

Understanding the Additional Value Created by Customer Solutions and How it is Contingent upon Solution Complexity

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Abstract

Faced with intense global competition, many suppliers in business markets are turning towards customer solutions in an attempt to better differentiate their offers. A considerable shortcoming of the presently published research on solutions lies in its lack of customer focus. This study uses a combination of qualitative and quantitative methods to (1) derive the dimensions of the additional value provided by a solution from the customer's perspective, (2) test how these dimensions impact overall solution evaluations, and (3) test for moderating effects of solution complexity

Keywords: B2B Marketing, Customer Solutions, Customer-Perceived Value

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Introduction

Faced with intense global competition, many suppliers in business markets are turning towards customer solutions in an attempt to better differentiate their offers (Court, French, and Knudsen 2007). Customer solutions have been defined as a set of relational buyer-supplier processes aimed at defining customer requirements, customizing and integrating products, deploying them, and providing post-deployment support (Tuli, Kohli, and Bharadwaj 2007). For example, railway companies could be offered a hypothetical solution in which they buy complete train systems including maintenance, repair, spare parts, and training of staff from a single provider, instead of having to procure and integrate the individual components on their own. However, a shift to solutions does not automatically result in improved profitability or firm value (Fang, Palmatier, and Steenkamp 2008). While some suppliers of stand-alone products have successfully transitioned to a customer solutions strategy, many firms still struggle to offer profitable solutions (Johansson, Krishnamurthy, and Schlissberg 2003; Stanley and Wojcik 2005).

Despite strong practitioner interest, academic research on customer solutions is still at an early stage. We know so far that for the transition to solutions to be profitable, suppliers must reach a critical ratio of solution sales (Fang et al. 2008). Also, Tuli, Kohli, and Bharadwaj (2007) examine the organizational prerequisites that enable suppliers to successfully deliver solutions to their customers. A considerable shortcoming of the presently published research on solutions lies in its lack of customer focus (Tuli et al. 2007). In fact, the decision to offer customer solutions seems to be most frequently driven by internal reasons such as the pressure to improve firm profitability. It is however more than questionable if a transition to customer solutions represents the universal path to better profitability. In this study, we offer a more comprehensive perspective on the strategy option of introducing customer solutions. Building on the literature on value-based management in buyer-supplier relationships (cf. Anderson and Narus 2004; Ulaga and Eggert 2006), we suggest that the key to a successful transition to a solution provider will be an effective management of the additional value provided by a solution from the customer's perspective. In other words, only if customer solutions are designed to optimally provide customers with additional value compared to individual stand-alone products can they be profitable. The key prerequisite in this pursuit is a clear understanding of the way how customer solutions create value for customers (Reinartz and Ulaga 2008). The literature also shows that buying decisions in business markets are influenced by a complex set of situational context factors (Johnston and Lewin 1996). We thus expect that the additional value created by customer solutions will differ depending on the context. Proceeding from the above discussion, we formulate three research questions for our study:

- Which are the different dimensions on which customer solutions can potentially create value for customers compared to stand-alone products?
- How will the individual dimensions of added value impact organizational customers' attitudes towards a novel solution offer?
- To what extent is the weight assigned to the various value dimensions contingent upon situational context, for example the complexity of the procured system?

Since the study mostly follows a deductive approach, i.e. the conceptual model of value created by a solution is derived from the data, the method is presented first. Next we discuss the key findings of the empirical study. The paper concludes with a discussion of the results.

Method

To collect the data for our study, we obtained access to the customer database of a major supplier of stand-alone products. As the context for our study we choose a dynamic technology-driven industry supplying equipment to transportation service providers. To date, transportation service providers in this industry mostly procure the different elements of their transportation system from separate suppliers of stand-alone products. Unfortunately, details on the industry and the identity of the partnering firm cannot be disclosed to maintain confidentiality of the data. The study centers on the hypothetical introduction of a customer solution comprising an integrated system of equipment. The study falls into two stages, a qualitative pre-study and quantitative survey.

Qualitative Study

In the qualitative stage, we conducted a range of qualitative interviews with both potential customers for the customer solution, i.e., transportation service providers, and with industry experts to create a set of criteria that buyers would use in evaluating such a customer solution. Depending on the geographical location of the interviewee, the interviews were either conducted over the phone or face-to-face. Based on the data collected from the interviews, we first developed an initial list of 25 buying criteria. Based on further interviews the list of criteria was narrowed down to 13 items for the quantitative study.

