Marketing strategy and customer involvement in product development

Mons Freng Svendsen
BP Norway, Forus, Norway
Sven A. Haugland and Kjell Grønhaug
Department of Strategy and Management, Norwegian School of Economics and Business Administration, Bergen, Norway, and
Trond Hammervoll
Department of Business Administration and Social Sciences, Harstad University College, Harstad, Norway

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Abstract

Purpose – This paper aims to investigate the impact of a firm's marketing strategy on involving customers in new product development. Special attention is to be paid to three facets of a marketing strategy: product differentiation, competitor orientation and brand profiling emphasis.

Design/methodology/approach – A survey with quantitative questionnaires was used in the context of relationships between Norwegian suppliers and international buyers.

Findings – Two facets of marketing strategy, product differentiation and competitor orientation, positively impact customer involvement. Furthermore, specific investments dedicated to the relationship are also positively related to customer involvement, and customer involvement increases customer profitability.

Research limitations/implications – The study relies on data from the suppliers, and future studies should also include customer data to explore possible effects of the customer's marketing strategy on joint involvement in new product development.

Practical implications – The study shows that managers seeking to involve customers in product development should carefully develop their marketing strategy and build commitment through specific investments.

Originality/value – Previous studies show that firms can benefit from involving customers in new product development. This paper extends knowledge in the field by exploring how different facets of the firm's marketing strategy can increase or decrease the possibilities for involving customers.

Keywords Product development, Strategic marketing, International business, Norway, Customer orientation, Relationship marketing

Paper type Research paper

1. Introduction

The linkage between new product development and inter-firm relationships has received increased attention both in research and practice. The product development literature has identified a number of key success factors, many of which are related to the crucial role of customers and suppliers (Brown and Eisenhardt, 1995). In particular, authors have highlighted that being able to access rich information and knowledge

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from key customers provides an understanding of the customers' problems and needs, which again is a critical success factor for the developer (More, 1986; von Hippel, 1986; Gruner and Homburg, 2000). Most of this research has studied the impact of relationship characteristics and facets of relationship management on new product development (e.g. Hsuan, 1999; Primo and Amundson, 2002; Ritter and Walter, 2003; Stump *et al.*, 2002).

Involving customers and suppliers is therefore considered an important factor impacting new product success. However, research has to a much lesser degree focused on studying which specific factors can explain whether customer and supplier involvement in new product development activities will take place or not. One of the few studies that have addressed this issue found that factors such as mutual commitment, mutual trust, mutual adaptations and mutual relationship management impact customer involvement (Ritter and Walter, 2003). This study extends this line of reasoning, paying special attention to the firm's marketing strategy. The purpose of the study is to investigate some important facets of a marketing strategy and study the impact of these facets on customer involvement. We consider product differentiation, competitor orientation and brand profiling emphasis as three facets of marketing strategy that are particularly important in this context. In addition, we include specific investments as an indication of commitment, and study the role of such investments in enabling customer involvement. Furthermore, we focus on international relationships, as most markets are becoming increasingly international and global, and involving international customers in new product development is likely to be of great importance for successful international operations.

The paper is organized as follows: We first review relevant literature and develop a conceptual model with nine testable hypotheses. We then describe the research methodology and present the empirical results. We finally discuss the results and point out some important implications for theory and practice.

2. Customer involvement in new product development

External communication with key customers has been highlighted as a key success factor for product development projects (Allen, 1971; 1977; Katz and Tushman, 1981; More, 1986; von Hippel, 1986; 1988). The rationale is that such external communication increases the amount and variety of information, which in turn increases the quality of the development process (Brown and Eisenhardt, 1995). Direct interaction with customers can be regarded as a high-bandwidth mode of communication. "The unique capacity of informal and generally face-to-face communication is to facilitate transfer of complex, ambiguous and novel information and to provide the possibility to capitalize on surprising and unexpected answers" (Salomo *et al.*, 2003, p. 446).

In our attempt to unpack some important antecedents of customer involvement related to marketing strategy, we draw upon Athaide and Stump (1999), who state that: "sellers need to determine how precisely they are willing to meet their customers' needs through the product configuration at an early stage of the NPD process" (p. 479). We concur with their position and argue that an important aspect of a product configuration is reflected in the marketing strategy of the firm. Second, involving customers in new product development requires commitment to the relationship from both customer and supplier. New product development is a value creation strategy requiring actors to invest in specific assets dedicated to the relationship (Ghosh and

John, 1999), thereby developing a close relationship characterized by commitment and a long-term perspective. The firm's marketing strategy and the level of specific investments can thus be considered as two important factors impacting whether customer involvement will take place or not, and furthermore, the firm's marketing strategy is likely to impact the level of specific investments.

We will in the following develop hypotheses in regard to how various facets of a marketing strategy are related to customer involvement in new product development and specific investments. We focus on three essential components of a marketing strategy. First, firms often offer products and services that are perceived by the customers as different from the competitors' offerings (Dickson and Ginter, 1987); we call this "product differentiation". Second, firms often use everyday tactics to modify their value offerings and strengthen their position relative to competitors; we call this "competitor orientation". Third, firms often profile brand names and firm reputation to varying degrees in marketing and sales, and we name this "brand profiling emphasis". We discuss below how the different facets of a marketing strategy may impact the extent of customer involvement in product development as well as the relationship between marketing strategy and specific investments. Thereafter, we discuss how customer involvement and specific investments are related to relationship profitability.

2.1 The effect of product differentiation on customer involvement and specific investments

Product differentiation is a widely used concept both in marketing and strategy. Dickson and Ginter (1987) define product differentiation as follows: "A product offering is perceived by the consumer to differ from its competition on any physical or nonphysical product characteristic including price" (p. 4). The aim of differentiation is to earn superior profit through, for example, reduced price sensitivity or achieving a price premium (Sharp and Dawes, 2001). Differences in product offerings can be perceptual and created by mechanisms such as usage experience, word of mouth and promotion, or actual and created by specific product characteristics (Dickson and Ginter, 1987).

