

System Supplier's Roles for Customer: How to Become Performance Provider?

Anton K. Helander

Doctor of Business Administration, Business development manager,
CPS Color Group Oy
Postal address: P.O. Box 53, 01301 Vantaa, Finland
Tel: +358-400-523003
Email: anton.helander@cpscolor.com

Kristian Möller

Research professor and Head of Business Networks Program,
Helsinki School of Economics,
Helsinki, Finland

Abstract

The Paper explores (a) what kind of major roles major system suppliers may have for their business customers, (b) what factors may change the supplier's role for the customer during the relationship, and analyzes (c) how the system supplier can manage his roles for the customer.

The Paper is based on a multi-company case study. The focus of the European-based main study was on the long-term development of seven customer relationships.

The Study identified three roles for system suppliers: Equipment/material supplier, Solution provider, and Performance provider. The potential role the supplier may try to achieve primarily depends on the knowledge gap between supplier and customer, and on the strategies they adopt. The supplier can maintain and extend his role for the customer through carefully coordinated and integrated, proactive actions.

The developed framework models provide an articulated theory of the system supplier's business strategy as well as several practical tools for top executives in industrial companies.

Key words: System business, Roles of system supplier, Relationship management

Introduction and literature review

The Paper focuses on the strategic roles available for system suppliers providing large-scale, complex systems to industrial customers. In this context, interaction between the system supplier and the customer is often frequent and multidimensional, because the customer needs the supplier's expertise to be able to fully utilize the benefits of complex systems (Backhaus 2003). Recently, many business suppliers have invested in professional management of service processes (Vargo & Lusch 2004). A number of top managers in the system business have stated that their company wants to shift from a supplier of machines and spare parts to the role of a lifetime partner who provides maintenance and other services. In spite of this increasing interest in the strategic business roles of system suppliers there is very little research and no articulated theory available about this domain. We address this gap by analyzing alternative supplier roles and especially how they can be achieved in demanding supplier-customer relationships. The more detailed research questions will be given at the end of the literature review.

The Paper starts with the literature review and description of the case study methodology. Next, the key findings are presented. Finally, the Paper draws the theoretical and managerial conclusions. In more detail, the literature review consists of four parts. First, the previous discussion on the system supplier's roles for the customer is explored. Then, the industrial customer's resource strategies toward the supplier are described. Third, the potential factors influencing the dynamics in the system supplier-customer relationship are analyzed. The section ends with the research questions.

Roles of system supplier

According to Anderson et al (1998), the *role* is what the focal actor does in a relation with other actors, in this study in relation to customers. Moreover, roles may change over time (Johanson & Mattsson 1992). System suppliers have often been described as a fairly homogeneous group, in other words, as one special supplier type with a single role for the customer (e.g. Bonaccorsi et al, 1996). Literature on turnkey deliveries (e.g. Mattsson 1983) and project marketing (e.g. Cova et al, 2002) has many similarities with the system business in the creation of value proposition, but they lack the perspective of long-term relationship development. Even though the existing literature has not offered any suitable models of system suppliers' roles, we have identified four interesting research contributions, which can provide a basis for role categorization.

John et al (1999) introduced a *continuum of vertical positions* of technology supplier that included six levels: Sell or license know-how, sell proof of concept, sell commercial grade component, sell subsystem, sell system, and operate service bureau. In their categorization, system selling is at the second closest level from the customer, the first being service operations. Service operations require long-term investments but often enable reasonably high margins. At the other end of the continuum, licensing could give thin but quick cash flow through royalties. An important aspect of this categorization is that it describes implicitly, how vertical position affects the supplier's approach to the customer.

Secondly, Möller and Törrönen (2003) provided a model of supplier's value production potential, which suggests that a business customer categorizes his suppliers either as core value, value-added or future value producer. More specifically, *core value producers* focus on operational excellence, for instance on production and logistic processes. *Value-added producers*, on the other hand, put emphasis on developing incremental innovations and new solutions to support the customer's business. *Future value producers*, in addition to the first two value dimensions, also actively seek future business opportunities for the customer, which obviously requires a deep understanding of the customer's business.

Thirdly, Stremersch et al (2001) introduced a framework that categorizes suppliers of bundled offers into three groups according to their ability to satisfy the customer needs. *Suppliers of product/service packages* focus on product and might offer support services only within a very narrow scope to satisfy a single customer need. According to the categorization, *system suppliers* provide a solution for extended customer needs. Furthermore, *full service providers* build a total solution for customer needs.

The fourth relevant view is Buse et al's (2001) *performance contracting* proposition. In performance contracting, the customer no longer purchases the complex equipment. Instead, the supplier together with network partners makes the equipment available to the customer and provides required services around the equipment. The customer pays only for the performance it receives. Significantly, Buse et al (2001) introduced five steps toward performance contracting. From a customer's point of view, the last step might be close to full outsourcing of operations:

1. Pure production of tangible goods with just obligatory services included
2. Maintenance, modernization and preventive services
3. Operative training plus software development
4. Finance and financial engineering
5. Complete operation of machine or plant by the supplier network

None of the above four approaches provides a profound theory of the system suppliers' different roles for the customer. However, the categorizations complement each other and give a valuable basis for further conceptualization. In addition to the above contributions, recent consulting literature (e.g. Cornet et al 2000) emphasizes the role of the solution provider as a value-added supplier that provides measurable benefits for the customer. Compared to the traditional product-driven approaches, the solution provider's offer would be built around the customer needs.

