

THE FUTURE OF ERP-SYSTEMS

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INTRODUCTION

“From early on the ambition of ERP-systems has been to: 1) integrate all transaction systems within the same system; 2) share common data and practices across entire enterprises, and 3) produce relevant information for decision-making purposes in real-time” (Bjørn-Andersen & Johansson 2007).

The era of Enterprise Resource Planning (ERP) systems began as early as the 1950's, when the first computers were introduced in organizations (Johansson 2007a). The computers slowly became corporate accounting systems and later the first real ERP-systems tailor made to the individual organizations that were introduced during the 1980's. These early ERP-systems were very often costly to maintain and develop, and were often too expensive especially for small and mid-sized organizations to implement. The benefits from the above mentioned 3 ERP-systems dogmas have not yet been realized with in small and mid-sized organizations that continued to use legacy systems and smaller separate IT-systems.

Ten years later in the early 1990's the (so-called) second generation ERP-systems appeared. Large organizations were now able to introduce large integrated ERP-systems, from vendors like SAP A/G and Oracle. These ERP-systems were pre-configured to support the business processes of the end-customer organization in a way that was perceived as 'best practice' from the view of the ERP-system vendor. Though these ERP-systems were supposed to be standard packages, they often required comprehensive customization efforts to meet the requirements of the organizations. The implementation project itself was far more expensive than the costs of the software licenses (Bjørn-Andersen & Johansson 2007). The total costs for the implementation of an ERP-system are still today considered a severe hurdle for small and mid-sized organizations. With this in mind the quest for the next generation ERP-systems has begun.

Problem identification

According to Johansson (2007a) a major problem with the existing ERP-systems is the misfit between the delivered functionality from the vendor and the needed functionality in the receiving end-customer organization, this despite aforementioned the focus on 'best practices'. This gap causes high project implementation costs due to the need for further customization and non-realized business value. According to Johansson (2007a) this has led to an increasing interest amongst vendors to improve future ERP-systems to support the end-customer organization even better. This quest is even more pressing when focusing on the small and mid-sized organizations that up until now have faced relatively higher ERP-system costs.

Bjørn-Andersen and Johansen (2007) further note that the vision behind the next generation of ERP-systems (what could be called the third generation of ERP-systems) specialized for the small and mid-sized market, is to develop comprehensive global ERP-system, that can be localized to all types of organizations with a minimum of initial and on-going costs. In that sense it is of great interest to find out exactly what areas are in focus when developing the future ERP-systems.

Problem formulation

With this problem identification, the main object of this essay is to outline:

How will future ERP-systems for small and mid-sized organizations differ from existing ERP-systems and how it will impact the ERP-system value-chain?

In other words, the purpose of the essay is to set the stage for how ERP systems could look like in the future. The empirical foundation will be based on existing academic work and the essay will include an analysis of the different focus areas in the research of the future ERP-systems. Beside this academic approach, the essay will also include perspectives on the next generation of ERP-systems from the view of one of the major ERP-system vendors, SAP AG.

THEORY

The essay will primarily be founded in the research and theoretical work of the 3gERP Project. The 3gERP Project is a collaborative strategic research project and partnership between Copenhagen Business School, Department of Computer Science, University of Copenhagen and Microsoft Development Center Copenhagen and with funding from the Danish National Advanced Technology Foundation. *“The purpose of the 3gERP Project is to develop a fundamentally new high-level software architecture with implementation tools and business models for a standardized, yet highly flexible and configurable global ERP-system for small- and medium-sized enterprises (SMEs), which can be implemented and maintained at a fraction of the cost of current ERP systems”* (www.3gerp.org a). Therefore the current findings from the 3gERP Project seem to be a good place to begin when searching for the future of ERP-systems.

The essay will focus mainly on three research areas within the 3gERP project that seem to be of importance. Other focus areas could have been chosen as well, but the following 3 are chosen for their focus from the 3gERP Project.

- Role-based ERP-systems
- Open-source ERP-systems
- The ERP-system value-chain

Besides the publications from the 3gERP Project other literature will be included. As this essay is a theoretical analysis, the theoretical perspectives will be presented and used within the analysis.

