

**INTERACTION CAPABILITY DEVELOPMENT  
IN UK MANUFACTURING SMES**

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**Abstract**

Purpose of the paper and literature addressed: The purpose of this paper is to empirically examine the influence of interaction capability development of UK manufacturing SMEs on their customer relationships. Previous research in the industrial marketing field has found that relational capabilities are a critical component of the capabilities that influence how a firm manages and is positioned within its network. There have been few empirical studies to date on how interaction capabilities (Johnsen and Ford, 2008) impact on how small and medium-sized firms (SMEs) manage in their customer relationships.

Research method: We examine interaction capability development and its influence on SMEs' customer relationships through the findings from case studies of ten UK manufacturing SMEs, with the aim of contributing to the growing body of knowledge on relational capabilities.

Research findings: The findings reveal that the level of involvement of the SMEs in their customer relationships was influenced by the type and length of establishment of interaction capabilities possessed by the firm. Strong and well-established interaction capabilities that could be effectively articulated by SMEs attracted customers' attention in their international network and provided SMEs with opportunities for growth in conjunction with customers.

Main contribution: The paper contributes to existing knowledge on interaction capabilities from a small and medium-sized supplier perspective and offers insights for suppliers on interaction capability development geared towards customer relationship enhancement. The theoretical contribution lies in the insights into the way that the elements of the interaction capability set are perceived and managed by SMEs.

Keywords- interaction capabilities, suppliers, customer relationships, UK manufacturers, SMEs.

## INTRODUCTION

Capabilities have been considered in numerous IMP studies at both the firm-level and network-level and have been found to play a major role in creating differentiated resources, skills and assets that may contribute to a firm's competitive capacities and sustainable advantage (Ritter, 1999; Ritter and Gemünden, 2003; 2004; Möller and Törrönen, 2003; Johnsen and Ford, 2006; Äyväri and Möller, 2008). Relational capability development has been examined by a number of authors and has been shown to play a critical part in the set of competencies that enable firms to make valuable contributions in customer-supplier relationships (Lorenzoni and Lipparini, 1999; Johnson and Sohi, 2003; Jarratt, 2004).

In delineating the distinctions between individual firm capabilities and relational capabilities, Äyväri and Möller (2008) distinguish between firm-level systems, processes, functions and tasks and inter-firm level systems. At the firm-level, companies will focus on developing their administration and support systems for managing and communicating in relationships, creating individual relationship management systems (Sivadas and Dwyer, 2000; Jarratt, 2004). These efforts may also encompass activities such as initiating, exchanging, coordinating and controlling in relationships (Ritter and Gemünden, 2003).

The nature of inter-firm level systems requires a further degree of integration and coordination of capability development with a relationship counterpart. This includes activities such as integration of information or technical systems (Möller and Törrönen, 2003; Möller and Svahn, 2003; Johnsen and Ford, 2006); the merging of customer and supplier approaches to managing the relationship (*ibid.*) and bilateral approaches to managing staff involved in the dyadic relationship and the mingling of aspects related to values, social interaction and the firms' cultures (Walter, 1999; Ritter, 1999; Johnsen and Ford, 2006).

Few studies to date have focused on the role of inter-firm capability development in SMEs. Inter-firm level capabilities may have a strong influence on how smaller firms create and sustain the relationships that support and foster their development, affecting both what the company can offer and the ways in which it can interact within its network.

It has been noted in previous research that manufacturing SMEs often pay more attention to relationship development than information technology development (Nohria and Eccles, 1992). Furthermore, small and medium-sized suppliers are increasingly required by customers to fulfil a role in competence development as a source for customer value (Glofetto and Gibbert, 2006). SMEs have also been shown to give preference to traditional close relationship and trust building with customers rather than arms-length or computer-mediated interaction (Gattiker *et al.*, 2007). Thus, SMEs may be dependent on a wider range of relationship counterparts and require more support from customers in capability building than their larger counterparts. Thus, there remains scope for better understanding how inter-firm level capabilities are developed and the role that they play in how smaller firms manage in their customer relationships.

