

Working Title

Ambidexterity in the Transition to Greater Service Offerings – An Empirical Study

Abstract

Driven by diverse motives, many industrial companies have added greater service offerings to complement their products over the past two decades. While their transition to offering more supporting services generally seems to be a very promising avenue and some companies have been quite successful with this strategy, the overall picture is inconclusive. Despite their obvious connection to the products that they support, services may represent a dramatically set of activities for industrial companies to master. Offering services effectively may require significant process changes within many areas of a diversified firm's activities.

The few extant studies of firms' transformations to offer more services are, to date insufficient regarding theoretical explanation, identification of the specific impact and elucidation of necessary conditions for becoming an effective service provider. Building on the Resource-based View (RBV) explanation of firms' service capabilities, this article contributes to the literature insights concerning the role of ambidexterity in evolving successfully to offer more supporting services. Applying the dynamic capabilities perspective to the phenomenon of the corporate transition to offer services overcomes some of the existing limitations and shortcomings in theoretical and empirical research concerning this topic.

Results in two case studies and a quantitative study of 25 international companies making the transition to greater service offerings identify Operations Capability and Service Capability as two key determinants of success. While the general euphoria concerning diversification into services may be dampened by the findings, results reveal clear patterns of success. Results suggest that companies that effectively manage the ambidexterity of exploiting and exploring their Service and Operations Capabilities are most likely to benefit from the evolution to greater service offerings.

Keywords: Ambidexterity, Service Transition, Service Capability, Operations Capability, Corporate Performance.

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1. Introduction: The Move Towards Services

Driven by diverse motives, many industrial companies have added greater service offerings to complement their products over the past two decades. A United Nations report noted that diversification into more service offerings represents an increasing proportion of total value added at the macroeconomic level (2004) and reliance upon revenues from services has become more important within the industrial sector since the late 1990s.

The list of reasons why firms diversify into related services is long and includes arguments like lower cyclical demand fluctuation for the service business, an enhanced brand differentiation, potential operating synergies between tangible products and supporting services, smaller incremental capital commitment, increased stickiness of installed base for new products sold, and pushback against price erosion in high-margin segments, as well as an improved customer relationship and better resource utilization. Many diversifications into services have been successful, but there have sometimes been problems, such as the loss of strategic focus and organizational conflicts (Sawhney et al. 2004; Fang et al. 2008).

Changes over the past two decades in the global division of labor and within industry structures may explain the macroeconomic shift to greater service content. The business-level shift towards more services may be explained by attempts by many leading industrial companies to improve customer loyalty, competitiveness, and performance by adding services to provide turnkey solutions (Lusch et al. 2007; Sawhney 2006; Wise & Baumgartner 1999). For example, IBM, Rolls Royce, and General Electric have made successful transformations from being primarily product manufacturers to becoming service providers. Their successes help to explain the popularity of the service transition strategy (Sawhney et al. 2004). After companies like IBM and General Electric executed major changes to offering more services, others like Northrop Grumman or Pratt & Whitney also changed their business models to offer full-service contracts to their customers. Heidelberger Druckmaschinen AG and Caterpillar built on their core strengths in mechanical engineering to make massive expansions into service businesses.

Successful transformation to add services requires firms to be capable of doing a wider variety of activities; thus the paradigm shift from a product focus to a service focus that was postulated by Slywotzky & Wise (2003) and Vargo & Lusch (2004) is now apparent in varying scope within several industries. Since services are often a completely different business activity for industrial firms, offering services frequently requires several internal changes affecting companies' decision-making

processes, marketing programs, human resource recruitment and promotion, performance measures and rewards, sales incentives, and ultimately corporate culture (Young 2008). As Cohen, et al (2006) noted:

“This is the golden age of services, and to survive and prosper, we’re told, every company must transform itself into a services business. Executives swear by that services-centric view of the world, but privately, they admit to one niggling concern: Most companies either don’t know how or don’t care to provide services effectively.” (page 29)

Strategy scholars want to understand the diversification-into-services phenomenon. The early studies (Fang et al. 2008; Gebauer & Putz 2007; Skaggs & Droege 2004) fall short of the type of theory development and empirical analysis needed to evaluate the transition to service-intensive strategies with granularity sufficient for hypothesis testing.