Customer's resource strategy

In addition to the supplier's strategic alternatives, it is worth investigating the customer's ways of evaluating their relationship with the system supplier. Basically, the customer can acquire technology either by developing internally or by buying externally (Capon & Glazer 1987). According to Ford et al (2002), in internal development the customer develops technology by using his own R&D facilities and human resources. This alternative is often a slow, risky and expensive way, but it enables the firm to maintain a high level of technical and research capabilities. Another alternative is to *buy* the products, services and know-how from the system supplier. In this alternative, the company receives an immediate access to the benefits of the supplier's technologies, which saves time and costs of internal development. Simultaneously, the customer can use his own R&D resources for other purposes.

The system supplier's revenue logic is based on the opportunity to divide fixed development costs among many customers, which enables lower overall costs for the customer. The main limitation of the use of the system supplier is that the customer becomes dependent on the supplier and its specific technology. According to Anderson and Narus (1990), relative dependence determines the extent to which a company will have influence over, and be influenced by, its partner.

The customer may also change his resource strategies and decide to outsource activities which he has performed internally in the past, to be able to concentrate on the core competencies (Ford et al 1998). Axelsson and Wynstra (2002) divide outsourcing into two basic types, turnkey outsourcing and partial outsourcing. The former type applies when the company contracts an entire function to an external supplier. On the other hand, the latter means that only a part of the integrated function is outsourced, which means that the buyer still has the coordination responsibility.

The outsourcing decision may be based on the customer's strategic aim to redefine the position in the value chain or network. For many customers, outsourcing might enable obtaining more flexible and integrated services compared to the internal sources. Customers could, in principle, outsource all activities that offer no basis for competitive advantage, are more efficient to produce externally than internally, and can be reliably performed by the supplier (Quinn & Hilmer 1994). On the other hand, customers are often concerned about losing the specific skills and becoming overly dependent on the supplier (Ford et al 1998).

Relationship dynamics

One of the most interesting approaches to the dynamics of technology supplier's and customer's roles is provided by Ford et al (2002), who argued that the supplier is likely to have a greater knowledge than the

customer of the technologies on which its offering is based, especially at the start of that relationship. Over time, however, this knowledge gap is likely to narrow and may eventually disappear (Ford et al 2002). In spite of its intuitive appeal, the idea of the knowledge gap has not been empirically studied in the system business.

The dynamics of knowledge gap is based on learning and maturation processes. During the system generation and growth stage of the relationship, the customer learns the technology characteristics and increases his knowledge of the system architecture. The learning process can also be compared to the process of product maturity. In other words, when the product matures, the need for the supplier's support decreases and the customer may become unwilling to pay for it (Rangan & Bowman 1992).

As a result of the decreased knowledge gap, the customer's perceived risk of self-assembling the system may decrease. In other words, the use of one supplier is not anymore the only alternative. In other words, the maturity of the customer's technology, especially if it is standardized, may lead to a more transaction-based customer-supplier relationship (Bensaou 1999). As a result, the customers may incrementally shift from problem solving emphasis to aggressive component-based thinking (Rangan & Bowman 1992). Anderson and Narus (1991) suggested that the supplier would have two basic alternatives in this type of situation: to provide each value-added service unbundled or to launch new collaborative programs, for instance shared expertise teams.

Research questions

The extant literature provides many important but non-integrated views of the system supplier's roles and customer relationship dynamics. In spite of the relevance of system business there is very little empirical research on how the system suppliers could manage their roles in long-term customer relationships. We address this gap by constructing a model for the system supplier's roles in dynamic supplier-customer relationships. This aim will be approached through the following research questions:

- 1) What are the system supplier's roles for the customer?
- 2) What factors influence the supplier's role during the supplier-customer relationship?
- 3) How can the system supplier manage his roles for the customer?

Answering these ambitious questions will enable us to provide the guidelines for managing the system supplier's customer relationships at the business strategy level. We approach our objective by combining the existing conceptualized knowledge and the results of an international case study.

Methodology

The Study is based on a qualitative multiple case study addressing both the system suppliers and their customers. This approach was seen to match the complexity and comprehensiveness of the focal phenomenon. The case study method (Eisenhardt 1989, Yin 2003) allowed data collection from the key managers of both the customer and supplier companies, as well as the utilization of archival data. The case study approach was preferred, because the dispersed prior knowledge of the dynamic research phenomenon did not allow a hypothesis testing approach. The data were collected during February-December 2002 including altogether 50 interviews.

The empirical research consisted of a pilot study and the main study. The primary purpose of the *pilot study* was to explore how system suppliers perceive and define their roles. The selected seven (7) suppliers are global system suppliers with a presence in Finland, three being active in the information and communications technology (ICT) and four in traditional engineering industries. The effectively performed eight (8) theme interviews with senior managers in sales, business development and technical support helped to plan a proper structure for the demanding international main study.

For the *main empirical study* we selected two global system suppliers with headquarters in Finland. Supplier A from the ICT sector provides network infrastructure, for instance mobile networks, to telecom

operators. Supplier B from the engineering sector sells tinting systems, including liquid colorants, equipment, software, color tools and service, to paint companies.

The focus of this European-based study was on the long-term development of seven customer relationships, of which three customers were related to Supplier A and four to Supplier B. Of each relationship, both the supplier's account team members and the customers' key decision makers were interviewed. The customers were located in Central and Western European countries, more specifically in Hungary, Switzerland, France, Great Britain and Norway.