Thus, this study seeks to address the following research question:

*How do manufacturing SMEs develop interaction capabilities to support their development and growth in customer relationships?*

## LITERATURE REVIEW

Research on capabilities has long asserted that knowledge of a firm's underlying of capabilities is essential in understanding how the firm acquires and uses resources and differentiates itself from others in its surrounding business network (Foss, 1999). The capability of a firm is its demonstrated and potential ability to accomplish, against the opposition of circumstance, whatever it sets out to do (Mintzberg and Quinn, 1992). The importance of core capabilities in enabling firms to take advantage of opportunities has been widely discussed in the strategy literature, using various concepts such as core competencies (Prahalad and Hamel, 1990), core capabilities and rigidities (Leonard-Barton, 1992) and dynamic capabilities (Teece, Pisano and Shuen 1997; Teece, 1998). These concepts are based on the assumption that the firm operates as a discrete organisation. In this paper the focus is on a relationship approach to capability development in small and medium-sized suppliers. This raises the need for understanding the type of capabilities that may be developed by suppliers to capture the opportunities for growth through their customer relationships.

Firms may need to evaluate their capabilities to determine one from another, and set priorities for the development of those capabilities that will enable the firm to distinguish itself in its business relationships (Möller and Torronen, 2003). The range of a firm's activities may be dependent on its knowledge base and influence how it learns or experiences events or happenings in its network. The firm's experiences may cumulatively become embodied in dynamic capabilities and evolve competitive advantages (Teece, 1998).

Networks and relationships are characterized by the interdependence of capabilities (Alajoutsijärvi *et al.*, 1999). Capability therefore involves not only competence in designing and handling activities and controlling and utilizing resources for one's own benefit, but must be considered bilaterally in relation to how activities and resources are linked to those of important counterparts (*ibid.*). Thus, an analysis of capabilities, their interdependent development and the ways in which capability development are managed have an important bearing on relationships. Interaction in relationships may shape the capabilities of a firm, so capabilities must therefore be understood in terms of how they are recognized and valued by counterparts in a relationship, and how their usefulness and contribution to the network is perceived (Golfetto and Gibbert, 2006).

In this research we build on the interaction capability framework of Johnsen and Ford (2006), incorporating *human interaction capability*, *technological interaction capability*, *managerial systems interaction capability* and *cultural interaction capability* (see Appendix 1), to investigate the capabilities developed by manufacturing SMEs in their customer relationships.

### **Interaction capabilities**

The possession of human interaction capability by an SME can mean that it is sought out by customers for the knowledge and understanding of its staff and managers, or for the specific ways in which they use their knowledge in relationships (Ford *et al.* 2003), enabling them to develop unique combinations of offerings or innovations (Leonard-Barton, 1992). Smaller suppliers with established human interaction capability can translate or deploy their human resources in new ways in relationships, by linking with the capabilities of the staff of their larger customers and developing new resources, knowledge or expertise together.

Knowledge may therefore be developed bilaterally by the employees of the SME and its customer. Bilateral development of knowledge is indicated by the supplier and customer engaging in joint exchanges or development projects to facilitate knowledge-sharing. Combined areas or new areas of knowledge can be developed through sharing and intertwining of the supplier and customer's expertise, and lead to new product or market developments (Ritter, 1999).

Relationships with customers play a role in developing the technological interaction capabilities of SMEs by opening up their vision of potential approaches to technological innovation and by offering opportunities for combining existing technologies with those of customers or collaborating on new technological configurations (*ibid.*). The integration of their technical systems with those of larger customers may enable SMEs to identify and cope with technological problems at an earlier stage and initiate more open discussions with customers about exchanging technological expertise between the two firms. Bilateral identification of the technological requirements of each party can more easily take place, permitting technological developments to be better planned and predicted. Having gained experience in working with customers on technology-based projects or exchanges, SMEs may feel more able to adapt their technology to new counterparts and situations and apply their products or technologies across a wider range of relationships.

Managerial systems interaction capability is of particular importance to SMEs with a limited range of customer relationships, as relationship problems may be closely linked to a focus on single larger customer relationships (Johnsen and Ford, 2006). It is therefore critical for smaller suppliers to develop the capacity to absorb and assimilate approaches to relationship planning and strategy from their customers, to operate effectively in such relationships and to apply their managerial systems interaction capability in other relationships.

SMEs may find that their culture and values as a small firm have a detrimental impact on their relationships with some larger customers (Håkansson and Snehota, 1995). Adopting a corresponding, compatible vision of what the relationship's core values should be may be challenging to the smaller party when interacting with a larger and more established, experienced counterpart (Golfetto and Gibbert, 2006). Issues around confidence building and having the ability to articulate one's own view of critical issues for relationship-building may hinder the SME in developing successful, long-term and influential relationships with important customers. Success in international relationships can also depend on the capability to manage relationships at a considerable distance, and to manage the internationalization process with a wider range of counterparts (e.g. Ford, 1980). The ability to manage large customer

relationships and cross-cultural relationships and to establish a position in new networks is thus an important challenge for SMEs' capability developments.

