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European Conference on Information Systems (ECIS)

2004

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THE ROLE OF IT IN THE FORMATION OF A COMPANY'S OFFERING – A FRAMEWORK FOR EMPIRICAL ANALYSIS

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Abstract

In this study, we explore the role of information technology in the seller's decision to formulate an offering. On the basis of a review of existing studies, we identify three dimensions characterizing the nature of a company's offering as a part of a comprehensive business model. We analyze offerings on the continuum from product-oriented to service-oriented offerings. The established dimensions are: degree of standardization, timing of costs and price quotation principle.

We identify three types of factors (to be tested empirically) affecting the seller's decision to formulate an offering. These factors are: (1) the use of IT (the degree of integration to electronic business between the buyer and supplier organizations), (2) factors endogenous to the company's offering, (i.e., scope of contract and type of installations to maintain), and (3) factors exogenous to the company's offering, (i.e., factors relating to technical unpredictability and core competencies).

Keywords: Business Model, Offering, Product, Service, IT use.

1 INTRODUCTION

Business models have been investigated in several research arenas, such as management, marketing and economics. Recently, also IS research community has begun doing research on this topic (Timmers 1998, Afuah & Tucci 2001, Weill & Vitale 2001, Hedman & Kalling 2003). The previous research has examined e.g. different business models in electronic markets. Business offering is seen as a part of a company's business model (Rajala et al. 2003, Hedman & Kalling 2003). Our objective is to examine the nature of a company's offerings in greater detail. We focus on the antecedents of product-oriented and service-oriented offerings.

In some industries, there is a clear shift from product-oriented thinking toward service-based concepts. This argument is based on the view that customers would sooner buy solutions to their needs than products (Levitt 1960). For example, Wise & Baumgartner (1999) write: "providing services is more lucrative than making products in traditional manufacturing". An illustrative example of this is the increasing share of service revenues of industrial manufacturing companies such as Kone or Wärtsilä. Vice versa, there are companies that are moving from services toward service products (Rust et al. 1996). For example, some software companies are making products of their services. In these cases, the repositioning of company's offering on the continuum of its product vs. service orientation has increased the revenue from the business. Therefore, we see the antecedents and the decision to formulate the company's offering as important theoretical and managerial issues that have not received sufficient attention in the existing literature.

Previous research categorizes services and service products (Rust et al. 1996) in electronic commerce in several ways. For example, Cho & Park (2002) categorizes them into mass services, interactive services, supporting services and professional services. The emergence of information economy (e.g. Grover and Ramanlal 1999) and the increasing information intensity of products and services have led to the convergence of products and services in their traditional definitions. Hence, it has become difficult to distinguish between products and services as such. For this reason, we describe a company's offering on the continuum of product-oriented vs. service-oriented offerings and establish dimensions to analyze them.

We examine the role of IT use in the seller's decision to formulate either a product- or service-oriented offering. On the basis of prior literature, we observe also other exogenous and endogenous factors affecting the decision. The relative importance of IT is studied in relation to these other factors.

As in transaction cost economics (Williamson 1985), we use a single transaction as the basic unit of analysis. We focus on dyadic relationships between sellers and buyers and leave value-creating networks outside the scope of this study. Also, we focus on business-to-business activity and rule out business-to-consumer activities. However, one business setting (that is, one buyer-seller relationship) can produce several empirical observations. Our research methodology is based on a literature review of relevant literature on offerings and a two case study from the industrial manufacturing and the software industry. These cases were selected from two different industries to illustrate the framework in two totally different contexts.

After this introduction, we examine the company's offering as the unit of analysis. In the third section, we investigate the factors affecting the seller's decision to formulate of a company's offering. In the fourth section we briefly discuss the results and present avenues for further research.

2 A COMPANY'S OFFERING AS THE UNIT OF ANALYSIS

According to the business model literature, the offering (or value proposition) is a central element of a comprehensive business model (Hedman & Kalling 2003, Morris et al. 2004). We consider offering as a value proposition (Mahadevan 2000) that consists of both product and service components.

Similarly, the service marketing literature (see e.g. Rust et al. 1996) sees the physical product as one component of a company's total offering. In the services marketing literature, services are commonly seen as more complicated and heterogeneous phenomena than products (Grönroos 1987, Zeithaml 1996). They are related with concepts such as *intangibility*, *inseparability*, *variability*, and *perishability* (Rust et al. 1996). As mentioned in the introduction, providing services or solutions is posited to be more lucrative or efficient than offering products (Goldman et al. 1995, Wise & Baumgartner 1999). However, the objective of this study is not to identify which type of offering displays greater performance, but to examine the antecedents to different offerings.

