

Micro-foundations of market orientation: Influencing non-marketing managers' customer information processing

Silja Korhonen-Sande*

BI Norwegian School of Management, Department of Communication – Culture and Languages, NO-0442 Oslo, Norway

ARTICLE INFO

Article history:

Received 8 April 2008

Received in revised form 10 March 2009

Accepted 11 June 2009

Available online 18 July 2009

Keywords:

Market orientation

Customer orientation

Customer information management

Information use

Information processing

ABSTRACT

This study examines how organisational context influences search, integration, and use of customer information at the level of an individual manager. Drawing upon research on market orientation, market-information utilisation, organisational learning, and marketing organisation, a theoretical framework is set up and tested by using structural equation modelling and a dataset consisting of 228 manufacturing and R&D managers in large industrial firms. Results demonstrate that integration of customer information enhances use of information in decision making. Organisational context influences the use of customer information indirectly by affecting information search and integration. Resource inadequacy and physical distance from sales and marketing contact persons decrease information integration, whereas supervisor customer emphasis increases the search scope of information. Wide search scope of customer information increases information integration but has no direct impact on use.

© 2009 Elsevier Inc. All rights reserved.

1. Introduction

After almost two decades of research, the positive effect of market orientation on company performance is gaining empirical grounding, albeit the relationship may be non-linear, indirect and contingent on the business environment (e.g., Baker & Sinkula, 1999; McNaughton, Osborne, Morgan, & Kutwaroo, 2001; Hult & Ketchen, 2001; Harris, 2001; Dadzie, Johnston, Yoo, & Brashear, 2002; Haugland, Myrtevit, & Nygaard, 2007; Jimenez-Jimenez & Cegarra-Navarro, 2007). Recent meta-analyses have shown that the impact of market orientation on performance is mediated by innovativeness, product and service quality, as well as by customer loyalty (Kirca, Jayachandran, & Bearden, 2005; Ellis, 2006). Furthermore, a positive connection is stronger for the manufacturing firms than for the service firms, and this connection is also dependent on the firm size and the cultural context of the business (Kirca et al., 2005; Ellis, 2006). These associations have now largely been established, and the research proceeds to examine the implementation and development of firms' market orientation (e.g., Avlonitis & Gounaris, 1999; Kennedy, Goolsby, & Arnould, 2003; Hult, Ketchen, & Slater, 2005; Matsuno, Mentzer, & Rentz, 2005; Mason & Harris, 2006).

Within market-orientation research, two definitions have dominated the field: cultural (Narver & Slater, 1990) and behavioural (Kohli & Jaworski, 1990; Jaworski & Kohli, 1993). These conceptualisations are shifting towards reconciliation, as organisational culture is increasingly viewed as an antecedent to information-related beha-

viour (e.g., Mason & Harris, 2006; Gotteland, Haon, & Gauthier, 2007; Carr & Lopez, 2007). While the cultural perspective of market orientation focuses on norms and values that encourage market-oriented behaviour in a company, the behavioural perspective concentrates on concrete organisational activities: (1) the organisation-wide acquisition of market information, (2) its interdepartmental dissemination, and (3) the organisational responsiveness to this information in order to adapt to changing market conditions.

Related to the behavioural perspective, there is still much to discover about the factors that influence the market-information responsiveness of companies (Beverland & Lindgreen, 2007). Firstly, previous research treats behavioural marketing orientation as a set of activities, but does not examine their mutual relationships (for a notable exception, see, e.g., Carr & Lopez, 2007). Secondly, although market orientation in itself is an organisational-level construct, it is implemented at the individual level. Consequently, understanding the processing of market information at the individual level is an important factor in explaining the organisation-wide responsiveness to customer information (Jaworski & Kohli, 1993). Yet to date, most of the primary market-orientation studies have been conducted at the strategic business-unit level, albeit the utilisation of market information has been a topic evident in the general marketing research agenda in recent years (e.g., Souchon & Diamantopoulos, 1999; Frishammar, 2003; Campbell, 2003; Sussman & Siegal, 2003; Toften & Olsen, 2004). As long as the analysis of market orientation remains at the organisational or functional level, it is both difficult to pinpoint exactly how managerial interventions and organisational factors affect a firm's market orientation, and to determine why some interventions are more effective than others. More research is needed

* Tel.: +47 46 41 06 95.

E-mail address: silja.korhonen-sande@bi.no.

on why some employees are better than others at gathering market knowledge and customising it to their own use (Jacobson & Prusak, 2007), and what the individual-level responses to market-orientation schemes are (Kennedy, et al., 2003; Schlosser & McNaughton, 2007).

In order to fill in these research gaps, I operationalise the three firm-level dimensions of behavioural market orientation as individual-level activities (search, integration and use of customer information¹), and examine how they are influenced by the characteristics of organisation and the leadership (Gotteland et al., 2007). Moreover, I combine the insights from the general information processing, knowledge-transfer, organisational learning and marketing-organisation literature with market-orientation research.

This amalgamation is needed, because the three activities of the behavioural market orientation form the process of learning about and acting on markets (Day, 1994; Souchon, Cadogan, Procter, & Dewsnapp, 2004). To some extent, they are essential skills for any company, not only those striving to become market-oriented. Accordingly, several studies positioned outside market-orientation research have analysed information gathering (search), sharing (dissemination) and use (e.g., Beyer & Trice, 1982; Sinkula, 1994; Argyris, 1999; Zahay & Griffin, 2004; Jayachandran, Sharma, Kaufman, & Raman, 2005; Veldhuizen, Hultink, & Griffin, 2006). A solid body of research has also emerged that has focused on the organisation of marketing and sales and its relationships with other functions (see, e.g., Ruekert & Walker, 1987; Kahn & Mentzer, 1998; Maltz & Kohli, 2000; Zinkhan & Verbrugge, 2000; De Luca & Atuahene-Gima, 2007). These studies on cross-functional relationships are closely related to the implementation of market orientation.

Specifically, the aim of the present study is to build on and to extend the research on market-information use at the individual level that was conducted by Fisher, Maltz, and Jaworski (1997) and Maltz, Souder, and Kumar (2001) as well as on the synthesis study of market orientation by Carr and Lopez (2007). Fisher et al. (1997) examine the connections between interfunctional relationships (information-sharing norms and integrated goals), communication behaviours and the market-information use of engineering personnel. Maltz et al. (2001) investigate a number of integrating mechanisms that influence interfunctional rivalry and its direct and mediated effects on market-information use by R&D managers. These studies combine the individual-level information use with the cross-functional integration literatures. Yet they do not explicitly address the other two components of market-oriented information processing at the individual level: information generation and dissemination. The contribution by Carr and Lopez (2007), in turn, aims at specifying a model that treats the market-oriented culture as an antecedent to the market-oriented conduct, examines the causalities between the generation and dissemination of and responsiveness to market intelligence, and connects them to employee response. However, Carr and Lopez (2007) measure market-oriented behaviour at the level of a strategic business unit and not at the individual level.

The present study has two main contributions. Firstly, it brings in the concepts of *information integration* (Jayachandran et al., 2005; De Luca & Atuahene-Gima, 2007; Chou, Chang, Cheng & Tsai, 2007) and *information search scope*. The focus here is to examine how integration and search scope mediate the relationship between organisational factors and the use of the customer information that R&D and manufacturing managers receive from the sales and marketing. This study therefore enhances our understanding of how organisational-level interventions influence responsiveness to market intelligence at the level of an individual employee.

Secondly, as to the antecedents of market orientation, this study produces new knowledge concerning the impact of interfunctional

distance and resource inadequacy on the processing of customer information. The effect of co-location on communication and cross-functional relationships has produced mixed results (e.g., Maltz & Kohli, 1996; Maltz et al., 2001; Ganesan, Malter, & Rindfleisch, 2005), and the role of resource allocation in customer information processing has been neglected in the previous research.

