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Christian Kowalkowski, Daniel Kindström and Per-Olof Brehmer

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# Managing industrial service offerings in global business markets

Christian Kowalkowski\*, Daniel Kindström, Per-Olof Brehmer

\*Corresponding author

Christian Kowalkowski  
Department of Management and Engineering  
Linköping University  
581 83 Linköping, Sweden  
Email: christian.kowalkowski@liu.se  
Phone: +46-13-281571  
Fax: +46-13-281101

Daniel Kindström  
Department of Management and Engineering  
Linköping University  
581 83 Linköping, Sweden  
Email: daniel.kindstrom@liu.se  
Phone: +46-13-282496  
Fax: +46-13-281101

Per-Olof Brehmer  
Department of Management and Engineering  
Linköping University  
581 83 Linköping, Sweden  
Email: per-olof.brehmer@liu.se  
Phone: +46-13-281488  
Fax: +46-13-281101

## Short biography of the authors

Christian Kowalkowski is Assistant Professor in Industrial Marketing at Linköping University, Sweden. His research focuses on service logic, service infusion in manufacturing firms, dynamic capabilities, and value co-creation strategies. He is the corresponding author and can be contacted at: christian.kowalkowski@liu.se.

Daniel Kindström is Assistant Professor in Industrial Marketing at Linköping University. His current research focuses on the development of industrial offerings and the value-creation potential of increased service content in traditionally product-focused companies. Other topics of interest are e-business and the impact of ICT on companies' business models.

Per-Olof Brehmer is Associate Professor in Industrial Marketing and Head of the Department of Management and Engineering, Linköping University. His research topics are value-creation strategies, industrial services, the effect of ICT on competitiveness and strategies for innovation and service development in knowledge-intensive industries.

# Managing industrial service offerings in global business markets

## Abstract

**Purpose** – Despite the increased focus on industrial services in manufacturing companies, little research to date has focused on understanding the roles of local and central organizations in global service management. In order to address this research gap, the paper investigates how industrial service offerings are developed and managed in multinational manufacturing companies.

**Design/methodology/approach** – A qualitative case study with respondents from two internationally leading manufacturers was conducted. Eight industrial service offerings with different characteristics serve as units of analysis.

**Findings** – A broad portfolio of industrial service offerings implies having a very wide range of skill sets, including both global efficiency and local responsiveness. With specialized and extensive offerings, it becomes more important to have a high level of central-local and product-service integration and to internalize service provision. Furthermore, with global customers, the central service organization needs to assume a more prominent role, initiating both an organizational exploitation of current service capabilities and the exploration of new ones.

**Research limitations/implications** – The main focus was on service offerings performed by high-volume manufacturing companies operating primarily in developed markets.

**Originality/value** – Previous studies of industrial service management in manufacturing companies have not explicitly considered the roles of central and local organizations. Thus, the authors were able to complement the existing theory. The paper promotes a deeper understanding of the complexity of managing service offerings on a global basis.

**Keywords** Industrial service offerings, Multinational companies, International business, Service systems

**Paper type** Research paper

# 1 Introduction

The increasing importance of industrial service offerings for the competitiveness of manufacturing companies has been highlighted by several authors during the last decade (see, for example, Jacob and Ulaga, 2008; Mathieu, 2001; Nordin, 2008). Although multiple studies of industrial service management do exist, they generally center on individual markets and/or focus on the transition from a product-centric to a service-centric business perspective (e.g. Gebauer and Friedli, 2005; Matthyssens and Vandenbempt, 2008). What is often neglected are organizational issues related to the management of services across borders. To the best of our knowledge, no study has explicitly examined the roles of central and local organizational entities for the global management of manufacturing companies' industrial service offerings. This, we argue, deserves further attention.

The existing research into the internationalization of services, however, concerns either the expansion of consumer services or of professional service firms (e.g. Ekeledo and Sivakumar, 1998; Lovelock and Yip, 1996). Among the few studies that focus explicitly on industrial services, Morschett (2006) analyzes the determinants of the choice of either wholly-owned after-sales service units or service partners in foreign markets, and Barry and Terry (2008) examine the cross-cultural relevance of relationship value. Thus, in the face of a growing share of total revenue generated through services, and the increasing importance of global service offerings for the long-term competitiveness of industrial companies, more research is clearly needed.

Furthermore, existing studies of international business and global companies have generally focused on foreign market entry (e.g. Chan *et al.*, 2006; Johnson and Tellis, 2008) and on overall headquarters-subsidiary relationships (e.g. Harzing, 2000; Leong and Tan, 1993). These studies have a primarily product focus. For example, the agile transnational organization put forward by, among others, Bartlett and Ghoshal (2000), implicitly concerns the global management of products, not of services. However, internationalization is often argued to be more risky and complex for service-oriented than for product-oriented companies (Andersson, 2002; Carman and Langeard, 1980). The inherent characteristics of services imply that local presence and customer-supplier interactions become much more vital than is the case for traditional product offerings (Grönroos, 1998).