In our study, we do not analyze product and service propositions separately, but distinguish between product-oriented and service-oriented offerings. Therefore, we define the offering on a continuum where the fully product- and service-oriented offerings are at extremes.

2.1 Product-oriented offering vs. service-oriented offering

On the basis of the literature review, expert-interviews and empirical observations, we identify three dimensions to position the offering on the continuum: (1) the degree of standardization, (2) the price quotation principle and (3) the timing of costs. These general characteristics form our additive model, which provides a measure to position the offering on the continuum. This positioning is independent of the nature of the components (product or service). Hence, the definition allows, e.g., a fully service-oriented offering to consist of only product components. Therefore, we do not talk about products and services as such, but about offerings having the characteristics of either product-oriented or service-oriented offerings as described in the Figure 1.

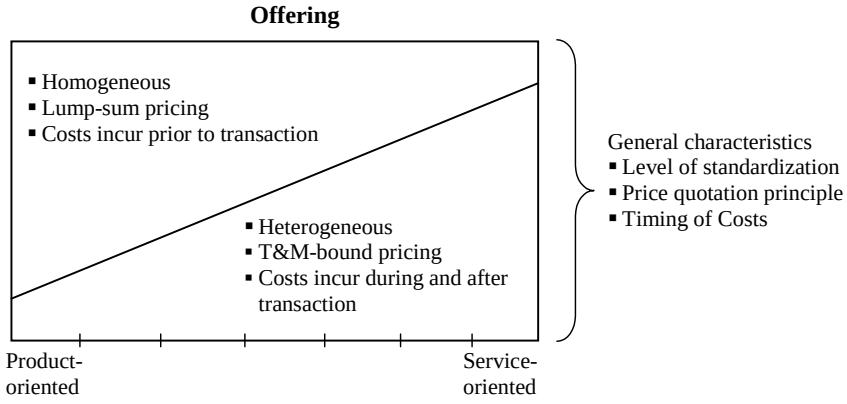

Figure 1 Product-oriented vs. Service-oriented Offerings

Next, we discuss these dimensions and then illustrate them with two case examples.

2.1.1 Level of standardization

The first aspect in measuring an offering is its homogeneity or similarity across several transactions. This is considered a central issue in transaction cost economics (TCE) (Williamson 1985), which argues that economies of scale are realized by increasing the number of similar offerings. On the other hand, the potential economies of scope are related to close integration (i.e. conducting more business between the seller and buyer).[1] See e.g. Hagel & Singer (1999) for further analysis.

[1] Scale economies accrue when cost savings are realized by adding apples to apples – formally $C(X_1+X_2) < C(X_1) + C(X_2)$. Economies of scope accrue if cost savings result when apples and oranges are joined – formally $C(X,Y) < C(X) + C(Y)$. (Williamson 1985, 112)

This discussion leads us to the first dimension to distinguish between product and service-oriented offerings: the level of standardization. Here, we posit that a more standardized offering is associated with product-oriented offering and, on the other hand, less standardized offering with service-oriented offering. Mathieu (2001) uses the same dimension to distinguish between services that support the product (SSP) and services that support the client (SSC). She posits that SSPs are low in customization whereas SSCs are highly customized.

2.1.2 Price quotation principle

The second aspect to measure the offering focuses on the price quotation principle. Pricing has been widely studied in marketing (see e.g. Tellis 1986) and economics (see e.g. Gabor 1977, Varian 1999).

For our study, we concentrate on two alternative price quotation principles: lump-sum and time- & material-(T&M)-bound pricing (see e.g. Fortin & Greenlee 1998). We relate T&M-bound pricing to service-oriented offering where the seller invoices the buyer on the basis of time and material costs incurred in the transaction. Lump-sum pricing, on the other hand, refers to product-oriented offering where the price is set for the offering as a whole. Note that this dimension does not classify the offering into either physical products or intangible services.

2.1.3 Timing of Costs

The third aspect in measuring the offering is the timing of costs. In the literature, costs have been divided e.g. into fixed costs (including e.g. product development costs) and variable costs (including production and delivery costs). Other classifications have been made on the basis of timing or type of costs (e.g. van Damme & van der Zon, 1999).

In our study, we concentrate on the timing of costs from the seller's perspective. In a service-oriented offering, the costs incur to a great extent during or after the transaction. Correspondingly, costs incur mainly prior to transaction in a product-oriented offering.

2.2 Measures for product vs. service oriented offerings

On the basis of the above discussion, we conclude the following measures to distinguish between product-oriented and service-oriented offerings: *level of standardization, price quotation principle and timing of costs*.

