in a business be described?
2. To what extent can the contribution of a single customer or product be analyzed?
3. How can the ERP systems assess and evaluate the quality of different processes and activities?
4. What financial dimensions are treated?
5. In what ways are the strategic issues visible in the ERP systems?
6. How are the performance by the employees assessed and how is the intellectual capital managed as an asset?
7. To what extent are the logical links between different parts clear?

When asking questions to the written information about the software, an assessment and a comprehensive, more general, picture of the different ERP systems can be described.

3. Comparison of selected ERP systems

The chosen systems will be compared according to the questions formulated in earlier section. Oracle is the "mother" company of three systems. Oracle has over 40000 employees with revenue over US$10 billion and was founded in 1977. PeopleSoft, the second software in the ranking, has 8500 employees with revenues of US$2.2 billion and was founded in 1987. In third place is perhaps the most famous software vendor − SAP. They were established in 1972 with revenues near US$7 billion and 27000 employees. The smallest company in the ranking is JD Edwards One World with 4700 employees with revenues approximately US$700 million and was founded in 1983. Three of the studied systems are managed by Oracle, which puts them in an extreme

market leading position, even though SAP is the most famous ERP solution. An overview of the comparison can be found in Table 1 in Appendix.

3.1. Oracle E-Business Suite. This software is based on a modular system which makes it easier to adjust to different businesses. Oracle has also developed different templates and standard configurations for different branches. The main modules are: (1) Financials: with a heavy emphasis on management accounting tasks but also a vast selection of modern management tools like the balanced scorecard and activity based management; (2) Supply chain management: with planning functions for material and manufacturing; (3) Contracts: which monitors legal documents and contracts; (4) Projects: a more or less traditional project planning module; (5) Human resources: with a variety of employee functions; (6) Marketing: deals with marketing planning and control; (7) Sales: tracks and monitors sales activities; (9) Service: which deals with different kinds of service functions.

At a first glance it seems like there are no clear support for processes or support for connecting activities into business wide processes. The software has support for both activity based management, but only as a small part of the financials module, and also has support for supply chain, but then with a focus on manufacturing. However, it seems like there are plenty of possibilities to trace actions of single customer and sale of a single product from several different perspectives. The quality concept is hard to trace, there doesn't seem to be any module that is dealing with quality assessment and evaluations. When it comes to the financial dimensions there are several different approaches, mostly based on the main financials module. Asset and cash management together with other types of financial analyses are possible to work with. The word planning is repeated in different modules but nowhere is the strategy concept mentioned. In the human resources module there are different options when it comes to managing the employees, even though intellectual capital or similar asset concepts are not mentioned. In the same way as with processes and activities, there is no clear presentation on the ability to work with logical links between different parts of the business. The balanced scorecard concept is mentioned but there are no examples that describes to what extent it is possible to form strategic maps. Even though a module system, with predesigned templates and configurations for different branches, it is meant to be flexible. The system is defined and developed prior to the needs and wishes from managers that will eventually work with it. E-business suite from Oracle is a comprehensive system with number of options but in several areas it doesn't meet the needs of modern management control and performance measurement.

3.2. PeopleSoft. The base for this ERP solution is several applications under the "umbrella" of PeopleSoft. These applications are then built on modules, which can vary depending on the business. Eight of the applications make up the core of PeopleSoft and will be analyzed in this section. There is one traditional Financial Management application that runs the accounting function, such as treasury and financial analytics. It can be closely integrated with the other applications. Another related application is the Enterprise Performance Management that has functions to work with activity-based management and different types of scorecards. The Asset Lifecycle Management application, works with long term assets, deals with planning, acquiring, and maintaining the assets. Several applications are focused on external stakeholders. Customers are monitored and their relationship is supervised through the Customer Relationship Management, similarly the suppliers are controlled through a Supplier Relationship Management application. A wider perspective of the manufacturing process can be handled through a Supply Chain Management application. For the employees there is the Human Capital Management application and for running projects the Enterprise Service Automation. PeopleSoft could easily be described as a collection of applications closely integrated and the applications are built on modules.