In order to address this research gap, we analyze how industrial service offerings are developed and managed in multinational manufacturing companies. In particular, we

investigate the roles of central and local service organizations. The term multinational company (MNC) is used to denote all types of companies with worldwide operations, regardless of their organizational structure (i.e. multidomestic, international, global, and transnational) (cf. Harzing, 2000). The article is structured as follows. First, theories of service management and multinational organizations are discussed. Subsequently, the research method is presented, followed by the results and analysis. The analysis is conducted by examining the role of the central and local service organizations for different types of service offerings. Eight distinct service offerings of strategic importance to MNCs are analyzed and the general findings discussed. These are structured on the basis of four lessons that capture critical aspects of global service management.

## **2 Theoretical background**

In this section, the global management of industrial service offerings is delineated by anchoring it to three theoretical issues that are central to the study.

### **2.1 Key service components**

In order to successfully develop and deploy services, Edvardsson (1997) proposes three distinct service components that need to be managed:

- 1 service concept;
- 2 service process; and
- 3 service system.

The service concept covers both the description of customer needs (value to the user) and how they are to be satisfied (the “service offer”) (Edvardsson, 1997). In this paper, the service concept is synonymous with the construct of service offering. The service offering describes both what is to be done for the customer and how it is to be achieved.

The service offering determines the requirements of the service process, i.e. the chain of local and central activities needed to produce the service. A common differentiation between process categories is that of front-office processes, which are encountered by the customer, and back-office processes which take place internally without direct customer interaction (Larsson and Bowen, 1989). It is useful to investigate the service process with an international dimension, because, as companies build global customer service systems, it is possible to conduct not only back-office, but also many front-office activities more cost efficiently and without a loss of quality beyond local markets (Lovelock and Yip, 1996).

The service system comprises the resources required for the service process, and implicitly the service, to be provided (Edvardsson, 1997). This includes the company's organizational structure and its physical/technical resources, customers, and employees. The organizational structure includes the central and local entities of the service organization as well as product sales and other entities that influence the company's service operations. In addition, other actors in the business network can play central roles in the service system, particularly if complex or extensive services are provided (Matthyssens and Vandembemt, 2008).

## **2.2 Managing the central and local organization**

The MNC can be seen as a network of spatially dispersed and goal-disparate entities that include the central organization (i.e. headquarters) and the different local organizations (i.e. national subsidiaries) (Ghoshal and Bartlett, 1990). Doubtless, the roles of central and local organizational entities and the level of interdependence between organizational entities differ between MNCs (Harzing, 2000). As discussed by Bartlett and Ghoshal (2000) and Leong and Tan (1993), the type of organizational structure is determined mainly by two factors:

- the need for companies to match their capabilities with the strategic requirements of their business. A strong local presence and sensitivity and responsiveness to local differences seems particularly important if all business is local, whereas centralized strategic and operational decision-making is more suitable if global efficiency is vital and the need for local adaptation low.
- the company administrative heritage; i.e. “the existing configuration of assets, distribution of responsibility, historical norms, values, and management style” (Bartlett and Ghoshal, 1988, p. 56). While the external environment shapes corporate activities, the ability to perform those activities is constrained by the administrative heritage.

For companies undertaking a strategic repositioning towards increased service provision, the administrative heritage may be more of a burden than an asset, and prevent necessary organizational change (cf. Shah *et al.*, 2006). New industrial service offerings also require strategies, structures, and processes new to the manufacturing firm (Oliva and Kallenberg, 2003).

Even if many MNCs traditionally have been (and still are) structured as multidomestic companies, Bartlett and Ghoshal (2000) argue that, increasingly, a transnational structure and strategy is required as a response to the need to simultaneously achieve global efficiency and

local responsiveness. A transnational structure can be characterized as an interdependent network, based on a high level of reciprocal dependence among local and central entities. For a previously multidomestic company, this most likely implies increased centralization, so that top management can intervene directly in decision making. It also requires a formalization consisting of structured individual roles and support systems to influence decision making. However, in order to successfully manage a transnational organization, a high level of socialization is also needed (Ghoshal and Nohria, 1989). That is, a capability to establish a corporate culture and shared norms and values among the company's spatially dispersed central and local entities.

### **2.3 Managing exploitation and exploration**

In order to increase competitiveness through new forms of industrial service offerings, the MNC needs to maximize the number of processes through which it can generate new knowledge, enhance its capabilities, and deploy ideas (Bartlett and Ghoshal, 2000). *Exploitation* is associated with utilizing existing capabilities in a cost-efficient manner, whereas *exploration* revolves around discovering new market spaces and creating new offerings that stretch capabilities (Day, 2007). Whereas exploitation benefits from global integration, exploration benefits from local responsiveness (Prahalad and Doz, 1988). The challenge for the organization is to find a structure and associated roles that provide a balance between exploitation and exploration (March, 1991).

