The Fit between Purchase Situation and B2B E-Marketplaces and its Impact on Relationship Success

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Abstract submitted to the
18th Annual IMP Conference at the Dijon-Burgundy Graduate School of Management,
5th - 7th September 2002
Submitted as Competitive Paper

Abstract

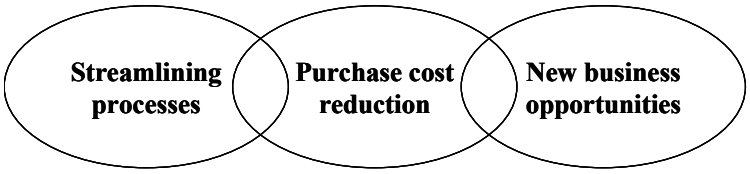
The internet is not a mere alternative channel for marketing or selling products online, instead electronic marketplace enables buyers and sellers to innovate whole business processes from sourcing and production to customer service. These changes will significantly impact business-to-business interactions and relationships as it offers new ways of collaborating across organizational boundaries. In this study the authors conceptualize the appropriate fit between purchase situation and B2B E-marketplace for optimizing the value creation as a set of direct and indirect functions of buyer-supplier relationships. The findings from an empirical study of 119 firms show that the appropriate fit especially contributes to the direct values of the supplier relationship. The results of this study have considerable consequences for relationship management.

1 Introduction

Business in virtually every industry of the world economy has benefited from or at least has being influenced by the technologies of electronic commerce. We are witnessing a revolution in commerce and society primarily due to an explosion in information technology and the resulting rapid emergence of electronic commerce. However, severe interest is relatively recent, especially in research. Most transactions and profits in electronic commerce have been realized in business-to-business (B2B) commerce and not in business-to-consumer commerce, which is no surprise, since business-to-business transactions outnumber consumer sales ten to one (Westland, Clark 2000, p. 2). Some estimates put the B2B electronic commerce market to be close to 78% of the overall electronic commerce market (Shaw 2000, p. 12). A Forrester Research forecast of 1997 was that business-to-business electronic commerce would grow to $327 billion in the year 2002, measured as value of goods and services traded via the Internet (Timmers 2000, p. 4). Even though realism has entered the once euphoric e-arena it continues to be an important part of managerial action in these days.

Companies can profit from various benefits of B2B electronic marketplaces. Organizations may adopt their trading processes to electronic marketplaces to lower transaction costs and improve information flows, thus facilitating improved planning and more coordinated actions to reduce uncertainty (Roberts, Mackay 1997). The major benefits of electronic marketplaces

can be clustered in three groups: process improvements, cost reductions and new business



generation.

Figure 1 E-Sourcing benefits (Baker 2000, p. 105)

Although there exists a large variety of benefits, a company has to thoughtfully analyze the different B2B electronic marketplaces concepts and approaches before implementing one to gain sustainable and tangible success. This is of particular interest as there are many empirical examples where the introduction of e-markets have resulted in unintended negative outcomes. Therefore, we address the following two research questions in this paper:

1 How is the relation between a given purchase situation and the characteristics of an e-marketplace? Can we define a fit between the two from a relationship perspective?

2 How does the interplay between purchase situation and e-marketplace characteristics influence the success of a relationship?

The paper is organized as follows: Firstly, we provide a classification model how to analyze and understand the given purchase situation. In a next step, based on the literature a classification system of electronic marketplaces is developed. Then the hypotheses concerning the success factors based on the appropriate fit between purchase situation and B2B E-marketplace are derived. These hypotheses have been tested in an empirical study with focus on the German chemical industry. The corresponding empirical results are presented and discussed. We close with an outlook on managerial implications and further research opportunities.

2 Conceptualizing the Key Constructs

Before discussing the necessity of the appropriate fit between purchase situation and B2B E-marketplace for optimizing the relationship success a classification model for the purchase

situation and a classification model of the B2B E-marketplace concept are derived. Also relationship success is discussed.

2.1 Purchase situation classification

Before being able to develop and implement a successful B2B E-marketplace concept the purchase situation has to be understood. With the term *purchase situation* we consider all relevant forces and influences related to the acquisition of required materials, services and equipment, which have a potential impact on the way buyer and seller work together.

In the past portfolio models have been successfully used for assessing more efficiently a company's position in respect to its current position, the projected future and the future desired positions in various dimensions (Wind, Douglas 1981, Ansoff, Leontiades 1976, Markowitz, 1952). In the field of industrial marketing and purchasing recently several portfolios have been developed for evaluating customer and supplier relationships since the early 1980s. The different approaches can be structured by four segmentation dimensions: product, market, supplier and relationship characteristics (Cousins, Spekman 2000, Möller, Törrönen 2000, Fröhling 1999, Dyer, Cho, Chu 1998, Metcalf, Frear 1993, Hubmann, Barth 1990, Müller 1990, Witt 1986, Bogaschewsky, Rollberg 1999, Baumgarten, Wolff 1999, Wildemann 1999, Mittner 1991, Kraljic 1983, Elliott, Glynn 2000, Bensaou, 1999, Cannon, Homburg, Willauer 1998, Olsen, Ellram 1997, Krapfel, Salmond, Spekman 1991, Lamming, Cousins, Notman 1996 etc.).

Based on the above mentioned literature the authors have derived a classification model with three characterization dimensions, which underline the magnitude of various aspects impacting this sourcing environment: buyer business impact, supplier market competitiveness and relationship attractiveness.

The buyer business impact dimension summarizes product characteristics (purchase volume [monetary, units and physical space] and the degree of customization) and all supplier characteristics (supplier resource base, competence, network and value) by relating their importance to the buying company's business impact. The supplier market competitiveness dimension is an accumulation of supply risk, buying power and legal regulations. The third dimension, the relationship attractiveness refers to relationship characteristics as trust, commitment, continuity, involvement, satisfaction and existence of relationship promoters.