Quantitative Study

Next, we collected international survey data from buying center members sampled from the customer database of the collaborating supplier of stand-alone products. Because the detailed contact information, including personal email, was readily available, the survey was administered via the internet. Respondents received an invitation letter containing a personalized link to the internet-based questionnaire and two subsequent reminders via email. We received a total of 282 completed questionnaires, for an overly satisfactory response rate of approx. 20%. This responses rate is comparable to that of previous survey research among managers (e.g. Homburg and Pflesser 2000). In an attempt to obtain more valid results, the analysis provided here is based only on those respondents who indicated that they were able to provide accurate responses (N=149) (cf. Van Bruggen, Lilien, and Kacker 2002).

In the survey, respondents were asked to rate the hypothetical customer solution offer against the benchmark, buying stand-alone products, on the 13 evaluation criteria from the qualitative study and on a measure of the overall attitude towards the customer solution scenario. In addition, respondents provided measures for the complexity of the system they currently operate and the expected increase in the complexity of the system within the next 5 years. Complexity was operationalized as the number of different functions that the system should be able to perform.

We first subjected the data to exploratory factor analysis to identify four different dimensions of customer solution value. Then we use linear regression to test how the individual customer

solution value dimensions affect global attitudes towards the solution. Finally, we include interaction terms for the moderating variable “complexity increase of system” along with the control variable “current complexity of system” in the regression model.

Empirical Findings

Dimensions of Value Added by a Customer Solution

Table 1 shows the rotated component matrix obtained from the exploratory factor analysis.

Table 1: Rotated Component Matrix

	Component			
	Customization Benefits	Deployment Benefits	Integration Benefits	Life-Cycle Cost
Differentiation potential of customer solution	0.743			
End-user benefit of customer solution	0.722			
Upgrade options of customer solution	0.712			
Responsiveness to market trends of customer solution	0.692			
Time to market/lead time of customer solution		0.872		
On time delivery of customer solution		0.842		
Product support of customer solution		0.673		
Space consumption of customer solution			0.836	
Weight of a customer solution			0.819	
Power consumption of customer solution			0.713	
Purchase price of customer solution				0.806
Operating costs of customer solution				0.752
Reliability of customer solution				0.598

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization

Rotated Component Matrix (Rotation converged in 6 iterations)

Four dimensions of additional value provided by a customer solution emerge:

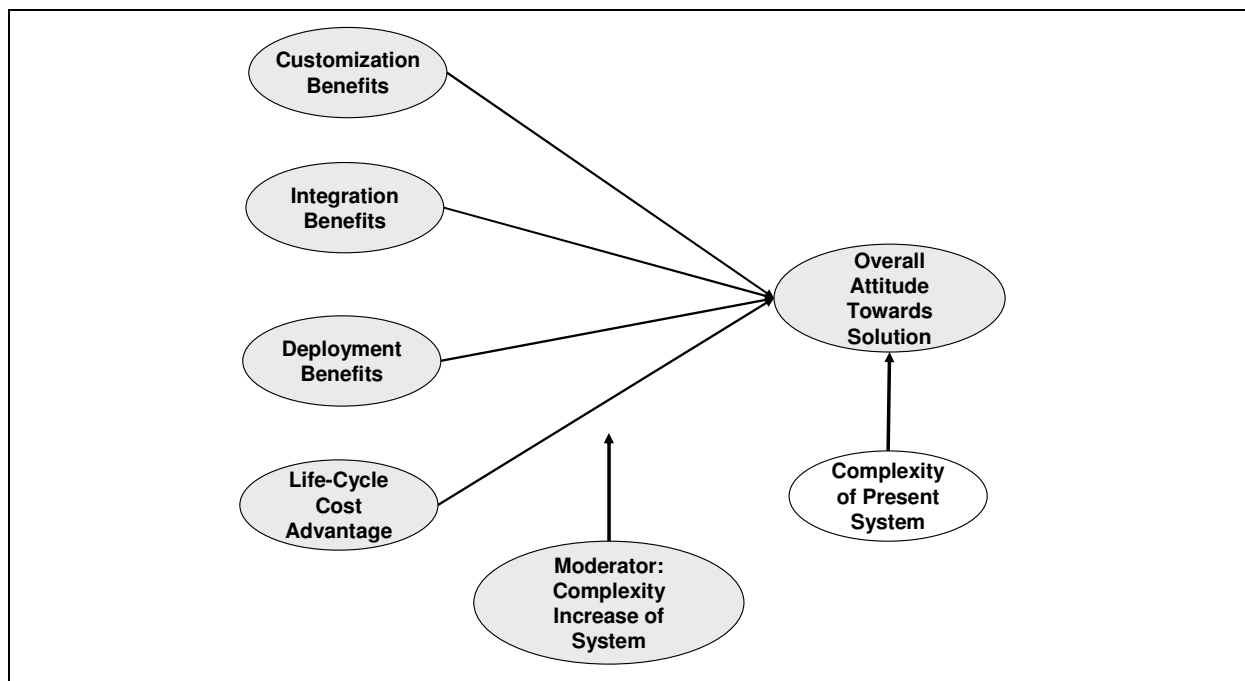
- *Customization benefits*: Benefits that are derived from the fact that the overall system can be better designed to fit the transportation provider’s individual needs when it comes as a complete solution. In the case of our study, customization benefits mainly lie in a transportation system’s ability to better differentiate a transportation provider’s service vis-à-vis the end customer.