A dynamic view of the roles of, and interdependencies between, central and local entities implies that the company needs to balance organizational search and stability (Rivkin and Siggelkow, 2003). Furthermore, it needs to manage the tension between exploration and exploitation on a continuous basis, as a disproportionate dominance by one or the other is dysfunctional (Cohen and Levinthal, 1990; Liu, 2006). Excessive exploitation, for example, has prevented industry incumbents from retaining their market-leading position in the industry (Tushman and O'Really, 1997). Excessive exploration, on the other hand, can lead to less cost-efficient operations.

## **3 Research method**

Industrial services span a wide range of offerings, ranging from basic after-sales services to complex solutions consisting of both services and goods. Thus, the hypothesis was that, depending on the type of service offering, the fundamentals and requirements of local and central systems and processes differ notably. In terms of the centre-local relationship and also

in order to understand the service offerings, we selected the industrial service offering as our unit of analysis.

The empirical data comes from two capital equipment manufacturing companies (henceforth called Alpha and Beta) that are global, number-one companies in their respective industries, and that have a clear focus on services and a strategic aim of increasing the service content of their offerings. Both case companies have European origins, although they are under Japanese and US ownership respectively.

Because we chose industrial offerings as our research objects, we needed a strategy for selecting such offerings for study purposes. The various forms of traditional after-sales services that are offered by most companies can be classified as product-oriented, whereas services that focus on customer production/business performance are commonly referred to as process-oriented (Kowalkowski *et al.*, 2009; Mathieu, 2001; Oliva and Kallenberg, 2003). Another distinct dimension is the bundling strategy; i.e. whether the services are offered unbundled or bundled (Kowalkowski *et al.*, 2009; Nordin *et al.*, 2011; Stremersch *et al.*, 2001). Thus, in order to obtain a comprehensive understanding of the global management of service offerings, we opted for analyzing eight service offerings with distinct characteristics, in accordance with Figure 1.

Insert Figure 1 here

In total, 27 central and local respondents were interviewed, including service managers, managing directors, and business development managers. Due to the central role of customers in service production, interviews were also conducted with 10 key members of the buying centers. Customers were selected mainly on two bases; customer segment & size, and the type of offering they purchase from the case companies.

Information from the companies studied was elaborated, so as to produce rich case descriptions of the service offerings. This enabled the identification, evaluation, and matching of patterns as they emerged from the individual cases. This initial analysis of data corresponds to Yin's (2003) recommendation to first become familiar with each case as a separate entity in order to identify case-specific patterns, before making a cross-case comparison to identify common patterns. The identification of these critical patterns enabled the categorization of four "lessons" to help understand the management of service offerings on a global scale.



## **4 Characterizing industrial service offerings**

The analysis of the eight industrial service offerings is structured according to Edvardsson's (1997) service components and linked to key aspects of the relationship between local and central entities. A characterization of the service offerings is found in Table I.

Insert Table I here

### **4.1 Repair services**

Repair entails restoring capital equipment to sound condition after damage, and the service can be either corrective or preventive. The vast majority of repairs take place on the customer's premises and the remaining repairs are carried out in the supplier's workshops. Efficient information and communication technology (ICT) systems are important in order to minimize the number of manual, administrative tasks that service personnel need to perform.

### **4.2 Operations training**

The technical complexity of many products means that training is often needed before users have sufficient skills to operate the equipment. Furthermore, in many industries, user mismanagement of equipment may cause the customer significant costs.

### **4.3 Retrofit services**

Retrofit is a performance upgrade service entailing the replacement or addition of one or more hardware and/or software components to achieve better overall performance. Rather than focusing on product efficacy, the focus is on performance enhancement and/or on minimizing life-cycle costs (LCC). Retrofit is often a highly profitable service that requires specialized skills, something the local service organizations do not always have. Therefore, for very extensive projects on major installations, expert teams from leading subsidiaries and/or the central organization may be involved.

### **4.4 Process optimization**

Process optimization is seen as offering technical expertise, such as engineering skills and ICT tools, to solve a specific problem related to the customer's industrial production process. Many subsidiaries have created application groups with specialists who work with major customers early in the selling and reselling processes, and who participate in decision making.

#### **4.5 Safety inspection SLA**

Safety inspection SLAs include equipment inspection, functionality testing, and safety function testing. Due to country-specific laws and regulations, it is not possible to fully standardize safety inspection across local markets. Increasingly, however, central management strives to standardize SLA levels, define what each service level should contain, and require subsidiaries to offer these SLAs.

#### **4.6 High-end SLA**

High-end preventive maintenance SLAs are comprehensive service bundles. For a fixed price per time period, the customer receives preventive maintenance a specified number of times per year, corrective maintenance and repair, free spare parts, and an emergency breakdown response. Full service is generally also associated with new skills, such as risk management, financial, and legal skills.

#### **4.7 Short-term rental**

Short-term rental means that customers rent for a fixed price per product, time, and/or usage of equipment for short-term emergency and temporary use. It can be organized in a very varied manner, depending on the type of equipment rented, scale and extent of the rental agreement, and whether or not any additional services are bundled to it. Further, because customer demand differs among markets, the rental offering and its management differs between subsidiaries.