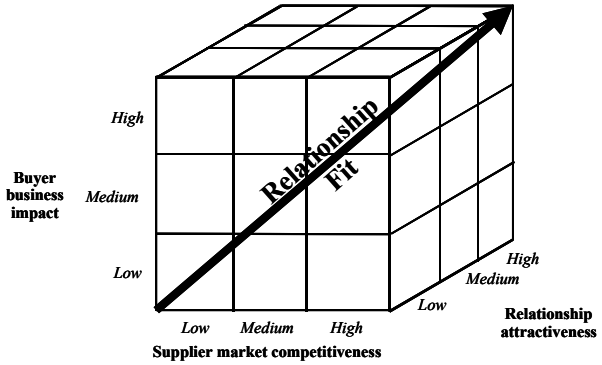


Figure 2 Relationship fit

High buyer business impact leads to the assumption that a high extent of relationship, or in other words, a more relational approach is necessary to guarantee any kind of success. The strength of the supplier market competitiveness also has an impact on the need of relationships: low or no supplier market competitiveness (i.e. limited competent supplier base) supports the necessity of relationships to successfully handle the purchase situation. The third dimension describes the attractiveness, which supports the establishment of successful relationships. Overall, low business impact, high supplier market competitiveness, but high relationship attractiveness predict poor or no need for a relationship since the benefits of the supplier relationship are only limited due to the business environment. On the other hand in a procurement environment with high business impact, limited supplier market competitiveness and high relationship attractiveness the probability of relationship success is very high.

With a special emphasis on the increased complexity of the purchasing function due to the internet these three dimensions seem especially important. Diverse solutions of electronic business (e.g. electronic marketplaces) enforce the need to be able to define a target purchasing strategy, since the internet opened new opportunities to the purchasing situation.

2.2 B2B E-marketplace classification

Since industrial and academic interest in business-to-business electronic commerce is very new and still evolving, any definition of what is or is not included under the rubric of e-commerce is bound to be controversial. The authors go along with the definition of Westland and Clark (2000): “Electronic Commerce - or e-commerce - is the automation of commercial transactions using computer and communications technologies” (p.1). To narrow the definition commercial refers only to activities that create transactions between firms (business-to-business or B2B), excluding transactions between firms and individuals

(business-to-consumers). These transactions involve the exchange of money, goods, obligations, information or ideas. The authors include both aspects – the physical product exchange and the more digital service offering - in their electronic marketplace definition, since from a relational perspective both are important (Hallén, Johanson 1985, p. 495).

B2B electronic commerce has a potential impact on any area of business, from the supplier's side, the company's infrastructure, company's management processes and the interface with the customer to linkages to the distributors. In this variety of divers transactions the authors focus on transactions between buyers and suppliers and analyze new opportunities based on electronic commerce for handling the purchasing situation. The number of various transactions between suppliers and buyers supported by e-commerce and handled on electronic marketplaces is in the center of analysis.

In the literature these new electronic marketplaces can be differentiated along five segmentation dimensions: business model, order processing mechanism, revenue model, market characteristics and product specifics (Thorelli 1986, Elofson, Robinson 1998, Lief 1999, Merz 1999, Sawhney, Kaplan 1999, Sculley, Woods 1999, Schwartz, Gremmels, Brosseau 1999, Wichmann, Weitzel 1999, Windham 1999, Kaplan, Sawhney 2000, Gulley, McCarthy, Chin 2000, Kusterer 2000, Kafka 2000, Lee, Whittle, Austrian 2000, Müller, Preissner 2000, Nokkentved 2000, Phillips, Meeker 2000, Ploss, Johnson 2000, Rosson 2000, Scheer 2000, Schneider, Schnetkamp 2000, Shaw, Blanning, Strader, Whinston 2000, Skinner 2000, Timmers 2000, Wirtz 2000, Butscher, Krohn 2001, Picot, Reichwald, Wigand 2001).

For determining the appropriate marketplace mechanism the authors have developed a classification system with attributes out of all five characterization dimensions (business model, transaction mechanism, revenue model, market characteristics and product specifics) mentioned above. But more importantly, the model takes into account the impact of different platforms on the inter-organizational relationships. This is important because electronic marketplaces do have an impact on the inter-organizational exchange and as such, we need to understand which characteristics do have an impact on relationships. Therefore, the authors recommend the following systematic approach.

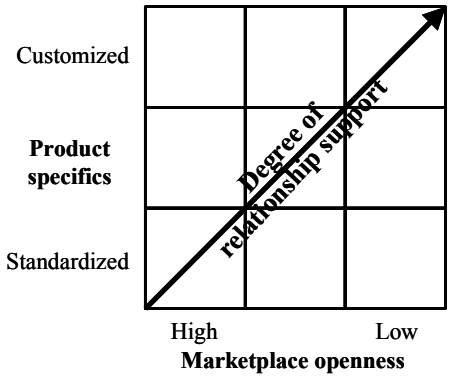


Figure 3 B2B E-marketplace classification model

With this approach the important dimensions mentioned in literature and characteristics referring to the impact on inter-organizational relationships are integrated within two segmentation criteria: product specifics and marketplace openness.

The first dimension called product specifics is summarizing different aspects of standardization. For example the product type is characterizing the degree of standardization. Commodities are differentiated only by price, quality and delivery criteria (Roberts, Mackay 1997) and do not require substantial after-sale service. They have only a low or nearly no necessity of relationship to be successfully traded on electronic marketplaces. Different with customized products, they require a relational electronic marketplace setting, since they need conversation for product specification (Campbell 2000, p. 390). Another item characterizing the degree of product standardization is the product value. Especially low value products with extremely high transaction cost can be traded via electronic marketplaces, which have only low to medium extent of relationship orientation. Often low value products are standardized, easy replaceable products. Then relationship is not needed for a successful sourcing process via B2B electronic marketplaces. But on the other hand, medium value products, as for example specialty chemicals require a higher degree of relationship on the electronic marketplace, since they are differentiated by quality and product specification. High value products, where the high price comes from intense customization, need such a high level of relationship that they won't be suitable for electronic marketplaces. Another item in the product specifics dimension is the life cycle. A short life cycle leads to high extent of obsolete products. For those products electronic marketplaces open a new sourcing opportunity. But products with short life cycle are often technical complex or customized products, which require a certain extent of relationship to be successfully traded.