In this retrospective longitudinal study, the analysis of each relationship followed the same 'phase-model' structure. Because phase models based on pre-defined stages have been criticized for not being able to capture the dynamics of individual relationships (Halinen & Törnroos 1995), we defined the phases per each relationship based on the critical events that each customer and supplier pair had recognized. For each phase, key events, supplier's role, supplier's main activities, and changes in customer's strategy were identified and described. After all the seven relationships were individually described, the similarities in behavior and consequences, in other words the dynamics of these relationships, were analyzed and conclusions were drawn. The length of the studied seven relationships ranged between 7 and 25 years. For detailed case descriptions see Helander (2004).

System supplier's dynamic roles for customer

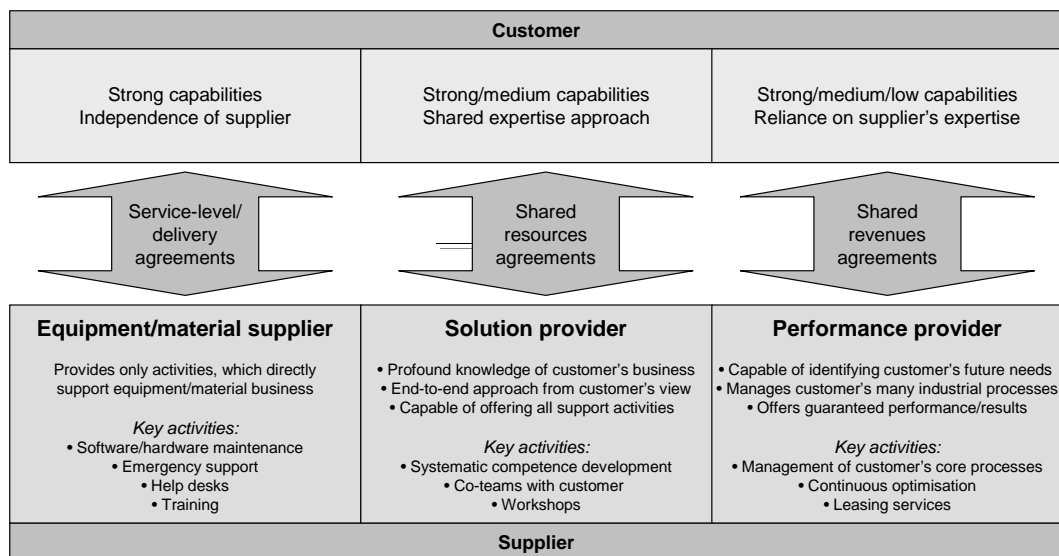
This section discusses the key findings of the empirical study by following the order of the research questions. We start by introducing three roles identified for the system suppliers. We also describe how the supplier's role may change during the long-term relationship and which mechanisms enable the supplier to manage the target roles.

System supplier's roles for customer

The empirical results show that system suppliers have started to define their role for the customer more profoundly. Many system suppliers had the intent to shift from the role of a machine supplier with basic support services to a business provider that would have an interactive long-term relationship with the customer. However, there were also system suppliers who preferred a limited role for the customer, because it enabled them to focus on technology and efficient support processes.

Figure 1 describes the identified three roles of the system suppliers: Equipment/material supplier, Solution provider, and Performance provider. Interestingly, the customer's strategy and the supplier's role for the customer seem to be strongly interdependent. In other words, the supplier can extend his role only when the customer's strategy is compatible with the supplier's aimed role. Correspondingly, we also suggest, based on the case material, three categories for the customers' supplier strategies: Independence of Supplier, Shared Expertise with Supplier, and Reliance on Supplier's Expertise.

Figure 1: Supplier's roles and customer's approach



Interdependence means that the customers with strong system capabilities aiming at being independent of the supplier only allow the role of the equipment/material supplier for the system supplier. On the other hand, the supplier can be a performance provider only for the customer who fully relies on the supplier's expertise. However, it is important to note that the above categories are prototypical descriptions of the system supplier's potential roles. The actual role can also be a configuration between these prototypes. Moreover, the roles are steps or categories instead of flexible positions in a continuum, because each role consists of partly different dimensions. Next, the roles are described, including the challenges that relate to the supplier's potential use of external partners in fulfilling the roles.

Equipment/material supplier. Equipment/material suppliers consider that their key capabilities are in technology and not in support services or relationship management. Therefore, the supplier provides only the services which directly support the equipment business. Examples of these activities are training services, software support and help-desk, which can often be offered via the Internet or call centres. These customers may prefer in-house resources, which may hinder the system supplier from increasing his role. As these suppliers mostly provide standardized basic support, the use of partners would be possible for a majority of activities. However, the extensive use of partners would reduce direct customer contacts, which could distance the supplier from the developments and requirements of a customer.

Solution provider. The study suggests that the role of a solution provider requires both the ability and willingness to take end-to-end responsibility of the installed system base. In other words, a solution provider looks at the total solution from the customer's perspective, even if that takes the company beyond its traditional offering. Simultaneously, the customer should be ready for utilizing the supplier's expertise.

The system supplier should be able to manage two dimensions simultaneously to be able to become a solution provider. Firstly, the supplier should ensure the interoperability of the total system, not only between the supplier's own system components but also with those of the third parties and competitors. The suppliers who are able to standardize the various components and to ensure the interoperability between them are often called 'orchestra leaders'. Most importantly, the solution provider should provide all requested services, extensions and spare parts also for the partner's subsystems.