#### **4.8 Long-term rental**

If signing a long-term rental agreement over several years, customers generally lease a total solution including equipment, financing, maintenance, spare parts, and operations training, thereby incurring an agreed cost for these activities. A typical, large customer contract will stipulate regular meetings with customer representatives and the supplier generally has a service technician on site every day. Compared to local agreements, multinational preferred-supplier agreements that include long-term rental plans are complicated to manage and coordinate. For example, due to country-specific tax legislation and labor law, such central agreements usually need to include separately signed contracts for each local market.

#### **4.9 The role of local and central organizations**

Even if most of the service offerings are local, the central organization plays an increasingly important role. This includes initiating major service-development and ICT projects, and pooling resources. Key aspects of global service management are found in Table II.

Insert Table II here

Compared to Beta, Alpha has a market situation with an increasing number of strategic, multinational customers. Over the last 20 years, there has been a rapid growth of centrally-signed agreements, of which many include services. Customers expect commonality between services, regardless of the local market, which makes it problematic to have a structure with autonomous subsidiaries. For example, Alpha has signed a major SLA in connection with a global product agreement with a market-leading retailer. Not only the local, but also the central organization is actively involved and a central key account manager is responsible for the overall contract.

## **5 Findings and analysis**

Based on the overall patterns that emerged during the analysis, we have extracted four lessons relating to the global management of an industrial service portfolio.

### **5.1 Lesson 1: an in-house local service organization is preferable when competing through industrial service offerings**

If manufacturing companies are to compete through services and solutions, an in-house service organization and infrastructure for responding to local service demands is needed (Oliva and Kallenberg, 2003). In order to be on the preferred-supplier list of multinational customers, suppliers increasingly need to have the ability to offer services worldwide. This confirms Morschett's (2006) findings that seeking the advantages of global integration means that MNCs choose to internalize their service operations. However, Alpha and Beta also operate through service partners in some local markets, particularly emerging ones.

For basic services in particular, there are cost and risk-aversion advantages associated with simultaneously having an in-house service organization and working through local service partners. However, if the MNC has strong local third-party service firms, the creation of a local service infrastructure is generally more difficult. The situation is particularly problematic in markets where the service partners both have strong market positions and the dual role of being customers and competitors. Having service partners involves a relational risk, as they might act opportunistically from the supplier's point of view. It can also be difficult to ensure that service partners have the necessary knowledge to perform the service

adequately, especially more advanced services. Overcoming this can be complicated, particularly as the service partner may be unwilling to make the investments needed.

Furthermore, the critical capabilities for sensing and seizing customer co-innovation opportunities are linked mainly to local interactions between service and sales representatives and customers. Subsidiaries must somehow absorb and integrate this relationship knowledge (Low and Johnston, 2010; Huang and Chu, 2010). Since many of Alpha's and Beta's most important service offerings initially take the form of customer incentives, it is vital to interact with customers on an operational level. In sum, the competitive advantage created, and the revenues generated by an in-house local service organization can, therefore, more than offset the lower costs of outsourced services (Goffin, 1999).

## **5.2 Lesson 2: a transnational structure is superior when competing through industrial service offerings**

In conformity with Bartlett and Ghoshal's (2000) call for transnational organizations, we find that a transnational structure is indeed superior to traditional multidomestic or global structures with respect to efficient and effective service provision. However, in the context of this study, two aspects should be emphasized. First, whereas Bartlett and Ghoshal considered organizations primarily concerned with the selling of products, this study analyzes service offerings. Compared to products, services require a higher degree of local responsiveness and customer-supplier interdependence. Since customer relationships are managed locally, centralization can lead to severe internal corporate dissonance (Ghoshal and Nohria, 1989). Second, whereas Bartlett and Ghoshal highlight the importance of linking local management to central decision-making by having managers from the central organization working for the local ones, our findings suggest that the opposite may, in fact, be more effective. That is, by assigning prominent local managers and specialists to centrally initiated projects and positions in the central organization, central-local linkages are cultivated, without being perceived as central top-down initiatives.

Furthermore, in addition to locally leveraged ones, globally linked processes, in which knowledge is pooled to create and manage an activity, ensure that corporate knowledge is also available to other entities worldwide. These are characteristic of transnational organizations, and critical to Alpha's and Beta's service business. For example, leading subsidiaries have successfully developed SLAs and rental applications which have been transferred to other subsidiaries via globally linked processes. Because the transfer of knowledge and services across subsidiaries is often difficult, central-local integration can be enabled by the central

organization assuring the role of a “liaison center”. It is also important to recognize the existing local differentiation between subsidiaries (Bartlett and Ghoshal, 2000) and to allow leading subsidiaries to retain more autonomy, whereas “receiver country” subsidiaries depend more on the central organization’s direction and support.