The second segmentation criterion evaluates the electronic marketplace openness. Typical characteristics of this dimension are the business model, the order processing mechanism and

the revenue model. Hierarchical business models as portals (supplier hierarchy) or procurement hubs (buyer hierarchy) require more relational support to gain market participants than neutral marketplaces, where no party is dominant. In the hierarchical constellation one buyer or supplier has the dominant position to control all others and to take the final decision. But on the other hand the one supreme actor also needs enough relationship competence to attract and convince enough business partners to make the marketplace a success. If we analyze the order processing mechanism in respect to the openness of the B2B electronic marketplace, the need for relationship support varies depending on the mechanism. Pinboards are just starting point for a supplier-buyer product exchange and require one-to-one interaction to finalize the transaction process. Here relational support might be key for success. Different with auctions, where under time pressure the transaction has to be finalized. There is no time and no need for any relational support. The exchange mechanism is in between. Although the transaction will be finalized via internet, more inter-relational transaction is needed to find a solution, which is acceptable to both parties. Summarizing the described characteristics with decreasing level of marketplace openness the opportunities and need for relationship support increases.

These two dimensions seem especially important to cover all relevant issues and effects related to the new purchasing environment on B2B electronic marketplaces.

2.3 Relationship success

Relationships have always mattered in business markets “when the interaction between a customer and a supplier has economic consequences that go beyond the simple transfer of products for money in a single transaction” (Ford et al. 1999, p. 66). “Relationships matter when the value to the parties involved in an exchange stems from interaction in its entirety, rather than simply from the tangible resource transfer between the companies involved” (Ford et al. 1999, p. 66). Traditional relationships developed organically as the key individuals in each firm built close personal or business friendships. Due to their mutual trust their firms made specialized non-retrievable investments that created structural bonds, which hold the relationship together (Williamson 1975, 1979, Wilson, Jantrania 1996). Nowadays the purpose of the development of relationships is to achieve strategic goals. A synergistic combination of individual and mutual goals encourages suppliers and buyers to invest time, effort and resources to create a long-term collaborative effort that achieves individual and partnership strategic advantages (Wilson, Jantrania 1996, p. 56). Along with Walter, Ritter

and Gemünden (2001) different value functions can be utilized in a partnership between a supplier and buyer. Thus it is highly important for the buyer to understand the functions of their supplier relationships in order to use them for value-creation. In the context of this study value is understood as "the perceived trade-off between multiple benefits and sacrifices" gained through a supplier relationship by key decision-makers in the buyer's organization (Walter, Ritter, Gemünden 2001, p. 369). Summarizing the output of these various value functions the relationship success can be determined. Only with an optimized utilization of the diverse value functions the buyer creates high relationship success. Some researchers define only monetarily value functions (Anderson, Jain, Chintagunta 1993), whereas others also include non-monetary benefits, such as competence, market position and social rewards (Zeithaml 1988, Wilson 1995, Wilson, Jantrania 1996, Johnson, Chinuntdej, Weinstein 1999, Woodruff 1997). In this study the relationship success is measured by two components: direct and indirect value functions (definition by Walter, Ritter, Gemünden 2001). The direct value functions characterize the monetary outcome in cost savings. Whereas the indirect value functions summarize the non-monetary benefits. The innovation functions are an expression for the potential of innovation development due to the supplier relationship. With the access and market function the supplier's competence is measured how good he is able to help in getting better access to "official authorities as chambers, banks or trade associations" (Walter, Ritter, Gemünden 2001, p. 373). In this study we have translated the seller's perspective into a buyer's perspective with special reference to e-markets. Our conceptualization of relationship success can be seen in the following figure.

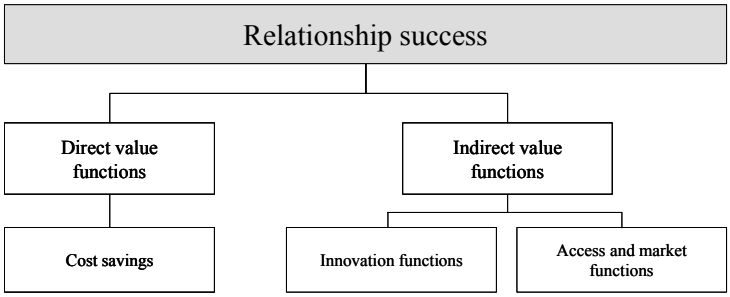


Figure 4 Relationship success

3 Hypotheses

After defining relationship success the authors want to focus on the different reasons, which lead to the assumption that the appropriate fit between purchase situation and B2B E-marketplace has a direct positive impact on the relationship success.

The purchase situation as detailed above describes a specific position with respect to its current position, the projected future and the future desired positions in various dimensions as product, market, supplier and relationship characteristics. Based on this position the buyer has to develop the appropriate strategy to utilize the various value functions for optimizing the relationship success. The purchase situation predefines the areas of high and low potential. For example, in markets with only a limited number of suppliers the dependency of the buyer on the supplier is extremely high which leads to only limited potential of the cost savings function, whereas the innovation function could deliver comparatively high value. On the other hand an extremely high purchase volume supports the volume and cost savings function. Based on these circumstances the B2B E-marketplace concept has to be adapted, otherwise the requirements cannot be fulfilled.

