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Business Models of ERP System Providers

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ABSTRACT

This contribution will propose an analytically derived reference framework for business models of ERP system providers. First, ERP systems are defined. Further, implications from services marketing are outlined. The business model concept is defined and positioned against strategy and business processes. Furthermore, the business model framework is developed based on previous publications on business models and adapted to ERP system providers. The components of the business model framework are explained. This contribution concludes with a summary and further research questions.

Keywords

Business models. ERP system provider, framework, product, service.

INTRODUCTION

This contribution proposes a reference framework for business models of ERP system providers. This proposition intends to show different components and their values analogously to morphological analysis (Proctor, 1999). The aim of further research will be to evaluate the results of combining different components and their values to determine the impact on the financial success of an ERP system provider. Due to it's length, this contribution will only present a brief way to approach the final goal.

DEFINITION OF ERP SYSTEMS

The following section contains various definitions on ERP systems, leading towards a definition to be used throughout the remaining part of it.

(Sumner, 2005), defines the abbreviation ERP as enterprise resource planning. According to (Nah, Lau, Kuang, 2001), resources related to a company (finance, materials, human resources, etc.) are managed efficiently and effectively through an ERP system by providing a total integrated solution for the information-processing needs of an organization.

According to (Peslak, 2006), an ERP system consists of a series of functional modules that include all information and data on vendors, customers, employees and products integrated through standard business processes. Common modules include accounting, marketing, logistics, sales, purchases, manufacturing, human resources and inventory. (Aladwani, 2001) takes a similar approach by defining an ERP system as an integrated set of programs, providing support for core organizational activities, finance and accounting, manufacturing, logistics, sales, marketing and human resources. The ERP system thereby helps different parts of an organization to share knowledge and data, to reduce costs and to improve management of business processes.

(Botta-Genoulaz, Millet, 2005) define an ERP system as a software package that integrates all departments and functions of a company onto a single computer system that can serve all needs of different departments. (Huang, Wang, Yu, Chiu, 2004; Mohamed, S., 2009) take a similar approach, defining ERP systems as configurable information systems, integrating information-based processes and information within or across organizations. (Payne, 2002) defines an ERP system as business support software that enables a company to combine computer systems from different areas of a business – finance, sales, marketing, production, human resources – to run on a single database.

For the purposes of this contribution, an ERP system is a software package that contains applications for different business areas (e.g. finance, marketing, etc.), and stores and accesses information from a single database used to effectively and efficiently plan and manage the resources of companies. ERP systems are developed by ERP system providers (Oliver, 1999).

CLASSIFICATION AND IMPLICATIONS FROM SERVICES MARKETING

The following section describes the classification of ERP systems within the Marketing science and explains implications derived from it.

(Cusumano, 2003) argues that software is a product, as long as it is sold in a package. Software companies become service companies when their products are customized or revenues from software maintenance are earned. According to this classification ERP systems vendors are service companies, since almost all commercial ERP systems are customized and maintenance contracts included. This thinking implies that a core product exists and additional value is generated around it as depicted in Figure 1. This argument is in accordance with (Kasper, van Helsdingen, de Vries jr, 2000), who define that a service is originally intangible and the buying takes place in an interaction process, hence, if no interaction is present between the customer and the service company, no service is produced.