- *Deployment process*: Benefits the buyer obtains in the procurement and deployment process because there is a single responsible firm for the entire system instead of having to coordinate many different suppliers.
- *Integration benefits*: Benefits arising because a system's individual components better fit together if they are manufactured as an integrated complete solution.
- *Life-cycle cost advantage*: Reductions in the total cost of operating the system that can be attributed to buying from a single supplier. These benefits mainly emerge with regard to risk reductions and avoiding unforeseen problems.

Impact of Value Dimensions on Overall Evaluations and Moderating Effect of System Complexity

We estimate two different regression models, Model A comprising just the four value dimensions' main effects on overall attitude towards the solution, and Model B, which also includes the dimensions' interaction terms with the moderator "complexity increase of system" and the control variable "complexity of current system" as shown in Figure 2.

Figure 1: Conceptual Model



The estimation results for models A and B appear in Table 2. The column for Model A shows that all four dimensions of the additional value provided by the customer solution have significant ($p < 0.01$) main effects on overall attitude towards the customer solution. Deployment benefits impact overall attitudes most strongly ($\beta = 0.35$). Integration benefits ($\beta = 0.20$), customization benefits ($\beta = 0.26$), and lifecycle cost advantage ($\beta = 0.29$) also have considerable effect on overall attitudes.

When the interaction terms and control variable are added as independent variables in Model B, we observe some changes in the results. The main effect of deployment benefits is no longer significant ($\beta = 0.14$, $p > 0.1$) while the coefficient for customization benefits increases

($\beta=0.42$, $p<0.01$). The reason for these changes seems to lie in two moderating effects: complexity increase is found to have interactions with both deployment benefits ($\beta=0.25$, $p<0.1$, positive interaction) and customization benefits ($\beta=-0.28$, $p<0.01$, negative interaction). No main effect of the moderator and control is found. R squared is overly satisfactory (0.42).

Table 2: Regression Results

	Model A			Model B		
	Standardized Coefficient	T-Value	Sig.	Standardized Coefficient	T-Value	Sig.
Intercept		28.547	0.000		14.142	0.000
Deployment Benefits	0.351	4.734	0.000	0.140	1.072	0.286
Integration Benefits	0.203	2.753	0.007	0.234	2.018	0.046
Customization Benefits	0.257	3.466	0.001	0.471	3.594	0.000
Lifecycle Cost Advantage	0.292	3.917	0.000	0.265	1.942	0.055
Complexity Increase				-0.045	-0.554	0.581
Complexity Increase * Deployment Benefits				0.247	1.893	0.061
Complexity Increase * Integration Benefits				-0.078	-0.676	0.500
Complexity Increase * Customization Benefits				-0.275	-2.037	0.044
Complexity Increase * Lifecycle Cost Advantage				0.056	0.400	0.690
Current Complexity				0.113	1.381	0.170

Dependent Variable: Overall evaluation of the customer solution scenario

Discussion

The present study takes a deductive approach to identify four different dimensions of the additional value provided by customer solutions. These findings can assist marketers in taking a more analytic perspective in understanding the success or failure of customer solution strategies. The results also confirm the expectation that the weight given to each of the value dimensions differs by situation. We find that customers with the need for constant complexity of the procured system see more value in customization benefits while customers who will increase the complexity of their system are more after deployment benefits. Given its exploratory nature, our study charts the path for further research on how the success of customer solutions is contingent upon situational context. In this vein, further research should broaden our framework to a broad range of industries to look for differences across industries and solution types.

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