Only if the purchase situation is matched by the B2B E-marketplace concept relationships can exist and prosper, because the B2B E-marketplace concept must enable interaction between partners. The intensity of the required relationship support can be determined by the purchase situation. The higher the buyer business impact the more relationship support is needed. Similar to Dubinsky, Ingram (1984), who rate customers depending on their profit contribution which is decisive for the customer relationship (p. 34), the supplier relationship should be carefully cultivated if the purchased supplies have a high business impact on the buyer's business. In highly competitive markets the buyer receives increased quality and reliability in products, more choice in existing product ranges, more choice through new products, more customization, faster satisfaction of need, freedom to change late in the order cycle and increasing level of customer service (Gules, Burgess 1996, p. 32). The buyer is not limited to one specific supplier. In case of poor service or quality he is able to switch to another supplier. In this purchase environment close relationships are not on the top agenda, they can be better characterized by "low cooperation and high competition" (Wilkinson, Young 1996, p. 71). The B2B E-marketplace concept must be flexible enough to enable the development of supplier relationships if required by the purchase situation.

New information technologies have enabled and stimulated new organizational forms. As competition intensifies, innovation cannot be attained solely within the integrated industrial enterprise. Companies must work together to create online networks of customers, suppliers

and value-added processes. The internet is the new platform for collaboration and competition. Firms must learn to create favorable conditions for all players (Ticoll, Lowy 1998). The internet has changed partnership evolution and development. In the past organizations spent months and sometimes years building their partnership networks. In the internet age speed is extremely important and has a major impact on a partnership approach (Cunningham 2001, p. 56). If the B2B E-marketplace concept focuses on anonym transactions in a highly open environment, the development of relationships between supplier and buyer is limited. Looking for example on the B2B E-marketplace concept of auctions, speed is used as its key strategic element besides volume and price (Cunningham 2001, p. 18). The auction model is considered as a more open method of trading with full automation. In a limited time frame bids can be entered. In case of success the auction site is providing all information for the transactions. The bidder will receive an email with the price, availability and the shipping details (Thomas 2000). Disputes are handled by automated customer-support tools. The complete process is fully automated, the development of relationships is not in focus and not desired.

In a highly competitive market of commodity products, the buyer should focus on a B2B E-marketplace solution for price optimization without relational focus. Buyers will typically choose seller with the lowest total cost, which will usually include the price paid to the seller plus any search, transportation and other similar costs (Bakos 1991, p. 298). The buyer has different options to focus on. He can put all efforts in volume concentration within his diverse departments and sites or by using one global source. Based on the new volumes he can execute a best price evaluation (Soellner, Mackrodt 1999, p. 90). The new E-procurement environment makes various opportunities possible. The buyer can either focus on the auction concept with focus on cheapest price in shortest time. Or he can use the exchange mechanism to focus on price with more closed regulations. A third opportunity would be E-catalogue. Due to the new volumes the buyer has an improved market position but can also decrease process cost by decentralizing the purchase process. Depending on the strategic goal defined in the procurement department the B2B E-marketplace concept has to be adapted. Short-term price optimization demands for exchange or auction, whereas the E-catalog system enables a long-term strategy with respect to benefits of relationship development. But those relationships would become more impersonal and more formalized (Leek, Turnbull and Naudé 2000), which limits the indirect value generation. Therefore the buyer should focus on

the strategic goal without any relational focus by choosing the appropriate B2B E-marketplace concept for gaining the most benefits for the company.
It is not true, that the internet is close to producing an entirely automated, electronic market where buyers and sellers turn every good and service into a commodity, comparable only on price (Booker 2000). Summarizing all diverse aspects of the appropriate fit between a given purchase situation and the B2B E-marketplace concept the following hypotheses have to be drawn:

Proposition A: The higher the fit between purchase situation and B2B electronic marketplace characteristics, the higher the outcome of the direct value functions.

Proposition B: The higher the fit between purchase situation and B2B electronic marketplace characteristics, the higher the outcome of the indirect value functions.

The following figure summarizes the theoretical framework in center of analysis in this paper:

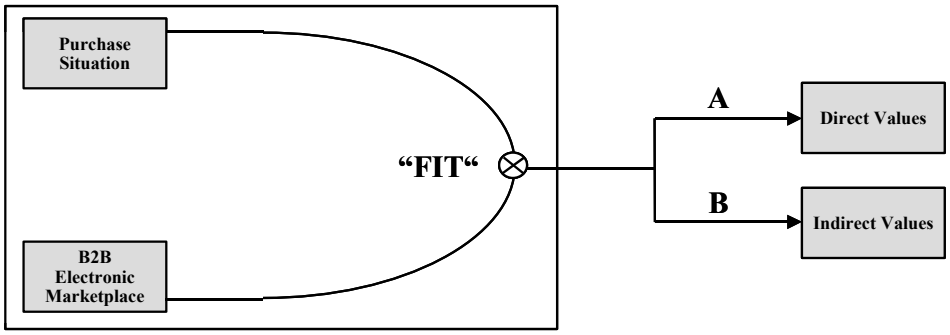


Figure 5 Overview theoretical framework

4 Empirical results

4.1 Data basis

The focus of the empirical study was on the German chemical industry. In the chemical industry several criteria are fulfilled, which enable the appropriate fit to various B2B E-marketplace concepts. The industry can be characterized by low concentration of buyers, a high number of geographically dispersed suppliers. There is also a high number of existing intermediaries. Typically there is a high number of transactions, low brand impact, but a

complex distribution chain. The market is dominated by standardized products across all countries, which are purchased by repeat trades with low service levels. The industry is well known for excess capacity and unpredictable demand (Eastwood, Clover, Seyfried 2000, p. 3).

After the questionnaire has been validated by pretest interviews with 25 experts, 550 firms have been contacted from May till August 2001. Thereof 119 companies participated by completing our questionnaire, which has been faxed or emailed to the respondents. For most questions the respondent has been asked to provide his agreement or disagreement on a seven point rating scale (1=total disagreement, 7=full agreement).

4.2 Operationalization

For purifying our proposed measures we computed procedures suggested in the measurement literature. For testing the reliability and the validity the reliability analysis (Cronbach' s Alpha), the item-to-total correlation analysis and the factor analysis have been used, which have been computed by using the software package SPSS 10.0. With the exploratory factor analysis, which confirms, if the selected indicators fit to one factor, the convergent and discriminate validity has been tested.

