Solution Based Procedures to Determine Business Models of Enterprise Systems Providers

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Abstract

The implementation phase of Enterprise Systems (ES) and issues occurring during the initial run-time remain the primary focus of Information Systems research. The selection process of an ES has attracted limited attention; and a clear focus on the outcome of the selection phase from the perspective of the ES provider and the deploying company, resulting in a clear phase model has not been widely investigated yet. Thus, this paper aims to close this gap by offering a procedure for creating business models for the ES providers that would also ensure the most favorable outcome for the company implementing the ES.

1. INTRODUCTION

The fast growing, global market for Enterprise Systems (ES) is attracting numerous providers that offer a large variety of proprietary and free (open source) offerings. The wish to capture a reasonable share of this potentially lucrative market is quite expectable, as in today’s highly connected world, it is almost impossible to manage a large company without having an ES in place. Extremely short lifecycles, combined with integration problems resulting from mergers and acquisitions of companies with various systems, accelerate the necessity of regular acquisitions of new ES packages [1].

Many of the ES providers follow a business model that concentrates on a single large income from selling a new ES package. In this business model, additional follow-up smaller revenues could be generated by offering maintenance plans and consulting to the client firm. Unfortunately, over the recent years this business model has apparently became obsolete [2], because many companies became educated ES users. They are more aware of the potential problems and play smartly numerous providers against others, hence lowering the purchase price and profit margin.

The time is ripe for ES providers to rethink this approach and to develop more realistic business models that are more customized to potential system adopters. Regrettably, in spite of many research on other aspects of ES [3], there is not much academic research on this important and current topic. This shortage of academic publications focusing on business models for ES providers motivates our research. Basically, this contribution represents an extended and refined version of our earlier paper [4].

The reminder of our paper is organized as follows. After the theoretical background section, we discuss our methodology. In the following section, we propose our solution. The paper concludes with some ideas for future research.

2. THEORETICAL BACKGROUND

The systemic creation of business models has entered serious scholarly research after Timmers [5] defined and characterized business models. Following the Dot-com bubble, the research on business models continued with exemplary scholar publications which had an impact [6-7]. One of the most recent procedures to develop the business models is the canvas approach developed by [8] that is capable of graphically displaying a company’s business model.

Even though the business models became very popular in recent years [9], only a few research studies reported specifically about the business models used by ES providers. Business models of ES providers have been studied by Brockmann and Gronau [10] and the ecosystem of ES providers by Sultanow et al. [11].

The majority of the approaches intend to define the business model of specific companies. This business model in various cases can be used to determine financial success or failure resulting from the configuration of the value creating activities in combination with their resources and the attempt to capture the value.

The perspective taken in this contribution starts with the analysis of the problems of a company that is forced to implement or change the ES. Then, the problems of an ES provider are listed and analyzed.
This simultaneous analysis of the problems of both client company searching for a new ES and ES provider enables creation of a business model for an ES provider that will solve both their own and the client’s problems.

Understanding the motivation for a client company to change their ES is an important factor in this process. In essence, there is often a combination of multitude of reasons why companies change or implement a new ES. In a systematic research, Gronau [12] found various reasons why companies change the ES as depicted in Figure 1. The most common drivers for ES implementations are the lack of functionality and the limitations in flexibility of the existing systems. Moreover, potential improvements from increased organizational transparency and industry-experience also motivate companies to implement a new ES system. A different strong driver for ES in the need for integration [13]. The drivers for ES implementation are depicted in Figure 1.

An effective software selection process must result in the selection of the best suitable system for the existing organizational business processes. In this context, business processes are defined as various activities using inputs to create outputs, that provide value to the customers [14-15]. Thus, a proper software selection requires a considerable amount of time, planning and continuous (re)evaluation of decisions.

The selection phase can also be perceived as a very emotional phase [16]. To ensure the best fit, a typical software selection process considers a series of steps that each captures problems to be addressed. These steps, or phases, of a typical software selection process, along with their duration in weeks, are based on Gronau [17], depicted in Figure 2 and briefly described further on.

![Figure 2: The ERP selection process [17]](image)

Using the ERP selection process as an example, the major phases of software selection process can be briefly summarized as follows [18]:

Goal [17]: The definition of goals within the software selection process is necessary to determine
whether the targeted goals (Qualitative goals and budget goals) have been achieved through the introduction when analyzing the selection a posteriori. The goal definition should contain the current position and describe what kinds of changes (technical/organizational) are necessary to reach the desired state by a certain date using a determined budget.

