

ENTERPRISE SYSTEMS MANAGEMENT AND INNOVATION

Impact on the Research Agenda

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Abstract: This paper proposes that ERP-implementation lead to a new post-implementation management challenge: Enterprise Systems Management and Innovation. Enterprise Systems Management and Innovation is a new concept that deals with the management of the enterprise system as a resource, and as a potential for transforming the organization by enabling innovative supply chain processes. The argument is rooted in seven case studies, a survey on ERP adoption and a retrospective analysis on the development of ES. This paper discusses the emerging issues and the implications for management. The paper concludes by outlining the impact on the ERP research agenda.

1 INTRODUCTION

Few IT innovations have had as much impact on business organizations in recent years as Enterprise Resource Planning (ERP). ERP systems are standardized software packages that can be configured to manage every aspect of an organization within any business. Here Enterprise Systems (ES) are used as a more broad and generic term than ERP.

It is estimated that organizations worldwide have spent around USD18.3 billion every year on ES in recent years (Shanks, Seddon, & Willcocks, 2003). The adoption of ERP is often explained as phases or waves (Willis & Willis-Brown, 2002). During the first phase of ERP, the organizations struggle to implement ERP and get the internal processes in place. There has been a lot of interest in and critique of ERP based on this phase, but attention has now shifted from implementation issues towards post-implementation. During a “second wave” implementation the organizations deploy their new tools in order to create and sustain competitive advantage. This will often imply the integration of processes in the supply chain.

Most organizations today are required not only to establish effective business processes but they are required to accommodate for changing business conditions at an increasing rate. Many business processes extend beyond the boundary of the

enterprise into the supply chain and the information infrastructure therefore is critical. The rationales of integrating ERP and SCM have been explored by Tarn, Yen and Beaumont (Tarn, Yen, & Beaumont, 2002). They conclude that the industrial trend is that ERP is becoming a subclass of a much larger and broader enterprise business system or in general Enterprise Systems (ES).

Today nearly every business relies on their Enterprise System for process integration and the future generations of Enterprise Systems will increasingly be driven by business process models (Dumas, Aalst, & Hofstede, 2005).

A recent published survey shows that the factors most associated with achieving value from ERP are integration, process optimization and use of the ERP systems in decision-making (Davenport, Harris, & Cantrell, 2004). Davenport and Brooks (Davenport & Brooks, 2004) argue that ERP systems are internally focused, but the greatest impact of ERP is felt in the supply chain.

In a very broad sense we are facing an evolution where businesses increasingly are focusing on their external processes driven by a new breed of process-aware enterprise systems. This presents a tremendous management challenge, not only to manage this new IT resource but also to deploy this resource in the supply chain. It has been argued that this is a new field and this paper will argue that we are facing an emerging challenge regarding the management of enterprise systems that include

business process innovation using advanced enterprise system.

The arguments are established using the lessons learned from seven Danish ES cases. The case studies were initially prepared for a management textbook on ERP implementation (Rikhardsson, Møller, & Kræmmegaard, 2004). Here the cases are used in an approach to illustrate the general pattern of post-implementation issues.

The cases are presented in an ES and ES adoption perspective. In the next sections the ERP industry and the adoption of ERP in the Danish market are summarized. Then the impact of the ERP-implementation in seven specific organizations is analyzed in the following chapter. Finally the implications are discussed and in the conclusion the impact on the ES research is suggested.

2 THE ENTERPRISE SYSTEMS INDUSTRY

The notion of standard ES/ERP systems has developed drastically during the last five years due to the impact of the web technologies, among other things. In order to fully comprehend the systems it is necessary to look at the industry in a 50-year retrospective.

The industrial Enterprise Resource Planning (ERP) market showed a positive growth in 2003 after years of decline, precipitated by the Y2K craze. The worldwide market for ERP solutions to discrete and process manufacturers was USD 9.10 billion in 2003 and is forecasted to be over USD 12.00 billion in 2008, growing at a Compounded Annual Growth Rate (CAGR) of 5.7 per cent over the next five years, according to a recent ARC Advisory Group study.

The concept of ES has often been explained through the evolution of ERP (Chen, 2001; Klaus, Rosemann, & Gable, 2000; M. Lynne Markus & Tanis, 2000; Wortmann, 1998). The concept of Enterprise Systems (ES) has evolved over almost fifty years, driven by the changing business requirements, new technologies and software vendors' development capabilities.