The customers in both the telecom and paint industries were interested in the supplier's support for third parties, because it would enable them to reduce a number of supplier interfaces. According to the customers, the system suppliers were keen on designing end-to-end solution architecture but not particularly interested in taking full maintenance responsibility of the partners' components, which confused a few customers. Therefore, it seems to be relatively difficult for system suppliers to become real solution providers. For the supplier, understanding the detailed requirements of various industrial sectors and their customers can be very challenging. The situation is further complicated by the fact that many customers have over the years used several suppliers to provide different generations or parts of their system infrastructure. As a result, the customer's system may include layers of software and components from various suppliers. Because of this, suppliers carefully evaluate the risks before taking any maintenance responsibility outside their own system.

The solution providers may use the 'shared resources' approach to the customer, which further increases customer intimacy and cooperation. In this approach, e.g. the maintenance or development team includes members of both the supplier and the customer. The results show that this approach shifts the supplier's approach from individual 'hard selling' projects to continuous optimization. For instance, when the supplier of network infrastructure succeeded in this approach, the customer described the relationship in the following way: *It was sometimes difficult to recognize who was our guy and who belonged to the supplier. It was a real team approach.*

Many system suppliers built a network of sub-suppliers and other third parties to provide the required solution components and services, including training, system monitoring, etc. In order to manage this kind of partner network, the suppliers used a 'capability matrix', which both helped in partner selection and ensured the long-term capability development of the network. Basically, these capability matrices

consisted of two dimensions: Capability areas (e.g. industry knowledge, system capabilities, customer processes) and capability levels (e.g. low, medium, high).

Performance provider. The performance provider typically manages the customer's technical operations and long-term system optimization, which requires a profound knowledge of the customer's industrial core processes. From the customer's point of view, the role of a performance provider means outsourcing all major support and maintenance activities, as well as many development and optimization services. For the customer, the outsourcing-decision requires high reliance on the supplier's expertise. As a result of the outsourcing, the customer does not necessarily need strong internal capabilities. However, with very limited capabilities the customer would be highly dependent on the supplier.

A specific customer group, start-up companies, seemed to prefer performance providers. For instance, many recently established telecom operators have decided straight from the beginning that they will not develop any technical capabilities internally, which enables them to focus on marketing and other end-customer activities. On the other hand, an experienced customer outsourced the maintenance to allow the supplier to manage extensions and basic services in an integrative manner.

The system supplier could receive part of the customer's performance improvement through 'shared revenues' contracts. The risks and responsibilities of this contractual mode require that the supplier should have control over the customer's key processes. The advantages of this contractual model were clear in a situation where the customers were very cautious to make any investments in extensions due to market uncertainty. The 'shared revenues' approach helps the customers to buy the supplier's consulting services or extensions at a low risk, because the supplier guarantees the estimated improvement in the customer's performance. The supplier would receive only a minimum fee, if the promised performance level were not reached. The contractual obligations require that the system supplier should fully rely on his capabilities. The supplier's systematic capability development is very important especially for experienced customers who are often very sensitive to any signals of decreased capabilities. In addition to technically highly skilled maintenance employees, the role requires top business consultants with excellent methodologies.

In the role of a performance provider the supplier's neutrality in all actions is critical. On one hand, the supplier's neutrality as a consultant becomes crucial due to high interdependence between the supplier and the customer. In other words, the supplier should avoid aggressive add-on selling and prefer suggestions that are based on in-depth analyses. On the other hand, the supplier's perceived neutrality in markets may become a problem, if the supplier operates processes of many competitive customers in the same markets. A solution to this could be that the customer would still take care of long-term system planning and final investment decisions by keeping a small department for that purpose. This arrangement would ensure a clear difference between the supplier's and the customer's positions in the value system of the industry.

The performance provider may extensively need third parties for labor-intensive maintenance operations, especially when operating on a global scale. The use of partners would enable the system supplier to focus on activities which are both difficult to standardize and require highly specialized expertise. Therefore, local maintenance companies are often preferred in general maintenance and the supplier performs the system-specific maintenance.

Relationship dynamics

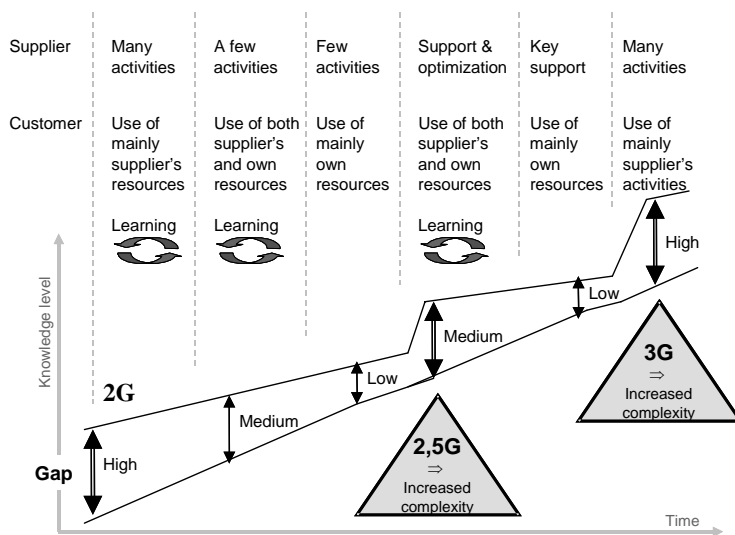
The previous section described the three roles for the system supplier compatible with the customer's resource strategies. However, the supplier's role for the customer differs between customers and the role for a specific customer may become more extensive or limited during the supplier-customer relationship. Our results indicate that the main reasons for the role dynamics are knowledge gap, changes in the customer's strategy, and changes in the supplier's performance.