Differentiation is related to delivering something different to the customers compared to the offerings of the competitors, and developing and implementing a differentiation strategy requires access to information and knowledge. Such information and knowledge can be acquired through different sources such as market research and customer interaction. Compared to traditional market research, close customer relations represent a high-bandwidth mode of communication that facilitates the transfer of complex, ambiguous and novel information (Salomo *et al.*, 2003). Such specialized, fine-grained information and knowledge from customers can be particularly valuable in product development processes in order to secure that the firm develops products and technologies in line with customer preferences. We should therefore expect that firms pursuing a product differentiation strategy to a larger extent than firms offering standardized products involve customers in new product development processes, as the information and knowledge transmitted from customers represent important inputs for the firm in order to develop products meeting customer needs in a way that is different from the competitors' offerings.

A product differentiation strategy may also require actors to make specific investments. A differentiation strategy requires a "well-orchestrated" set of marketing tools and value chain (Myers and Harvey, 2001). Specific investments in the customer interface, such as transportation and logistics, and information systems for ordering and delivering, may facilitate and ease the implementation of a differentiation strategy that requires close coordination across inter-firm boundaries. Furthermore, such investments may support and enhance crucial product attributes increasing the perceived value of the product (Ghosh and John, 1999). The following hypotheses are proposed:

H1a. Product differentiation will have a positive effect on customer involvement.

H1b. Product differentiation will have a positive effect on specific investments.

2.2 The effect of competitive orientation on customer involvement and specific investments

Competitor orientation is defined as the ability and willingness to acquire information about competitors' actions in the target market, and the will to respond to these (Narver and Slater, 1990). In particular, it refers to "the extent to which a firm will go to differentiate itself from competition. A firm with a keen competitive instinct keeps up to date with information about its competitors' offerings, never fails to monitor its competitors' moves, and is often ready to react at short notice" (Balakrishnan, 1996, p. 259). Implicitly, a competitive orientation means that the company understands the strengths and weaknesses of its offerings compared to the offerings of other firms (Aaker, 1988; Day and Wensley, 1988), and is ready to adapt its offerings if the moves taken by the competitors at any time give the firm's products a less attractive image. Competitor orientation is closely related to product differentiation, as both dimensions concern how a firm is positioned compared to the competitors. However, while product differentiation represents a long-term strategy that cannot be changed at short notice, competitor orientation represents attention to the continuous competitor moves and adequate responses to these moves at short notice if necessary.

Responding to competitor moves by adapting products and services requires information that can be accessed at short notice. Competitor surveillance can be obtained through different sources of market research and market intelligence, but also through well informed and interested customers, often called lead customers (von Hippel, 1998). Such information can be used to match the moves of competitors through adjustment of product offerings. For example, customers may suggest how to develop products with a design, which allows the firm to price its product lower than alternative products, or how to develop a product with a set of unique features (Zirger and Maidique, 1990). Since we in this study investigate international relationships, we should expect that firms prefer to access information about competitors from well informed customers compared to market research and market intelligence since these latter sources may be both costly and difficult to interpret. Firms with a focus on competitor orientation should thus in this context be inclined to involve customers in product development, as this provides direct access to a valuable information source supplying the firm with continuous information that can be used in responding to competitor moves.

Specific investments dedicated to customer relationships can also be undertaken in response to competitor moves. Such investments may enhance product customization, which provides the customer with "greater value by more completely addressing their idiosyncratic needs" (Athaide and Stump, 1999, p. 478). Such investments can improve customers' perceptions of the strengths of the firm's offerings compared to competitors' offerings, and thereby reduce the firm's vulnerability to competitor moves. Competitor orientation can thus lead the firm to make specific investments in order to make it less attractive for the customer to switch to another supplier. The following hypotheses are proposed:

H2a. Competitor orientation will have a positive effect on customer involvement.

H2b. Competitor orientation will have a positive effect on specific investments.

2.3 The effect of brand profiling emphasis on customer involvement and specific investments

Brand profiling emphasis refers to the extent to which the company profiles its brands and reputation in its sales and marketing activities. Generally, when a firm puts a high emphasis on brand profiling, it seeks to obtain highly desired and valuable market positions (Ghosh and John, 1999), resulting in an incremental increase in cash flow relative to the cash flow normally accruing to the product (e.g. Simon and Sullivan, 1993).

A strong brand profiling emphasis means that the supplier seeks to build brand equity and focus on the extra margins caused by the brand. In turn, it may be less attractive for the customers to be involved in new product development, as the customers may fear that they will be voluntarily participating in activities aiming at increasing the value of the supplier's brand. A strong brand profiling emphasis may thus result in customers that are less motivated to be involved in new product development.

Ghosh and John (1999) explain why buyers of strong brands hesitate to enter relationships that involve specific investments with their suppliers. The reason is that both the increase in cash flow due to the brand as well as the increase in rents due to specific investments will be subject to bargaining and sharing of value creation with the supplier ex post. As a result, the owner of the brand will have to share some of the extra margins accruing from brand equity with the supplier. Although we are in this study concerned with supplier brands, we propose that a similar logic can be applied. The supplier might fear that the potential extra margins created by the brand value can be subject to bargaining and value claiming by the counterpart (Ghosh and John, 1999). In securing all extra margins from the brand, the supplier may be less motivated to invest in specialized assets. Hence, the following hypotheses are proposed:

H3a. Brand profiling emphasis will have a negative effect on customer involvement.

H3b. Brand profiling emphasis will have a negative effect on specific investments.

2.4 The effect of specific investments on customer involvement

Asset specificity creates a lock-in situation since the investments have a higher value inside the relationship than outside. Terminating a relationship with large specific investments will entail economic losses for one or both actors. Specific investments should thus encourage actors to preserve the relationship for an extended time period.