Understanding these issues is all the more important, as many industrial, manufacturing companies adapt to the competitive pressures by cutting costs, by centralising for economies of scale, and by producing more sophisticated, high-quality products with higher delivery speed. In many industries, the traditional manufacturing companies turn from bulk suppliers to customer-focused solution providers (Vargo & Lusch, 2004). This means that most of the transactions in the value chain include an element of customer service, and employees in all the functions are responsible for generating value for the customers (Vargo & Lusch, 2004). In the current business environment, the informational requirements of R&D and the manufacturing managers are thus increasing, and fluent communication between different functions is important. Customer information becomes truly valuable only when integrated into the organisation's manufacturing systems and product development. Securing the non-marketing managers' responsiveness to customer information is crucial for those industrial companies that strive to retain their position as leaders in production and innovation activities.

2. Conceptual model and hypotheses

2.1. Customer information use, search and integration

Kohli and Jaworski (1990) define responsiveness to market intelligence as the action taken in response to that intelligence. At the level of an individual employee, this means taking customer information into account when making decisions, that is, using it (Beyer & Trice, 1982; Moorman, Zaltman, & Deshpande, 1992; Diamantopoulos & Souchon, 1999; Yeoh, 2005).

Customer information refers to data and information about customer orders, customer needs and expectations, customer satisfaction, the customers' general buying habits and behaviours, and the customers' market segment characteristics and business development. In this study, the interest is in the instrumental and conceptual use of information. *Instrumental (direct) use* refers to the direct application of information to decision making (Diamantopoulos & Souchon, 1999): a decision maker receives a piece of information and uses it directly to solve a particular problem. Practices and procedures change in an organisation as a result of information use (Todd, 1999). An example of this could be a designer who revises her drawings immediately after receiving new information about customer requirements in a project meeting. *Conceptual (indirect) use* refers to the indirect use of information in the form of concepts, assumptions, models, theories, and heuristics (rules of thumbs) that can be used for practical problem solving (Low & Mohr, 2001). The information enters the decision-making process through problem formulation, the development of criteria of choices, and the formulation of a range of possible solutions to the problem (Weiss, 1977).

Previous empirical studies have demonstrated these two concepts to be very closely related: they form a one-dimensional construct of information use (Fisher et al., 1997; Diamantopoulos & Souchon, 1999; Williams, 2003), which is applied also in this study. Furthermore, these two dimensions reflect what Jaworski and Kohli (1993) define as response design (using market intelligence to develop plans) and response implementation (executing such plans).

The other two market-oriented activities described by Kohli and Jaworski (1990) are market intelligence generation and dissemination. They emphasise that information should not only be collected by the marketing department but also throughout the organisation. As a consequence, this paper examines the non-marketing managers'

¹ Reflecting on the findings by Ward et al. (2006), I acknowledge that customer orientation and competitor orientation are distinct strategic directions, and examine one subcomponent of market orientation, namely customer orientation.

search scope of customer information. Search scope is the coverage of the different elements of a problem space, such as the number of information sources that are utilised or the range of different options that are considered (Wood, George-Falvy, & Debowski, 2001). In this study, search scope specifically refers to the range of formal and informal information sources that an individual actively utilises when acquiring information about customers. Search scope also deserves special attention because it is a factor that has been connected to explorative innovation at the firm level (Katila & Ahuja, 2002).

Kohli and Jaworski (1990) define intelligence dissemination as the intra-unit flows of market intelligence that may be formal or informal. At the individual level, this dissemination occurs through information integration, which refers to combining and comparing customer information in order to incorporate it into the individual's already existing knowledge base about the topic (Crossan, Lane, & White, 1999; De Luca & Atuahene-Gima, 2007). According to Jayachandran et al. (2005) information integration brings together the information collected from various external sources and company functions on a customer basis. All interactions between a firm and its customers through different departments and also other contact points are utilised (Jayachandran et al., 2005). Integration takes place through formal meetings, informal discussions with colleagues about customer development, expert briefings and the reading of documents that provide customer information. These are the same methods that are described by Jaworski and Kohli (1993) as assisting dissemination of market intelligence, although they limit their discussion to information exchange across departmental boundaries. Fig. 1 presents the model developed in the next section of this paper.

2.2. Hypothesis development

Previous studies have shown that information acquisition and information use are strongly correlated (e.g., Ottum & Moore, 1997; Yeoh, 2005). Deeter-Schmelz and Ramsey (2003) suggest that the acquisition of information about customers results in greater exchange and use of information. In a similar way, Veldhuizen et al. (2006) find that acquiring more information is associated with the increased use of information. However, it appears that individuals are often unable to use the information they have acquired as such. Organisations and individuals frequently appear to be requesting more information or complaining about its inadequacies for decision making, even if there is more information available “than they use or can reasonably expect to use in the making of decisions” (Feldman & March, 1981: 174).

One explanation can be found in cognitive frames, which are the schemata of interpretation that enable people to identify, locate, perceive, and label activities (Aldrich, 1999). The difference between these frames can also be called cognitive (e.g., Nooteboom, 2000, 2004) or psychological (Fisher et al., 1997) distance. When carrying out their tasks, individuals interact with certain people and organisational units while having relatively little interaction with others. Functional systems show a natural tendency to develop similar cognitive frames inside them (March & Simon, 1958; Lorsch & Lawrence, 1969). This improves intrafunctional communication but hinders interfunctional communication. The major problem in customer information systems is thus not making information available from one function/department to another, but getting employees to share a common understanding of its meaning (Campbell, 2003). Forming the common understanding takes place through information integration.

Information integration is an inherently social process: people develop a shared understanding of the issue at hand through conversing and through mutual adjustment with other people (Aldrich, 1999; Crossan et al., 1999). Integration takes place through different structures and processes, such as information-sharing meetings, hall talk (informal information exchange), and expert briefings that ensure analysis, comparison, and interpretation of the acquired information (De Luca & Atuahene-Gima, 2007). As people interact closely and frequently, their cognitive frames will be affected and the differences reduced or bridged (Aldrich, 1999; Nooteboom, 2000). The accumulation of prior knowledge improves a person's ability to take in new information about the topic (Cohen & Levinthal, 1990). If non-marketing managers actively integrate the customer information to which they are exposed, their increasingly improved understanding of the customers also enhances their ability to use new information that the sales and marketing contact persons give them. Furthermore, integration requires resources. In other words, the higher the costs of information processing, the higher the information use, as the information is valued more (Toften & Olsen, 2004). Hence,

Hypothesis 1. Integration of customer information is positively related to the use of customer information received from sales and marketing contact persons.

Information needs to be acquired before it can be integrated. Most of the customer information use among R&D and manufacturing managers is actually information reuse: an individual within the firm uses knowledge generated by another individual or group within the same firm. However, the information already acquired by the organisation is not necessarily within the reach of individual

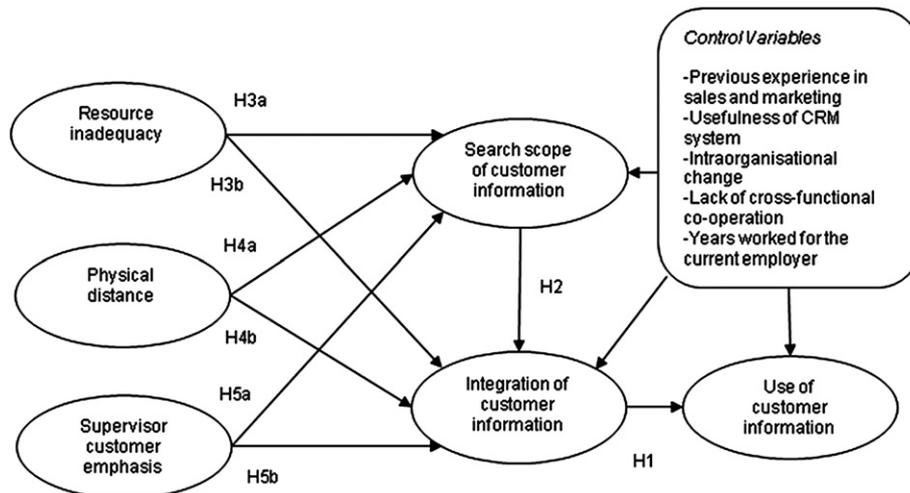


Fig. 1. Conceptual model of the study displaying hypothesised relationships.

employees, but needs to be sought by them. In addition, the information that is readily available through CRM (Customer Relationship Management)-systems and other databases is not always the kind of information that is needed for a particular decision-making situation. Individual employees thus utilise their own formal and informal firm-external and -internal sources in information acquisition.