In this section the development of the ERP market is analyzed from a technical point of view. There are several sources describing this evolution. This analysis is based on (Charles Møller, 2005; Wortmann, 1998; Wortmann, Hegges, & Rolfes, 2000).

The root of most of today's ERP systems may be traced back to the fifties. In the fifties the first inventory control systems were designed along with

invoice processors. This was the first wave of the ES which was spurred by the appearance of the first commercial computers which again triggered the field of operations management to develop mathematical models for planning and control (the inventory control models).

During the sixties those systems spawned off to sales and purchase systems as well as production planning systems. When the bill-of-material was invented and standardized, IBM introduced the COPICS specification. This specification enabled IBM to design their mainframe MRP package COPICS (now TGF 2000) and later on MAPICS (now an independent company). The MRP techniques fuelled the second wave.

During the seventies the MRP systems were "state of the art", and APICS framed the implementation wave "the MRP crusade". MRP systems were refined into MRP II. This was the first time standard systems were successful but soon the next wave hit the systems. During those days a couple of former IBM employees founded a small software company called SAP.

The Computer Integrated Manufacturing wave hit industry in the eighties. The driver behind CIM was the microcomputer, and the business value of CIM was the automation of processes. Some CIM projects went well but quite a large number of projects didn't. One of the important lessons learned was the complexity of integration.

With the emergence of Enterprise Resource Planning (ERP) in the nineties integration became an issue. This development peaked in the early nineties with the advent of the standard ERP systems – often embodied in SAP R/3 (Bancroft, Seip, & Sprengel, 1997) along with other major vendors such as Oracle, Peoplesoft, JD Edwards and Baan – the so-called JBOPS. Although the ERP systems have other legacies like accounting, the planning and control philosophies are rooted in manufacturing.

ERP is a standardized software package designed to integrate the internal value chain of an enterprise. An ERP system is based on an integrated database and consists of several modules aimed at specific business functions. According to Nah (Nah, 2002) the American Production and Inventory Control Society (APICS) defines ERP as: "a method for the effective planning and controlling of all the resources needed to take, make, ship and account for customer orders in a manufacturing, distribution or service company". This definition emphasizes the business purpose of the system.

The ERP market experienced a hype as a result of the Y2K problem, but after Y2K the ERP market soured, as it was doubted that traditional ERP could meet the e-business challenge (Mabert, Soni, & Venkataraman, 2001). New vendors of "bolt-on"

systems like e.g. i2 Technology with SCM and Siebel with CRM emerged on the scene (Calloway, 2000). Application Integration (EAI) became a serious issue (Themistocleous, Irani, & Keefe, 2001) and new delivery and pricing methods like ASP (Application Service Provider) and ERP rentals were conceived (Harrell, Higgins, & Ludwig, 2001).

The ERP II concept is a vision originally conceived by Gartner Group in 2000. Gartner Group, who also tagged the ERP concept, define ERP II as “a business strategy and a set of industry-domain-specific applications that build customer and shareholder value by enabling and optimizing enterprise and inter-enterprise, collaborative-operational and financial processes” (Bond et al., 2000).

ERP II includes six elements that touch on the business, the applications and technology strategy: (1) the role of ERP II, (2) its business domain, (3) the functions addressed within that domain, (4) the kinds of processes required by those functions, (5) the system architectures that can support those processes, and (6) the way in which data is handled within those architectures. With the exception of architecture, these ERP II elements represent an expansion of traditional ERP (Bond et al., 2000). ERP II includes (Charles Møller, 2005): Supply Chain Management (SCM); Customer Relationship Management (CRM); Supplier Relationship Management (SRM); Product Lifecycle Management (PLM); Employee Lifecycle Management (ELM) and Corporate Performance Management (CPM). So in conclusion, ERP II is essentially componentized ERP, e-business and collaboration in the supply chain.

Throughout the ERP industry this new philosophy of ERP and e-business has been gradually incorporated into the ERP systems and the system architectures were redesigned and modularized, e.g. like SAP intends it with the NetWeaver platform, like Oracle intends with the Fusion platform, and like Microsoft intend with their Dynamics platform. Therefore the contemporary standard systems do incorporate ERP II. The ERP industry survived the challenge and recent market analyses do not render any signs of market fragmentation.

Today all the major vendors have adopted the ERP II concept, either partly or fully. The evolution is driven by emerging business requirements and new information technology as it has been argued in the preceding chapters was the case of the evolution of ERP. The technologies are not necessarily the inventions of ERP vendors, rather the technology is sourced from the market as components, e.g. application frameworks (.NET or J2EE), databases (Oracle or MS SQL) or Decision-Support Systems

(DSS) from third-part vendors, but when incorporated in the ES, the business benefit increases.