Requirements [17]: Four different types of requirements exist: technical, training-related, functional, and adaptive. Technical requirements consist of the IT architecture after the ERP system is introduced, while necessary changes and interfaces need to be added. Training-related requirements are basically the ease of use of the new systems and refer to the amount of training necessary so employees use the system effectively. Users need less training if the ERP system is intuitive. Functional requirements focus on the main business processes the ERP system should support and/or improve. Finally, adaptive requirements consist of the ability to change business processes once the ERP system is installed [19].

Market survey [17]: After the requirements have been defined, a list of ERP system providers can be compiled through market research. According to Pedret et al. [20] sources of information can be classified as primary and secondary. Primary information is collected by the company searching for a new ERP system or on its behalf, while secondary sources contain already existing information.

Screening [17]: The purpose of screening ERP system providers is to reduce the number of potential ERP systems which can be implemented within a company to two or three. System providers should receive questions in written form. Questions about the number of people employed by the ERP system provider, the ability to handle business processes previously defined as very important and a brief estimate of the costs of implementation should be included. Ziaee et al. [21] recommend requesting cost estimates in order to minimize overall procurement and integration cash outflows for the implementation project as a whole. Trimi et al. [22] argue that high risks are experienced in the installation of ERP systems, due to cost overruns and a high rate of installation time, and thus, special attention should be paid to the budget. In order to reduce this risk, Robey et al. [23] propose outsourcing the implementation of the ERP system to an external contractor. In this way, a company’s own IT department can save, as nobody will need to be trained on issues related to an introduction fully managed by the IT department.

Final selection [17]: In this phase, ERP system providers are invited to present their system at the client site. The basic motivation for this presentation is to let the ERP system provider use the prospective client’s corporate master data to demonstrate how its ERP system creates value. This phase corresponds to the one described by [24], where a company must determine the degree of compatibility of its existing business processes with the abilities of the ERP system of a particular provider. If the business processes within the company do not fit those in the ERP system, the provider will need to re-configure the ERP system or the company needs to adopt the business process as required from the ERP system. Often, this configuration of the ERP system is termed customizing.

Decision [17]: During this final phase of the software selection process, various contracts (e.g. purchase and maintenance agreements) are negotiated and signed.

3. METHODOLOGY

After conducting a systematic literature review that assessed the current status of research on business models, revenue generation by ES providers, and drivers for ES implementation, we decided to use action research [25-26] as the main tool to build our solution based business model. The main reason for choosing action research as the main research methodology was the extensive consulting experience of one co-author in working with ES providers. Consequently our actions research followed the five phases [25]: diagnosing phase, action planning phase, action taking phase, evaluating phase, and specifying learning phase.

In the first phase, the diagnosing phase, one of co-author selected several German ES providers which could be used for this study. More than 20 ES providers known for collaborating with the academic environment have been contacted during the first stage. In particular, the most suitable ES providers for our action research appeared those that were not satisfied with their existing business models and searched for better alternatives. One of the reasons for the discontent with their current business model was that the revenues from license sales and maintenance fees are shrinking while customers demand software as a service. After presenting the research initiative on-site at the companies locations as well as during the time the action research was conducted, several companies dropped out. Three companies remained active.
throughout the whole period. They were mid-sized companies located close and within the Berlin-Brandenburg area.

In the action planning phase, the key employees of the ES providers were familiarized with the ideas behind the business models and various options were discussed. One of the issues executives of ES providers face is the increased need of data security by their customers. A second issue that was addressed during the phase was to select companies that would form part of the experimental customer group. Through workshops it was determined that service companies should receive the experimental offering, since during the execution of their processes master data, instead of transaction data, is processed.

In the action taking phase, based on the previous discussions a new fee schedule was offered to a selected, small group of potential clients. Further on, a higher level of support was offered to customers that decided to transfer their master data into the ES provider’s cloud. The support targets two issues: First, the physical transfer of the master data into the cloud, and second a faster response to questions asked by the employees of the implementing company since the ES provider strategically locks in the customer by storing its data.

In the evaluating phase, the outcomes of the new fee policy were discussed and compared with the old model.

Finally, in the specifying learning phase general findings were identified.