According to *Feldman and March (1981)*, information is gathered because it helps in making a choice. Actively seeking information from various sources increases the diversity of information and the potential for finding useful information that can be utilised in decision making (*Katila & Ahuja, 2002*). However, the likelihood also increases that the cognitive frames between the source of information and the receiver will differ. *Ellis and Shpielberg (2003)* find that when information elaboration mechanisms are not used, information gathering increases uncertainty in decision making. Without interpreting and sharing information with others, the organisation will face difficulties in absorbing new knowledge. *Germain and Droge (1997)* find that at the firm level, the breadth of knowledge increases knowledge integration, because it is a necessary mechanism to avoid compartmentalisation of diverse knowledge sets. In a similar way, a wider search scope at the individual level does not lead to increased use of information as such, but it increases the motivation and need for integrating information. As *Crossan et al. (1999)* note, when a person starts to make sense of the information she/he has, this first occurs through internal conversations (talking to one's self). Nevertheless, this process can become richer and more robust if the conversations are extended to include conversations with others. Later on, dialogue and joint action with other individuals are crucial for developing a shared understanding of the meaning of information. Consequently, those non-marketing managers that search for customer information with a wide scope are more motivated to integrate their findings in order to benefit from the acquired information in decision making. Thus,

Hypothesis 2. The search scope of customer information is positively related to the integration of customer information.

Resource inadequacy is the lack of resources in an organisation (*Bello & Gilliland, 1997; Hultink, Atuahene-Gima, & Lebbink, 2000*). In many industrial companies, cost cutting is a self-evident part of any strategic choice, combined with customer and market orientation. If companies downsize narrowly (i.e., focusing on reducing personnel) and the level of slack is already relatively low when belts are tightened even further, this may have a great impact on the behaviour of employees (*Love & Nohria, 2005*). A work unit's involvement in cross-boundary activities, such as building working relationships across units, helping work unit members to manage competing demands and building internal coherence and identity, may suffer (*Yan & Louis, 1999*). Resource inadequacy is likely to place time constraints on decision making, which reduces the opportunities to search for information from various sources and to integrate it further (*Vyas & Souchon, 2003*). Therefore,

Hypothesis H3a. Resource inadequacy is negatively related to the search scope of customer information.

Hypothesis H3b. Resource inadequacy is negatively related to the integration of customer information.

The term *physical distance* refers to the location of the closest sales and marketing contact persons of the non-marketing managers. Geographical dispersion leads to communicating via mediated channels, and it increases the likelihood of discrepancies due to (1) accessing the information at a different speed, (2) failing to communicate crucial, contextual information and (3) encountering problems interpreting the meaning of silence (*Saunders & Ahuja, 2006*). According to *Ozanne, Brucks, and Grewal (1992)*, a moderate

level of discrepancy in decision making increases the overall amount of information requested and the time spent searching for information. Furthermore, *Low and Mohr (2001)* report that inter-functional distance decreases dissemination frequency. Two units operating in low geographical proximity are less likely to contact each other to share information (*Tsai, 2001*). By contrast, those in high proximity have easy access to local communication and this may cause people to overattend to local information at the expense of more remote information (*Kraut, Fussell, Brennan, & Siegel, 2002*). Proximity also supports passive information gathering (*Kraut et al., 2002*).

Sales and marketing remain the main producer and provider of market information to the other functions. Based on the argumentation above, physical distance from sales and marketing may thus encourage non-marketing managers to actively search for the needed information from a higher number of sources, as sales and marketing contacts are not so easily accessible anymore, and the information received from them may not be clearly communicated.

Hypothesis 4a. Physical distance between non-marketing managers and their sales and marketing contact persons is positively related to the search scope of customer information.

Hoegl and Proserpio (2004) argue that if team members are in close proximity, they are better able to structure and synchronise tasks, as the co-ordination process will be supported by direct observation. Proximity is also essential for strong social integration and the development of a stronger sense of group identity (*Scott, 1997*). As distance breaks down the high frequency of interaction and the serendipity of communication, and the costs of using high bandwidth interaction modes (such as face-to-face meetings) increase, integration of information decreases (*Hansen, 2002; Williams, 2003*). Hence,

Hypothesis 4b. Physical distance between non-marketing managers and their sales and marketing contact persons is negatively related to the integration of customer information.

Supervisor customer emphasis refers to the verbal encouragement managers provide for customer-oriented activities. This study uses the term as a proxy for a firm's customer-oriented culture as it reflects to the level of an individual. Managerial support is an important micro-level factor in market orientation (*Kirca et al., 2005; Mason & Harris, 2006*), and managers shape the values and orientation of their organisations. *Jayachandran et al. (2005)* discover that customer-centric management systems and a customer relationship orientation improve relational information processing. Thus,

Hypothesis 5a. Supervisor customer emphasis is positively related to the search scope of customer information.

Hypothesis 5b. Supervisor customer emphasis is positively related to the integration of customer information.

3. Methods

3.1. Sample and data collection

This study is based on a large-scale internet survey in three Finnish industry sectors: forest, technology, and chemical. These sectors have great importance to the national economy, but at the same time, they are industries that face great competitive pressures and a need for renewal. The initial sample of companies surveyed was collected from the member catalogues of four industrial organisations: The Federation of Finnish Technology Industries, the Finnish Forest Industries' Federation, the Chemical Industry Federation, and the Finnish Food and Drink Industries' Federation. The members of the Federation of Finnish Technology Industries, as an example, cover 90% of the Finnish technology-industry companies. This search resulted in a list of 178

companies, which was compared with a list of the top 500 Finnish companies (Talouselämä 500, 2006). The companies included in this study had more than 100 employees and at least one production unit in Finland. A list of 627 potential respondents from these companies was then created. The target respondents were identified as managers responsible for manufacturing or R&D in their business units and as those who received customer information from sales and marketing persons within their own companies. Most of the names and initial contact information were obtained from the member catalogues, and the company websites were also checked.

The data collection was performed by the author, a research assistant, and a company specialised in conducting survey research. All the data collectors used the same, standardised format for the contact calls, and there were no notable differences between the response rates obtained. Telephone calls were made to the potential informants in order to request their participation in the study and to obtain an e-mail address in order to send them a link to an electronic questionnaire. If the company had not provided the name of a contact person on their web pages or in the member catalogues, a potential informant was identified when first contacting the company through the switchboard. As an incentive to participate, copies of the final report and a raffle of three 50€ gift cards were promised to the respondents. Data gathering started at the beginning of March 2007 and ended in mid-June 2007.

The questionnaires were sent to the respondents by e-mail at the end of each day of contact calling. The informants were given three week's time to answer. After that, one reminder e-mail was sent. An independent-sample *t*-test between the early and late respondents (those who answered after a reminder e-mail) revealed no statistically significant differences ($p < 0.05$) between the two groups concerning the variables included in the analysis.