All items pertaining to the same function were submitted to an exploratory factor analysis. Along with Homburg (2000) the limit of the average variance of a factor is .50, which means the factor determines on average 50% of the variance of its indicators. For the factor loadings of the indicators a minimum of .50 is required (Helfert 1998, p.113). The minimum of the item-to-total correlation was defined at .30 (Kumar, Scheer, Steenkam 1993, p. 12). All three criteria together suggest a sufficient validity.

To pass the reliability check the Cronbach's Alpha has to be above .60 (McAllister 1995, p. 36).

For evaluating the purchase situation all three dimensions of the above derived cube have been assessed: buyer business impact, supplier market competitiveness and the relationship attractiveness.

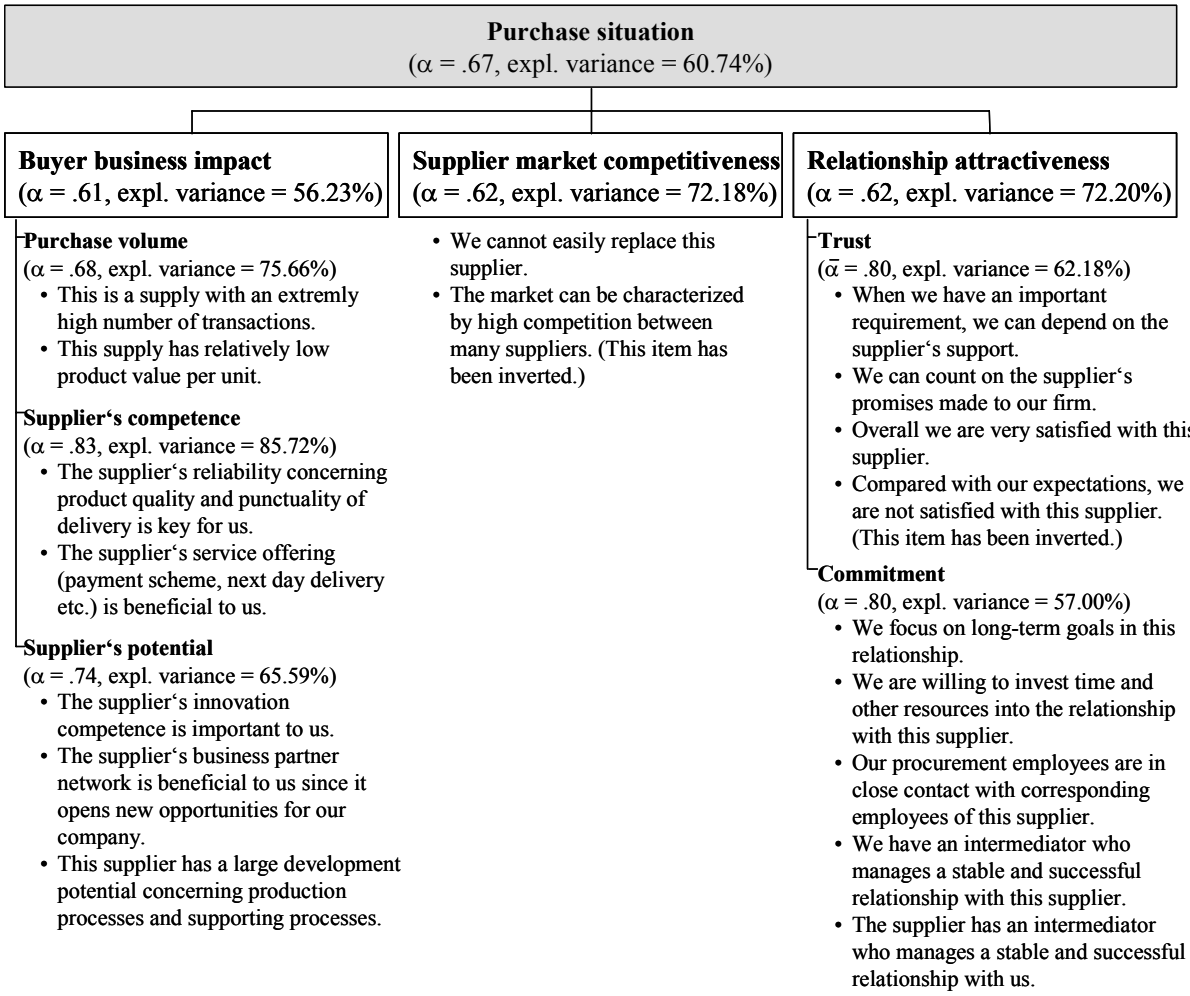


Figure 6 Construct purchase situation with its three dimensions and the according factors

For the purpose of future calculations the arithmetic averages of the diverse dimensions of the purchase situation have been calculated for aggregating one factor for each dimension. These three factors have been tested concerning their quality. Overall the proposed measures of the purchase situation meet the defined criteria, they are reliable and valid.

The operationalization of the B2B electronic marketplace goes along with the theoretically derived portfolio described above. Two dimensions have been operationalized: the product specifics and the marketplace openness, since those two dimensions characterize the impact of B2B E-marketplaces on inter-organizational relationships.

The following figure shows the outcome of the various reliability and validity tests.