Scoping

The purpose of this essay is to provide a theoretical idea on how the future of ERP-systems might look like. Some views and nuances of subject might therefore not be included; however those views that are covered will be theoretically embedded. Since the essay is based on aforementioned findings from the 3gERP Project, the limitations from the project will also apply to the discussion in the essay. For instance this means that the analysis only will cover the future of ERP systems for small and mid-sized organizations. It is to be noted, that this scoping includes the statement, that the future for ERP-systems might look different for larger companies.

METHODOLOGY

The analysis and the conclusions in this essay will be based on academic publications from the 3gERP project as well as other academic literature. The methodology of the essay and the use of the theories is based on a hermeneutic approach based on Steiner Kvale (Kvale 1996).

In the hermeneutic view the understanding of a written text is established by reference to the individual parts of the text and that the understanding of each individual part evolves from reference to the whole. Neither the whole text nor the individual parts can be understood without reference to one another. This circular, holistic view is referred to as the hermeneutic circle (Kvale 1996: 46ff). Overall the hermeneutic (“Interpretation” in

the ancient Greece) framework has two profound views; that are that (a) understanding and interpretation is a prerequisite for explanation and that (b) the social actors and phenomenon, that are subjects for analysis, carries meaning, and therefore should be subjects for the interpretation in scientific practices as well (Højberg 2004: 309 ff). When it comes to the hermeneutic circle 7 principles can be applied for the creation of meaning of written texts (Kvale 1996: 46 ff). The first principle (1) is the already mentioned continuous circular back and forth process from part to the whole and vice versa then enables in depth understanding of the text. This circle is considered positive (not related to a 'bad circle'), since it enables continuous meaning refining. The interpretation of the text ends when a meaning without logical contradictions is reached, which is the second principle (2). The third principle (3) is testing of the part interpretations against the holistic meaning of the text and preferably also against other texts and knowledge of the author. The fourth principle (4) is the autonomy of the text in terms of understanding how the text see itself in the context. The fifth principle (5) is having a thorough understanding of the subject of the text. This leads to the sixth principle (6), which is that interpreter cannot escape the frame of interpretation, as he cannot enter the text with bringing certain prejudices with him. The final principle (7) states that any interpretation includes creativity and renewal of meaning. The interpretation adds nuances and context the text that thereby expands its reach and meaning.

These 7 principles will be applied throughout the work with essay. The working method has been to read all the included literature before starting the analysis. This founds a thorough understanding of the whole subject and the context of the primary texts (from the 3gERP Project) that will be used for the circular back and forth process of understanding the texts and interpreted into an initial analysis. As for the literature that is published by 3gERP Project I do not expect to find much difference the conclusions within this research, as the texts and the authors are on the same quest to find the future of ERP-systems (in relation to principle 3 and 4). However, potential contradictory opinions from other literature will be included and open up for discussions. Throughout the essay the different approaches and the different research brought in will be related to each other in order to reach an overall understanding of the area without any logical contradictions.

RESEARCH OF FUTURE ERP-SYSTEMS

Today's ERP-systems

As already stated in the introduction today's ERP-systems are often based on a 'best practice'. According to Johansson (2007a) this often creates a "misfit" between delivered functionality and needed functionality, which is described as a gap between the processes the ERP-system supports and the processes the organizations work by. The reasons for these gaps could be many. Johansson (2007a) mentions increased implementations costs leading to unwillingness to customize the system to the business processes and inadequate processes of defining the business requirements. Furthermore Johansson (2007b) amongst other pain points mentions deficiency in the implementation process and huge variations in customer requirements and restates the problem that ERP-systems are not closely enough related to the business processes they are supposed to be support. Sudzina & Johansson (2009) mentions that it is a basic problem with the development of ERP-systems that those who identifies the business needs often is different from those doing the development and see this as the main reason for the misfit between the delivered and need functionality. Johansson (2007a, 2007b) and Sudzina & Johansson (2009) both takes part in the 3gERP Project and agree on the aforementioned points as well as the fact that the ERP-systems to a far extend should adjust to business process of the end-customer and not rely entirely on the 'best practice' approach.