Overall, 52 people did not give permission to send a questionnaire, and 160 people were not suitable or were not reached by phone. The questionnaire was sent to 415 respondents. As a result, 232 responses were obtained. Four responses had to be deleted because an entire scale had been left unanswered. The total number of usable and completed questionnaires was therefore 228, with a response rate of 48.8% ($228/(627 - 160)$). This is comparable to similar studies in marketing and management research (e.g., De Luca & Atuahene-Gima, 2007). The remaining missing values in the dataset were imputed first by using the PRELIS 2 option, where the value to be substituted for the missing value for a case is obtained from another case that has a similar response pattern over a set of matching variables. The remaining values were substituted using the mean value of the variable. All in all, the missing values were not a problem as they accounted for 0.3% of the whole dataset. The level of analysis of this study is that of the individual manager, and all the questions deal with constructs perceived and measured at the individual level. Multiple responses from the same company were thus not averaged. Table 1 describes the composition of the sample.

3.2. Measures

The questionnaire was developed by identifying construct items from previous studies. Using nine test-interviews, the items were then adapted to an intraorganisational setting and to the perspective of a non-marketing manager. In addition to the six hypothesised variables, this study employed five control variables: previous experience in sales and marketing, years worked for the current employer, perceived usefulness of the CRM system, intraorganisational change and lack of cross-functional co-operation. The first two control variables were included because previous functional expertise and organisational experience may affect a person's ability and willingness to process customer information (e.g., Deshpande, 1982; Capon & Davis, 1984). The third control variable was chosen, because information technology (such as CRM databases) influences the search for customer

Table 1
Sample description ($N = 228$).

Sample characteristics	Percentage of sample
Area of business	
Forest	15
Metal	50
Electronics/ICT	19
Chemical	5
Other	12
Total	100
Gender	
Male	98
Female	2
Total	100
Position in the company	
Production manager	15
Mill manager	25
Business area director	4
Production or technical director	9
Business unit director	5
R&D or product development manager	14
Product development engineer	4
R&D or technology director	8
Other (e.g., quality manager, foreman)	18
Total	100
Years in the industry	
<1	2
2–5	7
6–10	17
11–15	17
16–20	21
21–25	15
26–30	11
31–35	7
36–40	2
Total	100
Years in the company	
<1	5
2–5	13
6–10	20
11–15	19
16–20	19
21–25	10
26–30	8
31–35	5
36–40	1
Total	100

information through improving the availability of and the ease of access to customer information (Campbell, 2003; Kale, 2004). The last two control variables are widely utilised in empirical market-orientation studies. Intraorganisational change generally increases use of information in an organisation (Maltz & Kohli, 2000), whereas cross-functional conflict reduces use of information received from another function (Maltz & Kohli, 1996).

Appendix A lists the items used for the measurement of each construct, references to the existing scales, and the response format for each scale. All the questions related to information processing concerned the biggest of the external customer groups, of which the respondents had received information from the sales and marketing contact persons of their own company during the past six months. Table 2 shows the correlations between constructs. The diagonal elements (italics) are the square root of average variance extracted from the reflective constructs. They are higher than correlations between constructs, thus indicating adequate discriminant validity (Fornell & Larcker, 1981).

3.3. Data analysis

3.3.1. Measurement model

This paper follows the two-step approach to structural equation modelling (SEM), as recommended by Anderson and Gerbing (1988). SEM was chosen primarily for the possibilities it offers for testing

Table 2
Correlations between variables.

	1	2	3	4	5	6	7	8	9	10	11
Use of customer information	1	0.81									
Integration of customer information	2	0.44	0.73								
Search scope of customer information	3	0.27	0.59	0.85							
Resource inadequacy	4	−0.10	− 0.24	−0.04	0.82						
Physical distance	5	− 0.25	− 0.21	−0.01	−0.10						
Supervisor customer emphasis	6	0.20	0.26	0.28	−0.10	0.10	0.87				
Previous experience in sales and marketing	7	0.22	0.43	0.40	− 0.20	−0.11	0.07				
Usefulness of CRM system	8	0.16	0.22	0.16	− 0.23	−0.05	0.14	0.05			
Intraorganisational change	9	0.05	0.06	0.19	0.27	0.02	0.07	0.05	0.03	0.74	
Lack of cross-functional co-operation	10	− 0.31	−0.08	0.03	0.37	0.24	−0.08	− 0.20	−0.06	0.31	0.81
Years worked for the current employer	11	0.10	0.10	0.01	−0.14	0.06	0.24	0.04	0.08	0.06	−0.14
Mean		4.33	3.73	3.36	4.37	2.10	5.40	3.75	2.87	3.39	3.40
Standard deviation		1.17	1.23	1.36	1.37	1.16	1.16	1.57	1.80	1.27	1.07

Correlations significant at $p < 0.05$ are in bold.

models overall rather than coefficients individually, having multiple dependent variables, and modelling of error terms. An eleven-factor measurement model was first created by means of confirmatory factor analysis using LISREL 8.8. The scales were purified based on examination of the low standardised factor loadings, high cross-loadings between constructs and large associated standardised residuals. I followed the common research practice of treating variables measured with the Likert scale as continuous, as this has proved to result only in small biases in parameter estimates if the scale has seven points or more (Lubke & Muthén, 2003). Due to the univariate and multivariate non-normality of the data, Satorra-Bentler scaling was used.² The factor loadings for each individual indicator were statistically significant ($p < 0.05$), and the composite reliability and average variance extracted (AVE) were at an acceptable level (Appendix A). The model as a whole provided an acceptable fit to the data (degrees of freedom = 326, Satorra-Bentler scaled chi-square = 352.75 [$p = 0.15$], goodness-of-fit index = 0.86, root mean squared error of approximation = 0.02, non-normed fit index = 0.99, standardised root mean squared residual = 0.05, critical $N = 250.90$, comparative fit index = 0.99). I also tested for common method variance using Harman's one factor test (Podsakoff & Organ, 1986). The AVE for the common method factor with all 29 indicators was 18%. In order to test if this variance is due to the common method or covariation between the latent variables, I ran a model with all the latent variables in the measurement model and one common method factor. This factor accounted for 6% of the variance in the attitudinal measures. Similar to Carlson and Kackmar (2000), I conclude that it is not a threat to the validity of the findings.

3.3.2. Structural model

The second step in the data analysis was to run a structural model (LISREL 8.8) depicting the hypothesised relationships between factors. The measurement model did not significantly differ from the structural model when using a Satorra-Bentler scaled chi-square difference test ($\Delta\chi^2_{SB(6)} = 6.2$ [$p = 0.45$]). The fit indexes indicated that the data were consistent with the hypothesised model (degrees of freedom = 332, Satorra-Bentler scaled chi-square = 358.71 [$p = 0.15$], goodness-of-fit index = 0.86, root mean squared error of approximation = 0.02, non-normed fit index = 0.99, standardised root mean squared residual = 0.05, critical $N = 250.90$, comparative fit index = 0.99).³ The model explains 29% of the variance in

² The fit indices for the same model without Satorra-Bentler scaling are $df = 326$; $\chi^2 = 519.21$; GFI = 0.86; RMSEA = 0.05; NNFI = 0.94; SRMR = 0.05; CN = 155.85; CFI = 0.95.

³ The fit indices without Satorra-Bentler scaling are $df = 332$; $\chi^2 = 525.44$; GFI = 0.86; RMSEA = 0.05; NNFI = 0.94; SRMR = 0.05; CN = 156.70; CFI = 0.95.

information use, 27% of the variance in information search scope, and 50% of the variance in information integration.