Even though there are several applications and modules that address the process and activity concept there is no single function or application that is dedicated purely to a process focus. Customers and products can easily be monitored through applications such as Customer Relationship Management and the information transferred back and forth from other applications. Nowhere is the quality concept addressed even though there might be functions within the Supply Chain Management module that assesses quality. Financials are dealt with in several applications but mainly in the Financial Management application and the Enterprise Performance Management application. Examples of how strategic questions can be worked with is not presented explicitly in any application neither is the work with logical links and relations. However, employees are greatly monitored through the Human Capital Management application, in a way, that gives a slight resemblance of intellectual capital or a human asset view. PeopleSoft is a collection of applications which are predesigned and sold with a focus on a flexible solution. This makes them both adoptable to the needs of management but at the same time not fully developed based on management needs.

3.3. SAP. The most famous ERP solution is probably SAP/R3 which is a complex and huge system. But SAP has also developed solutions for small- and me-dium-sized businesses which make it easier to grow with the software. The solution for small businesses is the SAP Business One and for medium-sized businesses there is MySAP. For this comparison SAP Business Suite has been studied. The suite is based on five integrated but separate application. SAP ERP is an application that integrates four solutions: (1) SAP ERP Human Capital Management: which handles employees; (2) SAP ERP financials, which is the accounting base; (3) SAP ERP operations, which is an application that handles several different functions within a business especially from a manufacturing perspective; (4) SAP ERP corporate service, which is an administrative application. SAP ERP is itself a full ERP solutions with almost every function needed. In addition, SAP Business Suite also has applications for monitoring and working with external stakeholders like customers within the SAP Customer Relationship Management and suppliers within the SAP Supplier Relationship Management. It also has applications for different internal processes focused on products via the SAP Product Lifecycle Management and logistics through the SAP Supply Chain Management. Even though SAP markets predesigned solutions and applications, there are extensive opportunities to develop your own application building on SAP's technology with the help of SAP NetWeaver. SAP has pinpointed some areas or functions that they think are crucial and have developed all applications all which are collected within the SAP Business Suite family.

Several of the applications address different kinds of processes and activities but have a largely logistics focus. There are also several options to follow and monitor a single customer and product in different dimensions. Concepts like quality are not addressed in the applications. One of the applications has a traditional accounting function with different analytical options and multitude of financial opportunities. The strategic perspective and logical connections are not dealt with in an explicit manner. The SAP ERP Human Capital Management application has a module that deals with employees from an asset perspective. SAP markets its standard applications, built on SAP's idea and structure, but it is also open to the ability to develop unique applications for a specific business.

3.4. JD Edwards World. This software package consists of several separate, but fully integrated applications. The JD Edwards World was first developed for IBM which has been a partner for 30 years. It is essentially four applications that make up the core of the package primarily developed for large organizations. The Financial Management application has several of the traditional functions such as General Accounting, Accounts Payable and Receivable, Fixed Assets, Multi-Currency, and more general

functions like Planning and Budgeting. There is also a sales application with traditional functions like Inventory Management and Sales Order Management but also functions that deal with Self Service and Advanced Pricing. The Human Capital Management application is mainly concerned with traditional employee tasks like Payrolls and Time Management. There is also an application that monitors manufacturing with functions like Manufacturing Accounting and Plant and Equipment Maintenance Management. JD Edwards World also has some applications that are unique and aimed at specific businesses or tasks like the Homebuilder Management and the User Productivity.

The JD Edwards World package does not seem to have any support for working from a business process or activities perspective. The monitoring of customers is rather focused around products and internal perspectives like stock, inventory, sales, and order. A concept such as quality is not mentioned neither is strategic tasks or questions. The financial application has a traditional structure with a focus on general accounting, payables, and receivables. The employee application has a rather traditional structure, with a focus on payroll and time management. With a rather traditional approach to information system tasks, there are no signs of discussing logical or causal relations. This could be seen in several of the applications evidenced by its traditional and general structure. Again it should be noted that the package is intended for larger organizations.