On the contrary Millman (2004) advocates for companies should follow the pre-configure 'best practices' inherent in the ERP-systems rather than the opposite. According to Millman "*one of the biggest mistakes that companies made was customizing software to fit their processes when they'd have been better off changing their processes to fit the software*" (Millman 2004). While the first ERP-systems needed a lot of customization to meet the business requirements this is far from the case today. Another aspect that supports Millmans view is that in case of upgrade to a newer ERP-system the modifications do not automatically adjust to the new version of the ERP-system. Therefore a new re-customization will be need (Kumar & Van Hillegersberg 2000). According to Kumar & Van Hillegersberg (2000) this later challenge can though be overcome if ERP-system vendors have a component-based strategy (more on this will follow later in the essay). Then the migration will become more gradual as outdated components are upgraded individually instead of the whole system.

The 'misfit' challenges could be described by the assumption that implementing an ERP-system is an organizational change management project, which demands that either the organization changes or the implemented ERP-system is adjusted according to the organization. Johansson (2009a) and Millman (2004) clearly represent two contradictory paradigms on whether ERP-systems should be adjusted to the business

processes of a company or if the company should adopt the 'best practice' process inherent in the ERP-systems. The purpose of this essay is not to determine on which of the two views that is correct, but shade light on in what the direction future ERP-systems could point at. However, this contradiction will be a returning theme throughout the essay. In any case the ERP-vendors are striving continuously to improve the ERP-systems in order to reduce the implementation costs.

Gathering of Business Requirements for ERP-systems

One of the interesting factors about the 3gERP Project is its focus on the research methods to define the requirements for future ERP-systems. As already mentioned, the 3gERP Project focuses on a gap between the required and the delivered functionality in terms of support to business processes. Therefore the process of defining what requirements are needed is highly relevant. According to Johansson & Bjørn-Andersen (2007) the gathering of business requirements should aim at development of solutions that support the business of the end-customer. However, this process is difficult since the developers are disconnected from the business users and therefore there is a need for a translator between the two parties. Johansson & Bjørn-Andersen (2007) advocates that the capturing of the business requirements for future ERP-systems should be based on a model, where narratives about usages situations are included in form of qualitative interviews with end-users together with strategic business requirements from end-customer executives and experience from existing ERP-systems. This model will include "*a reverse engineering from the scenarios in order to achieve a requirements specification for "the" future ERP. The ambition and goal of the model is to be able to present requirements that are on a level that both developers and executives in the user organizations can agree on as useful*" (Johansson & Bjørn-Andersen, 2007). Since Johansson & Bjørn-Andersen (2007) is part of the 3gERP Project this opinion has most likely influenced on the research approach within in the 3gERP Project. If this is the case the findings from the 3gERP Project include both the views from vendor, end-customers and academia.

Role-based ERP-systems

For today's ERP-systems the dominant philosophy for identifying the business requirements has been to focus on business processes. This has lead to a situation today, where ERP-system in general can be characterized as process-based. This business process approach has founded the aforementioned discussion of the benefits of implementing 'best practices'. However, it could be argue that today's process-based ERP-

systems do not focus enough on the employee roles. Instead Johansson & Bjørn-Andersen (2007) suggests that ERP-systems vendors should focus on support of employee-roles that crosses different business processes. These roles are understood as the grouping of tasks that a persona is responsible for or participate in, and therefore the business requirement gathering should aim to fulfill a one-point access for the different roles in an organization. According to Johansson (2007a) this approach will decrease the need for training, as it will be more intuitive to user for the end-user. However, a crucial factor in order to achieve this is that the metric to define the roles, as well as the roles themselves, are defined correct. In this case the above mentioned approach for gathering the business requirements could very well be applied as this is also suggested within the 3gERP Project framework. Johansson (2007a) mentions that the roles could be categorized in task-oriented roles or managerial roles. Furthermore he suggests that the focus on role-based ERP-systems could change the often negative user perception of ERP-systems and thereby also change the adoption rate of ERP-systems that will lead the way for more successful implementations and in the end higher value realization.