4. Results

Table 3 summarises the results of the hypotheses testing. In support of Hypothesis 1, integration of customer information was positively related to use of customer information. Consistent with Hypothesis 2, search scope of customer information was positively associated with information integration. Resource inadequacy was not associated with search scope, and thus Hypothesis 3a was not supported. As suggested by Hypothesis 3b, resource inadequacy was negatively related to information integration. The data did not support Hypothesis 4a. The relationship between physical distance and search scope was insignificant. However, physical distance was negatively related to integration of information, and Hypothesis 4b was supported. Supervisor customer emphasis was positively related to search scope, thus supporting Hypothesis 5a. Hypothesis 5b was not supported. Supervisor customer emphasis had a non-significant association with information integration. Sobel's test (as described in Baron & Kenny (1986)) gave further support to the findings. It indicated significant indirect effects for the following relationships: Search-Integration-Use (z -value = 3.75, $p < 0.05$); Distance-Integration-Use (z -value = −2.88, $p < 0.05$); Resource inadequacy-Integration-Use (z -value = −2.46, $p < 0.05$). The relationships are fully mediated by integration. The idea behind the Sobel's test is to test whether a mediator carries the effect of one variable to another. The test calculates a critical ratio as a test of whether the indirect effect is significantly different from the zero based on the following formula: $a*b/\text{SQRT}(b^2*s_a^2 + a^2*s_b^2)$, where a and b are the unstandardised coefficients and s is the standard error.

5. Discussion and conclusions

The findings imply that organisational context influences the use of customer information in decision making indirectly, through the extent to which managers search for customer information and integrate it into their existing knowledge base. Organisational context has stronger impact on integration of customer information than it has on the search for customer information. Integration of customer information decreases as resources diminish and the physical distance between information senders and receivers increases, whereas these factors have no significant effect on search scope. Search scope widens with supervisor emphasis on customer orientation.

Information integration takes place through informal and formal organisational arrangements, such as formal meetings, hall talk, and expert briefings. Results of this study suggest that the use of customer information in decision making increases if a non-marketing

Table 3
Results from hypotheses testing.

	Use of customer information		Integration of customer information		Search scope of customer information	
	Stand. coefficients (t-values)	Hypothesis test	Stand. coefficients (t-values)	Hypothesis test	Stand. coefficients (t-values)	Hypothesis test
<i>Hypothesised predictors</i>						
Integration of customer information	0.271 (4.83)	H1 supported				
Search scope of customer information			0.499 (5.91)	H2 supported		
Resource inadequacy			– 0.191 (–2.84)	H3b supported	0.014 (0.21)	H3a not supported
Physical distance			– 0.226 (–3.61)	H4b supported	0.000 (0.01)	H4a not supported
Supervisor customer emphasis			0.101 (1.81)	H5b not supported	0.208 (3.67)	H5a supported
<i>Control variables</i>						
Previous experience in sales and marketing	–0.022 (–0.57)		0.161 (2.58)		0.313 (6.10)	
Usefulness of CRM system					0.091 (1.60)	
Intraorganisational change	–0.369 (–1.867)		–0.024 (–0.37)		0.103 (1.52)	
Lack of cross-functional co-operation	– 0.173 (–4.00)		0.101 (1.56)		0.065 (1.00)	
Years worked for the current employer	0.002 (0.057)		0.055 (0.937)		–0.056 (–1.00)	

Paths significant at $p < 0.05$ are in bold.

manager is able to participate in such arrangements. Integration also mediates the relationship between search scope and information use. In order to benefit from a wide selection of customer information sources (which are also likely to result in a variety of information), individual employees need to process the new information further and connect it to their already existing knowledge base and understanding of the issue. A wide search scope thus motivates and increases information integration, but has no direct relationship with information use.

The findings of this study further indicate that the resource inadequacy and physical distance between non-marketing managers and their sales and marketing contact persons has a negative impact on the integration of information. If the lack of resources is severe and hinders the functioning of a department, there is less time and motivation for performing a systematic analysis of the success/failure of already finished projects and for holding more than just routine-based meetings. As a result, people become more hesitant to forward 'unnecessary' information, and thus the pre-screening of information is stronger. As to the physical distance, a distance of over 10m already rapidly decreases interaction (Kraut et al., 2002; Leenders & Wierenga, 2002). This means that in order to fully reap the benefits from co-location, sales and marketing, R&D, and manufacturing people should be in the same building, on the same floor, and preferably even in the same office landscape. This is seldom possible in large, international companies, but often a reality in smaller firms consisting of one or only a few manufacturing facilities.

Neither physical distance nor resource inadequacy has a significant impact on the information search scope. One possible reason for the non-significant relationship between lack of resources and search could be that as most of the information sources may already be established, as it takes longer than six months (the time period of interest in the questionnaire) for these sources to become deactivated. The non-significant association between physical distance and search scope may indicate that non-marketing managers develop and maintain their search scope of customer information independently from the location of their sales and marketing contacts.

This study implies that emphasis on customer orientation by supervisors increase the search scope of customer information but has no impact on integrating this information. This is somewhat surprising, as Jaworski and Kohli (1993) suggest that top management's emphasis on market orientation through continuous reminders is critical for employees to be sensitive and responsive to the market. In addition, post-hoc analysis showed that the direct relationship between customer emphasis and use was also non-significant ($\beta = 0.032$, t -value = 0.848). These findings are, however, in line with the study by Carr and Lopez (2007), who find no connection between a firm's customer-oriented culture and intelligence dissemination. It may be that customer-oriented culture activates a person's interest in customers, and thus increases intelligence generation. Even so, other factors (such as resource allocation or geographical dispersion) are more crucial for enabling intelligence dissemination, which requires more effort. Based on this study, it thus seems that verbal reminders from supervisors about the importance of customers actually improve employees' motivation to look for various information related to customers, but do not significantly assist them in processing customer information together with other people.

6. Managerial implications

Global competition forces companies to improve their efficiency by cutting costs continuously while simultaneously improving service quality and customer relationships. One of the key questions for many firms is to decide on the level of separation between the front-office work where the customer is present and the back-office work that does not require the customer's presence. Efficient information technology makes it possible to separate R&D, sales and marketing and manufacturing process, and this opportunity has been utilised in many companies. Controlling production costs is also one of the key motivators in reorganising industrial companies, and de-coupling functions have obvious benefits (Mintzberg, 1983): cost efficiency, standardisation, and expertise through specialisation. There is always a danger, however, that after reorganisation, the actual level of a firm's customer orientation will remain far lower than originally intended.

This study provides some insights into why this problem occurs. A strong aftermarket business and becoming a solution provider require support from every function, from procurement forward. Often the companies emphasise the change in attitudes and mindsets, i.e., the *willingness* to be responsive to the customer. This study, however, clarifies the role of the *ability*. Those companies that aim for a dual strategy of being the cost leaders and simultaneously improving customer orientation should consider the impact of their decisions on the level of individual employees. This study explains how resource allocation, the physical proximity between functions and customer-oriented leadership all affect the degree to which non-marketing managers are responsive to the customer information they receive from their sales and marketing contact persons.

The present findings demonstrate that resource inadequacy and physical distance between the communicating parties do not influence their use of customer information directly. However, these factors hamper the social processes through which non-marketing managers try to integrate new information to their existing knowledge base. When successful, this sense-making significantly improves the chances that the information is actually utilised in daily decision making. Information integration becomes crucial when non-marketing managers need to respond to non-routine requests and to form an understanding of complex information received from a variety of sources. A supervisor who is customer-oriented increases the non-marketing managers' interest and motivation to search for customer information, but she/he does not have direct influence on information integration. This study thus implies that a customer-oriented culture as reflected by a customer-oriented leadership is important, but it does not guarantee that a company will be successful in either disseminating information throughout the firm or in transferring it into action.

7. Limitations and suggestions for further research

When interpreting these findings, the following issues need to be taken into consideration. The research design based on cross-sectional

data is a clear limitation in this study, although the tests indicated that the common method bias is not a problem. Due to the data collection procedure and resource limitations, this study did not examine a dyadic relationship between the marketing contact and the production/R&D manager. Therefore, no analysis was undertaken of relationship attributes, such as interpersonal trust, on information use. Moreover, the effect of personality on information search and integration was also not investigated. One clear improvement to the current research design would be the collecting of data both from the non-marketing managers *and* from their sales and marketing contact persons.