Such relationship dependence can serve as an incentive to be committed to working closely with the partner and to cultivate the relationship for future value creation. The commitment created by specific investments serves as an additional incentive to involve the customer in value adding activities such as new product development. Hence, the following hypothesis is proposed:

H4. Specific investments will have a positive effect on customer involvement.

2.5 Implications for relationship profitability

Drawing on customer knowledge in product development should enable the supplier to develop products and services that provide more value and are superior in solving customer problems (e.g. von Hippel, 1994; 1998). Customer involvement should enable the supplier to develop improved functional requirements, modify product design to reduce production costs (Yli-Renko *et al.*, 2001), or develop a design that meets the special needs and problems of customers to a greater extent. Furthermore, customer involvement can enable more efficient ways of supplying products and services to the customer, by methods such as integration of supply activities into customers' processes or by improving procedures for communication and feedback (Yli-Renko *et al.*, 2001). Taken together, these benefits should facilitate long-term rebuys of the supplier's products at a greater profit margin and thus result in superior relationship profitability.

In accordance with the findings of earlier studies (Heide and John, 1988; Asanuma, 1989; Parkhe, 1993; Dyer, 1996), we propose that supplier-specific investments are positively related to the achieved pay-offs of a particular relationship. Specific investments give the supplier better opportunities to accommodate sales and customer use of the products. The supplier can customize the design and functionalities of a product to meet the idiosyncratic requirements and needs of a particular customer (Athaide and Stump, 1999; Clark and Fujimoto, 1991). Altogether, the benefits of specific investments should lead to increased relationship performance. These arguments allow the following hypotheses:

H5a. Customer involvement will have a positive effect on relationship profitability.

H5b. Specific investments will have a positive effect on relationship profitability.

The relationships between the hypotheses are depicted in Figure 1.

3. Research method

3.1 Context, sampling and data collection

We collected data using a cross-sectional survey design with quantitative questionnaires and tested the hypotheses using structural equation modeling. Although the hypotheses are formulated as cause-effect hypotheses, we argue that valid theoretical arguments underlying the cause-effect direction in the hypotheses, in combination with structural equation modeling, make it possible to test such hypotheses in a cross-sectional design.

Relationships between Norwegian exporters and importers in many different countries were chosen as empirical context. As there is no complete listing of Norwegian companies involved in exports, we used various databases in order to trace

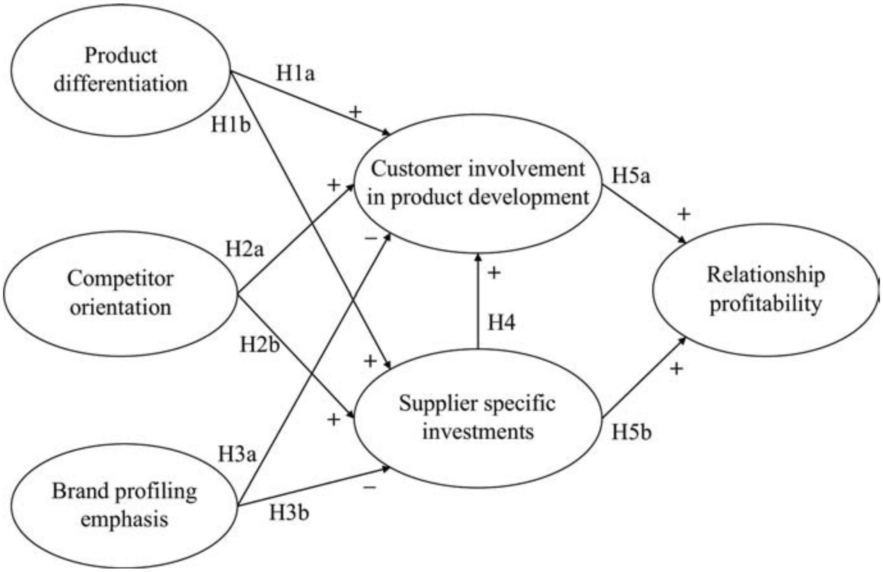

Figure 1.
Model and hypotheses

relevant companies. After eliminating commodity industries selling their products in international spot markets, we traced 1,500 companies fulfilling the export definition. The exporters operated in a variety of industries such as seafood products, furniture and wood products, maritime and oil-related equipment, and clothing, etc. Athaide and Stump (1999) claim that their empirical "results indicate that the choice of a particular [product development] approach is more a function of targeting and product strategies rather than industry types" (p. 478). A cross-industry sample should thus not bias the empirical results. Structured questionnaires were mailed to the 1,500 companies. 250 companies replied that they were not actively involved in export, while 351 companies returned the questionnaires. Due to missing data, we had to exclude 27 questionnaires from the analysis. This left us with 324 usable questionnaires, giving a response rate of 26 percent.

As most of the companies were small and medium-sized, we considered managing directors or export managers to be the best candidates for meeting Campbell's (1955) criteria of being knowledgeable about the phenomena under study and able and willing to communicate this knowledge to the researcher. Hence, managing directors or export managers were chosen as key informants. The informants were asked to choose one of their largest customers, in one of the most important international markets for one of their major export products. All questions were to be answered in relation to this particular customer. This was done in order to obtain dyadic relationships at specific product-market levels. These procedures enabled us to acquire information about business-to-business relationships involving marketing of specific products in specific markets.

On average, the dyadic relationships had existed for seven-and-a-half years, and the exporters had on average 164 employees. The informants reported on relationships with customers from 36 different countries in Europe, Asia, Africa, and North and

South America, but the majority of customers were from Western Europe. The exporters had on average an export share of 52.8 percent, but the export share varied substantially (SD = 31.2).

3.2 Measures

All variables were measured by multi-item scales. We developed the scales based on measures used in previous empirical studies. The operationalizations are shown in Table I.