Type of Measure	Construct	Illustrative Questions	References
Physical measure	Level of standardization	"Is the offering homogeneous across different transactions?"; "To what extent the offering is tailored to specific needs?"	Williamson (1985), Mathieu (2001), Hagel & Singer (1999)
Financial measures	Price quotation principle	"Is the price quoted on a lump-sum basis or is it time- & material-bound?"	Fortin & Greenlee (1998)
	Timing of costs	"When do costs incur in the transaction?"	Lambson (2000)

Table 1 Measures of Type of Offering

Similar classifications have been established by Mathieu (2001) to classify product services. She uses four dimensions to distinguish between services supporting the product and services supporting the client. These dimensions are (1) direct recipient of the service, (2) the intensity of the relationship, (3) the customization of the service, and (4) the critical elements of the service marketing mix. Another way to formulate an offering is provided by Morris et al. (2004) where they use the nature of the

product/service mix, the firm's role in production or service delivery, and how the offering is made available to customers.

2.2.1 Case Examples

We illustrate the proposed framework with a case example of KONE's maintenance offering. KONE is a global service and engineering company that sells, manufactures, installs, maintains and modernizes elevators and escalators, and services automatic building doors. Recently, the company has repositioned its maintenance offering from selling maintenance visits to selling availability. In other words, instead of a number of maintenance visits per year, KONE offers availability of their elevators so that an agreed level of availability is defined. It is then KONE's responsibility to meet the agreed level by incorporating e.g. intelligent components that permit faster response times and preventive action including required maintenance visits. (Tinnilä 1997, Kemppainen & Vepsäläinen 2003). How does this transition translate on our conceptual framework?

- *Level of standardization:* In the new maintenance offering KONE has standardized the level of availability (e.g. 99% of time) for the client. Therefore, we consider the selling of availability to be a more standardized offering than separate maintenance visits.
- *Price quotation principle:* In this case, the price quotation principle has shifted from a separate transaction specific (time-&material-bound) billing mechanism to annual contracts. In this sense, the transition translates to a shift toward a product-oriented offering.
- *Timing of costs:* When comparing the two alternative offerings of KONE, we see no important differences in the timing of costs. Most of the costs for both of the offerings incur during the maintenance operations. However, the selling of availability requires the company to invest in e.g. the development and implementation of troubleshooting from distance. This might suggest a slight move toward product-oriented offering.

The second example is from the software industry. It illustrates a case where software is offered as a service[2]. Indeed, the maintenance and update of software can intuitively be seen as a service offering. However, if the offering is standardized and homogeneous across several customer interfaces, we define it as a product-oriented offering. As a concrete example of this, we discuss F-Secure virus protection software that has shifted from application sales to selling service contracts. The service contract provides for the end-users an invisible, automatic, always operating and automatically up-to-date set of information security and virus protection software. The revenue from these virus protection service subscriptions increased by 130% in 2003 and accounted for 16% of the total anti-virus revenues. The Software as a Service of concept F-Secure on our conceptual framework:

- *Level of standardization:* The business has undergone a shift from the sales of single product and service components (which were merged into customer-specific delivery and deployment project) to the sales of service contracts. These service agreements are pre-defined on many aspects, including technical interfaces and the service level.
- *Price quotation principle:* Along with the shift from the sales of detached software licenses to the provisioning of long lasting service contracts, the company is increasingly implementing lump sum pricing. We consider this as a shift towards product-oriented offering.
- *Timing of costs:* Previously, majority of costs were related to marketing and product development and thus, incurred prior to transactions. Along with the service contracts, the costs relate for the most part to keeping the services available and up-to-date and, thus, incur during or after transactions.

These cases illustrate that the traditional definitions of products and services are not sufficient to describe the offerings of today's business. Therefore, this framework is an attempt to establish a more

[2] The concept of software as a service [SaaS] has received attention in the recent literature, e.g. Greschler & Mangan, 2002

holistic conceptualization of an offering, without resting solely on the traditional notions of products being physical components and services as something intangible and perishable.

3 THE ROLE OF IT IN THE FORMATION OF A COMPANY'S OFFERING

In our research, we examine the relative importance of three types of factors affecting the seller's decision to formulate an offering: (1) the use of IT (the degree of integration to electronic business) in the transaction setting between the buyer and supplier organizations, (2) factors endogenous to the offering, i.e., scope of contract and type of installations to maintain, and (3) factors exogenous to the offering, i.e., factors relating to technical unpredictability and core competencies. These factors have been discussed in separate research domains, e.g. marketing literature, organization theory literature, transaction cost economics and electronic business research. Next, we discuss these factors and present our research questions for the empirical part of this research in progress.