2.1 Literature Review: The Path to Dynamic Capabilities

Our study examines issues of resource exploration and exploitation within firms that have embraced greater service offerings. Against the theoretical backdrop of the Resource-based View, we consider ambidexterity as a dynamic capability which, in the sense of March (1991), includes the balancing of different learning processes and whose mastery constitutes a fundamental challenge and a critical success factor. This framework permits consideration of which resources and competencies can be directly exploited within the service business and which ones must be developed (exploration) to shift emphasis effectively. Manufacturing firms are typically unbalanced before they add services to their business portfolio. They are strong in engineering, provision of spare parts or maintenance and repair activities, but have not yet bundled these activities to create integrated service offerings. Frequently they must develop strength in marketing, sales and distribution activities to support their diversification into services (Cohen, et al, 2006).

The acquisition of new capabilities has been viewed as part of the competence of integrating new businesses during the diversification process (Matsusaka 2001; Oliva & Kallenberg 2003). Drawing on the literature of organization, innovation, and changing environments, Hildenbrand et al. (2006) conclude that the addition of service offerings requires redesign and realignment of organizational structures and processes to develop the necessary, new capabilities (Pavlou & El Sawy 2010; Teece 2007; Zahra & George 2002). Bjurklo et al. (2009) considers the role of skills of employees developing capabilities and Seegy (2009) evaluates the service competence of manufacturing firms. Fang et al. (2008) and Skaggs & Droege (2004) the effect of adding services on firms’ performance using samples more robust than those of Gebauer & Putz (2007).

Past studies acknowledge that making services a more substantial portion of the firm's diversified activities constitutes a major management challenge. Understanding the transformation of industrial firms into integrated solution providers requires the dynamic perspective of the resource-based view (RBV) that abandons the assumption of homogeneous input factors and emphasizes their company-specific nature. Idiosyncrasy and the uniqueness of the combination of productive resources lead to differences between firms regarding efficiency and profitability and are the key source for a sustainable competitive advantage (Chatterjee & Wernerfelt 1991). According to the RBV companies pursue diversification strategies to expand their resources into new markets and businesses, so obtaining a tenable competitive advantage. Resources and competencies are transferred between the traditional business and new the business areas (Fang et al. 2007). Thus the RBV justifies diversification with economies of scale through lower operating costs, leveraging core business efficiency, and shared assets such as plants, distribution channels or brands (Chiesa & Manzini 1997; Hitt et al. 1997). The competence-based view expands the perspective of the RBV and allows for a dynamic point of view by introducing dynamic capabilities and explaining differences between successful companies on the basis of competencies (Eisenhardt & Martin 2000; Loasby 1998).

Compared to the manufacturing of products, which is largely based on standardized and tradable resources, the production of services is primarily based on specific resources and competencies. Industrial services are customized to users' specific needs and require specialized technological resources, highly qualified staff and sophisticated organizational know-how to do so. The repeated use of this specific resource bundle helps to build company-specific competencies and constitutes a dynamically self-reinforcing process. From the RBV perspective these competencies and dynamic capabilities provide the basis for sustainable competitive advantages in the service business.

2.2. Literature Review: The Dynamic Capability to Explore and Exploit

From March's (1991) development of ambidexterity in the organizational learning context to more recent applications in strategic management, technology and innovation management (Uotila et al. 2009), the ambidexterity concept fulfills the need for a combination of dynamic capabilities and organizational adaptation (O'Reilly et al. 2009; He & Wong 2004). Results from this research stream suggest that ambidexterity provides a useful lens for investigating the transition by manufacturing firms to offering more services (Gibson & Birkinshaw 2004; Gilbert 2005; Jansen et al. 2005; Markides & Charitou 2004; O'Reilly & Tushman 2008). Briefly, sustainable competitive advantage and subsequently successful transition to more service offerings are based on the differentiation and expansion of existing and the development of new resources and competencies. Based

on economies of scale from the firm's extant combination of resources and competencies, companies must overcome organizational inertia to generate dynamic capabilities and develop sustainable competitive advantage by both exploiting existing and exploring new competencies (Kessler & Stephan 2010). The ability to exploit existing resources and competencies while exploring new ones is the ambidexterity we seek in diversifying into services (Tushman & O'Reilly, 1996; 2008):

"Exploitation is about efficiency, increasing productivity, control certainty and variance reduction. Exploration is about search, discovery, autonomy, innovation and embracing variation. Ambidexterity is about doing both." (2008: page 189)