Relationship profitability describes relative profitability of the chosen customer relationship compared to other customer relationships (for the same product), and the extent to which the relationship has given the expected results.

The customer involvement in product development scale describes the degree to which the customer is involved in product development processes.

Specific investments describe the extent to which the supplier has made specific investments in physical equipment and human assets dedicated to the relationship with the chosen international customer.

Product differentiation describes the degree to which the production technology and product are different from the technology and products offered by competitors, and whether the competence required to produce the product is specific to the firm.

Competitor orientation describes the extent to which the firm acquires information about competitors' actions in the target market, and the firm's willingness to adapt strategy and products according to competitor moves.

Brand profiling emphasis describes the extent to which the firm profiles its brands and reputation in international sales and marketing activities.

Control variables: customer-specific investments, competitive intensity and total sales were included as control variables in order to reduce internal validity threats and to control the stability of the hypothesized relations. First, specific investments made by the supplier may be reciprocated by similar investments by the customer, and such investments may be related to other variables in the model. Second, competitive intensity may result in increased pressure to develop new and more customized products and processes in order to stay ahead of the competition. Third, to control for any size and economy of scale effects, we included the supplier's total sales.

3.3 Measurement model

Confirmatory factor analysis in LISREL 8.54 was conducted to test model-to-data fit. The constructs were allowed to correlate freely so that the measurement model was subjected to the strongest test (Jöreskog and Sörbom, 1993). All fit indexes report acceptable fit of the model to the data ($\chi^2_{(119)} = 275.10$, GFI = 0.92, CFI = 0.92, IFI = 0.92, RMSEA = 0.064) (Browne and Cudeck, 1992; Hu and Bentler, 1995).

Composite reliability (CR) for construct η was calculated by the formula $CR_\eta = (\Sigma\lambda y_i)^2 / \left[(\Sigma\lambda y_i)^2 + (\Sigma\varepsilon_i)\right]$ (Fornell and Larcker, 1981), where λy_i is the standardized loading for scale item y_i, and ε_i is the measurement error for scale item y_i. Average variance extracted (AVE) was calculated by the following formula $V_\eta = \sum\lambda y_i / (\Sigma\lambda y_i + \Sigma\varepsilon_i)$ (Gerbing and Anderson, 1988). Furthermore, we examined the parameter estimates and their associated *t*-values (Anderson and Gerbing, 1988). Table II shows that all factor loadings are significant and that the scale reliabilities are generally acceptable. All constructs have acceptable AVE and CR values. We also

Construct	Items
Relationship profitability (RP)	1. How profitable is this customer relationship compared to other customer relationship (for the chosen product) for your firm? 2. If you overall evaluate the customer relationship, to what extent has the relationship to this customer given the results your firm expected beforehand?
Supplier-specific investments (SSI)	1. In order to deliver to this customer, it has been necessary to make special investments in equipment facilities 2. It has been necessary to adapt our production equipment to this customer 3. It has been necessary to give employees working with this customer special training
Customer involvement in product development (CPD)	1. The fact that the customer presents ideas/ suggestions for new product features is important for our product development 2. The fact that the customer presents ideas about new materials we can use to produce the product is important for our product development 3. The fact that the customer communicates to us the needs of its customers is important for us in developing the product further 4. It would not have been possible for our firm to have an efficient product development without the competence that the customer possesses
Product differentiation (PDIFF)	1. Our production technology is different from that used by our competitors 2. The competence required to produce this product is specific to our firm 3. Our product is different from those sold by our competitors
Competitor orientation (COOR)	1. We keep ourselves informed about what our most important competitors are doing 2. We have to adapt our strategy to the activities undertaken by our most important competitors
Brand profiling emphasis (BRAND)	1. Our own brand name is important for international marketing and sales of the product 2. The firm's reputation is important for international marketing and sales of the product
Customer-specific investments (CSI)	1. Examples of specific investments are procurement of production equipment, employees, production capacity or localization of production assets 2. To what extent has the customer made such specific investments?
Competitive intensity (CINT)	1. How would you characterize the competitive situation in this market (little competition ... strong competition)?
Supplier's total sales (SALES)	2. Total sales ____ (Norwegian Kroner, Millions)

Table I.
Measures of construct

Table II.
Measurement model

Construct	Indicator	Loading	t value	CRM	AVE (%)	Highest shared variance
Relationship profitability	RP1	0.81	6.46	0.75	61	0.04
	RP2	0.56	5.86			
Supplier-specific investments	SI1	0.81	15.72	0.89	72	0.12
	SI2	0.86	17.18			
	SI3	0.64	12.03			
Customer involvement in product development	CPD1	0.75	13.55			
	CPD2	0.62	10.84	0.83	56	0.12
	CPD3	0.71	12.64			
	CPD4	0.55	9.40			
Product differentiation	PDIFF1	0.72	13.28	0.86	67	0.12
	PDIFF2	0.72	13.09			
	PDIFF3	0.76	14.03			
Competitor orientation	COOR1	0.92	9.39	0.81	70	0.19
	COOR2	0.57	7.60			
Brand profiling emphasis	BRAND1	0.70	8.90	0.70	53	0.19
	BRAND2	0.58	8.06			
Customer-specific investments	CSI1	1.00	25.42			0.13
Competitive intensity	CINT1	1.00	25.42			0.03
Supplier's total sales	SALES1	1.00	25.42			0.03

Notes: Model diagnostics: $\chi^2_{(119)} = 275.10$; RMSEA $= 0.064$; GFI $= 0.92$; CFI $= 0.92$; IFI $= 0.92$

calculated a 95 percent confidence interval around the correlation estimate for the latent constructs (Table III). No intervals included unity, thus indicating discriminant validity (Anderson and Gerbing, 1988). Also, following Fornell and Larcker's (1981) test for discriminant validity, we checked the shared variance between all possible pairs of constructs, and verified that none of the squared correlations were higher than the AVE for each construct (Table II).