## RESEARCH METHODOLOGY

A multiple case study approach was adopted for this research to investigate contemporary phenomena related to the interaction capability development of manufacturing SMEs in a real-life context (Easton, 1992; Yin 2003). According to Yin (2003), the ideal number of cases for effective and persuasive results can be as low as six to ten case studies. Additionally, a further three to four cases can be used to verify the consistency of the findings. In other words, a total of ten cases should provide considerable support for the credibility and generalisation of the research project (*ibid.*). This research comprised ten case studies of UK manufacturing SMEs from a variety of sectors (see Appendix 2).

The unit of analysis for this research was based on individual case companies. However, to ensure the credibility of the research intra-case and cross-case analysis was conducted. Within the intra-case analysis, responses from interviewees in each company were analysed. In the cross-case analysis we focused on examining the different views and experiences across the firms and identifying patterns in their responses.

With the qualitative research process in mind, the researchers proposed to build up the cases on the basis of interview findings together with secondary data and personal observations (Yin, 2003). Secondary data in the form of company annual reports, archives, published (government) statistics, electronic databases and the Internet were collected to familiarise the researchers with the case companies' situations and environments to enable the design of the case study investigation. The use of secondary data also filtered unnecessary contact with unsuitable firms and produced accurate company information before the primary data collection phase. Semi-structured interviews were conducted using open-ended questions to explore the pertinent issues surrounding the cases in depth.

A pilot case study was carried out before the full programme of case studies was set in motion. The pilot case (Polaron) assisted the researchers in refining their future data collection plans and interview questions, pre-testing the validity of the research questions proposed. The interviews focused on themes relating to company background, experience in customer relationships and the development of capabilities.

The pilot case was initially chosen based on the conditions set by the working definition of an SME; these criteria included the number of employees and the company's annual turnover. In addition, the company was involved in international business activities in B2B-based manufacturing industry and operating in the UK. The interviewees were the Managing Director/Technical Director and Sales Manager. Each interview lasted approximately one to one and a half hours and was audio taped (with the interviewees' prior consent) for future transcription and data analysis.

Following the pilot case study, a series of nine case studies were then conducted. These represented a variety of different manufacturing SMEs located in different regions of the UK.

The sampling procedure for the nine cases was based on ‘snowball’ sampling. The interviewees included managers with direct experience of the events/issues. In addition, referral contacts could be made through the previous interviews, as those interviewees were able to identify companies that would fit the research criteria for future cases. Smaller companies may be difficult to approach, since they may have passive attitudes toward individual researchers (Ruzzier *et al.*, 2006). Thus, by introductions through another SME, the researchers’ chances of securing interviews were increased. Each interview was based on open-ended questions and lasted up to one and a half hours. All interviews were tape recorded and transcribed into text format for subsequent analysis. Analysis was conducted through thematic coding/analysis to reveal the research data and seek explanations for any approach or decision-making process (Strauss, 1987; Flick, 2002). There is the possibility of multiple interpretations of any phenomenon, thus, influencing the coding reliability. Therefore, the researchers used a template analysis along with the thematic analysis in order to strengthen the research credibility and validity (King, 2004 cited Cassell and Symon, 2004). In other words, template analysis requires the researcher to produce a list of codes or a template that corresponds to the themes identified from the textual data. Hence, the data can be represented systematically (Crabtree and Miller, 1992; King 1994; 2004). It is also important to note that the codes were developed case by case as the unit of analysis is based on a single case (see Appendix 3 for a summary of the findings).

## DISCUSSION OF FINDINGS

### *Human interaction capability*

The SMEs in this study had considerable experience of working with customers on improving the current skills of their employees and generating new ideas for skills development. Learning from customers was seen as critical in supporting the SMEs’ growth and in becoming a more valued and valuable supplier in the network. Human interaction with customers via a wide range of employees was important to the SMEs in fuelling innovation and commercialising their products. Human interaction capability was therefore linked closely to technological interaction capabilities and their development was seen to occur in tandem.

*“Our skills and knowledge is fundamental to our technology and product quality”.*  
(Bede case)

In the earlier stages of development of the customer relationship, the SMEs were more concerned with developing their internal staff skills. However, as the relationships with customers matured there appeared to be more scope for sharing and exchanging knowledge and expertise across the supplier and customer firms.