3.1 Information technology

The role of information technology in the inter-firm transactions has been thoroughly discussed. Researchers have analysed the link between the increased information processing capabilities and the formation of electronic markets and hierarchies (Malone et al. 1987, Gurbaxani & Whang 1991), interorganizational relations and firm boundaries (Clemons et al. 1993, Hitt 1999), electronic integration strategies (Kambil & Short 1994, Mukhopadhyay & Kekre 2002) and the redefinition of business processes within and between partners (Cooper 2000, Attaran 2003). However, the role of information technology affecting the formation of the offering has received little attention. Our aim is to analyze the linkage between information technology use (the level of integration to electronic business in the transaction setting) and the seller's decision to formulate an offering. Hence, our first research proposition:

> ***Research Question 1:*** *What is the relation between the scope of IT use (i.e. the degree of electronic business integration) in the transaction and the seller's decision to formulate either product- or service-oriented offering?*

3.2 Endogenous factors

Several researchers, for example in the marketing literature, have linked the scope of the contract to the discussion on single versus multiple sourcing (see e.g. Stremersch et al. 2001). In our research, we investigate the relation between the scope of contract and the nature of offering. Some researchers have studied the impact of information intensity on the transformation of the product (e.g. Porter & Millar 1985). We define the information intensity as an endogenous factor (related to the offering itself) affecting the formation of the offering. The findings of prior research show that industrial customers evaluate the value offered by a product or a service rather than its price alone. Consequently, firms will not evaluate maintenance contracts solely on their maintenance costs, but on the entire value proposition (see e.g. Stremersch et al. 2001).

> ***RQ 2:*** *How do the endogenous factors (such as the scope of contract, information intensity and need to maintain the installation) affect the seller's decision to formulate the offering?*

3.3 Exogenous factors

On the basis of transaction cost economics, technological uncertainty is a critical factor that evokes shifts from market-based transactional relations toward more cooperative relationships (Williamson 1985, Bensaou 1997). In our research, our aim is to explore the relationship between this technological uncertainty and the offering. On the basis of organization theory, we conclude that specialization and the notion of core competencies are important factors affecting the competitiveness of an organization

and the formation of an offering. Several researchers have described core competencies as a source of operational efficiencies. In our research, we test the concept of core competencies as a factor affecting the formation of an offering. This leads us to our third research proposition.

> ***RQ 3:*** *How do the exogenous factors (such as greater technological unpredictability associated with the subject of transaction and core competence) affect the seller's decision to formulate the offering?*

Other exogenous factors to be considered in the development of the framework include supplier reputation, partnership uncertainty, organization culture (including core values and beliefs of the employees, power structure and distribution), and business strategy. The Figure 2 presents the conceptual model of our research.

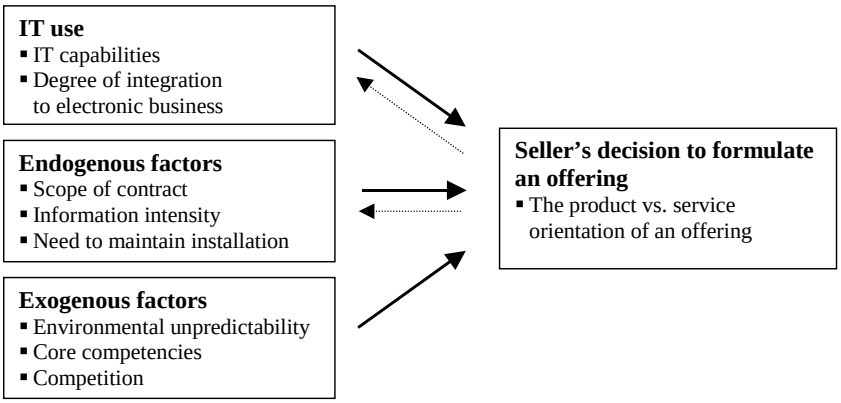

Figure 2 The Conceptual Model

4 CONCLUSIONS

Based on a literature review, we were able to establish three dimensions characterizing the nature of the offering: level of standardization, price quotation principle and timing of costs. We illustrated these dimensions by two case examples embodying two different industries. We found that these dimensions provide a valid basis for distinguishing between different kinds of offerings. This framework provides a continuum and we name the extremes as product-oriented and service-oriented offerings.

This paper presents the results of the first phase of the research. In the second phase of the study, we will conduct a multiple case study and a survey in Finnish companies. There we will focus on testing the conceptual model and examine the relative importance of the factors. We will further explore the role of IT among the factors affecting seller's decision to formulate its offering.

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