It has been argued that people, structure, realignment and change management will prove more important to fulfilling the ERP II vision (Weston, 2003). In all the cases in this study the process change was the main driver of the second-wave projects and most important, the ERP II concepts has enabled the transformation of the ERP systems into general ES driven by process models (Dumas, Aalst, & Hofstede, 2005).

We now have a new and better understanding of the ES technology as developed by the ES industry. The next step of the study is to understand the adoption of this new technology.

2.1 The ES Market and the Adoption of ES

The ES market and the vendors are important not just because of their systems, but because their research reports and the vendors' consultants have an enormous impact on the business decisions made in companies adopting ES. The ES market is however quite complex for the following four reasons (C. Møller, 2005):

1) The ES market is not well-defined. Sometimes it includes all kinds of enterprise application software and sometimes only ERP. The total 2002 revenue of the ERP vendors was USD 20 billion according to AMR Research, but the total ES spending may be 5-10 times higher.

2) There are significant commercial interests in defining, segmenting and measuring the market. The authoritative sources of market sizes and segments are large research organizations such as Gartner, IDC, AMR Research or Forrester.

3) The market's units of measurement are unclear. Sometimes the market is measured in installed base, new license sales or total revenue. According to Gartner Dataquest (June 2003) the five largest ERP vendors in 2002 based on software license revenue were 1) SAP (25.1%); 2) Peoplesoft + JD Edwards (9.2%); 3) Oracle (7%); 4) SAGE (5.4%); and 5) Microsoft Business Solutions (4.9%).

4) The market is quite dynamic. The vendors are constantly merging and consolidating. Since the Gartner Dataquest report was published, Peoplesoft bought JD Edwards, Oracle bought Peoplesoft and Microsoft acquired Encore and tried to buy SAP. Finally the systems are constantly developed, and some of them are discontinued.

A different perspective on the ERP market is the enterprise perspective: what systems do they have,

what do they invest in, and when do they acquire or update their systems?

A recent survey on ERP in large Danish Enterprises (C. Møller, 2005) concluded that (1) ERP has become a pervasive technology; (2) ERP has become a contemporary technology; (3) the ERP market has matured; and (4) the dominant ERP strategy is still the single vendor strategy. The study was based on telephone interviews with ERP managers in 88.4 per cent of the top-500 enterprises in Denmark.

ERP has been adopted by Danish enterprises in general. 93.4 per cent of the large companies had an ES of some kind, and 13.6 per cent of the enterprises had more than one ERP system. Only 6.6 per cent of the companies have not adopted ERP, their financial performance is poor, and their number is decreasing. There is a large group of companies, however, that do not invest actively in ERP as well as a group of businesses with aging ERP. Based on theoretical studies we would have expected to find an aging ERP base and a flourishing e-business market, which, however could not be detected in the study.

ERP is the pervasive infrastructure because it is so widely adopted. Based on the high percentage of adopters and based on the non-adopters' accounts we conclude that ERP as a technology is a prerequisite to run any business, and that it should be considered an infrastructure rather than a new technology. Therefore it will be interesting to explore how the adopters have implemented and developed their capabilities based on ERP. However, it can not be concluded that the businesses have developed streamlined, internal logistics processes just because they've adopted ERP.

ERP is a contemporary technology because the installed base is renewed. Based on the average age of the systems (2.8 years), it is concluded that the ERP technology now follows the normal IT lifecycle. There are differences, however: the in-house developed ERP systems are still to be considered a legacy technology. The overall conclusion is that the latest releases and technologies are available to in the enterprises and is waiting to be used. However it cannot be concluded that the advanced collaborative supply chain functions have been adopted and deployed.

ERP adoption is stable, because the market is consolidated. Based on the adoption level, the vendors' market shares and the average systems' age, it is concluded that the ERP market has matured. Indications are that we end up with one (SAP), maybe two or three major vendors, a handful of global vendors, and a small number of vendors specializing in specific industries or countries. A similar pattern was found among the systems suppliers and implementation consultants. This was

further reinforced by the fact that on average ERP investments are below 1 per cent of the revenue. However, it can not be concluded that the ERP market is no longer innovative.