*“I would say how to transfer our knowledge internally is one of our most important capabilities...how to transfer and share our knowledge”.* (Mobiletron case)

In the more advanced stages of the relationship where more exchanges or intertwining of staff had developed, customer relationship enhancement was seen to lie predominantly in the relationship management skills that the SMEs' managers had learnt from customers. Thus, the benefits of human interaction experience with customers were often more fruitful longer-term in relation to building capabilities for the SMEs.

#### *Technological interaction capability*

The SMEs gained most from their customers in terms of understanding and developing 'standards' with regard to technological requirements. Working on joint projects or training with customers opened the suppliers' eyes to customers' expectations and needs for technological advances and innovations.

*"We have learnt a lot from our customers...for example, we learnt how our customers conduct their testing and .. we also developed some similar procedures that we learnt from our customers...it is important from my point of view on know-how. Therefore, to know their specifications before we can co-operate with them, and this testing application would become a standard between the two companies". (Mobiletron case)*

The technological interaction capability grew alongside the suppliers' human interaction capability. Suppliers' employees were learning to understand and anticipate customers' needs and to translate these needs into new products and processes that would be valuable to current and future customers. Products and processes could in this way be designed with customers' involvement and input to ensure their validity and relevance and thus raise the SME's level of importance to the customer.

#### *Managerial systems interaction capability*

A number of suppliers focused on issues concerning communication and personal contact in building their managerial systems interaction capability. This enabled them to enhance their chances of becoming more involved in strategic decisions taken by customers and to play a more active role in collaborative projects.

*"I travel so frequently to visit different clients all the time. Maintaining good relationships with them is so important to us... by giving them strong and friendly support." (Bede case).*

A longer-term approach, however, was seen in some SMEs which were more confident in pushing forward suggestions for developing their relationships with customers through external collaboration with a wider range of actors, for example in developing joint projects with universities or research centres.

*"Some of our skills need to be acquired externally; we [and customer A] have joint research programmes with XYZ University, such as market research, software management, development or problem solving". (Mobiletron case)*

The SMEs which took part in these more complex activities gained enhancement and growth within their customer relationships through experiencing relationship management and collaboration techniques in different situations and with different counterparts from a variety of backgrounds e.g. industry, education, government bodies.

### *Cultural interaction capability*

Cultural interaction capabilities were seen to contribute to growth, prosperity and positioning in the SMEs customer relationships. Developing a shared culture with customers was seen to be challenging but essential for learning, growth and enhanced positioning in the wider network.

*“You have to encourage your culture of growth...you have got to be constantly generating, so, you cannot stay still because... if you do not update the products, then ultimately the customers will choose to go elsewhere, and your products will be effectively deselected if you like, purely by customers’ choices. (Polaron case)*

The development of other interaction capabilities (human, technological, managerial systems) with customers seemed to have an influence on how cultural interaction capabilities developed. To a certain extent, cultural interaction capability aspects were seen as the ‘crowning’ capability, or the one that the suppliers should aspire to when the other interaction capabilities in the set were in place. This has implications for the way in which cultural interaction capability may be perceived and managed – as a ‘capstone’ to enhance the capability set and as a type of capability that must be aimed for and considered at each stage of development of the other aspects of the interaction capability set.

## **CONCLUSIONS AND MANAGERIAL IMPLICATIONS**

This paper set out to examine how manufacturing SMEs develop interaction capabilities to support their development and growth in customer relationships. The findings have demonstrated that interaction capabilities developed by SMEs in their customer relationships were influential in a number of ways. The level of involvement of the SMEs in their customer relationships was influenced by the type and length of establishment of interaction capabilities possessed by the firm. Strong and well-established interaction capabilities that could be effectively articulated by SMEs attracted customers’ attention in their international network and provided SMEs with opportunities for growth in conjunction with customers.