It is often critical that both central and local representatives be involved in new service development (NSD) projects (Kindström and Kowalkowski, 2009). For example, it was not possible for the subsidiaries of Alpha to develop its mobile business system for service technicians, because the subsidiaries were unable to fund the project and/or did not have the necessary competences. Furthermore, the active involvement of local employees created local acceptance of the project. Overall, increased formalization and integration between the central organization and the traditionally relatively autonomous subsidiaries, have enabled the local service organizations to obtain synergies from increased internal efficiency and better central resource allocation. However, since increased control leads to reduced trust between entities (Das and Teng, 1998), high levels of central control may lead to lower levels of central-local collaboration. Therefore, parallel to more structured processes, the establishment of informal central-local (and local-local) relationships at Alpha and Beta was critical (cf. Ghoshal and Nohria, 1989).

In short, the MNC has to walk a tightrope between centralization and integration on the one hand, and maintaining the entrepreneurial spirit of the local service organizations on the other. If it is possible to manage and coordinate this precarious balance, a transnational structure enables the MNC to benefit from both local and central, and explorative and exploitative initiatives.

### **5.3 Lesson 3: the balance between exploitation and exploration is dependent on the service portfolio**

As service offerings become increasingly important for the competitive advantage of manufacturing companies, such companies need to be able to achieve a high level of both exploitation and exploration (cf. Liu, 2006), not only for their product business, but also for their service offerings. However, a different emphasis needs to be given to exploitation and exploration, depending on the company’s service portfolio. Due to low hourly margins in most markets, less complex services imply that a high capacity utilization of service personnel is vital, which is more about exploitation than exploration. On the other hand, exploration is a more central capability for new, process-oriented solutions (cf. Westerlund and Rajala, 2010).

With extensive service bundles, such as full service SLA and long-term rental agreements, both tend to be vital.

Market sensing is a prerequisite for successful exploration initiatives, and there is also a need to sense actors other than customers (Matthyssens *et al.*, 2006). In our study, this is particularly evident in markets/industries where consultants, contractors or systems integrators exert a major influence during the negotiation of larger contracts. Although market sensing is generally regarded as a capability of identifying exogenous events and trends (Day, 1994), internal (local-central) market sensing also becomes more important for a more integrated and global company. Therefore, central management must have the capability to identify and exploit such local, explorative initiatives (Kindström and Kowalkowski, 2009).

By exploiting new ICT applications (remote diagnostics, automatic software updates, etc.), many services that previously demanded local presence and a high degree of customer interaction, can increasingly be performed by back office, and both back-office and some front-office elements can be performed centrally (Kowalkowski and Brehmer, 2008; Lovelock and Yip, 1996). At the same time, however, process-oriented and/or bundled services require local responsiveness and problem solving. Taken together, this implies continuously finding a balance between exploratory market-sensing activities with their need for open-minded inquiry and the rigid structure to which the local organizations are commonly aligned. When the service portfolio is broad and covers a wide range of services, as is the case with Alpha and Beta, both exploration and exploitation are vital.

#### **5.4 Lesson 4: reciprocity between product and service organizations is needed for extensive service offerings**

For companies that, to an increasing extent, compete through service offerings, the importance of cross-functional collaboration for competitive offerings increases. A dynamic interplay and closer integration between the product and service organization enables companies to benefit from the linkages and strategic relationships between the two areas (Baveja *et al.*, 2004). The present study suggests that cross-functional collaboration is particularly important if the company is to compete with “seamless” offerings (e.g. rental and high-end SLAs) and not only with distinct products and services (cf. Neu and Brown, 2005; Piercy, 2010).

However, effective cooperation between the local service and (product) sales organizations is also seen to be critical for less extensive services. For example, service sales can increase if the local sales organization, which has traditionally sold products only, is also assigned to sell

single services and SLAs. Although this is not easy, such a change is vital and is particularly important if the local service organization lacks the resources to proactively market and sell service offerings. Since dialogue between service and sales employees is essential, a leading Alpha subsidiary has formalized regular breakfast meetings for service technicians, and to which salesmen are invited. Furthermore, since many subsidiaries have dedicated units for rental agreements, it is also critical to manage the local interfaces between rental and the service and sales organizations.

At a central level, feedback loops from service personnel to product development are important, in order to design equipment that is not only easy to assemble in the manufacturing plant, but also easy to replace in the field. Particularly for more extensive service offerings, issues like predictability of maintenance and LCC reductions are essential, and require intra-firm collaboration. Furthermore, as service offerings are increasingly information-based (Kowalkowski *et al.*, 2009), the technology bundled in the equipment must support ICT systems and applications used for service provision (and vice versa). Thus, the local and central interconnectedness between traditional product and service organizations needs to be managed from a strategic perspective.