Knowledge gap. The technology supplier's specific knowledge is often the basis for cooperation with the customer. The knowledge gap describes the difference between the technological knowledge held by the supplier and the customer. This gap seems to influence strongly the role the supplier can try to establish

for a customer. As the knowledge gap is based on the customer's learning process, the gap perceived by the customer varies depending on the system lifecycle and on the stage of the relationship. In the later sections, we will also suggest how a system supplier through his own actions could continuously keep a major knowledge gap.

In both telecommunications and tinting businesses, the dynamics of knowledge gap had clear implications. Figure 2 describes a typical development of knowledge gap between the suppliers and their customers in the telecommunications sector. The figure indicates that extensions with new features, especially GPRS, create complexity and increase the knowledge gap. In all three analyzed relationships in this sector, the customers incrementally increased the use of their own resources after the beginning of the 2G-system lifecycle. In other words, the customers wanted to learn the new system features and then shifted to internal resources, which decreased the supplier's role. However, even though the knowledge gap narrowed, the supplier might have special knowledge to offer, for instance global best practices.

Figure 2: Knowledge gap dynamics in telecommunications sector



As Figure 2 shows, the GPRS extension (2,5G) may create for a customer a need for optimization consulting. Equally, the increased complexity of the 3G systems expanded the demand for the supplier's full maintenance services, because the customers recognized that their own tight resources could not manage both 2G and 3G networks simultaneously.

During the system and relationship development, the customers' needs seem to become more sophisticated. As a result, we suggest that the supplier's service levels should be compared to the customer expectations and not only to the supplier's fixed standards. During the system lifecycle, customers also become more price-sensitive, which increases the demand for optimization services and cost-effective extensions.

Changes in customer's strategy. Major changes in the customer's strategy may increase or decrease the system supplier's role. For the supplier, it is important to identify the reasons for a change in the customer's strategy, for instance rapid business growth, a new financial situation or changes in ownership.

To begin with, a strong business growth sets major challenges to the customer's technical resources. For instance, when the customer decides to penetrate new geographical markets, it might be difficult to build the whole technical infrastructure based only on internal resources. Therefore, this situation seems to give new possibilities to the system supplier which can offer a full maintenance package and thus increase the

role for the customer. In a strong growth phase, a few customers made a corporate-level decision to focus on marketing and logistics by reducing the resources in technical activities, which resulted in either partial or full outsourcing of many strategic activities to the supplier.

In a tight overall economic situation, on the contrary, customers may want to manage most of the activities themselves to keep their own professionals employed. Obviously, the management wants to avoid discharges and prefers to reduce the use of external resources. This alternative, however, is available only to those customers who have maintained adequate system capabilities and not become fully dependent on their supplier.

In the telecommunications sector, a customer's business strategy changed from 'follower' to 'aggressive' through the full implementation of a new ownership arrangement. The owners nominated a new CEO, whose aim was to become a market leader on the domestic market. The new management launched a strong 'customer-driven' business strategy, which required new sales resources. At the same time, the customer was ready for a partial outsourcing of maintenance operations to the system supplier.

Changes in the supplier's performance. The supplier's role for the customer may narrow due to its own activities. It seems that suppliers easily become complacent and lack initiative towards their customers. The supplier may assume that they could get the old customer's forthcoming system extensions and consumable purchases without any major effort. With a reactive approach and pure operational focus, the supplier may lose contact with the customer's top management, which may cause difficulties for future discussions on extensions or next generation systems. These factors were at least partial reasons why two customers in the telecommunication sector decided to use other system suppliers in GPRS extensions. Another customer described the situation in the following way:

'We had a feeling that our supplier was too comfortable with the situation. They thought that they could deliver whatever performance they want and still get business from us. So, the decision to buy a major system extension from another system supplier was a signal for the supplier to behave differently.'

A few supplier representatives had an interesting view that a good customer would not extensively use their '*expensive management time*'. However, the customer's silence is not always a signal of a successful relationship. The silence could also mean that the customer has lost his confidence in the supplier and put his full effort on finding solutions and support from other suppliers.

Management of supplier's role

Instead of just adapting to the described "natural" dynamics, the supplier can also try to manage his roles for the customer. The case companies, however, had only partially identified these opportunities. The results show that the supplier has three mechanisms for influencing and managing the role: Proactive approach, integrated processes, and development paths. The best outcome was achieved, if these mechanisms were utilized simultaneously.

First, the proactive approach starts from understanding the customer's strategy and readiness to modify the value proposition in accordance with the changes in the customer's strategy. Using the taxonomy of relationship phases of Ford et al (1998), the supplier and customer should frequently return from a stable phase to an exploratory and developing phase, which may give new growth opportunities for the system supplier. If possible, proactive actions should be based on a vision co-created with the customer. Recently, new remote Internet-based connections have enabled the supplier to perform 'light optimization' and other proactive actions without prohibitive costs, which through the accumulated data have also brought fresh ideas for the development of the customer's existing system base. As an example of the power of openness, a tinting system supplier's regular top management discussions with a paint producer enabled the supplier to keep the solution provider role for the customer for almost thirty years, even though the customer had simultaneously developed competent resources of his own.