For Johansson (2007a) the main reason for ERP-system vendors to focus on roles, is that he sees this approach as a way of closing the misfit between required and delivered functionality within existing ERP-systems. For the ERP-vendors the challenges will be to identify and describe the relevant roles and the work tasks that should be included. This furthermore emphasis a specific problem when focusing on ERP-systems for small and midsized organizations: there are fewer employees and therefore relative less capabilities and specialized roles than in larger organizations. This means that the potential of the future role-based ERP-systems for small and midsized organizations are dependent on the ability to support different roles within the same user interface or the enablement of easy shifts between different role-interfaces.

According to Johansson (2007a) this is an area that requires a lot more research in order to determine the real potential of a role-based ERP-system. *“The question remains if this is the way to go for ERP development if future ERP investments should decrease the gap between desired requirements and delivered functionality and thereby become a more successful investment for organizations”* (Johansson, 2007a).

Both Johansson & Bjørn-Andersen (2007) and Johansson (2007a) take part in the 3gERP Project and their favor of the role-based ERP-systems approach over the current ‘best practice’-business process based approach harmonizes well with the work within project framework and their quest to challenges and improve current ERP-systems.

Open-source ERP-systems

Another research area within the 3gERP Project has been to evaluate on the potential of open-source for development of ERP-systems. According to Riehle (2007) open-source software can be traced back to as early as the 1950's and up to today where open-source software covers operating systems, application servers, security tools and ERP-systems. Open-source solutions can be divided into two types; community open-source software and commercial open-source software. These two types differ in the matter of who decides on the future direction of the software. In the community open-source software a community of volunteers together decided where the software is heading and what developments should be accepted to the software. Despite the fact that this type of open-source software can be used for free it has costs related to the usage in relation to learning, implementation and support. In the commercial open-source software approach the software is owned and developed with a for-profit approach by a vendor. In this case the business case for the vendor is cost saving from cheap development and earning from maintenance and support of the end-users (Riehle, 2007). There seem to be great interest in open-source software in general, but when it comes to open-source ERP-systems the commercial breakthrough has yet to come.

The reason to research within the development of open-source is primarily of a cost perspective as the vendor can benefit from savings. Furthermore Johansson & Sudzina (2008) provides 3 reasons for small and mid-sized organizations to adopt open-source ERP-systems, but also challenges these relatively benefits.

The first (1) pro open-source ERP-system statement is that the open-source ERP-systems address the aforementioned 'misfit' challenge with better possibilities for customization, since it is possible to access the source code, that otherwise belongs to propriety rights of the vendor (Johansson & Sudzina, 2008). As the customization possibility is seen as a benefit it clearly contradicts the current 'best practice' business-process approach. Johansson & Sudzina (2008) however state, that some current proprietary ERP-systems vendors already provide customers with most of the source code, and therefore this cannot be seen as a competitive advance of the open-source ERP-systems only. Amongst other Microsoft Dynamics AC provide the customers with access to most of the source code. Furthermore (2), when it comes to community open-source ERP-systems, the customer will not be depended on one supplier, but can further develop the system itself even in the case that ERP-system runs out of official maintenance. In this regards though a positive side of the proprietary ERP-system is that it is often supported by certified consultants that secure the customer with a minimum of expertise, which can be more challenging to guaranty in the case of to open-sourced ERP-systems. And last but not least (3), the licenses for open-source ERP-systems have a great potential of becoming a lot cheaper (if not completely free of cost) and thereby save the customer for a substantial expense. However, according to Johansson & Sudzina (2008) the costs of licenses is only part of the project

costs (estimated from one-third to one-sixth), and the expenses for consultants might exceed these savings due to lower market competition. Furthermore, the proprietary ERP-system vendor has obligation to the customer in terms of delivery and quality that is not necessarily included in open-source ERP-system engagements.