### **5.5 Managerial implications: applying the lessons**

As noted, the research on service management in multinational manufacturing companies is limited. By analyzing industrial service offerings at two market-leading manufacturing companies, the present study increases our understanding of how MNCs can develop and manage their industrial service portfolio. The findings can be translated into practical implications, in which the four lessons serve as a point of departure. In general, with process-oriented and/or bundled offerings (i.e. the higher up and the further to the right the service is located in the classification scheme of Figure 1), the more important an in-house local service organization, a transnational structure for synergizing from spatially dispersed knowledge and reciprocity between product and service organizations becomes. Furthermore, the weighting between exploitation and exploration changes, as exploration becomes more central for service success. Although such a generalization captures the overall arrangement of global service offerings, a more fine-grained division, together with implications, is provided in Table III.

Insert Table III here

For multidomestic companies with local and highly fragmented service operations, closer integration can be achieved by uniform ICT systems, running parallel to a socialization process, so as to improve intra-firm collaboration and esprit de corps in the service organization. Consequently, central management needs to have the resources to coordinate NSD projects and facilitate informal knowledge transfer. This includes having local expertise working for the central organization. Simultaneously, by utilizing locally leveraged capabilities, prominent subsidiaries can function as knowledge providers to sister entities (cf. Andersson *et al.*, 2007) and take a leading role as local “catalysts” for an improved service orientation.

Transnational manufacturing companies planning to expand their service business have to decide on at least three key issues:

- The development of the service portfolio depends on the overall market strategy; i.e., whether entering into the service business is a way of leveraging product sales or whether the service business is a means of expanding the market offering and of repositioning the company.
- Since the premises for various service offerings differ significantly (closer linkages between product lines and service offerings are required for more extensive services), the companies have to decide which services to develop and how broad the service offering portfolio should be.
- Furthermore, since local market conditions differ and multinational customers dominate some industries, companies must decide on the degree of commonality and standardization across subsidiaries.

MNCs that are dependent on third-party service providers could more clearly differentiate their service partners and, for example, offer benefits to (and make demands of) authorized/strategic partners that unauthorized partners do not receive. This implies that companies should create incentives for their strategic partners so as to work more closely and interconnectedly with them. Furthermore, it involves contractual agreements where profit- and risk-sharing is specified.



## 6 Conclusions

By taking a broad view of the management of industrial service offerings in a multinational manufacturing context, this paper contributes to both service management and organizational theory. Among other things, the study contributes to the debate on whether or not to integrate or separate the service organization from the rest of the company (e.g. Neu and Brown, 2005; Oliva and Kallenberg, 2003). A separate organizational structure may be adequate for basic service offerings, such as repair and operations training. However, in order to gain internal support, to expand service sales, and develop an integrative market strategy, integration and reciprocity between front office and back office, and between central and local entities becomes more important. For such offerings as rental agreements and high-end SLAs, product design and quality exert a major influence on future service operations.

Compared to Bartlett and Ghoshal (2000), and to other studies of the management of MNCs, the present study focuses specifically on service offerings in manufacturing companies. This approach enabled us to gain insights into specific issues which are becoming relevant to a growing number of companies, as they focus on their service business. As illustrated in the paper, having a broad portfolio of industrial service offerings implies having a very wide range of skill sets. Furthermore, it means that MNCs must compete, not only with other manufacturing companies that offer services, but also with local, low-cost, low-tech workshops, as well as with global systems integrators. Thus, various different factors become important, depending both on current service offerings, systems, and processes and on corporate structure, market strategies, and market and industry characteristics.

Overall, however, both formal (standardized service elements and processes, uniform ICT systems, etc.) and informal integrative mechanisms (e.g. socialization) are critical. Usually, the central organization sets some boundaries as to what constitutes acceptable service content, such as mandatory SLA elements, followed by local choice, for exploring within these boundaries (cf. Verbeke and Kenworthy, 2008). Compared to the MNC's product operations, socialization becomes more important, due to the interactive nature of most service provision, compared to manufacturing and distribution. Integration mechanisms, such as the establishment of service forums and joint projects, have facilitated central-local interdependence. This is consistent with research on MNCs, which states that established informal relationships can overcome the negative effect of spatially dispersed entities (e.g. Hansen and Løvås, 2004; Kim *et al.*, 2003).

## 6.1 Limitations and future research

Even if the research design of this study has enabled a better understanding of the complex management of industrial service offerings in the context of MNCs, our findings have some clear limitations. Since the study is context-bound, its analytical generalizations hold only in the context of high-volume capital equipment manufacturers in B2B settings. Furthermore, the empirical data comes from the Americas, Australasia, and Europe.

A number of avenues for further research emerge from the current study. In the light of current findings, an in-depth study of the interrelationship between supplier and service partner would yield valuable insights into external coordination aspects of service management. Also, a broader analysis of companies with different MNC characteristics (e.g. multinational, global, and transnational), could increase the understanding of what differentiates the typologies in terms of service management practices. Finally, the transferability of our findings can be tested by contrasting this study with one on multinational systems integrators (that is, companies with no in-house manufacturing) and low-volume solutions providers.