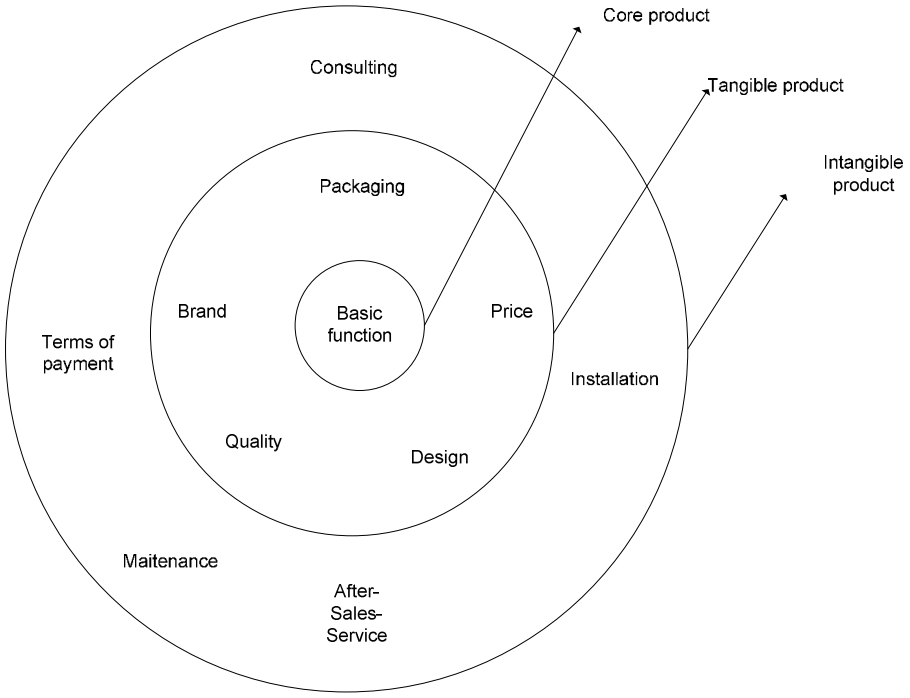

Figure 1. Product and services following (Baxter, 2002; Brassington, Pettitt, 2006; Kovács, 2006; Meyer, Blümelhuber, 2000)

Differentiating whether software is a service or product is relevant since analogously to (Groucutt, Leadley, Forsyth, 2004), implications from service marketing partially impact the business model's characteristics and it's values. The inseparability of production and consumption (Baron, Harris, Elliott, 2005) of services requires the ERP system provider to provide sufficient personnel. Further, (Reardon, Miller, Hasty, Waguespack Jr., 1996) recommend that information asymmetry should be eliminated when the ERP system provider's personnel is working with customers. Furthermore, the capacity to provide additional services should be scalable, so an increase or decrease in the demand can be dealt with.

BUSINESS MODELS

The following section includes various definitions of business models, leading towards a functional definition. Afterwards, a framework to identify business models of ERP system providers is derived deductively. First, components are identified, based on the literature review on business models. Further on, each component is divided in various values. The section concludes with a table containing the proposed business model reference framework's characteristics and their values.

Definitions

Various definitions of business models exist. One of the most frequently used is (Timmers, 1998), which is as follows:

- *"An architecture for the service and information flows, including a description of the various business actors and their roles*
- *A description of the potential benefits for the various business actors*
- *A description of the sources of revenues."*

This definition is based on the assumption that the value chain described by (Porter, 1985) is deconstructed, and through the reconstruction by varying elements (adding new, eliminating existing or exchanging),the business model can be described using the value chain concept.

Another approach is presented by (Petrovic, Kittl, Tekstenc, 2001), who propose a model consisting of the following seven elements:

- A value model which describes the logic of what core service(s)/ product(s) is / are delivered to the customer and other value-added services derived from the core competence.
- A resource model, which describes the logic of what elements are necessary for the transformation process, and how required quantities can be identified and procured.
- A production model, that describes the logic of how elements are combined in the transformation process.
- Customer relations models containing the logic of how to serve reach and maintain customers. It consists of the following sub-models: The distribution model explaining the logic behind the delivery process. The marketing model, containing the logic behind reaching and maintaining customers. The service model containing the logic behind serving the customer.
- A revenue model describing how, what, why, and when the company receives compensation in return for the products or services.
- A capital model describing the logic of how financial sourcing occurs to create an equity structure, and how financial resources are used over time.
- A market model describing the logic of choosing a relevant environment in which the business operates.

(Chesbrough, Rosenbloom, 2002) propose a similar model which differs from (Petrovic et al., 2001) in the inclusion of the competitive forces described by (Porter, 1979) and the orientation on the value chain (Porter, 1985). Other definitions as for example (Yip, 2004) also consider the distribution channel and the targeted customers.