The findings from our study broadly concur with previous research on relational capabilities. Small firms are often focused predominantly on securing, first and foremost, their own administrative systems and processes and find it difficult in the earlier stages of development to focus on integrating their capability developments with those of customers (Sivadas and Dwyer, 2000; Jarratt, 2004). In addition, the practical aspects of capabilities often come to the fore as they are the most pressing in day-to-day customer interactions. Thus, issues concerning human interaction capability and technological interaction capability are often those that are given precedence by smaller suppliers and customers alike (Möller and Törrönen, 2003; Möller and Svahn, 2004). As the SME becomes more firmly established, gains confidence in customer interactions and has a clearer vision for its own long-term role in a customer relationship, other capability priorities come to the fore. A stronger and more established customer relationship will give rise to a greater emphasis in managerial systems interaction capability that prioritises relational approaches to developing growth within key customer relationships (Johnsen and Ford, 2006). Furthermore, the melding of a supplier’s ways of working and cultural nuances grows

in tandem with the length and seriousness of the relationship. This enables SMEs to learn from their customers' culture, values and ethos for managing relationships. This long-term predisposition towards cultural interaction capability is therefore the most challenging aspect of suppliers' interaction capability developments and has implications for how new models of interaction capability are created.

The study found that interaction capability development may have a profound influence on SMEs' long-term growth prospects with customers. Interaction capabilities may have a strong influence on how smaller firms create and sustain the relationships that support and foster their development, affecting both what the company can offer and the ways in which it can interact within its network. Thus, the level of sophistication of the SME firm and the growth of its interaction capabilities makes its longer-term prospects within the network more powerful and its position more tenable.

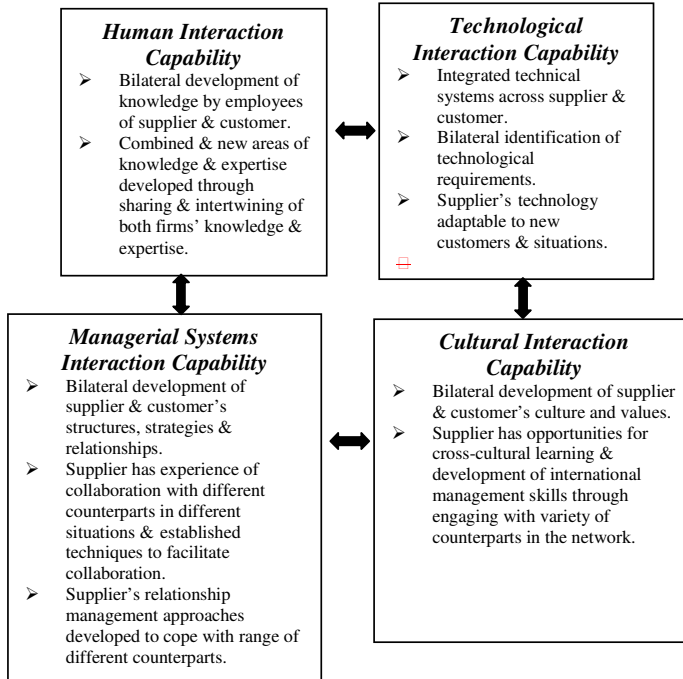
As this study explored SMEs across various sectors of UK manufacturing, possible directions for future research include a more precise focus on a particular industrial sector, or an expansion of the geographic focus of the study to other countries or sectors. It is also suggested that future researchers undertake a longitudinal study to explore how manufacturing SMEs develop interaction capabilities within their customer relationships over a period of time. Thus, a more complete picture could emerge for the long-term development of interaction capabilities to support SMEs' customer relationship enhancement.

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**Appendix 1: Interaction capability set (Johnsen and Ford, 2006)**



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## Appendix 2: Profiles of case study companies

Case No.	1 (Pilot Case)	2	3	4	5
<b>Company</b>	Polaron Components	Mobiletron UK	Verplas	Coborn Engineering	Bede
<b>Interviewee(s)</b>	1. Managing Director/Technical Director 2. Sales Manager	1. Manager Director 2. Operations Director/Sales Director	1. Chairman 2. Managing Director	1. Managing Director	1. Regional Manager 2. Quality Engineer 3. Chief Operating Officer 4. Global Sales and Marketing Director
<b>No. of Employees</b>	55	15	70	50	140
<b>Annual Turnover</b>	£4m	£4m	£7.5m	£3.5m	£7m
<b>UK Standard Industrial Classification 2003 (SIC 03)*</b>	31.62 Manufacture Other Electrical Equipment 31.10 Manufacture Electric Motors, Generators etc.	50.30 Sale of Motor Vehicle Parts etc. 36.63 Other Manufacturing	93.05 Other Service Activities	29.40 Manufacture of Machine Tools	36.63 Other Manufacturing