3. Theory

A manufacturing firm's extant processes and organizational structure are its *Operations Capability* (Nath et al. 2010). The potential to create enhanced service offerings (based on well-honed knowledge of customers' needs and processes) is the firm's *Service Capability*. If the manufacturing firm hopes to attain competitive advantage from them, the Resource-Based View argues that they should be valuable to customers and difficult to imitate by competitors (Grant 1991; Narsimhan et al. 2006). According to Teece's (2007) taxonomy of 'sensing, seizing, and reconfiguring,' ambidexterity requires a coherent adaptation of competencies, structures, and cultures as well as an understanding and flexible top-management, in order to enable and to promote exploration and exploitation (O'Reilly et al. 2009). The firm's Service Capability comprises its general service-delivery ability and thus includes the service know-how of the employees and the company as a whole, the knowledge of customers' needs and processes, and the other necessary resources needed to create robust service offerings. The dynamic character of the Service Capability is expressed by the constant exploration of new capabilities and the alignment to changing customer demands and market conditions.

The service-focused organization concentrates substantially on the integration of all functional activities because responsibility for enhanced service offerings requires stronger cooperation of the different corporate areas. In order to benefit from identified market opportunities, the manufacturing firm needs an appropriate Operations Capability, i.e., appropriate organizational structures and processes that decisively influence the improvement of the firm's Service Capability. To attain optimal Operations Capability -- apart from establishing respective service departments or companies -- it is necessary to integrate all areas of the company to establish interfaces for an ideal information flow and smooth processes (Govindarajan & Trimble 2005; Oliva & Kalleberg 2003).

The firm's extant Operations Capability must push for development of an appropriate service culture that is reinforced by appropriate performance measures. Since corporate cultures in many

manufacturing companies are basically rigid in terms of change and are based on an engineering self-image, its personnel may not accept the need for integrative performance measures whose costs are beyond their apparent potential benefits. Resistance to changes in wage structures and the redistribution of responsibilities (and corresponding authority) is often unappreciated by management as well as employees. Nevertheless, in the end the needed cultural change and a service-oriented financial system can only be attained by the comprehensive participation and understanding of employees and corresponding management commitment (New & Brown 2005; Shah et al. 2006). The key challenges and determinants of the Operations Capability thus are a restructuring of the organization, the integration of processes, the adaptation of financial ratios, and attainment of corresponding management commitment. Figure 1 summarizes these points in a graphic illustration.

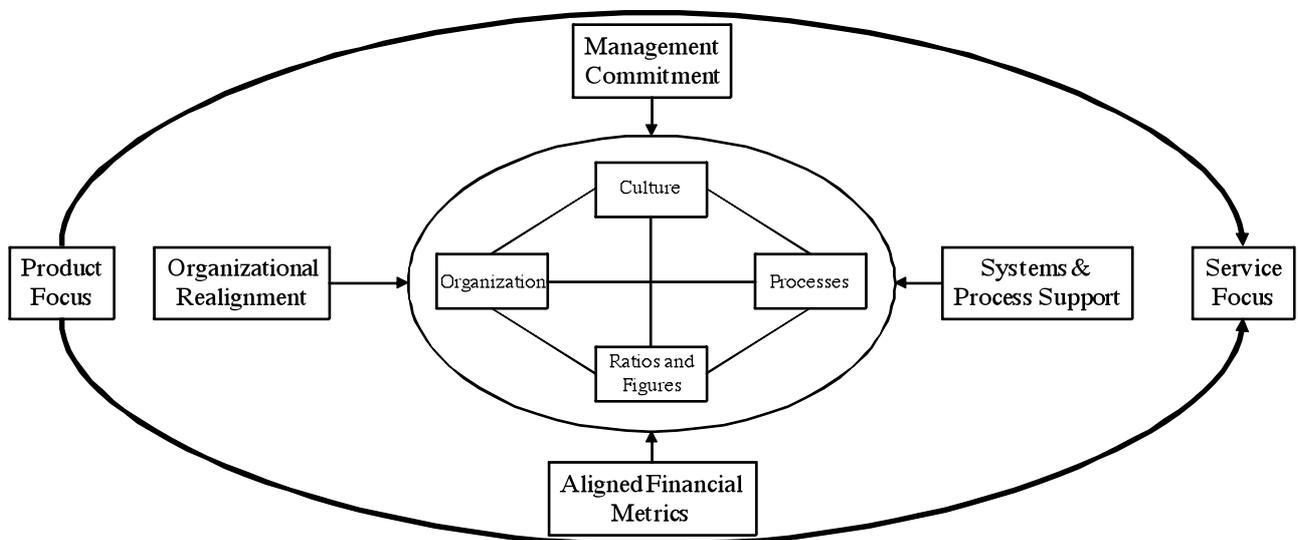


Figure 1: Determinants of Operations Capability. Referring to Shah et al. 2006.