Second, the system supplier should be able to integrate the multi-level processes constituting the customer relationship. In general, customers argued that the suppliers' support works well at local but not

at global level. Moreover, the customers were not satisfied with a supplier's highly centralized decision-making, in which the global product divisions had the final word *'this is what you get'*. For this reason, the suppliers' local teams felt like *'mail boxes'* without sufficient authorities. One case company was approaching the 'global-local' problem from three directions. First, the product divisions could give training for the local teams and allow them an extended access to technical databases and tools; this enabled local teams to find answers directly to a major part of the customers' problems. Second, the supplier was building a database from the accumulated knowledge of customer requests, which provides useful information for the local teams and customers. Third, the supplier was developing an information system that enables the customer to follow online how the problem solving case proceeds in the supplier's organization. These development initiatives were highly needed, because a case customer described the problematic current situation in the following way:

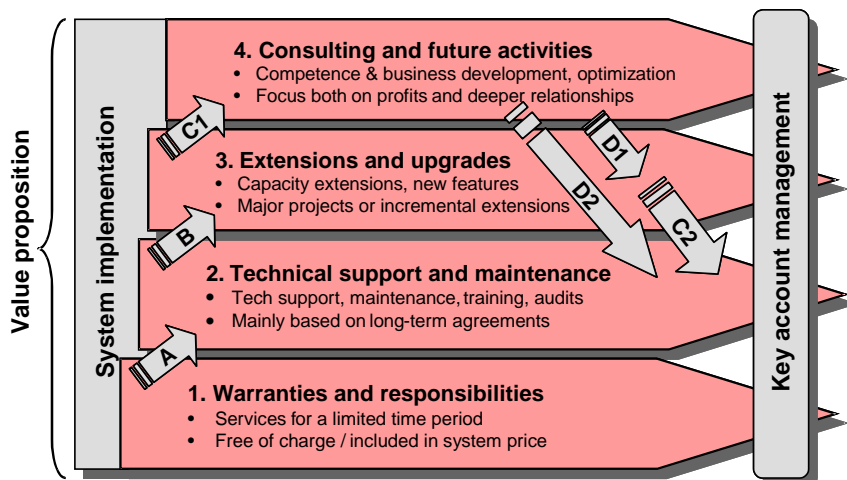
'There is none who would really know our needs, which makes us frustrated. The supplier should pay more attention to the problem solving, for instance in software, and give quicker responses. We can naturally discuss with the supplier's different experts but because nobody coordinates the case inside the company we never receive the final answer to the complex problems.'

Third, the system supplier can expand his value proposition and role for the customer by effectively influencing its major activities for the customer. Based on the case material, we suggest that the supplier's activities can be grouped into four categories according to their nature and goals.

1. *Warranties* ensure a fluent system start-up by giving 'free services' when the customer has the tightest cash flow.
2. *Support and maintenance activities* ensure the usability of the customer's system under all circumstances.
3. Through *extensions* the system capacity and features are developed in accordance with the customer's needs and size.
4. *Consulting activities* optimize the system in line with the customer's strategy and improve the competitiveness of the customer's core industrial processes.

The way the supplier manages these activity groups constructs specific development paths in the supplier-customer relationship. The main development paths between these activity groups have been described in Figure 3. According to the empirical results, the main obstacle to the utilization of these development paths has been that each activity group is managed by a separate organization: maintenance by service organization, extensions by project organization and optimization by consultants. These specialized divisions may produce work efficiently, but it also sets high requirements for coordination at corporate level. In sum, we propose that the implementation of support activities could follow the "role extending" framework described in Figure 3.

Figure 3: The system supplier's development paths (A-D) between the activity groups



We label the first development path *from responsibilities to basic services (Arrow A)*. An interesting linkage of warranties to basic services is a business concept called extended warranties, which a few pilot study suppliers were utilizing. It consists of insurance-like services, including either additional service during the warranty time or the extension of the same service after the warranty.

The next development path is *from basic services to extensions (B)*. Excellence in basic support and maintenance services was considered a step to other activities. Moreover, also basic activities could be developed further. For instance, a few suppliers had developed legally required technical audits towards system development 'roadmaps'. As a result, the final report might consist of an extended description of future improvement needs, which could include upgrades and training. On the other hand, any major disappointment in the maintenance, for instance in spare-part management, might hinder the supplier from extending the relationship. For example, a supplier's shift from local warehousing to centralized logistics was not as successful as promised and the customer had major problems with spare part deliveries. This failure took the whole attention of the relationship for half a year and did not allow the supplier to proceed in the crucial negotiations of new system extensions.

Next, there is a development path *from extensions to consulting (C)*. Increased complexity in the system through new features of extensions may create potential for consulting services (C1). On the other hand, an increased installed system base may further create demand for new maintenance agreements (C2). To ensure the utilisation of the C2-opportunities, the supplier should develop contractual mechanisms including, for instance, suggestive prices for extension-related services. However, extensions are often projects which use personnel different from those in charge of continuous maintenance services. As a result, system extensions were managed separately from other support activities, which often caused a reactive, instead of proactive, approach to these opportunities. These findings emphasize the role of the key account manager in ensuring that these coordination mechanisms are utilized. Moreover, the system supplier should create easier steps to the utilization of advanced services. For instance, different kinds of trials could make the customer familiar with the supplier's full expertise and services. As the first step, the system supplier could give the first small-scale consulting project or workshop to the customer at a lowered price or even free of charge.