This study used a key-informant technique, although the variables could be argued to be at the individual, functional, and firm level. However, as the dependent variable, information use, is an individual-level construct, one could argue that it is most important to capture the respondent's *perceptions* about the cross-functional and firm-level factors. In short, individuals act according to their specific interpretation of a situation, regardless of whether this perception is accurate or not (Heide & John, 1995). Finally, this study did not take into consideration the quality of decisions in which information was used and for this reason lacked a performance variable.

In addition to responding to these problems in the research design, future research could examine the impact of organisational relationships on the symbolic (misuse) of customer information and then compare the mechanisms affecting instrumental/conceptual and symbolic use. It is possible that different organisational and relationship factors become important when the aim is not to increase the instrumental and conceptual information use in decision making but to prevent managers from using information selectively or otherwise distorting or twisting it in order to support decision makers' opinions in the eyes of their colleagues or superiors.

Finally, if future studies applying the behavioural view to market orientation should fail to note and to examine further the dual effects of organisational factors on information search and integration at the individual level, they will risk having an oversimplified view of the implementation of market orientation in companies.

Appendix A. Construct measurement and confirmatory factor analysis results

Construct	Coefficient α	Composite reliability	AVE	Factor loading	t-value
<i>Use of customer information</i>	0.86	0.88	0.65		
Reflective measure					
Based on Williams, 2003; Diamantopoulos and Souchon, 1999					
Seven-point scale anchored by "strongly agree" (1) and "strongly disagree" (7)					
Customer information received from the contact persons often leads to practical action				0.73	19.13
My confidence in decision making increased because of customer information I received from the contact persons				0.88	28.87
Customer information received from the contact persons gave me new viewpoints on my decision making				0.89	32.01
The information received from the contact persons significantly improved my understanding of the market development				0.72	15.27
I often actively searched for customer information for a certain decision-making situation from the contact persons ^a					
Without customer information received from the contact persons, the decisions I made would have been very different ^a					
<i>Integration of customer information</i>	0.80	0.83	0.54		
Reflective measure					
Based on De Luca and Atuahene-Gima, 2007; Zahra and Nielsen, 2002; Zahra, Ireland, & Hitt, 2000					
Seven-point scale anchored by "strongly agree" (1) and "strongly disagree" (7)					
I read reports and memos that included summaries related to the development of the customer group				0.78	21.90
I participated in our company's formal meetings where we talked about the development of the customer group				0.75	18.28
I talked with my colleagues about the development of the customer group without a formal agenda				0.73	15.48
I systematically analysed the success/failure of the projects related to the customer group together with other people involved in those projects				0.68	14.86
I participated in seminars and conferences that included presentations about the development of the customer group ^a					
<i>Search scope of customer information</i>	0.86	0.89	0.72		
Reflective measure					
Based on Jayachandran et al., 2005					
Seven-point scale anchored by "strongly agree" (1) and "strongly disagree" (7)					
I used many different sources to get all the customer information needed in my daily work				0.84	27.09
I actively searched for customer information from many different sources				0.93	39.50
I got customer information from many firm-external sources				0.78	19.66
I got customer information from many firm-internal sources ^a					

Appendix A (continued)

Construct	Coefficient α	Composite reliability	AVE	Factor loading	t- value
<i>Resource inadequacy</i>	0.83	0.86	0.67		
Reflective measure					
Based on Hultink et al., 2006; Veldhuizen et al., 2000; Bello and Gilliland, 1997					
Seven-point scale anchored by "strongly agree" (1) and "strongly disagree" (7)					
We have a serious lack of resources to develop our function				0.81	21.64
The deadlines for the work are often unrealistic compared to the resources we have at our disposal				0.77	16.79
The lack of resources hinders our functioning				0.88	26.65
We work under continuous time pressure ^a					
The top management gives us little of their time ^a					
<i>Physical distance to the closest sales and marketing contact persons</i>					
One-item measure					
Based on Maltz and Kohli, 1996					
Five-point scale anchored by 'In the same floor and same building' (1), 'In a different part of the same building (e.g., different floor or different wing)' (2), 'In a different building but in the same city' (3), 'In a different city' (4), 'In a different country' (5)					
<i>Supervisor customer emphasis</i>	0.90	0.93	0.76		
Reflective measure					
Based on Jaworski and Kohli, 1993					
Seven-point scale anchored by "strongly agree" (1) and "strongly disagree" (7)					
My bosses often emphasise that our success depends on adapting to the changes of the customer base				0.82	23.51
My bosses often remind us how important it is for our function to listen to the customer				0.94	46.09
According to my bosses, serving the customers is among the most important tasks of our function				0.93	41.73
My bosses often remind us how important it is for our function to be sensitive to customer needs				0.78	20.27
<i>Previous experience in sales and marketing</i> (control variable)					
One-item measure					
Seven-point scale anchored by 'I have no experience of a sales/marketing job' (1) and 'I have considerable experience in a sales/marketing job' (7)					
<i>Usefulness of CRM system in data acquisition</i> (control variable)					
One-item measure					
Seven-point scale anchored by 'Our company has no CRM system/the CRM system is not useful for me' (1) and 'I found the CRM system very useful' (7)					
<i>Intraorganisational change</i> (control variable)	0.75	0.78	0.55		
Reflective measure					
Based on Bettencourt and Brown, 2003; Maltz and Kohli, 1996					
Seven-point scale anchored by "strongly agree" (1) and "strongly disagree" (7)					
It appears as if we are always reorganising				0.83	16.09
Our way to do things changes all the time				0.79	13.37
My colleagues change often				0.59	9.65
The criteria used for evaluating my job often change ^a					
<i>Lack of cross-functional co-operation</i> (control variable)	0.86	0.89	0.66		
Reflective measure					
Based on Hoegl and Proserpio, 2004; Bennett and Savani, 2004; Maltz and Kohli, 1996					
Six-point scale anchored by "strongly agree" (1) and "strongly disagree" (6)					
There are many situations when the co-operation between manufacturing (R&D) and sales/marketing is not seamless				0.85	25.98
Manufacturing (R&D) and sales/marketing have problems fitting their tasks together				0.89	26.87
Manufacturing (R&D) and sales/marketing have incompatible goals				0.74	17.64
The demands from sales/marketing often make the employees from the manufacturing (R&D) function frustrated				0.76	18.54
<i>Number of years a person had worked for the current employer</i> (control variable)					
Eight categories: 0–5 years (1), 6–10 years (2), 11–15 years (3), 16–20 years (4), 21–25 years (5), 26–30 years (6) 31–35 years (7), 36–40 years (8)					

^aThe item was deleted after scale purification.

