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E-Mall As Solution For Marketing The Federated ERP Components On The Basis of Web Services

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The exchanging of the enterprise resource planning (ERP) system's components which are distributed on the basis of web service is in fact a new business idea. This idea comes to supply the needs of the small and middle size Enterprise (SME) from the business software and especially the ERP system through the ERP system distributed on the basis of the web service. This new idea should be materialized in an appropriate business model. This act shows a step to achieve an appropriate business model to market the independent standard ERP components, on a base of web service. The aim of this step is to find the best sort of business model for the Federated ERP Web Services (FERP WS). We intend to find the appropriate business model for the FERP WS by completing a comparing among the existing business models with the consideration of the marketing requirements of this new product.

Field of research: E-Business

1. Introduction

The increasing number of the small and medium companies' employees, extended the need for flexible functionalities in ERP systems. SMEs face different

Problems when they buy the ERP systems, like (Abels, Brehm, Hahn & GÓmez, 2006; Brehm & Gómez, 2007).

- Not all downloaded components are required.
- The usage, conditioning, and maintenance of these products are too expensive.

An ERP system is a standard software system which provides functionality to integrate and automate the business practices associated with the operations or production aspects of a company. The integration is based on a

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common data model for all system components and extents to more than one enterprise sectors. Figure 1 shows the architecture of today's ERP systems [Abts & Mülder, 2002; Robey, Ross & Boudreau, 2002; Rautenstrauch & Schulze, 2003; Gronau, 2004).

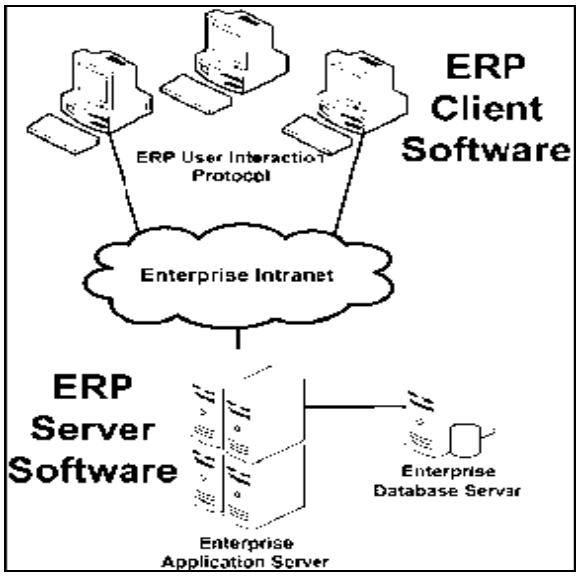

Figure 1. Conventional ERP system architecture

Normally, an ERP-Vendor offers a single ERP-System, which is the basis for the integration of various types of business applications. The functionality of this ERP-System covered all of the functions of the enterprise sectors that are implemented and controlled by the respective vendor. The installing, developing and maintenance of this system is very expensive. Only big companies are able to cover this cost while the small and medium businesses are not able to do so; therefore, in the last few years the idea of the Federated ERP-System in the basis of Web-Services has evolved (Asfoura, Kassem, Rautenstrauch, Gómez & Jamous, 2008)

A federated ERP system (FERP system) is an ERP system which consists of system components that are distributed within a computer network. The overall functionality is provided by an ensemble of allied network nodes that all together appear as a single ERP system to the user. Different ERP system components can be developed by different vendors. Figure 2 shows a federated ERP system architecture where ERP components are provided as services by external component providers. Through the FERP system, companies pay only for components deemed necessary. Also, the needed End-Hardware is made available by the service provider which in turn, reduces costs (Abels, Brehm, Hahn & GÓmez, 2006; Brehm & Gómez, 2007; Brehm & Gomez, 2007).

An ERP system component in this case is a reusable, closed and marketable software module which provides services over a well-defined interface. These components can be combined with other components in an unpredictable manner (Turowski, 2003). The search for these services is covered by the functionality which is considered as the logical and stable construction stone in

ERP system (Brehm & Gómez, 2007). Web services are reusable functionalities, which can be addressed through standardized interfaces (Nüttgens&Dirik 2008).

Exchanging ERP's components as web services need a suitable business model. Therefore, businesses should be adopted to fulfill the new idea's need. *A Business model* involves (Timmers, 1998):

- The architecture for the product, service and information flows.
- The business actors, their roles, their potential benefits from the business model, and the revenue streams.