ERP adoption is converging towards a dominant design due to the facts mentioned above. Only 13.6 per cent of the companies use more than one ERP vendor. This indicates that the businesses pursue a "single-vendor" strategy rather than a "best-of-breed" strategy. Consequently, the new ERP II functions are provided by the major vendors' systems, and add-on modules or third part bolt-on systems may only have a limited scope. This may imply that supply chain planning will be dominated by, e.g. SAP APO (Advanced Planning and Optimization) modules, and consequently that the reference models provided by the major vendors will be the future supply chain templates. This might imply that the variety in the applied logistics concepts is reduced to the standards defined by the major vendors. However, it can not be concluded that inter-organizational integration will be much easier with enterprises using the same platforms.

The general conclusions of the survey is that large companies now have a common platform based on the large vendors (in particular SAP) and that the platform is kept up to date with the most recent release. This conclusion conforms to the experiences from the described cases. The survey also supports the "continuity view" put forward by Markus, Petrie and Axline (M. Lynne Markus, Petrie, & Axline, 2000) who present a complementary "discontinuity view" deemphasizing ERP.

3 IMPACT OF ENTERPRISE SYSTEMS IMPLEMENTATION

ERP enables close cooperation among supply chain partners facilitating supplier-customer interactions and minimizing transaction costs (Tarn, Yen, & Beaumont, 2002). However, there is a risk of ERP actually hampering progress in SCM (Akkermans, Bogerd, Yücesan, & van Wassenhove, 2003). Nonetheless, it is becoming clear that the greatest impact of, and payback from, ES is in SCM (Davenport, Harris, & Cantrell, 2004).

ERP researchers recognize the time-gap between impact and effect (Shang & Seddon, 2002). The benefits from ES implementation are best understood in a lifecycle perspective. Several authors applied a lifecycle view on ERP implementation (Rosemann, 2003). The proposed lifecycle models (Bancroft, Seip, & Sprengel, 1997;

M. Lynne Markus & Tanis, 2000; Ross & Vitale, 2001) all emphasize the pre-implementation phase, have less details on the post-implementation phase and almost nothing on the use of ES. Ross and Vitale (2000) describe an ERP journey as a prisoner's escape. The stages in the ERP journey are (1) design, (2) implementation, (3) stabilization, (4) continuous improvement, and (5) transformation. The last stages: continuous improvement and transformation are sometimes referred to as second wave or the post-implementation stages. It is in the post-implementation stages we find the impact of ERP in the supply chain.

For many reasons most ERP research is concentrated on implementation issues. An overview of ES-related research showed that about 30 per cent of publications deal with implementation issues (Klaus, Rosemann, & Gable, 2000).

In a recent book on ERP (Rikhardsson, Møller, & Kræmmergaard, 2004) the ERP journey of seven organizations was analyzed. These organizations all implemented their ES around year 2000, and they are now evaluating the impact. In the following their experiences are summarized.

3.1 Cases

Lego Company is the well-known toy manufacturer. Before launching their ERP project Lego had a large number of legacy systems throughout their supply chain. The ERP project was accelerated due to poor financial results of 2000. One of the reasons was the inability of the existing supply chain to adapt to market demands. The major part of Lego's annual sale to consumers takes place at Christmas. With the existing supply chain set-up, Lego was unable to respond to market dynamics. During 2000 a large-scale project aimed at replacing the existing systems with a custombuilt ERP system based on standardized global processes and Oracle was introduced. By the end of 2000 the project was abandoned and replaced with a new project based on standard SAP. This project was concluded successfully in 2001 with a new ERP platform called LEGO Light. This project was followed by a number of second wave projects aimed at improving process effectiveness. Lego top-management has highlighted ERP with an IT and process-governance structure, which include sourcing considerations. The new projects are driven by the people from the ERP implementation team by with an emphasis on the combination of process development and IT.

The *municipality of Copenhagen* (KK) is one of the largest organizations in Denmark with 43.000 employees (FTE). KK implemented Oracle almost

ten years ago. The first wave was oriented primarily towards the back-office function of financial control. In 2001 KK initiated a second-wave project aimed at e-procurement and project management, among other things. One of the challenges was that these projects touched on the more marginal actors in the supply chain. For instance actors like small day-care centres and their suppliers, who previously acted independently from KK, were now included in the scope of the ES. KK approached this project by setting up a team focused on process development – not as an IT implementation project. Consequently the change was managed as a learning process, but following the standardized new ES processes. This enabled KK not only to implement the new modules but also to unleash the energy of new ideas for improvement.