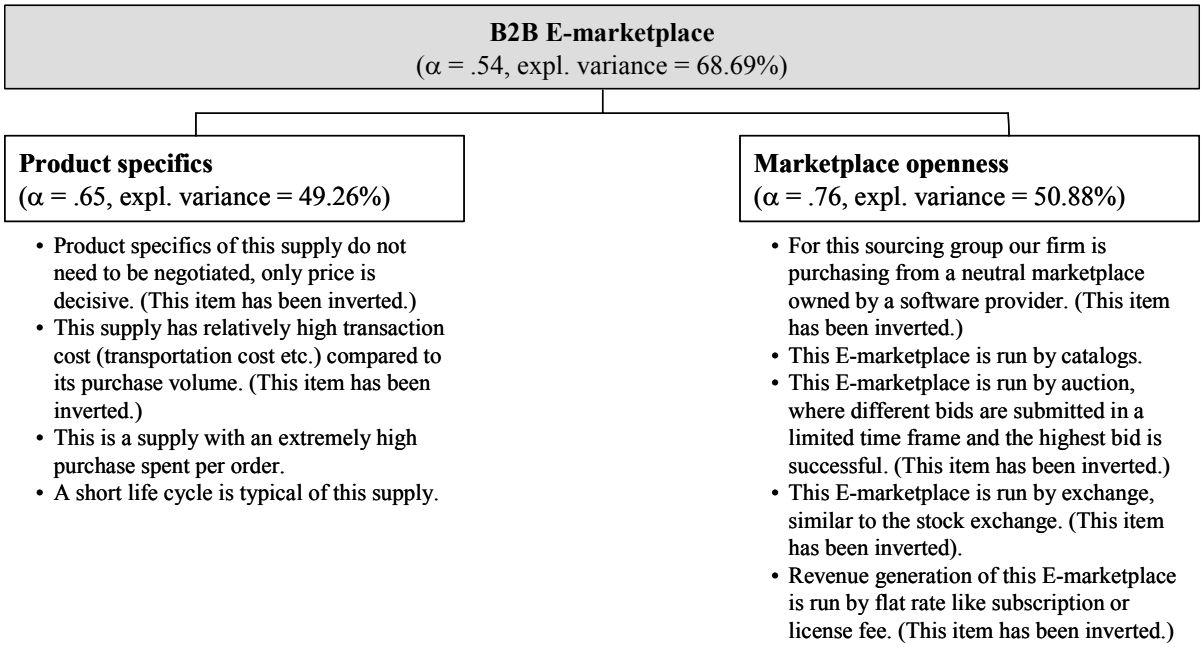


Figure 7 Construct B2B E-marketplace with its two dimensions

Although the Cronbach's Alpha is below .60 the two dimensions product specifics and marketplace closeness have been aggregated to the construct B2B E-marketplace. The low Cronbach's Alpha can be explained by the two different dimensions of product characteristics referring to the degree of standardization and attributes describing the B2B E-marketplace mechanism. But for the purpose of measuring the increasing need of relationship support on B2B E-marketplaces these two dimensions need to be aggregated, which is supported by the factor loadings, the explained variance and the total-to-item correlations.

Since the relationship success can be measured by two absolutely different aspects (Walter, Ritter, Gemünden 2001) the authors have operationalized two independent constructs. One dimension is measuring the indirect value functions, which are the soft facts impacting the success of the supplier relationship and one dimension is measuring the hard facts, which are the cost savings referring to the supplier relationship.

Along with the defined criteria the described constructs are reliable and valid. For further analysis the indicators of the constructs have been aggregated to one factor by arithmetic average. Then the quality of the aggregation to the two dimensions of the construct indirect value functions has been checked.

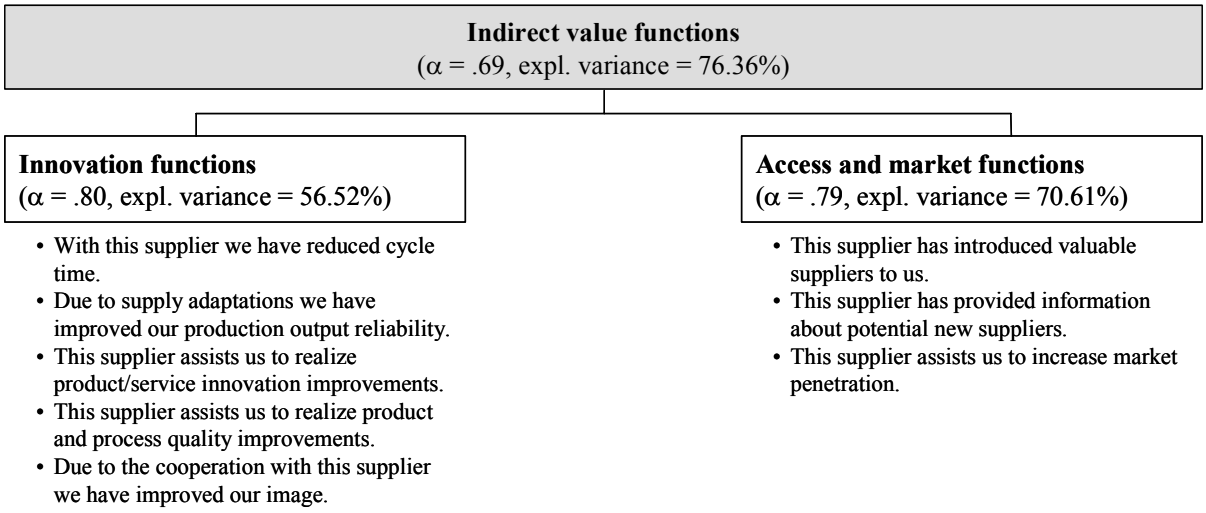


Figure 8 Construct indirect value functions with its two dimensions

Measuring the relationship success of a supplier relationship cost savings are the main lever for success. Therefore the direct values are operationalized with items measuring the realized cost savings. On the one hand material cost reduction are beneficial, but also transaction costs need to be optimized. The third component of interest relating to cost savings in procurement is inventory reduction which has a direct impact on the balance sheet. The following table documents the positive results of the reliability and validity tests.