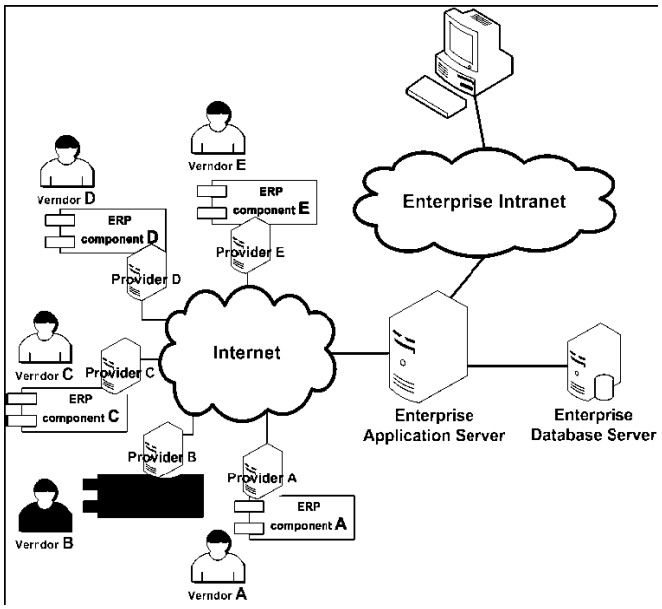

Figure 2: Federated ERP System on Basis of Web-Services

In order to reach this goal, we present a group of characteristics and their attributes, which can be used as a base for selecting and diagnose the most suitable business model. These characteristics are:

- Types of business model in E-commerce.
- Phases of transaction.
- Revenue's model

In the next three sections we will present the possible types of business models, transaction phases and revenue models on the Internet and this will be the base for the characterization phase in the fifth section, which determines the most appropriate business model for the marketing of FERP Web Services by comparison, according to the requirements, and nature of the FERP Web Services.

2. Type of business model in E-commerce

IT is sorted on the basis of who is doing the commercial operation if it was the proposing model, the customer, or the agent, also the differentiation between the known and unknown act of the practitioner of the model on this bases. The business model is divided into three groups (Bartelt & Lamersdorf, 2001):

2.1 Supplier model

This group divided into:

1- Supplier model with unknown acts: In this model the demonstrator acts with the customer in unknown ways. So he proposes his commodities then he waits the order from the customer, for example: online shopping.

2- Supplier model with known acts: In this business model the demonstrator acts in known ways towards the customer and wait for the customer to advertise his commodities, for example: E-newsletters.

2.2 Consumer model

This group divided into:

1- Consumer model with unknown acts: In this business model the customer demonstrates his needs and wait for a proper offer from the demonstrator, for example: E-tending.

2- Consumer model with known acts: In this type the customer inquires and connects directly the proper demonstrator, for example: shopping agent, and e-procurement.

2.3 The intermediary model

In this model, the agent is the element which stands between the seller and the customer and he can act towards both, in known or unknown ways. The importance of this element comes from reducing and facilitating the commercial and practical cost and the tow most famous examples are the E-mall and E-auction.

An Enhanced and customized categorization of the business of the provider and facilitator in relation to the marketing of professional services and functionalities as Web Services in five forms (Nüttgens&Dirik, 2008):

- The business model of software-companies, which offer services with obligatory fee for the direct revenue generating.
- The business model of software-companies, which offer in addition to the distribution and licensing of their software products free web services.
- Business models of companies that are not software vendors, but they offer free Web services to support their core business.

- Business models of companies whose core business is not in the production of software, but builds know-how solutions in these areas. These companies offer their Web services with obligatory fee.

- A new and customized business intermediaries for Web Services marketing is the broker (or brokerage), which mediates between Web services providers and the customer (enterprises, individuals,…) and supports the customers to find suitable Web services through online directory services as a clear database (BOV AG, 2006; Clark, 2001a; Dustdar et al, 2003; Tamm&Günther, 2005; Küster, 2003)

This categorization is not totally different than the first one, but this may clarify and give further adjustments to the products with new properties (web services).

3. Phases of transaction

3.1 Information phase

In this phase, demonstrator shows his commodities through the (Internet platform) as an advertisement so the customers could find the suitable commodities.

3.2 Bargaining/ Negotiation phase

In this phase, the transacting sides connect and discuss the commercial terms, like the prices and the buying conditions until they reach an agreement of either completing or cancelling the deal.