Open-source ERP-systems seem to have earned increasing interest, but the obvious benefits are still missed out, since the savings are transferred to other types of expenses, and there are no clear indices that suggest that open-source ERP-systems meet the needs of small and mid-sized companies better than existing proprietary ERP-system vendors. However, it is interesting to draw a parallel to Apple Inc. that experiences great success with commercial open-source development for their iPhone and experiences a degree of creativity and agility that otherwise would not have been possible. A similar setup with ERP-system development could clearly make an interesting business case for the ERP-system vendors, but the question is then how to get that user commitment to an ERP-system. Furthermore Johansson & Sudzina (2008, 2009) express the need for further research in this area and suggests the adoption rate of open-source ERP-systems in developed contra developing countries or the assimilation of the open-source ERP-system functionalities contra the assimilation of normal ERP-systems functionalities in organizations as interesting research areas.

The ERP-system value-chain

When looking at the future ERP-systems it is not only the solution features that are worth looking at, also the ERP-system value-chain can be interesting to look at. According to Johansson (2007c) the value-chain for ERP-systems covers at least following three stakeholders; ERP-system vendors, ERP-distributor and the ERP-system customer. In this relation the question is how these stakeholders different base for achieving competitive advantage influences the development of the future ERP-systems, but also how the future ERP-systems will influence on this value-chain.

According to the resource-based view a resource can provide an organization with sustained competitive advantage if the resource is valuable, rare and costly imitate (Johansson, 2007c). When looking at the ERP-system value-chain there are no obvious conflicts in competitive advantage between the three stakeholders, since they operate in different markets. The ERP-system vendor competes in the ERP-system licenses market, the distributor mainly competes against other distributors on consultancy services and ERP-system add-ons, while the end-customer competes in a market entirely of its own. However, in order to compete in the market for ERP-system the vendors strive at delivering ERP-system functionality that meets the required functionality in the end-customer organization. Therefore the more the aforementioned 'misfit' gap

decreases, the more the ERP-systems vendors intervene in the distributors market (Johansson, 2007c). You could argue that this process is already happening to some extent, when the ERP-system vendors include new functionality in the ERP-system, that earlier was covered as add-ons in the distribution channel and when the ERP-system vendors makes 'best practices' packages supposed to enable quicker implementation. This is change to the benefit of the customer, while the distributors will need to fight even harder for the same business.

In that sense the entire quest for better ERP-systems can challenge the current value-chain. To some extent the distributing channel has to rely on the basic thoughts among customer organizations that they need to have a system that is not the same as their competitors. The distributors receive their competitive advantage by offering the end-customers industry insights on how to maximize the value of the ERP-system, which provides the end-customers with competitive advantage in their industry. In this regard it is important to note, that when it comes to the rareness aspect a non-rare resource cannot provide an organization with competitive advantage, but it can provide the organization with a disadvantage if the organization does not have this resource. According to Karimi et. al (2007) an organization can no longer receive competitive advantage just by implementing an ERP-system, but Johansson (2007c) suggest that not having an ERP-system might be a severe disadvantage for an organization. However, the better packages the ERP-system vendors are able to deliver and the more the end-customers are willing to accept these packages, the harder time the distributors will face. Therefore it can be argued, that the distribution channel finds no (or at least lesser) point in developing more complete ERP-systems. This paradox can very well be seen in relation with the aforementioned contradictory paradigms on whether ERP-systems should be adjusted to the business processes of a company or if the company should adopt the 'best practice' process inherent in the ERP-systems represented with Johansson (2009a) and Millman (2004) accordingly.

In relation to the entire discussion on the competitive advantage in the ERP-system value-chain Johansson & Newman (2009) states that:

"The basic thoughts the different stakeholders in the ERP value-chain have about competitive advantage is that highly customised ERPs deliver better opportunities for competitive advantage for the delivering reseller in the ERP valuechain as well as for the ERP end-user organisations while it decreases the opportunity for ERP software vendors to attain competitive advantage".