After the previous definitions, a differentiation between corporate strategy, business model and business processes appears to be necessary since somehow the three concepts seem to interact closely. (Osterwalder, Pigneur, 2002) propose the relationship of each one of the three concepts in relation to the other as depicted in Figure 2:

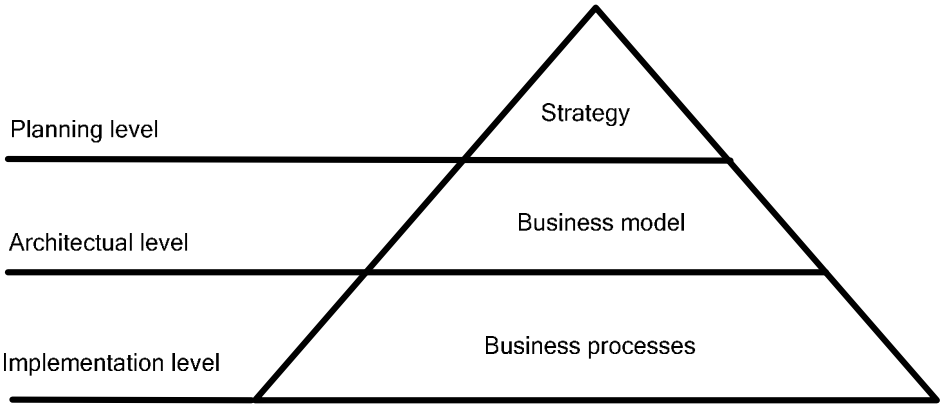

Figure 2: Strategy, the business model and business processes following (Osterwalder et al., 2002)

Figure 2 is in accordance with the differentiation of strategy by (Porter, 1996), who sees a difference in strategic positioning and operational efficiency. Operational efficiency aims to obtain better results than competitors through a higher usage of internal factors – a faster product development could be cited as an example. According to (McAfee, 2002), the response time and adherence to schedules could indicate operational efficiency. Strategic positioning, however, aims to perform other activities or the same activities in a different way than the competitor.

Figure 2 shows the relative position of the business model in comparison to other concepts. A company first defines its strategy. Based on the strategy, the business model is formulated and after that the characteristics and their value are defined. The last step consists in implementing the business model through an ERP system provider's business processes.

In conclusion, the business model definition used later in this contribution will be presented. Since various definitions are presented using a very high level of abstraction, the definition presented here will be brief and practical:

The business model contains the business logic, consisting of:

- How inputs are transformed to output
- How the product(s) or service(s) is / are distributed
- What markets and customers are targeted
- How value is generated for the customers
- What revenues are generated and what costs occur

Developing a reference framework for business models of ERP system providers

In the following section a reference framework will be developed which suites the peculiarities of ERP system providers, consisting of components and their values. The components of this framework are based the definition of business models elaborated for this contribution. The components and their relationships between each other are depicted in Figure 3. Each component consists of various values which will be described further on. In this proposition, a business model is described by listing all component's values that can be found in an ERP system provider. However, it would also be possible to define a business model as an amount of combinations, where each combination consists of a single value for every component. Further on, the business model could be described as a mixture of both methods mentioned previously. Since this framework will be used to describe an ERP system provider's business model, it is assumed that an ERP system is present and not explicitly stated in the remaining part of this contribution.

Figure 3 summarizes the components of a business model for ERP system providers:

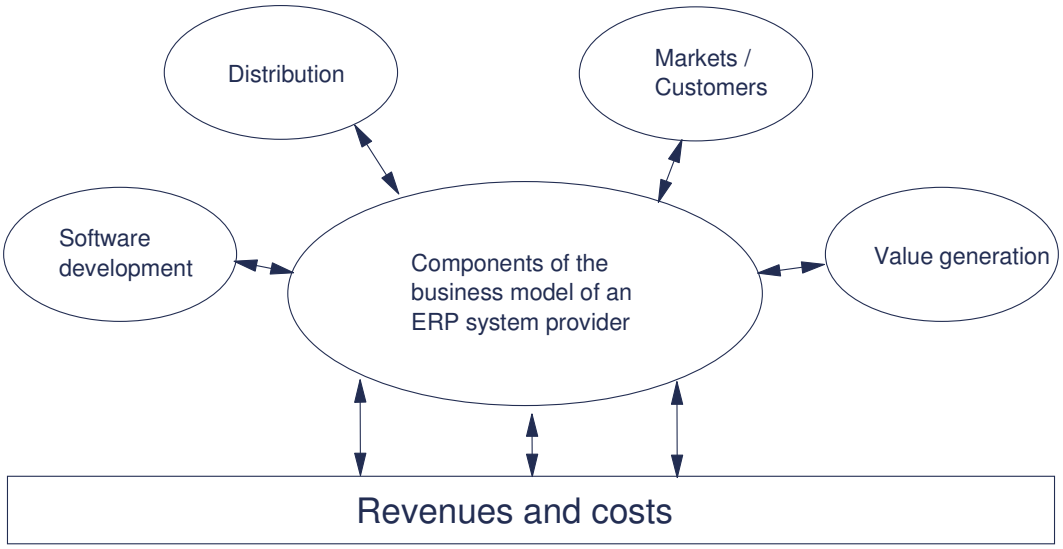

Figure 3: Components of the business model of an ERP system provider

In the following part, the components of the business model framework shown in Figure 3 and their values (shown in Table 1) are described.

- Software development: Usually software companies – like ERP system providers – develop software on their own. (Krishna, Sahay, Walsham, 2004) show that software development can be done by third parties and (Chesbrough, Appleyard, 2007) mention that a community of users can develop the software. The way software is developed decides if the source code according to (Alexy, Henkel, 2007) is accessible only within the company itself (closed source) or publicly accessible (open source) – it will be mentioned at this time that various grades between closed and open source exist which are not explained in this contribution to limit its length. Software development can refer to the fact that all of the ERP system is developed by the ERP system provider or that some industry specific parts developed by a third party and added to an existing ERP system as is the case with the Microsoft Dynamcics product line following (Mourão, 2005).

- Distribution: ERP systems are either distributed by the ERP system provider or intermediaries. The product portfolio of intermediaries could analogously to (McCarthy, 2002) contain ERP systems from one or various ERP system providers. ERP system providers could analogously to (Vatanasakdakul, Boon Kiat, Cooper, 2004) employ a hybrid-strategy and use various distribution channels at the same time. The ERP system provider could sell the system independently as well as through intermediaries. It should be noted that ERP system providers who directly sell to their customers know their needs and their problems much better than those who distribute their systems through intermediaries.
- Markets / Customers: Generally, two markets can be identified: A low-cost market which, for example, is outlined by (Hamilton, 2003) and a regular market. It should be noted that the market is always oriented towards the needs of the customers, meaning that the ERP system can usually be used within an industry or within sectors with or without the possibility of using the ERP system in foreign countries. Furthermore, the differentiation can be based on the size of the companies (large, medium-sized, small and micro enterprises).
- Value creation: ERP system providers can – following the idea of Figure 1 – provide additional services besides core products by training new users and assisting in the implementation of the ERP system. In addition, the ERP system provider can assist its customers on how to implement the system. When the implementation (part of the consulting in Figure 1) of an ERP system is supported by the ERP system provider, a lot of attention should be focused on the fact that no information asymmetry between the ERP system provider and its customer exists, since it might be a source of discontent with the service and lead to the discontinuation of the contractual agreement. Furthermore, the proposal of the ERP system provider could include customizing following (Brehm, Gómez, 2006), programming interfaces following (Heinckiens, 2008) and loosely based on (Zykov, 1998) forms and reports. The servers on which the ERP system runs can either be located at the client's site or at the data centre of the ERP system provider. Interested readers should refer to (Boffey, 1989) to obtain further information on this issue.
- Revenues and costs: ERP system providers can generate revenues from various sources. Following (Cusumano, 2004) one time revenue can be generated through the sales of licences. Recurring revenues can be generated through renting the ERP system (Software as a Service – SaaS). (Shankar, 2004) advises that companies should decide whether they are going to sell or rent their software since a hybrid strategy, such as SAP, Oracle and Siebel pursued in the past, was not successful. An additional source of recurring revenue is maintenance. Revenues through maintenance could be a percentage of the original licence sales volume following (Raysman, Brown, 1984) or a percentage of the licence volume including amounts charged for customizing. Following (Classen, 2008), maintenance could include the right to upgrade to the next version of an ERP system or not. Readers who would like to broaden their knowledge of the interdependency of software development and maintenance are advised to read (Banker, Davis, Slaughter, 1998). Figure 3 shows that the revenues and costs are in relationship with the other components of the business model connected through the components item. This is due to the fact that if components vary, the revenues also vary. An example will clarify this issue: The core product could be the ERP system where licenses are sold to customers. The ERP system provider could decide to offer additional modules for rent. Besides revenues, costs are also considered in this framework. Analogously to (Jiambalvo, 2007) the following costs should be considered part of the business model: Fixed costs (remain constant when there are changes in the level of business activity), variable costs (depend on the level of business activity increase or decrease) as well as direct costs (directly traceable to the elements of a business model) and indirect costs (cannot be traced directly to an element of the business model). The framework presented in Figure 3 might suggest that all costs are direct costs since they seem to result from a combination of the elements of the business model. It should be stated however, that indirect costs should also be considered when analyzing the business model as a whole. Furthermore, it should be stated that although some combinations of business model elements might result in higher costs than revenues, seen as whole the business model might be successful. For instance a company obtains no revenue from licensing their ERP system but generates revenue through training and maintenance. Hence, financial value is generated as a whole and not through each element.