Finally, there is a development path *from consulting to extensions and basic services (D)*. The output of the supplier's consulting projects may include suggestions for additional features and capacity (D1) or for new types of maintenance arrangements (D2). The results indicated that the system supplier's main challenge as a consultant is credibility in terms of professionalism and neutrality. Aggressive add-on selling might lead to lost neutrality, and customers might prefer to perform system optimization themselves or to use independent consultants.

Discussion and conclusions

The Paper offers several contributions. Most importantly, it provides not only a conceptual framework of the system supplier's roles but also a profound description of these roles, including requirements for each role, drivers for relationship dynamics, and mechanisms for role management. First, we discuss the theoretical contribution by following the research questions. Second, we draw key managerial conclusions. We conclude with suggestions for future research.

Theoretical contribution

The first research question concerned the system supplier's roles for the customer. The empirical results showed that the system supplier has three potential roles: Equipment/material supplier, Solution provider and Performance provider. Each role includes typical support activities, contractual mechanisms and approaches to customers. For instance, a solution provider can be compared to a value innovator who looks at the total solution from the customer's perspective, even if that takes the company beyond its traditional offering (see Kim & Mauborgne 1997). On the other hand, a performance provider's contracts with the customer typically include risk-sharing features, which support the findings of Gadde et al (2002).

The supplier's potential role seems to have a direct link to the customer's resource strategy. This result is consistent with the findings of Ford et al (1998) who argued that the customer's interest in the supplier's support depends on the extent of the customer's own resources. The customer's decision to allow a role of performance provider for the supplier results in outsourcing of many even strategic activities. In general, this gives new advanced insights into the outsourcing discussion. The study also pointed out that the supplier's role may differ from one customer to another and change during the individual customer relationships.

Secondly, we examined what factors may change the system supplier's role for the customer. The results indicated that there are three main reasons for the role change: Knowledge gap dynamics between the supplier and customer, change in the customer's strategy, and change in the supplier's performance. The results validate the knowledge gap theory of Ford et al (2002) by providing descriptions of role dynamics in real empirical contexts. The findings also support Flint et al (1997) who argued that business suppliers should be ready to modify the value proposition in accordance with the changes in the customer's strategy. Moreover, it seems that the supplier's weakening performance, in extreme cases even laziness, could be the main reason for his diminishing role.

Thirdly, the Paper identified the mechanisms through which the system suppliers can extend their roles for the customer. The identified mechanisms are proactive approach, integrated processes, and development paths. In all mechanisms, the key account manager has a major coordination responsibility. He/she should ensure that the customer will receive professional and fluent service, even though the supplier's representatives are often from various parts and levels of the organization. These findings complement the governance theory of Heide (1994) and the key account management principles of Abratt and Kelly (2002).

Managerial implications

The developed conceptual models give business managers analytical tools for assessing their roles and management practices in the complex system business. As these models have already been well articulated, we focus here on three specific managerial contributions.

First, system suppliers have often been very technology-orientated and have not always profoundly understood what their actual role for the customer is. The role descriptions from equipment/material supplier to performance provider show how a specific approach may cause major differences in the supplier's role. The study also gave many examples of how the supplier could easily lose a strong position, if he was not able to keep the performance at a satisfactory level.

Second, the results highlight the importance of the key account manager's capabilities. The system business is a very demanding context and requires at least three types of capabilities: Strong leadership capabilities, consultative selling skills, and an adequate understanding of the customer's industrial processes. In addition, he/she should ensure that the capability mix of the whole account team is sufficient and also continuously updated.

Third, the system supplier should be sensitive to changes in the customers' strategy and more effectively communicate to the customer's management whenever new relevant solutions are developed. It would be very valuable, if the supplier's top management could regularly, for instance once a year, participate in the customer visits and describe the new initiatives directly to the customer's key executives.

Areas for future research

The study has a few limitations which create interesting areas for further studies. First, although the study was based on multiple cases, more evidence covering different system businesses is required to assess the generalization potential of the developed theory. Especially, more research attention should be paid to longitudinal analyses in which the customers have perceived the role of a performance provider for many years. It might be possible that a long-term role of the performance provider would be more typical in more matured technology industries than what network infrastructure and tinting systems represent.

Second, the main empirical study was made in cooperation with the system suppliers' large and medium-sized customers. It seems that the system suppliers increasingly manage the interaction with small customers through value-added resellers (VARs). These resellers differ from traditional sales agents and distributors, because they can support the customers throughout their lifetime. Therefore, further studies could explore how systems suppliers with different roles could develop and manage successful VAR-networks.

Finally, further research is required on the commercialization of support activities based on the development of advanced pricing and contractual mechanisms. Future studies could explore in more detail, how excellence in 'package pricing' may affect the system supplier's ability to achieve the roles of solution and performance providers.