There seem to be rather contradictive forces within the ERP-system value-chain. On the one hand the end-customers search for competitive advantage through customizing which benefits the distributors. On the other hand however, the end-customers seem to look for as much 'best practices' as possible in order to keep down implementation cost in favor of the ERP-system vendors. This will most likely influence the development of future ERP-systems since the gathering of the business requirements will be affected by the views from the different stakeholders.

A VENDOR'S VIEW ON THE FUTURE OF ERP-SYSTEMS

A great part of the theory used in this essay is based on the work of the 3gERP Project, wherein Microsoft takes part and brings the perspectives from an ERP-system vendor. Another major player on the market for ERP-system is SAP AG, especially with a well-known footprint in the market for the largest organizations, but also with a strategy of serving smaller organizations. The directions that SAP AG gives for the future of ERP-systems are therefore also interesting to look at.

At a recent presentation on this topic Arne Andersen, Head of Business, Solutions & Technology in SAP AG (Andersen 2009), gave some indications on what perspectives SAP AG has for its future solutions. One of the key messages was that future development will be guided by adoption of lean principles, which amongst other are focusing very much on cross functional team-work and involvement of user-groups in this sense (Andersen 2009). This correlates very much with the approach that Johansson and Bjørn-Andersen (2007) has towards the gathering of business requirements. The principles of team-work will decrease the risk for misunderstandings that occur, when a 'translator' is brooking between those who gather the requirements and those who develop, a process that is further improve the more the end-users and customer organization are involved.

As for the features of the future ERP-systems from SAP AG Andersen (2009) focused on goals such as lowering total-cost-of-ownership through non-installation packages based on 'best practice' and a flexible innovation process with releases of building blocks rather than seldom releases of a new entire suite that is well known for its costly implementation. In that sense SAP AG's view on the future ERP-systems relates well to the component-based approach mentioned by Kumar & Van Hillegersberg (2000). This component-based or building blocks metaphor approach can very well be compared with the term service oriented architecture.

It is worth mentioning that Andersen (2009) did not mention anything about role-based ERP-systems but emphasized on end-to-end processes. Apparently there this seems to be in contradiction to the work of 3gERP. However, in order to draw this conclusion further analysis of the strategy of SAP AG and the meaning of the term end-to-end processes has to further examined and compared to the perspectives from those of the 3gERP Project.

Another apparent difference between SAP AG's view of the future ERP-system presented by Andersen (2009) and the view of the 3gERP Project is that SAP AG has a strong focus on on-demand-solutions (solutions offered via the internet) also known as software-as-a-service (SaaS), while this has only briefly been mentioned in the literature covered in this essay. This is not to say, that the 3gERP Project does not acknowledge or believe in software-as-a-service as the delivery model, however this part has not been covered much yet.

ERP-SYSTEMS DELIVERED AS SOFTWARE-AS-A-SERVICE

In short software-as-a-service is software delivered as a hosted application from a vendor or distributor that the end-costumer can access via a browser. The SaaS-model enables the end-customer organization to decrease the cost of implementation, maintenance and the overall administration of the application that furthermore is independent of existing IT-infrastructure, scalable and flexible (Guptil & McNee, 2008). In that sense the end-customer organization can focus on its core business without worrying about technicalities that will be handled by the distributor.

There are examples of successful SaaS-vendors, eg. Salesforce.com, but when it comes to ERP-systems delivered as Software-as-a-Service there is not yet a solution that has had a commercial breakthrough. However, as already stated the SaaS-model is a key strategic area for SAP AG and most likely also for other ERP-system vendors. The SaaS-model is therefore of interesting when researching in the future of ERP-systems, however there does not seem to be much academic research published within this area yet.

When looking at the SaaS-model it seems to challenges the distributors business in the ERP-system Value-chain, since the vendor can deliver solutions directly to the end-customer and thereby bypass the distributor. Therefore this future delivery model might change the current ERP-systems value-chain. This might not completely undermine the business for distributors, as the future ERP-system value-chain very well could include hybrid SaaS-solutions, where the distributors offer the customized SaaS-solutions to the end-customer. But if the SaaS-model becomes successful it can very well threaten the distributor's position. It

could be seen as a further enhancement of the ‘best practice’ approach that undermines the competitive advantage of the distributors. In that sense the SaaS-model can be seen as a solution that favors the ‘best practice’ approach.