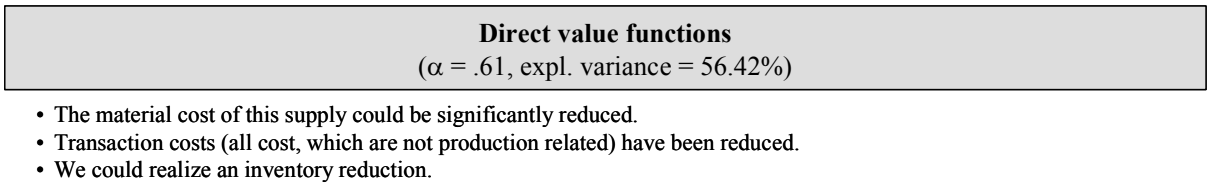


Figure 9 Construct direct value functions

4.3 Results

The appropriate fit between purchase situation and B2B E-marketplace is depending on the relationship support, which is required by the purchase situation and which needs to be enabled by the B2B E-marketplace concept. For testing the above derived hypotheses correlation analysis, regression analysis, hierarchical regression analysis, 2-factor variance analysis and mean comparisons have been computed.

The following table documents the results of the correlation analysis of purchase situation, B2B E-marketplace concept, the fit construct and the indirect and direct value functions. For

measuring the fit, the interaction term is built by the product of the construct purchase situation and B2B E-marketplace (Birnbaum 1973, p.239).

Correlations	Indirect value functions	Direct value functions
Purchase situation	.19**	.19***
B2B E-marketplace	.27***	.26***
Fit (Purchase situation x B2B E-marketplace)	.30***	.25***

*** : 1% significance level (1-sided)
** : 5% significance level (1-sided)
* : 10% significance level (1-sided)

Table 1 Correlation analysis

All correlation coefficients are highly significant, which is a first indication for the assumption that the right fit between purchase situation and B2B E-marketplace causes the optimum relationships success.

For further analysis of this assumption the interaction effect has been tested with a hierarchical regression analysis along the method explained by Cortina (1993) and Lovelace, Shapiro, Weingart (2001). First all preconditions (Keller 2001, p. 551) have been tested with positive results. The independent and interaction variables are significantly correlated (p=.00), the independent and dependent variables are significantly correlated and the interaction term and the dependent variables are significantly correlated. Then in a first step the independent variables purchase situation and B2B E-marketplace have been included in the regression. In a second step the interaction term, which is the product of the purchase situation and the B2B E-marketplace, has been added. The interaction effect is confirmed, if the addition of the interaction term causes a significant increase of the explained variance (R^2) of the dependent variable.

The results of this hierarchical regression analysis are documented in the following table.

Regression analysis/ Interation effect	Indirect value functions		Direct value functions	
	R^2	ΔR^2	R^2	ΔR^2
Purchase situation, B2B E-marketplace	.082***	.082***	.078***	.078***
Purchase situation x B2B E-marketplace	.091**	.009	.117***	.039**

*** : 1% significance level (1-sided)
** : 5% significance level (1-sided)
* : 10% significance level (1-sided)

Table 2 Hierarchical regression analysis concerning the interaction effect

Concerning the direct value functions the interaction effect could be supported. The increase of the explained variance (R^2) is significant ($p<.05$). For the indirect values the interaction effect test shows no significant results. The increase of the explained variance (R^2) is not significant.

These results support the assumption that the main lever of optimization due to the implementation of a B2B E-marketplace concept is the generation of direct value functions, which means cost savings. All areas of cost improvements can be covered by the appropriate B2B E-marketplace, material cost savings as well as process cost reductions as well as inventory reductions. For realizing the optimum direct value functions the appropriate fit between the given purchase situation and the developed B2B E-marketplace concept is key. The B2B E-marketplace concept must be adapted to the relational requirements determined by the purchase situation. Only a B2B E-marketplace, which enables the required interpersonal interaction with the supplier, can guarantee the most cost savings.

The realization potential of indirect value functions on B2B E-marketplaces is only limited. Therefore the appropriate fit is not as important. The B2B E-marketplace can generate indirect values such as cycle time reduction or access to new suppliers. This assumption can be supported by the highly significant correlation coefficient between B2B E-marketplace and the indirect value functions, but the appropriate adaptation of the E-system to the purchase situation is not as important as for the direct value functions optimization. A positive tendency can be assumed by the highly significant correlation coefficient between the fit and the indirect value functions, although the interaction effect could not be supported.

For undermining the existence of the interaction effect between the appropriate fit between purchase situation and B2B E-marketplace a 2-factor variance analysis has been computed.

Since for the variance analysis the independent variables have to be nominal (Elsbach 1994, Moussa 1996, Backhaus et al. 2000, p. 80), the construct purchase situation and B2B E-

marketplace have been grouped in three equal sized groups for classifying the extent of relationship support and requirement. The results are displayed in the following table.

Variance analysis	Indirect value functions F	Direct value functions F
Purchase situation	0.65	3.00*
B2B E-marketplace	3.10**	3.22**
Purchase situation x B2B E-marketplace	1.91	2.40*
R^2	.141	.164

The groups are build by generating groups with equal number of cases.
*** : 1% significance level (1-sided)
** : 5% significance level (1-sided)
* : 10% significance level (1-sided)

Table 3 2-factor variance analysis concerning the interaction effect

The results of the 2-factor variance analysis support the results of the hierarchical regression analysis. The existence of the interaction effect has been supported concerning the direct value functions, but not for the indirect value functions.

Furthermore for testing the best fit between purchase situation and B2B E-marketplace concerning the indirect and direct value generation a mean comparison has been computed. The constructs purchase situation and B2B E-marketplace have been classified into two classes by the average plus standard deviation method, to generate one group with the cases above the average and another group with all other cases. Then three groups have been built. Group 1 summarizes all cases with low extent of relationship requirement concerning the purchase situation and low extent of relationship support concerning the B2B E-marketplace. In group 3 all cases above the average have been grouped, meaning cases with high extent of relationship requirement concerning the purchase situation and high extent of relationship support concerning the B2B E-marketplace. In group 2 all other cases have been summarized. The results of the mean comparison are displayed in the following table. The significance of the different averages has been tested by the Scheffé test.