Martin Professional develops and manufactures intelligent lighting for the entertainment and architectural markets. The founder of Martin, a charismatic entrepreneur was replaced by professional management in 1999 when the success and growth was about to choke the company. Since the existing legacy systems (very rudimentary systems) could not cope with Y2K, an ambitious plan for implementing a new ERP platform based on Baan was launched in 90 days. With some disruption the ERP system was in place throughout the group by the end of 2001 when Martin started their venture into second generation projects. This, of course, included new modules but also a lot of different "best-of-breed" systems, like Business Intelligence (BI), Supply Chain Management (SCM) and many others. It also included the implementation of a different ERP platform (Axapta) in the sales companies forcing Martin to reconsider and unify their ES architecture. One of the problems is integration issues when deploying more platforms.

Dell took a different approach to integration in the supply chain. Dell set out early in the nineties with an ambitious SAP project. In the mid-nineties Dell abandoned the ERP path after some heavy investments resulting only in a functional HR system. Dell developed a new strategy called G2 where they specified the architecture of the ES in Dell's supply chain. The essence of this architecture is an ES based on Enterprise Application Integration. The outcome of this strategy is Dell's ability to rapidly deploy new business models and closely coordinate and integrate with partners in the supply chain.

Hydro Automotive Structure (HAS) is a first-tier supplier in the automotive supply chain. HAS is part of the Hydro Group; they develop and manufacture aluminium components for the automotive industry. As a supplier HAS have limited influence on the business model and must conform to the

requirements of the dominating actors. In 1999 HAS replaced an old industry-specific system and was facing a group policy on SAP as a preferred vendor. Due to the cost and resource requirements of a SAP project, HAS selected Axapta from Microsoft Business Solutions and a small local consulting company to run the implementation. After a long-winded implementation process, the system was operative in 2000 and HAS started their quest for process improvements. Today they have developed a high-performing, integrated supply chain and they are, for example, able to track and trace every piece of material. A lot of the process improvements are actually not a result of the ERP system (e.g. KANBAN) but HAS are convinced that the ERP system has provided the platform for the improvements.

Bang & Olufsen (B&O) is a manufacturer of high-end audio/video equipment for the consumer market. B&O has been through a long phase of process improvements due to a near-fatal financial situation in the eighties. This includes outsourcing a high number of activities and therefore B&O depend quite heavily on their supply network and have developed exceptional partnerships with suppliers and customers over the years supported by in-house developed IT systems. Y2K made B&O decide to replace their customized legacy system with SAP. The implementation of the finance and HR modules went very well but logistics and production planning presented considerable problems. B&O developed "Mass-Customization"-inspired processes for manufacturing customer-unique products, and the implementation of SAP would jeopardize this process. When B&O had to make a stock announcement on an expected loss due to problems with SAP, they got SAP's full attention leading to the development of a B&O solution which later became part of the standard system. Today B&O is a happy SAP user seeing it as a strategic platform for B&O's development. Recently they have started integrating the supply chain planning further by using the APO (Advanced Planning and Optimizer) module.

Fritz Hansen (FH) is a manufacturer of exclusive design furniture. The furniture includes designs from architects such as Arne Jacobsen and Piet Hein. FH has used Movex, an ERP system from Intenia, since 1993; in 2000 they decided to upgrade their systems. FH used to be a traditional furniture manufacturer but due to the success of designer furniture they were forced to outsource a number of activities. Also they put an emphasis on demand management. Consequently supply chain coordination was high on the agenda, and modules like product configuration and supplier management were critical to FH. FH's ES ended up as a combination of an ERP system, a

CRM (Customer Relationship Management) system and a data warehouse. As a consequence of the new ES platform FH has been transformed from a traditional manufacturing company to a decentralized, process-oriented organization where collaboration takes place across the entire supply chain. In particular the use of smaller suppliers to create flexibility is mainly a result the ERP platform.

3.2 Lessons Learned

The cases are alike in the sense that the motivation for introducing ERP was almost identical. Y2K combined with a need for a common platform drove management to move into ERP. Also the expected benefits from ERP conform to Ross and Vitale's motivations for ERP (Ross & Vitale, 2001). The cases also report on serious stabilization issues, for some organizations it was measured in years, but the cases render interesting insight into the post-implementation stages.

The research literature on implementation e.g. Ross and Vitale (Ross & Vitale, 2001) has little details on their "transformation stage" and none of the companies in their study felt that they had yet transformed themselves. In a workshop for logistics managers in large Danish enterprises the relationship between ERP and SCM was emphasized (Sørensen, 2002). The observations were quite similar to those in a Dutch Delphi study (Akkermans, Bogerd, Yücesan, & van Wassenhove, 2003). The managers responsible for the supply chain pointed out that although the ERP systems were the key to future supply chain developments the inherent inflexibility of ERP was also a major roadblock for SCM initiatives.