4. Results

LISREL 8.54 was used to test the structural model and the results are presented in Table IV. In regard to model diagnostics, the model reached $\chi^2_{(122)} = 280.42$, RMSEA $= 0.063$, GFI $= 0.92$, CFI $= 0.92$, IFI $= 0.92$. The diagnostics are marginally different from those achieved in the confirmatory factor analysis. To formally check whether the difference was significant, we conducted a χ^2 difference test of the (theoretical) structural model [$\chi^2_{(122)} = 280.42$] and the construct measurement model [$\chi^2_{(119)} = 275.10$]. The χ^2 difference is 5.32 at df $= 3$, which is not statistically significant (the corresponding value is 8.00), and the model can be accepted (Anderson and Gerbing, 1988).

The results give support to the theoretical model (Table IV). Product differentiation impacts positively customer involvement in product development ($\lambda_{22} = 0.22$, $t = 2.28$, $p < 0.05$) as well as supplier-specific investments ($\lambda_{12} = 0.24$, $t = 2.79$, $p < 0.01$). This provides support for the first hypothesis. The second hypothesis is also supported. Competitor orientation has a positive effect on customer involvement ($\lambda_{22} = 0.16$, $t = 1.97$, $p < 0.05$) and supplier-specific investments ($\lambda_{12} = 0.10$, $t = 1.28$, $p < 0.1$). The link from brand profiling emphasis to customer involvement is negative, but not significant, while brand profiling emphasis negatively impacts supplier-specific investments ($\lambda_{13} = -0.14$, $t = -1.44$, $p < 0.1$). These results provide partial support for *H3*. Furthermore, as predicted in *H4*, supplier-specific investments

	Mean	SD	RP	SSI	CPD	PDIFF	COOR	BRAND	CSI	CINT	SALES
RP	4.88	0.92	1.00								
SSI	2.59	1.43	0.21[a]	1.00							
			(0.07)[b]								
CPD	4.05	1.33	0.21	0.34	1.00						
			(0.08)	(0.06)							
PDIFF	4.01	1.54	0.15	0.29	0.31	1.00					
			(0.08)	(0.06)	(0.07)						
COOR	4.70	1.28	0.19	0.12	0.23	0.24	1.00				
			(0.07)	(0.07)	(0.07)	(0.07)					
BRAND	5.07	1.43	0.18	0.02	0.13	0.44	0.41	1.00			
			(0.09)	(0.08)	(0.08)	(0.07)	(0.08)				
CSI	2.39	1.69	0.08	0.34	0.18	0.30	0.08	0.06	1.00		
			(0.07)	(0.05)	(0.06)	(0.06)	(0.06)	(0.07)			
CINT	5.53	1.45	−0.12	−0.07	0.02	−0.16	0.09	0.06	−0.09	1.00	
			(0.07)	(0.06)	(0.08)	(0.06)	(0.06)	(0.07)	(0.06)		
SALES	154.6	373.3	0.01	0.16	0.05	0.08	0.11	0.03	0.03	0.12	1.00
			(0.07)	(0.06)	(0.06)	(0.06)	(0.06)	(0.07)	(0.06)	(0.05)	

Notes: [a]Correlation estimate; [b]Standard error of correlation estimate

Table III. Means, standard deviations, and correlations among latent constructs

Table IV.
Testing the structural model

Structural linkages in the model	Hypotheses	Sign	Parameter	Estimate	t value
Exogenous – Endogenous variables					
Product differentiation → Customer involvement	*H1a*	+	λ_{21}	0.22	2.28*
Product differentiation → Supplier-spec investments	*H1b*	+	λ_{11}	0.24	2.79***
Competitor orientation → Customer involvement	*H2a*	+	λ_{22}	0.16	1.97**
Competitor orientation → Supplier-spec investments	*H2b*	+	λ_{12}	0.10	1.28*
Brand profiling emphasis → Customer involvement	*H3a*	–	λ_{23}	−0.03	−0.25
Brand profiling emphasis → Supplier-spec investments	*H3b*	–	λ_{13}	−0.14	−1.44*
Endogenous – Endogenous variables					
Supplier-spec investments → Customer involvement	*H4*	+	β_{21}	0.26	3.30****
Customer involvement → Relationship profitability	*H5a*	+	β_{32}	0.17	2.13**
Supplier-spec investments → Relationship profitability	*H5b*	+	β_{31}	0.15	1.85**
Control variables – Endogenous variables					
Customer-spec invest → Supplier-spec investments			λ_{11}	0.27	4.32****
Customer-spec invest → Customer involvement			λ_{21}	0.02	0.24
Customer-spec invest → Relationship profitability			λ_{31}	−0.02	−0.26
Competitive intensity → Supplier-spec investments			λ_{21}	0.00	−0.03
Competitive intensity → Customer involvement			λ_{22}	0.03	0.55
Competitive intensity → Relationship profitability			λ_{23}	−0.10	−1.58*
Supplier's total sales → Supplier-spec investments			λ_{31}	0.13	2.28**
Supplier's total sales → Customer involvement			λ_{32}	−0.04	−0.58
Supplier's total sales → Relationship profitability			λ_{33}	−0.02	−0.24

Notes: Significance levels (one-tailed): $t > 1.28$: $^{*}p < 0.1$; $t > 1.64$: $^{**}p < 0.05$; $t > 2.33$: $^{***}p < 0.01$; $t > 3.10$: $^{****}p < 0.001$; Goodness-of-fit indices: $\chi^2 = 280.42$ (df = 122); RMSEA = 0.063; GFI = 0.92; CFI = 0.92; IFI = 0.92

have a positive effect on customer involvement ($\beta_{21} = 0.26$, $t = 3.30$, $p < 0.001$). Finally, both customer involvement ($\beta_{32} = 0.17$, $t = 2.13$, $p < 0.05$) and specific investments ($\beta_{31} = 0.15$, $t = 1.85$, $p < 0.05$) increase relationship profitability.