Case No.	6	7	8	9	10
<b>Company</b>	Thomas Swan Scientific Equipments	Agar Scientific	Accent Optical Technologies	Crystran	Purimachos
<b>Interviewee(s)</b>	1. Managing Director	1. Manager Director	1. Director of Materials Physics and Global Customer Support	1. Marketing Manager (also as one of the company founders)	1. Technical Director
<b>No. of Employees</b>	75	23	230-240	19	20
<b>Annual Turnover</b>	£27m	£2.5m	£28m	£1.6m	£1.4m
<b>UK Standard Industrial Classification 2003 (SIC (03))*</b>	29.56 Manufacture Other Special Purpose Machine 33.30 Manufacture Industrial Process Control Equipment	74.87 Other Business Activities	33.20 Manufacture Instruments for Measuring etc.	36.63 Other Manufacturing	26.40 Manufacture of bricks, etc. in baked clay

\* Information obtained from Companies House, UK Government

### Appendix 3: Findings on interaction capabilities in UK manufacturing SMEs

	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Case 8	Case 9	Case 10
<b>Human interaction capability</b>	Exchange & integration from joint projects with customers has grown internal skills and knowledge. Belief that the firm's success based on employees' success.	Learn from customers to enable skills and knowledge in product testing & manufacturing. Employees learn new skills through customers (market knowledge, use of ERP system).	Learn awareness of market trends in product materials/design via customers. Leads to better product quality, comprehensive product range.	Work closely with customers for new product development & service improvements.	Provide training & and repair service for customers. Customer interaction fuels faster commercialisation/innovation.	Joint research led to better relationship building skills used in conjunction with existing technological capability	Distribution skills & sales force experience most developed by staff supported by customer interaction.	Implements exchanges/visits for staff to integrate skills learnt from customers.	Exchange visits and external training courses for the skills and knowledge required.	Based on the internal skills and knowledge capability, less interest from customers.
<b>Technological interaction capability</b>	Integration of product standards with customers. Advances in web communication methods increased productivity.	Exchange technological information with clients. Development of new standardised applications with customers. Purchase IT systems for key clients to increase productivity.	Through joint-development with domestic appliance OEMs which set up standards of ventilation kits.	Work closely with customers for product development. Pressures from customers to increase speed of innovation.	New technology development via joint-ventures. Coordinate with other components suppliers to improve offerings & strengthen technological capability.	Technology most vital asset. Skills gained from the joint programmes have brought forward firm's technological competence and further integration with customers.	Links with customer via technological training module. Technological knowledge of sales team provides good after-sale service.	Joint R&D activities with suppliers and customers: projects on equipment compatibility issues. Important due to short PLCs & rate of innovation.	Exchange activities to ensure the firm has level of manufacturing competence to match customer's needs.	Provide direct technical support for the customers but less focus on integration.
<b>Managerial systems interaction capability</b>	Quality management system created via interaction with customers, brings external expertise. "Flexibility approach" adapted to avoid conflict in a team-working environment.	Adopt different production processes for different customers, e.g. semi-automatic process for small orders. Relationship maintenance is key.	Insist on the importance of face-to-face communication, maintaining good relationships; as well as reviewing suppliers' capacity.	Exchange visits with clients. Maintaining good relationships with customers by regular face-to-face communication.	Regular face-to-face visits with customers gives faster exchange of info. & collaboration opportunity. Proactive management, encourage their employees to receive new knowledge.	Created standard for information management system with customers.	Emphasis on conveying unique service provided by company & sustaining relationships with clients.	Maintaining good relationships, face-to-face communication core values.	Focus on close working relationships, direct communication & knowledge updates with customers.	Adaptation of relationship approaches for different clients.

<b>Cultural interaction capability</b>	Values individual contributions & comments. Aims for better products from 'value-added' employees. Collaboration via employee exchanges brings new culture, technology, skills.	Face-to-face communication strengthens exchange of values & culture during process of educating clients to use Internet-based technology.	Face-to-face communication provided opportunities for management to review other management styles & develop.	Positive attitude towards customers supported by integration of resources to maintain long-term relationships.	Proactive in learning new skills and knowledge from customers -adapting different communication methods for different customers. Joint innovation & commercialisation activity supports cultural exchanges.	Value customers efforts to understand their culture. Value employees' potential by giving opportunities for as further education.	Service integration, learning service culture from customers emphasised. Rely heavily on sales team to perform this role.	Learning through assimilation of R&D/technological common understanding with customers.	Honesty in business as core belief transmitted in all interactions with customers. Enables closer bonds to develop faster.	Passive attitude, no aggressive market expansion, but this makes it easier for customers to assert their values and culture on supplier.
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