References

- Aldrich, H. (1999). *Organizations evolving*. Thousand Oaks, CA: Sage.
- Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, 103(3), 411–423.
- Argyris, C. (1999). On organizational learning. Blackwell Publishing.
- Avlonitis, G. J., & Gounaris, S. P. (1999). Marketing orientation and its determinants: An empirical analysis. *European Journal of Marketing*, 33(11/12), 1003–1037.
- Baker, W. E., & Sinkula, J. M. (1999). Environmental marketing strategy and firm performance: Effects on new product performance and market share. *Journal of the Academy of Marketing Science*, 33(4), 461–475.
- Baron, K., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173–1182.
- Bello, D. C., & Gilliland, D. I. (1997). The effect of output controls, process controls, and flexibility on export channel performance. *Journal of Marketing*, 61, 22–38.
- Bennett, R., & Savani, S. (2004). Managing conflict between marketing and other functions within charitable organisations. *Leadership & Organization Development Journal*, 25(2), 180–200.
- Bettencourt, L. A., & Brown, S. W. (2003). Role stressors and customer-oriented boundary-spanning behaviors in service organizations. *Academy of Marketing Science*, 31, 394–408.
- Beverland, M. B., & Lindgreen, A. (2007). Implementing market orientation in industrial firms: A multiple case study. *Industrial Marketing Management*, 36(4), 430–442.
- Beyer, J. M., & Trice, H. M. (1982). The utilization process: A conceptual framework and synthesis of empirical findings. *Administrative Science Quarterly*, 27(4), 591–622.
- Campbell, A. J. (2003). Creating customer knowledge competence: Managing customer relationship management programs strategically. *Industrial Marketing Management*, 32(5), 375–383.
- Capon, N., & Davis, R. (1984). Basic cognitive ability measures as predictors of consumer information processing strategies. *Journal of Consumer Research*, 11, 551–563.
- Carlson, D. S., & Kackmar, K. M. (2000). Work-family conflict in organization: Do life role values make a difference? *Journal of Management*, 26, 1031–1054.
- Carr, J. C., & Lopez, T. B. (2007). Examining market orientation as both culture and conduct: Modeling the relationships between market orientation and employee responses. *Journal of Marketing Theory and Practice*, 15(2), 113–125.
- Chou, T., Chang, P., Cheng, Y., & Tsai, C. (2007). A path model linking organizational knowledge attributes, information processing capabilities, and perceived usability. *Information & Management*, 44, 408–417.
- Cohen, W., & Levinthal, D. (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly*, 35, 128–152.
- Crossan, M. M., Lane, H. W., & White, R. E. (1999). An organizational learning framework: From intuition to institution. *Academy of Management Review*, 24(3), 522–537.
- Dadzie, K. G., Johnston, W. J., Yoo, B., & Brashear, T. G. (2002). Measurement equivalence and applicability of core marketing concepts across Nigerian, Kenyan, Japanese and US firms. *Journal of Business & Industrial Marketing*, 17(6), 430–455.
- Day, G. S. (1994). The capabilities of market-driven organizations. *Journal of Marketing*, 58, 37–52.
- De Luca, L., & Atuahene-Gima, K. (2007). Market knowledge dimensions and cross-functional collaboration: Examining the different routes to product innovation performance. *Journal of Marketing*, 71, 95–112.
- Deeter-Schmelz, D. R., & Ramsey, R. P. (2003). An investigation of team information processing in service teams: Exploring the link between teams and customers. *Academy of Marketing Science*, 31(4), 409–424.
- Deshpande, R. (1982). The organizational context of market research use. *Journal of Marketing*, 46, 91–101.
- Diamantopoulos, A., & Souchon, A. L. (1999). Measuring export information use: Scale development and validation. *Journal of Business Research*, 46, 1–14.