4. Performance measurement and ERP systems – a discussion

Working with functions such as performance measurement has, during the past several years, now undergone quite substantive development. One of the easiest signs is that the earlier focus on financial measures have now been challenged with a shift in attention towards non-financial measures and a discussion of how different measures relate to each other. However, this study shows that the traditional measures, mainly concerning financial aspects, is still an area that is well developed and also a major part of large ERP solutions. Another traditional area that has been in focus, for some years now, is the customer and product measures. Three of the packages have applications that are dealing extensively with monitoring customer and products. Even though there has been development concerning non-financial measures the focus on financials is still important (Epstein and Birchard, 2000).

Several performance measurement tools, such as the balanced scorecards, have a clear focus on working with strategic questions (Kaplan and Norton, 1996). In a similar way the development has called for an in-depth discussion and analysis on what kind of casual relations between different units and measures that can be identified (Kaplan and Norton, 2004). Even earlier discussions of value-chains (Porter, 1985) and concepts like Business Process Reengineering (Hammer and Champy, 1993) are based on an understanding of activities and processes that constitutes the business. This is, however, an area that none of the ERP solutions are giving any attention to. There are bits and pieces, especially, when it comes to manufacturing and concepts like supply chains. However, there is no major effort to develop applications that support the work with strategic intent, cause and effect relations, extensive processes, and activities discussions.

Other areas of interest is the ability to work with employees as an asset, for example in terms of Intellectual Capital (Edvinsson and Malone, 1997). In a similar way there has been a need for measuring non-financials (e.g., quality) for some time now. This is just one example of a concept that, in most cases, has a qualitative expression; thereby it is harder to measure in quantitative terms. It needs to be translated into quantitative terms in order to work with systems that are based on information and transaction processing logic. Each of the systems studied have their own way of addressing employee functions. Two of the systems have a fairly traditional approach with a focus on payroll and time management. But two of the ERP packages try to work with a more modern approach. They have alternatives to work with employees as an asset or at least as a human resource concept. None of the systems work with the quality parameter though.

Conclusions

It is quite obvious that large system suppliers have chosen to work in a similar way. They develop a standard system with several applications or modules that when implemented are configured in the way the company wants. This probably has to do with the need to work with larger volumes; not reinventing the wheel each time and the possibility to have something to show a potential customer. It can also be understood as the way software developers work. First there is an idea or a need that can be solved with a computer solution. Then, there is some kind of solution that is released on the market and through promoting successful cases new customers are attracted. During the installation phase the software is modified so that it moderately meets the needs of the business. This is the logic of a supply and demand market. The problems with modern management control and performance management functions are that they have a demand and supply focus. First the needs within the organization are established and then information support is asked for.

Even though system suppliers today work with a develop – market focus the needs from a management perspective is to find a reversed focus.

Crucial business functions like performance measurement have been developing extensively for the past 20 years. It seems much of the effort has been put into deciding what information needs that managers have. These needs have then been summarized and packaged in suitable concepts so that they can be marketed among large companies. Software developers have not hesitated in presenting software applications that are named after the concepts. For example Oracle E-Business Suite has a financial application that supports activity based management and balanced scorecards among several other concepts. However, the key question is if there is any real substance behind the names or if they are a marketing tool to promote the application. The next challenge for those who wants to develop performance measurement even further is to look at how information support can be transformed into a supply function after the demand has been established.

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Appendix

Table 1. Overview of the comparison

Questions	Oracle E-Business Suite	PeopleSoft	SAP/R3	JD Edwards One World
Process and activities	Maybe	Maybe	Yes	No
Customer and product	Yes	Yes	Yes	Customer; no products; yes
Quality	No	No	No	No
Financials	Yes, plenty	Yes, plenty	Yes	Yes, traditional
Strategic issues	No	No	No	No
Employee	Yes, not as assets	Yes	Yes	Yes, traditional
Logical links	No	No	No	No