3.3 Transporting and paying phase

This phase includes the paying and transporting through proper systems in a way that fits the properties of this good.

4. Revenue's model

Revenue model is divided into:

- *Sources of revenue.*
- Forms of revenue.

4.1 Sources of revenue

The sources of Revenue fall into three categories (Skiera & Lambercht, 2000):

- The revenue from *"Products*": generated by selling tangible and intangible goods.
- The revenue from "*Contacts*": generated from ads or sponsoring to reach customers.
- The revenue could also generate through collecting information about consumers and selling this information to a third party.

4.2 Forms of revenue

On one hand, Wirtz classified the form of revenue according to the players (i.e. buyers and sellers) into direct and indirect revenue. On the other hand, he classified the form of revenue according pricing conditions into transaction-dependent and transaction-independent (Bitkom, 2006; Boles&Schamess, 2003; Nüttgens&Dirik 2008; Wirtz, 2001):

- Direct revenue: corresponds to direct revenue from a costumer.
- Indirect revenue: corresponds to revenue from a third party.

Transaction-dependent revenue: stems from interaction between a customer and an institution. Transaction-independent revenue: refers to the revenue which stems from individual marketable transactions

The intersections of these four categories yield four characteristics of revenue:

1- Direct transaction-dependent revenue: Consists of revenue from transactions, connection fees and service fees. Revenue from transactions results from customer payments for using or accessing the products or the services of the company/institution (exp.: charge per call of web service).

2-.Indirect transaction-dependent revenue: Generated from an intermediary institution as a third party (provision).

3- Direct transaction-independent revenue: Refers to the base fees and premiums on a continuous basis for using a product or service.
4- Indirect transaction-independent revenue:

Banner ads: revenue from banner ads refers to using a designated advertisement space on a website under the control of a third party.Data mining: revenue from data mining generated by selling collected information about customers to a third party. Sponsorship: revenue from sponsorships refers to renting an advertisement space exclusively by a third party.