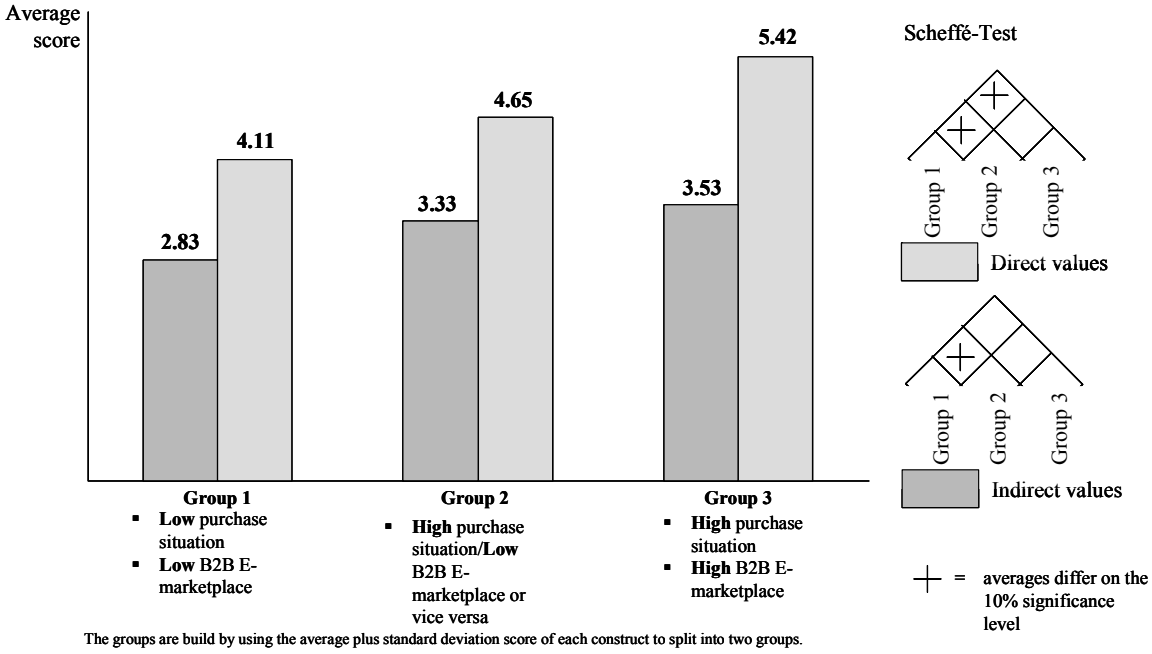


Table 4 Mean comparison

The results support the assumption that the best fit between purchase situation and B2B E-marketplace is, if the extent of relationship requirement concerning the purchase situation is high and the extent of potential relationship support of the B2B E-marketplace is also high. In this situation the cost savings generation (score 5.42) and the indirect value functions (score 3.53) have the highest scores (measured on a 7-point Likert scale) compared to the other groups. The scores for the indirect value functions are clearly below the scores of the direct value functions, which supports the weaker correlation between the appropriate fit and the indirect value functions.

Overall can be summarized that the appropriate fit between purchase situation and B2B E-marketplace leads to optimized direct values. The impact of the right fit on the soft values or indirect values can only tendentiously be confirmed.

5 Managerial impact and further research

The majority of companies underestimate the strategic value of evaluating the fit between purchase situation and e-marketplace. In recent years electronic marketplaces have been introduced – and many of them disappeared fairly soon due to a lack of functionality and reliability. As supported by the empirical results one key element has been neglected. It is

important that e-markets support a given purchase situation. This has implications for both, marketers and buyers. Marketers are urged to understand what situation the buyer is in before implementing an e-market. Also marketers have to think about the value they create for their customers and how this can be exchanged. If that value is mainly direct then an appropriate platform should be developed. The central message is that “one size fits all” is not the way forward.

This study has tested the value creation due to the implementation of E-procurement tools. Especially the direct values meaning cost savings can be optimized. But the realization of these benefits is highly critical. Only if the appropriate fit between purchase situation and B2B E-marketplace concept is identified, optimum cost savings can be realized. Companies have to recognize the high importance of a detailed analysis of the purchase situation. Only with a clear understanding about the given circumstances in the purchasing environment, firms are able to identify the appropriate This is important for both, buyer and seller as both have to understand the purchase situation as seen from the customer’s perspective. E-procurement concept for optimizing the direct value functions. Based on the purchase situation firms have to select and adapt the suitable B2B E-marketplace concept for optimizing their market position.

This study has been executed in Germany only. All chemical companies listed as VCI members have been contacted. But to validate the results on a broader basis the research should be rolled-out to other countries. Then the status of the usage of E-procurement tools could be compared between the different countries. In a next step the chemical market in U.S. could be included in the study. This research would enable the validation of the assumption that Europe lacks behind the U.S concerning the internet age.

This study has focused on the process industry with special emphasis on the chemical industry. In the chemical industry many companies had already EDI interfaces with their suppliers, data transfer between the business partners was business as usual. This progressive industry standards lead to the assumption, that the Chemical industry will become a fast mover concerning the new E-procurement tools. Based on these arguments the chemical industry has been selected. But another area of interest would be the rollout to other industries outside the process industry. For example the automotive industry would be favorable to compare. Are the E-procurement activities in the automotive industry further progressed than in the process industry? Are the product categories purchased via B2B E-marketplaces also limited to commodities?

To get a full picture and a broad understanding on the benefits and advantages of the new E-procurement tools, it is not enough to analyze just one perspective as the buyer view. The supplier perspective also needs to be analyzed in detail to be able to fully understand the potential of B2B E-marketplaces. The levers, organizational background and the objectives of suppliers implementing the new E-tools might be totally different from the results of this study.

The E-procurement tools open new opportunities. Further research could focus on possibilities of combined usage of conservative procurement tools and new E-tools. The question needs to be answered, which new approaches of interaction with the supplier would enable further values. Which multi-channel strategy would be the best in which purchasing situation?

Although this study has raised some further research questions it has also found some answers: The fit between purchase situation and e-market is important for relationship success. Not every system will do.

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