Furthermore, it can be discussed if the SaaS-model can influence on whether an ERP-system is perceived as competitive advantage or not within the end-customer organizations, since the IT delivered hardly can be called a scarce resource. This relates to the famous perspectives of Carr (2004) that suggests that IT does not offer a competitive advantage for organizations that do not have IT as a key competence. Instead these organizations could benefit from IT outsourcing, as IT to a large extent has become a commodity asset that is better handled by distributors or vendors that have IT as key resource. In that sense it could be interesting to look at the SaaS-model from a view of core competencies, for instance Hamel & Prahalad (1990) that advocates that organizations should focus on their core competencies. From this point of view organizations where IT is not considered a competitive advantage could benefit from outsourcing of their ERP-systems.

This has only been a short introduction to ERP-systems delivered as SaaS, which clearly is an area that could be interesting to research further within. It could be interesting to examine how ERP-systems delivered SaaS meet the Business IT needs of small and mid-sized organizations and what the implications are for the ERP-system value-chain if the paradigm switches from perpetual licenses to SaaS offerings. Both the resource-based perspective as well as the perspective of core competencies could offer interesting approaches when looking at the future ERP-systems and the value-chain.

CONCLUSION

The quest for the future ERP-systems ends where it began:

“the ambition of ERP-systems has been to: 1) integrate all transaction systems within the same system; 2) share common data and practices across entire enterprises, and 3) produce relevant information for decision-making purposes in real-time.” (Bjørn-Andersen & Johansson 2007).

Throughout the research of the academic work of the 3gERP Project these 3 dogmas have not been affected. This is still what an ERP-system is developed to achieve. The question for this essay has been how future ERP-systems will meet these dogmas and how it will influence the value-chain. However, when this goal is set several of ways to getting there have been proposed throughout this essay.

An overall main challenge with today's ERP-system is that there is a 'misfit' gap between the required and delivered functionalities. One of the key areas for the 3gERP Project therefore has been to define how to best gather the business requirements for future ERP-systems. In order to avoid misunderstanding it is important that the development has a project oriented approach that involves qualitative interviews with end-users together with strategic business requirements from end-customer executives and experience from existing ERP-systems. Overall there seem to be a broad unity amongst ERP-vendors and the academic research on the fact that the end-customers should have a higher saying in how the future ERP-systems will look like.

When talking about the end-customers, it has also been suggested that future ERP-systems should focus more on them in the sense, that the ERP-system should be oriented towards the user instead of the business processes of the organization. This role-based approach is argued to decrease the need for training and be more intuitive for the end-user and thereby ensure higher the adoption rate and value realization.

Also open-source ERP-systems seem to have earned an increasing interest, but the obvious benefits still seem missed out, since the savings from open-source approach, both the community based as well as the commercial based approach, are converted into other types of extra expenses related the implications of ERP-systems, eg. higher costs for consultancy. However, an Apple inc. a-like open-source approach could make an interesting business case for an ERP-vendor if the end-customer commitment could be obtained.

When looking at the value-chain there seem to be contradictive forces when focusing on the future ERP-systems. On the one hand vendors will strive to develop ERP-system that is easy and less costly to implement for the end-customer in order to keep their competitive advantage towards other vendors, and in doing so the 'best practice' setup seems inevitable. On the other hand both end-customers and the distributors focus on the benefit of the customization of the ERP-systems as this maintain their ability of creating competitive advantage. Throughout the essay this controversy between 'best practice' and customization has been a returning issue. The impact of SaaS could take this discussion of the value creating and competitive advantage of ERP-systems to a further end, since the value derived from ERP-systems delivered as SaaS can be considered a commodity and non-rare resource easy to imitate. In that sense ERP-system vendors continuous striving towards better ERP-system in the end can undermine the relative value and competitive advantage of the very ERP-system, with the note though, that it can be a competitive disadvantages not have one.

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