Concerning the control variables, we find a positive relationship between customer-specific investments and supplier-specific investments. This indicates that specific investments undertaken by one actor are reciprocated by investments by the other actor. We also observe a positive relationship between supplier's total sales and supplier-specific investments, indicating that larger suppliers are more willing to invest in relationships than smaller suppliers. There is also a negative relationship between competitive intensity and relationship profitability, indicating that tougher competition curbs relationship profitability.

4.1 Testing perfect mediation

An underlying assumption of the model is that the two variables customer involvement and specific investments transmit the effect of marketing strategy (product differentiation, competitor orientation and brand profiling emphasis) to relationship profitability. This implies that the marketing strategy does not in itself impact relationship profitability. Instead, marketing strategy impacts customer involvement and specific investments, which in turn impact relationship profitability. In order to test this assumption, we first compared the chi-square statistics of the structural model to that of the measurement model. The chi-square difference is not significant ($\Delta\chi^2 = 5.32$ at $\Delta\mathrm{df} = 3$). Hence, using the measurement model as a baseline, there is no significant potential for structural model improvement. Moreover, information from the modification indices indicated that adding more structural paths would not improve model fit significantly.

To check this conclusion in more detail, we estimated three alternative models where we sequentially freed the path from each of the three variables not having a direct link to relationship profitability (product differentiation, competitor orientation and brand profiling emphasis) to the dependent variable. The additional structural path resulted in the loss of one degree of freedom. If we can observe a significant difference in the chi-square of any of these three new structural models compared to the chi-square of the original structural model (at $\Delta\mathrm{df} = 1$), this will mean that the effect of the independent variables are not perfectly mediated (Anderson and Gerbing, 1988; Patterson *et al.*, 1997). The largest observed chi-square difference was $\Delta\chi^2 = 3.44$, which, at one degree of freedom, is not significant (the corresponding value is 3.84). Accordingly, the structural model is not significantly improved by including more paths, and perfect mediation therefore holds.

5. Discussion

This study advances the proposition that various facets of the firm's marketing strategy impact customer involvement in product development. The results provide broad support for the overall idea of the paper. Both product differentiation and competitor orientation have positive effects on customer involvement, and these two factors also impact specific investments positively, and furthermore, specific investments impact customer involvement positively. These findings suggest that product differentiation and competitor orientation, along with specific investments, are important factors enabling a firm to involve its customers in new product development. On the other hand, brand profiling emphasis negatively impacts specific investments. A marketing strategy with a strong focus on branding may thus hamper customer involvement indirectly through lower levels of specific investments. A firm's marketing strategy may thus have both positive and negative effects on customer involvement. Finally, the results show that firms involving customers in new product development and investing in relation-specific assets report higher levels of relationship profitability.

Both the firm's marketing strategy and commitment to customers in terms of specific investments are important antecedents determining a firm's ability to involve customers. First, product differentiation and competitor orientation have a direct impact on customer involvement. Second, these two factors also impact specific investments, which in turn impact customer involvement. Our empirical result suggesting that commitment impacts customer involvement is consistent with previous empirical research (Ritter and Walter, 2003). However, this study adds new insight by showing how a firm's marketing strategy is directly linked to commitment and customer involvement.

Companies with a strong emphasis on brand profiling pursue market positions that may yield rents not accruing to a particular customer relationship; rather, the extra margins are related to the brand of the focal firm (Ghosh and John, 1999). The negative effect of brand profiling emphasis on specific investments supports the proposition that pursuing such a strategy curbs the firm's incentives to form closer relationships to customers. In order to retain the right not to share brand equity rents with the customer, the firm will keep its specific investments low. Hence, the results illustrate the pros and cons of emphasizing the brand profile. On the one hand, strong brand equity may result in the achievement of above-normal product-market returns. On the other hand, a strong brand may make the firm reluctant to undertake specific investments, resulting in a less committed relationship and customers not willing to be involved in new product development.

Both product differentiation and competitor orientation imply that firms deliver market offerings that are considered by the customers to be different from the competitors' offerings. It may be possible that such a competitor focus may result in a larger emphasis on competitors than on customers. This may in turn make it difficult for firms to have long-term relationships characterized by customization or co-creation. However, our results indicate that product differentiation and competitor orientation do not necessarily come at the expense of a customer focus. The explanation may be found in the positive effects of product differentiation and competitor orientation on specific investments. Firms that offer differentiated products seek to increase the value of the products in the eyes of customers, and varying degrees of asset specialization are often necessary to support such transactions (Ghosh and John, 1999). Furthermore, such investments increase the likelihood of customer involvement in product development, and this can also lead to exploration and exploitation of new value creation potentials in terms of customized products or value co-creation. This study has investigated relationships between exporters and importers, and this interpretation may not necessarily hold in other business contexts.

Both the ability to draw on customer knowledge to develop products and the dedication of specific investments to the relationship have direct positive impacts on relationship profitability. These results support a number of previous studies (Heide and John, 1988; Parkhe, 1993; Dyer, 1996; Yli-Renko *et al.*, 2001). Furthermore, the study extends earlier findings by demonstrating how specific facets of the marketing strategy have implications for relationship profitability by having significant bearings on the levels of relationship-specific investments and customer involvement.

5.1 Managerial implications

The results suggest important implications for managers. Both the overall firm strategy and the product market strategy have important implications for the approach taken in product development. Moreover, for realization of potential synergies between buyer and seller, the seller needs to be committed to the relationship. Marketing strategy and commitment through specific investments are variables under the discretion of managers, and thus can be influenced. Hence, the design of an overall marketing strategy across all markets and at the product market level will have implications for the value created in conjunction with customers. An overall product differentiation strategy and an emphasis on acquiring a unique position relative to competitors need to be followed up with greater specific investments aimed at customers, as well as intensive efforts to involve customers in the product development process. Such actions are important to realize gains through new product development.