The organizations' general reflection was that the second-wave projects were oriented towards process improvements, and therefore the organizational dimension is emphasized. A second observation is that the second-wave project took the organizations places they never intended to go. The second generation projects were aimed at the supply chain but the new ES suddenly opened roads that the organizations initially did not consider. Their new ERP systems became instrumental in this change.

This suggests a more subtle relationship between the business, the enterprise systems, and the supply chain processes, where the enterprise system holds the potential to leverage (or to destroy) business opportunities. Consequently, the time is now ripe for a new management perspective on enterprise systems.

4 IMPLICATIONS FOR MANAGING ENTERPRISE SYSTEMS

Enterprise systems are under constant development. Current ERP systems reflect fifty years of aggregated business requirements and innovations. Future ES, ERP II or whatever they evolve into, will continue this evolution. Consequently the contemporary standard systems from one of the major vendors will include extended functions for integration supply chain processes. Based on the retrospective analysis it is also feasible that future critical requirements will be provided in the standard systems and thus will be made available to existing users as a part of normal upgrades.

Based on the survey data it can be concluded that large enterprises have the most recent ES from the major vendors. Also the age profile of the installations can lead to the conclusion that ES is a technology that is kept up-to-date with the most recent release. Then it is feasible to deduce that the overall ES architecture is determined by the architects of the major vendors.

The case studies exemplify the impact of ES architecture on the supply chain. The cases all illustrate the staged development approach. A few years after the initial ERP implementation effort, when the ERP infrastructure is in place, the focus of the development extends into the supply chain. The driver of this change is effectiveness in the supply chain, which is very specific to the organizations, but information-based collaboration is central to all the cases.

These arguments suggest that many organizations are facing transformation triggered by ES adoption. This transformation is a new kind of IT diffusion process based on standardized ES and "best-practice" processes. Until now, mainstream ERP research has mainly focused on isolated issues in this transformation. The new diffusion process goes beyond the traditional system lifecycle thinking, and the implementation phase is just an intermezzo in the transformation. What is proposed here is that the enterprise transformation is considered in relation to the ERP market and the evolution of ES.

The implications of the ES transformation for practice are enormous. If the technology and processes acquired by the ES impact the supply chain, managing the transformation is of strategic importance. This paper therefore proposes a new area of management, Enterprise Systems Management and Innovation. Except during implementation, IT and ERP is not considered top

management issues, and supply chain development is considered logistics and operations management responsibility. This paper suggests that SCM and ERP are to be considered in tandem. Enterprise Systems Management and Innovation is a new challenge and an issue that needs to be brought to the attention of top management.

Another issue is ES as a source of process innovation. Before acquiring an ERP system, an organization typically spends a good deal of resources in evaluating the suitability of the standard processes of the system and the strategic match. What happens after a few years? The new releases are accepted more or less as a routine or based on operational criteria. Who is responsible for the strategic evaluation of the new features, and who initiates a decision to discontinue an ES? This should be the challenge of the Enterprise Systems Manager.

5 CONCLUSION

The paper proposed that ES implementation based on standardized ES and "best-practice" processes lead to a new management challenge: Enterprise Systems Management and Innovation. The argument is rooted in seven case studies, a survey on ERP adoption and a retrospective analysis on the development of ES. The paper discussed the emerging issues and the implications for management.

Having reviewed the ERP research literature little support for this new challenge has been found, and we propose that ES management and innovation is explored and put on the research agenda.

This paper contributes to ERP research by exhibiting the importance of ERP management. The paper draws a direct line from the achieved benefit in the supply chain, second-wave ERP projects to ERP implementation and to ES development. Consequently ERP can be considered a source of innovation in the supply chain.

The research implies that the ERP industry itself is to be considered an object for further research. The ERP industry contributes significantly to the value chain and to ES transformation of the enterprises.

ERP research has not dealt explicitly with this diffusion process. Many authors have dealt with ERP implementation, a few authors have dealt with the ERP journey, but no one has considered the ES transformation process in all entire aspects. Many enterprises are now organizing their ERP activities towards second-wave projects. This will present many new practical challenges as well as research

challenges. In future managers must be prepared to manage ES – or the large vendors will set the agenda for them.

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