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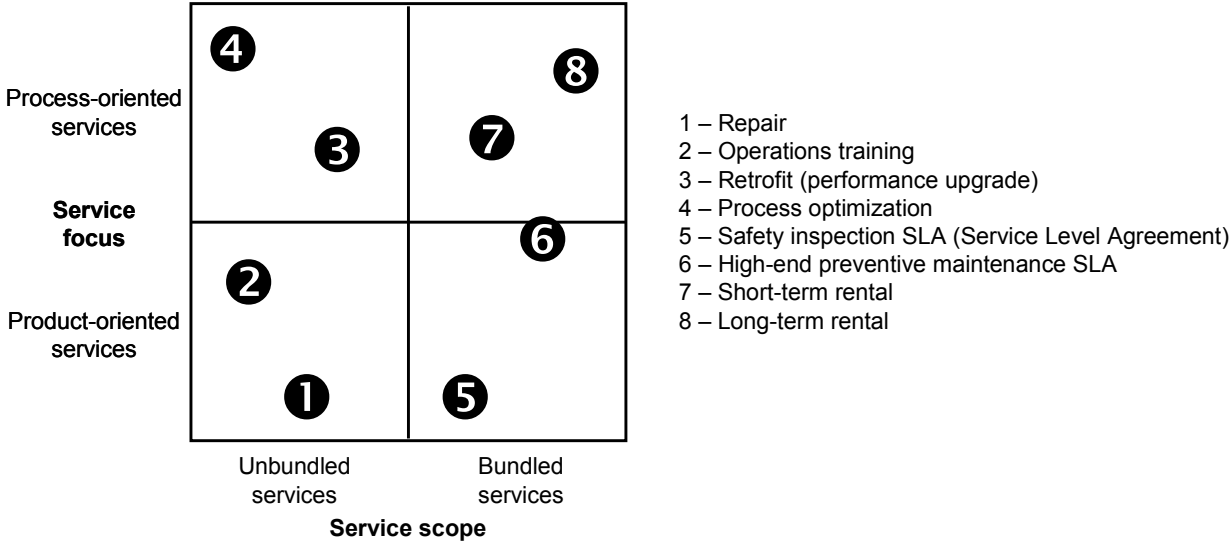
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**Figure 1** A classification scheme of industrial service offerings



**Table I** Key characteristics of global industrial service offerings

Service offering	Service process	Service system
<i>Repair</i> : manufacturer performs repair and maintain own products. Customers benefit from professional repair and maintenance, and specified high quality and performance	Mainly local front and back office (however, centrally developed back-office systems enable more efficient operations). Initiated by the customer	Local service network with service technicians and/or authorized/unauthorized 3 <sup>rd</sup> party providers, (centrally developed) ICT systems
<i>Operations training</i> : manufacturer performs training related to own products. Customers benefit from professional training by experts, certifications, and well-established quality-controlled operating processes	Local and central delivery (with e.g. ICT systems) with centrally developed back-office systems and concepts. Primarily in connection with equipment sales	Local service employees and authorized 3 <sup>rd</sup> party providers. Local and central training facilities as well as training conducted at customer premises
<i>Retrofit</i> : extensive repair and reconditioning. Customers benefit from increased performance and operational life with an, often, shorter delivery time (at a lower cost than new equipment)	Central delivery of equipment; experts provide local support. Front-office processes in focus. Initiated primarily on customer request	Local service employees and central experts. Work performed mainly at customer premises
<i>Process optimization</i> : manufacturer often has specialist knowledge on operations of own products (and the customer processes in which they operate). Customers benefit from increased performance and process improvements	Central back- and front-office processes. Local and central front-office sales process (e.g. pre-sales) is driving (sometimes initiated by customer request)	Local (or central) team of specialists performing work at customer-owned equipment on site. Central ICT-based support systems
<i>Safety inspection SLA</i> : simple form of SLA focusing on equipment inspection, functionality test, and safety function test. Customer benefits from guarantees, simplicity and peace-of-mind. A platform for more extensive SLAs and closer customer relationships	Local front-office processes with central and local back-office support. Relatively uniform local processes. Regular (e.g. annual), proactive service-delivery processes	Centrally defined SLA frameworks and price lists with standardized items, but with local adaptations. Local service network and global spare part network
<i>High-end SLA</i> : extensive SLAs including repair, maintenance, and overhaul (MRO) as well as spare parts. Customer benefits include fixed price, simplicity, peace-of-mind (risk minimization), and minimal downtime	Coordination of local front-office and back-office processes, and central-local back-office integration. Relatively uniform local processes. Regular, proactive service delivery processes	Local or centrally-signed multinational agreements. Local service network (e.g. on-site technicians), global spare-part network, (centrally developed) ICT systems. Central, new competences. May require local (and central) key account organization
<i>Short-term rental</i> : manufacturers offer rental (from one day to three months) instead of outright purchase. Customers benefit from simplicity and flexibility during peaks	Coordination between local (in-house or external) front-office and back-office processes, and central-local back-office integration. Relatively uniform local processes.	Local agreements, local service network incl. rental organization (and 3 <sup>rd</sup> party providers) and global spare part network. Central, new competences. 24-hour service is critical
<i>Long-term rental</i> : manufacturers offer rental instead of outright purchase. Customers benefit from simplicity, piece-of-mind, knowing costs in advance, and the reduction of fixed capital..	Coordination of local front-office and back-office processes, and central-local back-office integration. Relatively uniform local processes. Regular, proactive service-delivery processes. Includes replacing equipment beyond economic lifetime of original equipment	Local or centrally-signed multinational agreements. Local service network incl. on-site technicians and rental organization, global spare-part network, (centrally developed) ICT systems. Central, new competences. May require local (and central) key account organization