Our results partly indicate that it may be difficult for firms to simultaneously build close customer relationships and have a strong emphasis on brand profiling. Firms with strong brands may fear that if they make investments in specific customer relationships, the extra gains from branding may be subject to bargaining and partly claimed by the customers, and this threat may prevent the firms from establishing close relationships to customers (Ghosh and John, 1999). Hence, managers need to compare possible extra gains from branding to possible extra gains from closer customer relationships.

Another important implication is that suppliers need to evaluate the capacity and willingness of their customers to be involved in joint product development. Since high-involvement strategies usually require specific investments by both actors, the supplier needs to evaluate the customer's willingness to make such investments. Furthermore, there is always a risk of being exploited by a partner acting opportunistically in such situations, and the supplier also needs to evaluate the customer's inclination to be involved in hold-up strategies in order to claim larger portions of the value creation in the relationship.

5.2 Limitations and future research

The results of the study must be interpreted in light of its limitations. First, three of the variables (relationship profitability, competitor orientation and brand profiling emphasis) have been measured by only two items, and these variables may thus not capture the entire theoretical domain they represent. However, all variables including these three have acceptable CR and AVE values, and there is no indication of poor reliability or validity.

Second, the normal warnings must be given regarding interpretation of results from data collected from one side of the dyad. Although this is a common approach in research on business-to-business relationships, buyers' perceptions may diverge from suppliers' perceptions (John and Reve, 1982), and data from the buyers would improve the validity of the findings. However, for the present study, it would require a huge effort to collect data from buyers in 36 different countries.

Nevertheless, future research should try to collect data from both sides of the dyad. This study shows that the supplier's marketing strategy has implications for how customers can be involved in new product development. In light of this finding, it will be interesting to explore possible effects of the customer's marketing strategy on involvement. It is reasonable to expect that both supplier and customer need to pursue marketing strategies that are not in conflict, but at least complement each other to some extent. The joint effects of both the supplier's and the customer's marketing strategies on involvement in new product development is an interesting avenue for further research that can provide valuable new knowledge in this field.

It is also interesting to assess the implications of the customers' investments in specific assets. In light of the positive effect of specific investments on involvement in this study, future studies should analyze whether asymmetry versus symmetry in specific investments has different effects on customer involvement. An actor making specific investments signals commitment to a relationship, and research shows that commitment is important for involving customers in new product development (Ritter and Walter, 2003). However, we know less of the impact of the balance of commitment between supplier and customer. Symmetry versus asymmetry in specific investments may therefore have different implications for involving customers in new product development.

References

Aaker, D.A. (1988), *Strategic Market Management*, 2nd ed., John Wiley & Sons, New York, NY.

Allen, T.J. (1971), "Communications, technology transfer and the role of technical gatekeeper", *R&D Management*, Vol. 1 No. 1, pp. 14-21.

Allen, T.J. (1977), *Managing the Flow of Technology*, MIT Press, Cambridge, MA.

Anderson, J.C. and Gerbing, D.A. (1988), "Structural equation modeling in practice: a review and recommended two-step approach", *Psychological Bulletin*, Vol. 103 No. 3, pp. 411-23.

Asanuma, B. (1989), "Manufacturer-supplier relationships in Japan and the concept of relation-specific skill", *Journal of the Japanese and International Economies*, Vol. 3 No. 1, pp. 1-30.

Athaide, G.A. and Stump, R.L. (1999), "A taxonomy of relationship approaches during new product development in technology-based industrial markets", *Journal of Product Innovation Management*, Vol. 16 No. 5, pp. 469-82.

Balakrishnan, S. (1996), "Benefits of customer and competitive orientations in industrial markets", *Industrial Marketing Management*, Vol. 25 No. 4, pp. 257-69.

Brown, S.L. and Eisenhardt, K.M. (1995), "Product development: past research, present findings and future decisions", *Academy of Management Review*, Vol. 20 No. 2, pp. 343-78.

Browne, M.W. and Cudeck, R. (1992), "Alternative ways of assessing model fit", *Sociological Methods & Research*, Vol. 21 No. 2, pp. 230-58.

Campbell, D.T. (1955), "The informant in quantitative research", *American Journal of Sociology*, Vol. 60, January, pp. 339-42.

Clark, K.B. and Fujimoto, T. (1991), *Product Development Performance*, Harvard Business School Press, Boston, MA.

Day, G.S. and Wensley, R. (1988), "Assessing advantage: a framework for diagnosing competitive superiority", *Journal of Marketing*, Vol. 52 No. 2, pp. 1-20.

Dickson, P.R. and Ginter, J.L. (1987), "Market segmentation, product differentiation, and marketing strategy", *Journal of Marketing*, Vol. 51 No. 2, pp. 1-10.

Dyer, J.H. (1996), "Does governance matter? Keiretsu alliances and asset specificity as sources of Japanese competitive advantage", *Organization Science*, Vol. 7 No. 6, pp. 649-66.

Fornell, C. and Larcker, D.F. (1981), "Evaluating structural equation models with unobservable variables and measurement error", *Journal of Marketing Research*, Vol. 18 No. 1, pp. 39-50.

Gerbing, D.W. and Anderson, J.C. (1988), "An updated paradigm for scale development incorporating unidimensionality and its assessment", *Journal of Marketing Research*, Vol. 25 No. 2, pp. 186-92.

Ghosh, M. and John, G. (1999), "Governance value analysis and marketing strategy", *Journal of Marketing*, Vol. 63, Special issue, pp. 131-45.

Gruner, K.E. and Homburg, C. (2000), "Does customer interaction enhance new product success?", *Journal of Business Research*, Vol. 49 No. 1, pp. 171-87.