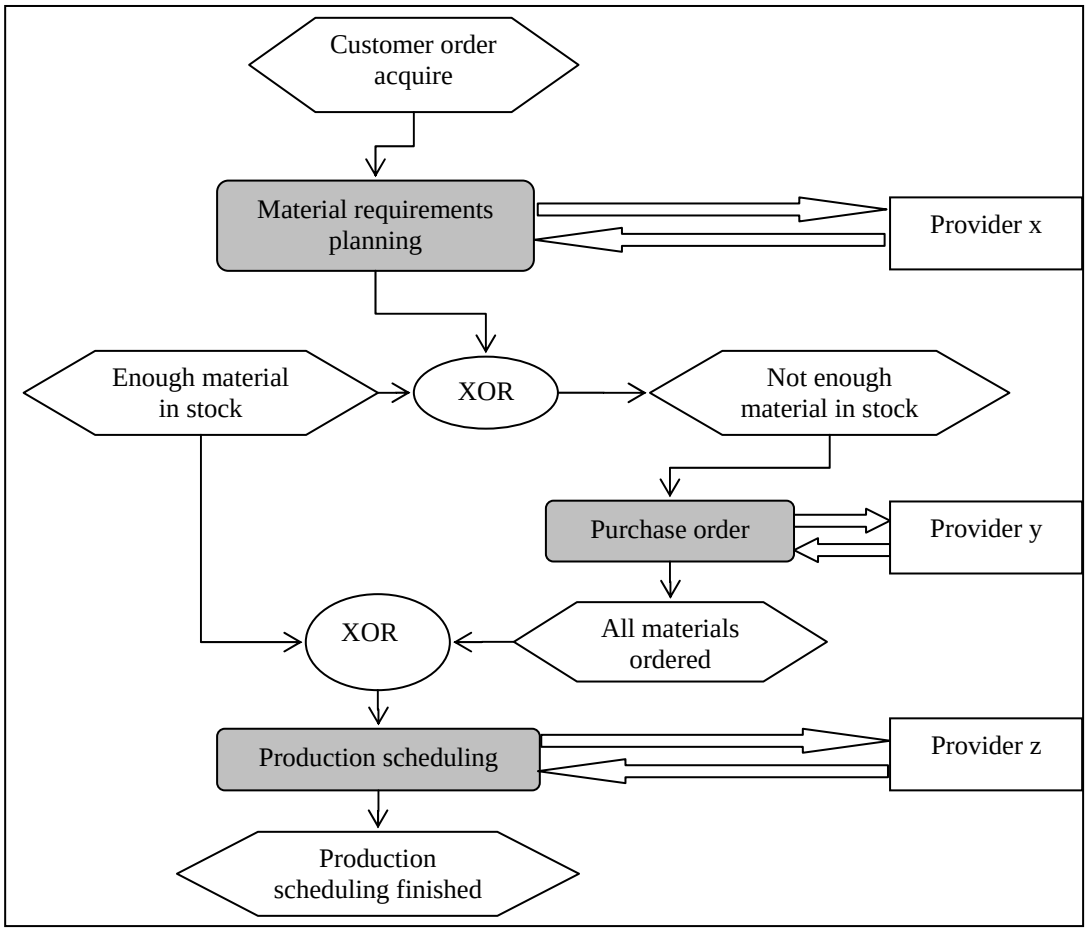

Figure 3: Example manufacturing business process and outsourcing of ERP-functions

5. Finding the appropriate business model for exchanging the standard of the FERP components

In the case of web service base ERPs, the needs of small and medium companies are supported by the ERP functionality through many components. These components in the form of web Service are being treated by different sellers and not always by the same seller. Figure 3, shows an example of manufacturing business process and outsourcing of ERP-internal functions (Brehm & Gomez, 2007).
Then the whole functionality is provided from different independent suppliers, who belong to various business sectors. The connection between

a customer and several ERP's providers is difficult and take a lot of time; therefore the intermediary commercial model is a suitable model (Broker, see capital 2). This intermediary presents the ERP components of different providers and organizes a cross vendor to satisfy the functionality demanded by the customers (Abels, Brehm, Hahn & GÓmez, 2006; Asfoura, Kassem, Rautenstrauch, Gómez & Jamous, 2008; Brehm & Gomez, 2007).

The main role of the intermediary is to publish and search the web services through online directories, to offer clear database in the form of "yellow pages" and internet catalog. Figure 4, shows this scenario for the intermediary.

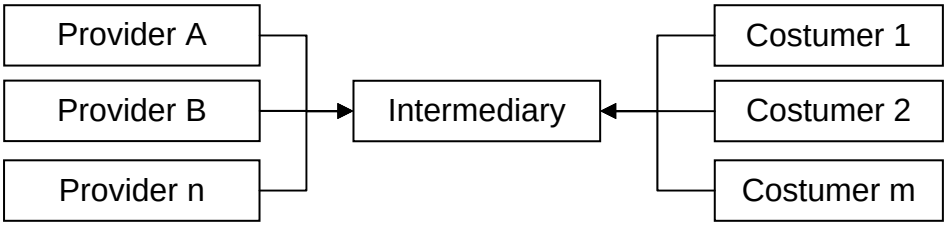

Figure 4: the intermediary - Scenario

The acting elements in this business model are:

- The ERP web service providers.
- The intermediary.
- The customer.

In order to be able to define the suitable intercession form, we will present two possible forms, compare their properties and choose one of them, which serve as basis for realization of the appropriate business model through the adjustment and the determination of behavior between actors.

5.1 The first possibility, E-Auction-Platform

In this case the intermediary publishes the information about the ERP web service and its provider; it also supervises the deal between the provider and the customer “the price”. The delivering and payment phase is done directly between the provider and the customer. Figure 5 shows this business model scenario.

The revenue of this business model is generated indirectly through the mediation of Information between the ERP web services' provider, and the consumer (SME) as a rate of return from every transaction and also through advertisement at the platform. Direct revenue is possible when the intermediary offer a supporter services like exercising and consulting services

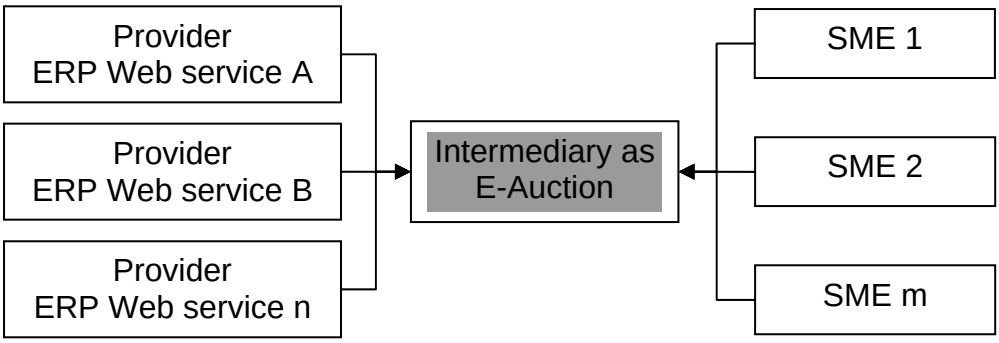

Figure 5: business model for exchange ERPs’ components as E-Auction

Some of the advantages of this form are:

- Consumer (SME) could find easily the providers of ERP web services who provide its needs from the ERP functionality.
- The providers could easily reach many customers.
- The intermediary has the chance to achieve additional revenue through offering supporter services.
- Good chance for small and medium providers to compete in the market

Some of the drawbacks of this form are:

- The consumer (SME) must sign many contracts when its needs of the ERP web services are covered by different providers.
- Every provider is partially responsible. In other word, there is no “one” responsible party which SMEs should deal with in case of failure or any accident.

As a result of these problems, beside the high prices of ERPs software, we consider this possibility practically inapplicable.

5.2 The second possibility, E-mall-platform

The E-mall platform is the result of grouping more than on ERP shop related to more than one provider on one platform. E-mall uses one system for most of the transactions. Those transactions could be like presenting and offering the product, delivery system, paying system, etc.... In this case all the ERPs’ shops look like one shop, which offer the needed functionality from as a single ERP system. The E-mall owner “mediator” is the only responsible party, and the SMEs deal directly with this mediator, and complete all the transactions or the phases with the supervision of the mediator. Every shop in this FERP mall offers Functions (web services operations) that belong to the same sector of the functional business organization (Abels, Brehm, Hahn & GÓmez, 2006). Figure 6 shows this business model scenario.

Revenue in this business model is direct transaction-dependent revenue, where it is generally generated through the licenses of ERPs’ functionalities which presented as Web Services. In addition, marketing supporting services considered as another possible source of revenue.

Indirect transaction-independent revenue could be possible through adding advertisements on the platform, where the huge number of visitors is a good factor to encourage the interested parties.

Determining the revenue is possible through the final determination of the payment action for these digital services, and the determination of the cash flow among the actors.

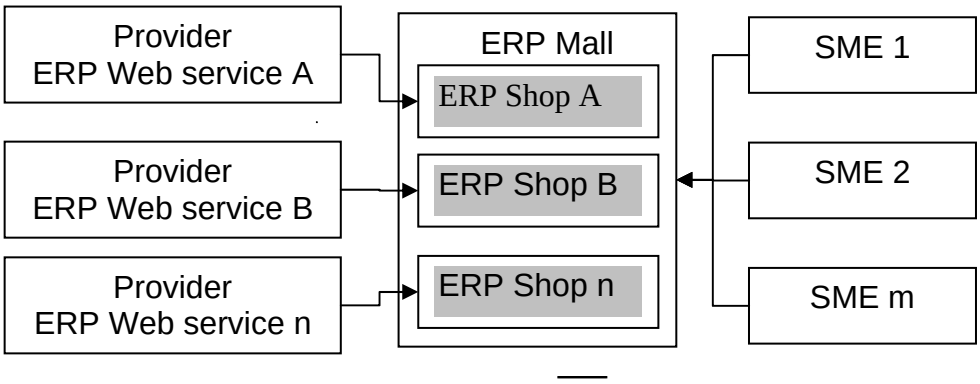

Figure 6: business model for exchanging ERPs' components as E-Mall

Besides the advantages of the first possibility, the E-mall combines all aspects of transactions in one platform which reduces the risk for customers that buy the distributed functions. This, of course, is a big advantage to the first possibility. The ERP mall, therefore, is the best type of the business model which, if adopted properly, leads to a suitable business model for marketing the standard ERP components. But we will present the next steps the possible distribution of tasks between the actors in relation to the requirements of FERP systems.

6. Conclusion

This participation shows a new and important idea for exchanging the standard ERP components as services. This idea presented to solve the SME's problems with ERP systems. As a result, it has been determined that the ERP mall is the closest type of business model which leads to achieve the best business model for this new idea. And it has been characterized through a group of characteristics. This business model must be adopted to be in line with the new product's nature. One of the most important recommendations is that the intermediaries do the entire role and carry on the full responsibility on behalf the consumers.

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