- Ellis, P. D. (2006). Market orientation and performance: A meta-analysis and cross-national comparisons. *Journal of Management Studies*, 43(5), 1089–1107.
- Ellis, S., & Shpielberg, N. (2003). Organizational learning mechanisms and managers' perceived uncertainty. *Human Relations*, 56(10), 1233–1254.
- Feldman, M. S., & March, J. G. (1981). Information in organizations as signal and symbol. *Administrative Science Quarterly*, 26, 171–186.
- Fisher, R. J., Maltz, E., & Jaworski, B. J. (1997). Enhancing communication between marketing and engineering: The moderating role of relative functional identification. *Journal of Marketing*, 61, 54–70.
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39–50.
- Frishammar, J. (2003). Information use in strategic decision making. *Management Decision*, 41, 318–327.
- Ganesan, S., Malter, A. J., & Rindfleisch, A. (2005). Does distance still matter? Geographic proximity and new product development. *Journal of Marketing*, 69, 44–60.
- Germain, R., & Droge, C. (1997). An empirical study of the impact of JIT task scope versus JIT workflow integration on organizational design. *Decision Sciences*, 28(3), 615–635.
- Gotteland, D., Haon, C., & Gauthier, C. (2007). Market orientation: Synthesis and new theoretical directions. *Recherche et Application en Marketing*, 22(1/2007), 45–59.
- Hansen, M. T. (2002). Knowledge networks: Explaining effective knowledge sharing in multiunit companies. *Organization Science*, 13(3), 232–248.
- Harris, L. C. (2001). Market orientation and performance: Objective and subjective empirical evidence from UK companies. *Journal of Management Studies*, 38, 17–43.
- Haugland, S., Myrvtveit, I., & Nygaard, A. (2007). Market orientation and performance in the services industry: A data envelopment analysis. *Journal of Business Research*, 60, 1191–1197.
- Heide, J. B., & John, G. (1995). Measurement issues in research on interfirm relationships. In Kristian Möller & David Wilson (Eds.), *Business Marketing: an interaction and network perspective* Boston, MA: Kluwer.
- Hoegl, M., & Proserpio, L. (2004). Team member proximity and teamwork in innovative projects. *Research Policy*, 33, 1153–1165.
- Hult, T. G., & Ketchen, D. J. (2001). Does market orientation matter? A test between positional advantage and performance. *Strategic Management Journal*, 22, 899–906.
- Hult, G. T. M., Ketchen, D. J., & Slater, S. F. (2005). Market orientation and performance: An integration of disparate approaches. *Strategic Management Journal*, 26, 1173–1181.
- Hultink, E. J., Atuahene-Gima, K., & Lebbink, I. (2000). Determinants of new product selling performance: An empirical examination in the Netherlands. *European Journal of Innovation Management*, 3(1), 27–34.
- Jacobson, A., & Prusak, L. (2007). The cost of knowledge. *Harvard Business Review*, 84, 34–35.
- Jaworski, B., & Kohli, A. K. (1993). Market orientation: Antecedents and consequences. *Journal of Marketing*, 57, 53–70.
- Jayachandran, S., Sharma, S., Kaufman, P., & Raman, P. (2005). The role of relational information processes and technology use in customer relationship management. *Journal of Marketing*, 69, 177–192.
- Jimenez-Jimenez, D., & Cegarra-Navarro, J. G. (2007). The performance effect of organizational learning and market orientation. *Industrial Marketing Management*, 36(6), 694–708.
- Kahn, K. B., & Mentzer, J. T. (1998). Marketing's integration with other departments. *Journal of Business Research*, 42, 53–63.
- Kale, S. H. (2004). CRM failure and the seven deadly sins. *Marketing Management*, 13, 42–46.
- Katila, G., & Ahuja, G. (2002). Something old, something new: A longitudinal study of search behavior and new product introduction. *Academy of Management Journal*, 45(6), 1183–1194.
- Kennedy, K. N., Goolsby, J. R., & Arnold, E. J. (2003). Implementing a customer orientation: Extension of theory and application. *Journal of Marketing*, 67, 67–81.
- Kirca, A. H., Jayachandran, S., & Bearden, W. O. (2005). Market orientation: A meta-analytic review and assessment of its antecedents and impact on performance. *Journal of Marketing*, 69, 24–41.
- Kohli, A. K., & Jaworski, B. (1990). Market orientation: The construct, research propositions, and managerial implications. *Journal of Marketing*, 54, 1–18.
- Kraut, R. E., Fussell, S. R., Brennan, S. E., & Siegel, J. (2002). Understanding effects of proximity on collaboration: Implications for technologies to support remote collaborative work. In Pamela Hinds & Sara Kiesler (Eds.), *Distributed work* Massachusetts: The MIT Press.
- Leenders, M. A. A. M., & Wierenga, B. (2002). The effectiveness of different mechanisms for integrating marketing and R&D. *Journal of Product Innovation Management*, 19(4), 305–317.
- Lorsch, J. W., & Lawrence, P. R. (1969). *Organizational development: Diagnosis and action*. Reading, Mass: Addison-Wesley Publishing Company.
- Love, E. G., & Nohria, N. (2005). Reducing slack: The performance consequences of downsizing by large industrial firms, 1977–1993. *Strategic Management Journal*, 26, 1087–1108.
- Low, G. S., & Mohr, J. J. (2001). Factors affecting the use of information in the evaluation of marketing communications productivity. *Academy of Marketing Science*, 29(1), 70–88.
- Lubke, G., & Muthén, B. (2003). Factor-analyzing Likert scale data under the assumption of multivariate normality complicates a meaningful comparison of observed groups or latent classes Available from <http://www.gseis.ucla.edu/faculty/muthen/Likart.pdf>. Last read 3.10.2007.
- Maltz, E., & Kohli, A. K. (1996). Market intelligence dissemination across functional boundaries. *Journal of Marketing Research*, 33, 47–61.
- Maltz, E., & Kohli, A. K. (2000). Reducing marketing's conflict with other functions: The differential effects of integrating mechanisms. *Academy of Marketing Science*, 28, 479–492.
- Maltz, E., Souder, W. E., & Kumar, A. (2001). Influencing R&D/marketing integration and the use of market information by R&D managers: Intended and unintended effects of managerial actions. *Journal of Business Research*, 52, 69–82.
- March, J., & Simon, H. A. (1958). *Organizations*. John Wiley & Sons.
- Mason, K. J., & Harris, L. C. (2006). Market orientation emphases: an exploration of macro, meso and micro drivers. *Marketing Intelligence and Planning*, 24(6), 552–571.
- Matsuno, K., Mentzer, J. T., & Rentz, J. O. (2005). A conceptual and empirical comparison of three market orientation scales. *Journal of Business Research*, 58, 1–8.
- McNaughton, R. B., Osborne, P., Morgan, R. E., & Kutwaroo, G. (2001). Market orientation and firm value. *Journal of Marketing Management*, 17, 521–542.
- Mintzberg, H. (1983). *Structure in fives*. Englewood Cliffs, NJ: Prentice-Hall.
- Moorman, C., Zaltman, G., & Deshpande, R. (1992). Relationships between providers and users of market research: The dynamics of trust within and between organizations. *Journal of Marketing Research*, 29, 314–329.
- Narver, J. C., & Slater, S. F. (1990). The effect of market orientation on business profitability. *Journal of Marketing*, 54, 20–35.
- Nooteboom, B. (2000). Learning by interaction, absorptive capacity, cognitive distance and governance. *Journal of Management and Governance*, 4, 69–92.
- Nooteboom, B. (2004). Governance and competence: How can they be combined? *Cambridge Journal of Economics*, 28(4), 505–525.
- Ottum, B. D., & Moore, W. L. (1997). The role of market information in new product success/failure. *Journal of Product Innovation Management*, 14(4), 258–273.
- Ozanne, J. L., Brucks, M., & Grewal, D. (1992). A study of information search behavior during the categorization of new products. *The Journal of Consumer Research*, 18(4), 452–463.
- Podsakoff, P. M., & Organ, D. W. (1986). Self-reports in organizational research: Problems and prospects. *Journal of Management*, 12, 531–544.
- Ruekert, R. W., & Walker, O. (1987). Marketing's interaction with other functional units: A conceptual framework and empirical evidence. *Journal of Marketing*, 51, 1–19.
- Saunders, C. S., & Ahuja, M. K. (2006). Are all distributed teams the same? Differentiating between temporary and ongoing distributed teams. *Small Group Research*, 37(6), 662–700.
- Schlosser, F. K., & McNaughton, R. B. (2007). Individual-level antecedents to market-oriented actions. *Journal of Business Research*, 60, 438–446.
- Scott, C. R. (1997). Identification with multiple targets in a geographically dispersed organization. *Management Communication Quarterly*, 10, 491–522.
- Sinkula, J. M. (1994). Market information processing and organizational learning. *Journal of Marketing*, 58, 35–45.
- Souchon, A. L., & Diamantopoulos, A. (1999). Export information acquisition modes: Measure development and validation. *International Marketing Review*, 16, 143–168.
- Souchon, A. L., Cadogan, J. W., Procter, D. B., & Dewsnapp, B. (2004). Marketing information use and organisational performance: The mediating role of responsiveness. *Journal of Strategic Marketing*, 12, 231–242.
- Sussman, S. W., & Siegal, W. S. (2003). Informational influence in organizations: An integrated approach to knowledge adoption. *Information Systems Research*, 14, 47–66.
- Talouselämä 500 (2006). Suomen 500 suurinta yritystä. A database on the Fortune 500 companies in Finland with annual updates Available from <http://te500.talouselama.fi/te500/>. Last accessed 26.8.2008. (In Finnish).
- Todd, R. J. (1999). Back to our beginnings: Information utilization, Bertram Brookes and the fundamental equation of information science. *Information Processing and Management*, 35, 851–870.
- Toften, K., & Olsen, S. O. (2004). The relationships among quality, cost, value, and use of export market information: An empirical study. *Journal of International Marketing*, 12(2), 104–131.
- Tsai, W. (2001). Knowledge transfer in intraorganizational networks: Effects of network position and absorptive capacity on business unit innovation and performance. *Academy of Management Journal*, 44, 996–1004.
- Vargo, S. L., & Lusch, R. F. (2004). Evolving to a new dominant logic in marketing. *Journal of Marketing*, 68, 1–17.
- Veldhuizen, E., Hultink, E. J., & Griffin, A. (2006). Modeling market information processing in new product development: An empirical analysis. *Journal of Engineering and Technology Management*, 23(4), 353–373.
- Vyas, R., & Souchon, A. L. (2003). Symbolic use of export information. *A multidisciplinary approach to conceptual development and key consequences*. *International Marketing Review*, 20(1), 67–94.
- Ward, S., Girardi, A., & Lewandowska, A. (2006). A cross-national validation of the Narver and Slater market orientation scale. *Journal of Marketing Theory and Practice*, 14(2), 155–167.
- Weiss, C. (1977). Research for policy's sake: The enlightenment function of social research. *Policy Analysis*, 3, 531–545.
- Williams, J. E. M. (2003). Export information use in small and medium-sized industrial companies. *An application of Diamantopoulos and Souchon's scale*. *International Marketing Review*, 20(1), 44–66.
- Wood, R. E., George-Falvy, J., & Debowski, S. (2001). Motivation and information search on complex tasks. In Miriam Erez, Uwe Kleinbeck, & Henk Thierry (Eds.), *Work motivation in the context of a globalizing economy*. Lawrence Erlbaum Associates.
- Yan, A., & Louis, M. R. (1999). The migration of organizational functions to the work unit level: Buffering, spanning, and bringing up boundaries. *Human Relations*, 52(1), 25–57.
- Yeoh, P. (2005). A conceptual framework of antecedents of information search in exporting: Importance of ability and motivation. *International Marketing Review*, 22(2), 165–198.

- Zahay, D., & Griffin, A. (2004). Customer learning processes, strategy selection, and performance in business-to-business service firms. *Decision Sciences*, 35, 169–203.
- Zahra, S. A., & Nielsen, A. P. (2002). Sources of capabilities, integration and technology commercialization. *Strategic Management Journal*, 23, 377–398.
- Zahra, S. A., Ireland, R. D., & Hitt, M. A. (2000). International expansion by new venture firms: International diversity, mode of market entry, technological learning, and performance. *Academy of Management Journal*, 43(5), 925–950.
- Zinkhan, G. M., & Verbrugge, J. A. (2000). The marketing/finance interface: Two divergent and complementary views of the firm. *Journal of Business Research*, 50, 143–148.

Silja Korhonen-Sande is a postdoctoral researcher at the BI Norwegian School of Management. Her research interests include marketing management, corporate entrepreneurship, and information transfer in multidisciplinary settings.