Heide, J. and John, G. (1988), "The role of dependence balancing in safeguarding transaction-specific assets in conventional channels", *Journal of Marketing*, Vol. 52 No. 1, pp. 20-35.

Hu, L. and Bentler, P.M. (1995), "Evaluating model fit", in Hoyle, R.H. (Ed.), *Structural Equation Modeling: Concepts, Issues and Applications*, Sage, Thousand Oaks, CA.

Hsuan, J. (1999), "Impacts of supplier-buyer relationships on modularization in new product development", *European Journal of Purchasing & Supply Management*, Vol. 5 Nos 3-4, pp. 197-209.

John, G. and Reve, T. (1982), "The reliability and validity of key informant data from dyadic relationships in marketing channels", *Journal of Marketing Research*, Vol. 19 No. 4, pp. 517-24.

Jöreskog, K.G. and Sörbom, D. (1993), *LISREL 8: User's Reference Guide*, Scientific Software International, Lincolnwood, IL.

Katz, R. and Tushman, M.L. (1981), "An investigation into the managerial roles and career paths of gatekeepers and project supervisors in a major R&D facility", *R&D Management*, Vol. 11 No. 3, pp. 103-19.

More, R.A. (1986), "Developer/adopter relationships in new industrial product situations", *Journal of Business Research*, Vol. 14 No. 6, pp. 501-17.

Myers, M.B. and Harvey, M. (2001), "The value of pricing control in export channels: a governance perspective", *Journal of International Marketing*, Vol. 9 No. 4, pp. 1-29.

Narver, J.C. and Slater, S.F. (1990), "The effect of a market orientation on business profitability", *Journal of Marketing*, Vol. 54 No. 4, pp. 20-35.

Parkhe, A. (1993), "Strategic alliance structuring: a game theoretic and transaction cost examination of interfirm cooperation", *Academy of Management Journal*, Vol. 36 No. 4, pp. 794-829.

Patterson, P.G., Johnson, L.W. and Spreng, R.A. (1997), "Modeling the determinants of customer satisfaction for business-to-business professional services", *Journal of the Academy of Marketing Science*, Vol. 25 No. 1, pp. 4-17.

Primo, M.A.M. and Amundson, S.D. (2002), "An exploratory study of the effects of supplier relationships on new product development outcomes", *Journal of Operations Management*, Vol. 20 No. 1, pp. 33-52.

Ritter, T. and Walter, A. (2003), "Relation-specific antecedents of customer involvement in new product development", *International Journal of Technology Management*, Vol. 26 Nos 5/6, pp. 482-501.

Salomo, S., Steinhoff, F. and Trommsdorff, V. (2003), "Customer orientation in innovation projects and new product development success – the moderating effect of product innovativeness", *International Journal of Technology Management*, Vol. 26 Nos 5/6, pp. 442-63.

Sharp, B. and Dawes, J. (2001), "What is differentiation and how does it work?", *Journal of Marketing Management*, Vol. 17 Nos 7/8, pp. 739-59.

Simon, C.J. and Sullivan, M.W. (1993), "The measurement and determinants of brand equity: a financial approach", *Marketing Science*, Vol. 12 No. 1, pp. 28-52.

Stump, R.L., Athaide, G.A. and Joshi, A.W. (2002), "Managing seller-buyer new product development relationships for customized products: a contingency model based on transaction cost analysis and empirical test", *The Journal of Product Innovation Management*, Vol. 19 No. 6, pp. 439-54.

von Hippel, E. (1986), "Lead users: a source of novel product concepts", *Management Science*, Vol. 32 No. 7, pp. 701-805.

von Hippel, E. (1988), *The Sources of Innovation*, Oxford University Press, New York, NY.

von Hippel, E. (1994), "Sticky information and the locus of problem solving", *Management Science*, Vol. 40 No. 4, pp. 429-39.

von Hippel, E. (1998), "Economics of product development by users: the impact of sticky local information", *Management Science*, Vol. 44 No. 5, pp. 629-44.

Yli-Renko, H., Autio, E. and Sapienza, H. (2001), "Social capital, knowledge acquisition, and knowledge exploitation in technology-based young firms", *Strategic Management Journal*, Vol. 22 Nos 6/7, pp. 587-613.

Zirger, B.J. and Maidique, M.A. (1990), "A model of new product development: an empirical test", *Management Science*, Vol. 36 No. 7, pp. 867-83.

About the authors

Mons Freng Svendsen works with strategic sourcing and negotiation for BP Norway. His main research interests include business-to-business relationships, distribution channels and strategic alliances. He was a research scholar at the Norwegian School of Economics and Business Administration at the time when this research was being conducted. Mons Freng Svendsen is the corresponding author and can be contacted at: MonsFreng.Svendsen@ no.bp.com

Sven A. Haugland is Professor of Industrial Marketing at the Norwegian School of Economics and Business Administration. His main research interests include business-to-business relationships, distribution channels and strategic alliances and his work has been published in journals such as *Strategic Management Journal, Journal of Business Research, Journal of Purchasing and Supply Management, European Journal of Marketing, Scandinavian Journal of Management,* and *Journal of Business-to-business Marketing.*

Kjell Grønhaug is Professor of Business Administration at the Norwegian School of Economics and Business Administration. His present research interests relate to cognitive aspects of strategy, creation and use of knowledge, marketing strategies in emergent markets and methodological issues. His publications include 17 authored and coauthored books and approximately 200 journal articles published in leading European and American journals.

Trond Hammervoll is Vice Rector and Associate Professor of Logistics at Harstad University College. His research areas of interest include logistics and supply chain management, particularly related to dependence and value creation in supply chain relationships. He has published in journals such as the *European Journal of Marketing, Journal of Business-to-business Marketing* and *Journal of Food Products Marketing.*