References

- Abratt, Russell & Kelly, Philip Michael (2002): Customer-supplier partnerships. Perceptions of a successful key account management program, *Industrial Marketing Management*, Vol 31, 467-476
- Anderson, Helen, Havila, Virpi, Andersen, Poul & Halinen, Aino (1998): Positioning and Role - Conceptualizing in business networks, *Scandinavian Journal of Management*, Vol 14, No 3, 167-186
- Anderson, James C. & Narus, James A. (1990): A Model of Distributor Firm and Manufacturer Firm Working Partnerships, *Journal of Marketing*, Vol 54, No 1, 42-58
- Anderson, James C. & Narus, James A. (1991): Partnering as a Focused Market Strategy", *California Management Review*, Spring 1991, 95-113
- Axelsson, Björn & Wynstra, Finn (2002): *Buying Business Services*, John Wiley & Sons Ltd, UK
- Backhaus, Klaus (2003): *Industriegütermarketing*, 7. erweiterte and überarbeitete Auflage, Verlag Franz Vahlen GmbH, München
- Bensaou, M. (1999): Portfolios of Buyer-Supplier Relationships, *Sloan Management Review*, Summer 1999, 35-44
- Bonaccorsi, Andrea, Pammolli, Fabio & Tani, Simone (1996): The Changing Boundaries of System Companies, *International Business Review*, Vol 5, No 6, 539-560
- Buse, Christian, Freiling, Jörg & Weissenfels, Sven (2001): *Turning Product into Service Business: Performance Contracting as a Challenge of SME Customer/Supplier Networks*", A competitive paper presented at the IMP 2001 Conference (Oslo), Norway
- Capon, Noel & Glazer, Rashi (1987): Marketing and Technology: A Strategic Coalignment", *Journal of Marketing*, Vol 51, July 1987, 1-14
- Cornet, Edward, Katz, Raul, Molloy, Richard, Schädler, Deven & Tipping, Andrew (2000): *Customer Solutions: From Pilots to Profits*, Research paper, Booz-Allen & Hamilton Inc, 2002
- Cova, Bernand, Ghauri, Pervez & Salle, Robert (2002): *Project Marketing. Beyond Competitive Bidding*, John Wiley & Sons Ltd, UK
- Eisenhardt, Kathleen M. (1989): Building Theories from Case Study Research, *Academy of Management Review*, Vol 1, No 4, 532-550
- Flint, Daniel J., Woodruff, Robert B. & Gardial, Sarah Fisher (1997): Customer Value Change in Industrial Marketing Relationships, *Industrial Marketing Management*, Vol 26, 163-175

Ford, David, Gadde, Lars-Erik, Håkansson, Håkan, Lundgren, Anders, Snehota, Ivan, Turnbull, Peter W. & Wilson, David (1998), *Managing Business Relationships*, John Wiley & Sons, England

Ford, David, Berthon, Pierre, Brown, Stephen, Gadde, Lars-Erik, Håkansson, Håkan, Naudé, Peter, Ritter, Thomas & Snehota, Ivan (2002): *The Business Marketing Course. Managing in Complex Networks*, John Wiley & Sons, Ltd. Chichester

Gadde, Lars-Erik, Håkansson, Håkan & Harrison, Debbie (2002): Pricing in Business-to-Business Research: Price as an Empirical Phenomenon, in Spencer, R., Pons J-F. and Gasiglia, H. (eds.), *Networks, Relationships and Interaction: Recent Developments and Emerging Issues*. Proceedings (CD) of the 18th IMP Conference, September 5th-7th in Dijon, France

Halinen, Aino & Törnroos, Jan-Åke (1995): The Meaning of Time in the Study of Industrial Buyer-Seller Relationships, in Möller, Kristian & Wilson, David (1995, eds): *Business Marketing: An Interaction and Network Perspective*, Kluwer Academic Publishers, Boston

Heide, Jan B. (1994): Interorganizational Governance in Marketing Channels, *Journal of Marketing*, Vol 58 (January 1994), 71-85

Helander, Anton (2004): *Customer Care in System Business*, Published doctoral dissertation, Helsinki School of Economics, A-233

Johanson, Jan & Mattsson, Lars-Gunnar (1992): Network positions and strategic actions – analytical framework, in Axelsson & Easton (1992, eds), *Industrial Networks. A View of Reality*, Routledge

John, George, Weiss, Allen M. & Dutta, Shantanu (1999): Marketing in Technology-Intensive Markets: Toward a Conceptual Framework”, *Journal of Marketing*, Special Issue 1999, 78-91

Kim, W. Chan & Mauborgne, Renée (1997): Value Innovation: The Strategic Logic of High Growth, *Harvard Business Review*, January-February, 103-112

Mattsson, Lars-Gunnar (1983): Design of Supply Systems for Technology Transfers – An Analysis from the Equipment Supplier’s Point of View”, in Goldberg, Walter H. (1983): *Mergers: Motives, Modes, Methods*, Gower Publishing Company Ltd, Hampshire, England

Möller, Kristian K E & Törrönen, Pekka (2003): Business supplier’s value creation potential – A capability-based analysis, *Industrial Marketing Management*, Vol 32, No 2, 109-118

Quinn, James Brian & Hilmer, Frederick G. (1994): Strategic Outsourcing, *Sloan Management Review*, Summer 1994, 43-55

Rangan, V. Kasturi & Bowman, George T. (1992): Beating the Commodity Magnet, *Industrial Marketing Management*, Vol 21, 215-224

Stremersch, Stefan, Wuyts, Stefan & Frambach, Ruud T. (2001): The Purchasing of Full-Service Contracts: An Explanatory Study within the Industrial Maintenance Market, *Industrial Marketing Management*, Vol 30, 1-12

Vargo, Stephen L. & Lusch, Robert F. (2004): Evolving to a New Dominant Logic for Marketing, *Journal of Marketing*, Vol 68 (January 2004), 1-17

Yin, Robert K (2003): *Case Study Research. Design and Methods*, Third Edition, Applied Social Research Methods Series, Sage Publications, USA