4. SOLUTION BASED PROCEDURE

The action research led to results summarized in Figure 3 and 4 which are explained further on. Figure 3 describes the overall procedure which in a first step consists of determining the problems of the customers as well the provider. In a second step, the problems of the customers and provider are matched by listing and sorting them throughout the lifecycle of an enterprise system which following [27-28] consists of the phases initiation, adoption, adaptation, acceptance, routination, infusion, decline. Afterwards, the problems of the provider and customer are solved at the same time through actions of the enterprise systems provider leading towards a solution that will be reflected within the business model. Additionally, the authors suggest that an a priori and posteri point of view should be taken to determine the degree in which the problems are solved over the course of time.

![Figure 3: The Solution Based Procedure](image)

The customer encounters problems during the course of time which can be either system or business process related. Due to technological changes the currently deployed ES could be perceived as obsolete by the employees. After determining that an obsolete system shall be replaced, the next problem is faced to select the most adequate ES. After selecting an ES, it needs to be implemented requiring a significant amount of time from the human resources working at a company. The next problems results in maintaining the system, including updating the processes inherent to the system according to changes in legislation. The last problem faced is the one of system termination which is to determine when the old ES should be turned off.

The ES provider faces a variety of different challenges. The need for positive cash flow is inherent since cash flows are needed to cover the ongoing costs. The next problem is marketing related, particularly promotion related. Brand awareness needs to be created to ensure that the ES provider is part of the potential customer’s evoked set. Further on, a smooth implementation also needs to be assured. Implementation can be defined as smooth if the majority of the customer’s employees use the ES with a minimum amount of training. Further on, maintenance needs to be cost effective since it is supposed to provide a vast proportion of ES providers’ income. The last problem faced by an ES provider is customer retention which should make customers feel that the system they are currently using is adequate for them and will continue using it.
The business model for ES providers aims to solve problems of the customer and the ES provider. If the ES provider has a business model that alleviates the customer from its problems and does so with the own problems, while positive cash flow is generated it can be classified as suitable. The business model within this contribution comprehends three parts: A component basis, value creation and value capturing. The component based ES allows the customer to select the components that are of most beneficial. Value creation can occur through different services offered. For example value could be created by training the users on how to use the system or how to migrate data from the customer into the cloud. Value capturing refers to minimize the own costs in order to receive the highest cash flow with a given cash inflow. Overall, the business model is strongly influenced by the component based ES, the value creation and value capturing. The arrow in Figure 4 shows this interaction. The business model components are influenced by the demand for a component based ES, while an Enterprise Systems based on a Service-Oriented Architecture (SOA) may not create the necessity to change the business model, through it shifts the focus from building effective systems to getting the customers business done most effectively [29].

If problems and solutions are compared at various moments, an evolution can be determined and seen. This evolution can help an ES provider have better insight into their customers’ needs.

The creation of the business model presented in this contribution contains an evaluative component which consists of determining changes in the business model over the course of time. We suggest that through the observation of the business model components through the course of time an evolution would be observable which consist in components that are added, modified, or eliminated due to financial failure. The necessary data was collected in the various phases of actions research described earlier.

**5. CONCLUSION AND FUTURE RESEARCH**

The findings in this study are based on action research in a limited number of companies. Thus, the authors propose to validate the results through quantitative surveys which should provide more reliable data. In addition to the quantitative approach, various case studies could be conducted.

Although the action research was performed in Germany, the authors believe that the findings could be generalized to other countries and, for example, applied within other developed countries in the European Union. However, in order to determine possible differences between the countries, a study, for example comparing US and European ES providers, should be conducted. A different focus of the future research projects could also be extended the scope of investigation to emerging and transition economies located in Europe and Asia, since, these economies are continually gaining more importance. In this context, it
could be reasonably assumed that the proposed Solution Based Procedure is in particular useful for the small but fast grooving ES providers located in emerging economies that are still in the process of building their brands [30]. Further on, the concept could be extended to ES providers whose systems are rather monolithic than component based. Additionally, the use of the solution based procedure could also be extended towards companies that provide other software than an Enterprise Systems.

In summary, this contribution provides a guideline for ES provider executives to determine which changes of their business models could be performed to increase the profitability. The idea of solving the customer’s problems and by doing so solve the own problems is perceived as the most adequate to create a sustainable competitive advantage in turbulent times.

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