The following table will present the components and their values of the ERP system provider's business model:

Component	Value 1	Value 2	Value 3
Software development	ERP system is fully developed by the ERP system provider	ERP system is developed by a third party.	ERP system is developed by a community
	All components of an ERP system are developed by the provider	Industry specific components are developed for an existing ERP system	
Distribution	Exclusive distribution	Distribution through intermediaries	Hybrid
	Problems of the customers are known by the company		
Markets / Customers	Low-Cost	Regular market	
	ERP system is used only in the country of residence of the ERP system provider	ERP system can be used in various countries	ERP system can be used worldwide
	Specific industry	Sectors	
	Micro and small enterprises	Mid-size enterprises	Large enterprises
Value creation	Training	Assistance in the implementation of the ERP system	
	Customizing	Programming interfaces	Programming forms and reports.
	Servers are located at the customers site	Server is located at the ERP system provider's site	
Revenues	Sales of licenses	Renting the ERP system	
	Maintenance without the right to upgrade	Maintenance with the right to upgrade	
Costs	Fixed	Variable	
	Direct	Indirect	

Table 1: Components and their value of an ERP system providers business model

SUMMARY AND FURTHER RESEARCH

This contribution started with a definition of ERP systems, which are sold by ERP system providers. In addition, implications from services marketing were shown. After that a business models definition was presented and applied to ERP system providers, resulting in a framework for business models of ERP system providers.

This business model framework presents components and their values, which through a recombination could be used to change a company's present business model or create a new business model from scratch.

One of the research questions regarding the representation of the business model is whether the proposed methodology of describing business model by showing all values present at once for each component is more adequate than describing a business model through a list of combinations where each combination consists of one value for every component.

In the near future, the framework is scheduled to be validated surveying large, mid-size and small ERP system providers. After the validation, the next step will be to create a deterministic or stochastic model, predicting certain outcomes as, for example, survival probability of an ERP system provider, cash flow or market share in future periods.

Besides this quantitative approach, the business model framework could be used to systematically analyze a company's business model and detect flaws going through each component and it's value(s).

Further research questions immerge, for example:

- Are there additional relevant values or components which do not figure in this contribution?
- Can the values of each component be clearly separated?
- What is the impact of a change in the distribution component on cash flow?
- What would be the impact on revenue of a change in customers?
- How might changes in value generations interact with targeted customers?
- What impact on revenues and cost would occur if the ERP system provider decided to outsource software development?
- Do costs proportionally increase with revenues?

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