**Table II** Key aspects of global service management

<b>Service offering</b>	<b>Role of local organizations</b>	<b>Role of central organization</b>
<i>Repair</i>	Customer interaction and service performer (unless outsourced)	Concept developer, ICT applications, and provision of product information
<i>Operations training</i>	Customer interaction and service performer (unless outsourced)	Concept developer and provision of product information
<i>Retrofit</i>	Lead generator* and service performer	Specialist developer, resource pool (and service performer)
<i>Process optimization</i>	Lead generator* and service performer (local application specialists)	Specialist developer, resource pool (and service performer), defining recommendations for price range
<i>Safety inspection SLA</i>	Customer interaction and service performer	Concept developer, driving standardization (routines and processes, guidelines and terms of condition, ICT)
<i>High-end SLA</i>	Customer interaction, lead generator* and service performer, developed locally	Concept developer, driving standardization, general frameworks, supporting weaker subsidiaries
<i>Short-term rental</i>	Customer interaction, lead generator* and service performer	Concept developer, driving standardization, general frameworks, supporting weaker subsidiaries
<i>Long-term rental</i>	Customer interaction, lead generator* and service performer	Concept developer, driving standardization, general frameworks, financial risk/ownership, supporting weaker subsidiaries
*Depending on the subsidiary; the role of lead generator does not apply to "receiver-country" subsidiaries. However, even in these local organizations, exploration takes place (although to a notably lesser extent)		

**Table III** Practical implications of the study

	<b>Lesson 1:</b> an in-house local service organization is preferable when competing through industrial service offerings	<b>Lesson 2:</b> a transnational structure is superior when competing through industrial service offerings	<b>Lesson 3:</b> the balance between exploitation and exploration is dependent on the service portfolio	<b>Lesson 4:</b> reciprocity between product and service organizations is needed for extensive service offerings
<i>Repair</i>	In-house or externalized. 3 <sup>rd</sup> party providers are more flexible and less costly. However, in-house organization facilitates ICT integration and socialization	Standardize and centralize back-office operations and support systems. Center-for-global and local-for-local innovation: less need for transnational structure	Maintain an efficient, yet flexible local service network	Design equipment that is easy to assemble in the field. Provide updated manuals also after the product is phased out
<i>Operations training</i>	Less integrated in day-to-day operations compared to e.g. MRO □ can be conducted by service partners	Center-for-global and local-for-local innovation. Central guidelines or requirements	Highly localized exploitation	Formalize feedback flows from users to product development. Ensure that trainers have updated knowledge of the equipment
<i>Retrofit</i>	In-house organization advantageous (although costly)	Center-for-global and globally linked innovation vital	Mainly exploitation, although the more complex the equipment, the more important exploration becomes	Responsiveness to market needs when upgrading equipment (systems and sub-systems) and software
<i>Process optimization</i>	In-house organization advantageous (although costly). Collaboration with partners may be needed for non-core services	Central resource allocation and expertise. Locally leveraged and globally linked innovation critical	Centrally (or locally) developed tools and applications. Knowledge exploration critical	Develop products and potential services in parallel; i.e., consider built-in-technology and software that can enable new information-based services
<i>Safety inspection SLA</i>	High service volumes, service predictability, ICT integration, and customer relationships makes in-house organization advantageous	Central guidelines and local adaptation	Maintain an efficient, yet flexible local service network	Design equipment that is easy to assemble in the field
<i>Full service SLA</i>	High service volumes, service predictability, ICT integration, and customer relationships makes in-house organization advantageous	Locally leveraged and globally linked innovation critical.	Exploitation critical for daily operations. However, proactive behavior and exploration is necessary for successful arrangement	Manufacture high-quality products that minimize MRO activities and spare parts usage. Integrate sales and service organizations' CRM systems
<i>Short-term rental</i>	Can also be conducted by service partners (particularly if the equipment is relatively generic). However, high volumes make in-house organization advantageous	Manage risk of ownership. Locally leveraged and globally linked innovation critical	Exploitation critical for daily operations but exploration is also necessary	Manufacture high-quality products
<i>Long-term rental</i>	High service volumes, service predictability, ICT integration, and customer relationships makes in-house organization advantageous	Manage risk of ownership. Globally linked and locally leveraged innovation critical	Exploitation critical for daily operations but exploration is also necessary	Manufacture high-quality products. Integrate CRM systems