Attaining the appropriate Service Capability and Operations Capability can ultimately be seen as decisive moments of success. Their levels indicate the balance firms must reach between exploration and exploitation to develop the new service offerings (Service Capability) while preserving the essential product business (Operations Capability). Instead of a service optimum, the dynamic capabilities perspective suggests that the balancing process will be iterative. Successful service transition is therefore on the one hand side based on the service delivery ability and the knowledge of customers' needs and processes (Service Capability). While on the other hand side, the company's organizational structure, processes, and performance measurement systems are decisive (Operations Capability). The combination of Service Capability and Operations Capability is illustrated by figure 2 and is hereinafter referred to as Service Transition Capability.

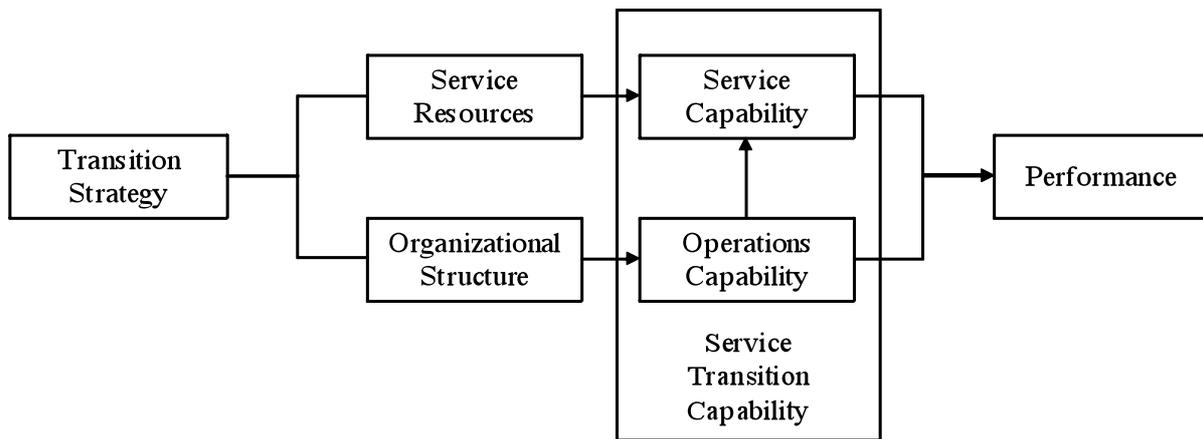


Figure 2: Service Transition Capability as central determinant of success.

Recent studies in all areas of management research show that the necessary balance between exploration and exploitation is rare in most cases of classical diversification. Due to the lack of appropriate structures and given path dependencies, there is either the tendency of excessive exploitation labeled as ‘competency trap’ or the tendency towards exploration due to lack of experience and focus described as ‘failure trap’ (O’Reilly & Tushman, 2008). In making the service transition, many companies fail at the exploitation of extant resources. The exploration of new capabilities or the establishment of an appropriate organizational structure to measure service offering success often never occurs. While the former is difficult to prove, as many companies do not acknowledge this shortcoming to themselves, the latter can be revealed by analyzing the organizational structure and the service disclosure practice in company’s annual reports (Nayyar, 1992).

4 Case Studies on Successful Service Transition

These case studies provide a deeper understanding of the necessary service transition and empirical insight into the phenomenon by shedding light on the dimensions of Service Capability and Operations Capability. First we describe the companies IBM and Bilfinger Berger with their entirely different, yet similarly successful, approaches. Then we provide empirical analysis of 25 international companies from four industries to enrich understanding of the balance firms must achieve in making the transition to greater service offerings.

4.1 Forming a Solution Provider – The Example of IBM

With its transformation from mainframe manufacturer to IT service provider, IBM represents a classical example for the transition from product to services. IBM’s ascent to one of the world’s largest IT-companies is based on its groundbreaking hardware innovations, such as the first personal computer in 1981 or the first laser printer in 1975. Over the years, however, competitors such

as Dell (in the PC sector) gained an edge over IBM. As a consequence, the company was confronted with negative analyst predictions, plummeting share prices and the dismissal of more than 60,000 employees at the beginning of the 1990s (Gerstner 2002). When Lou Gerstner took over as CEO in 1993, services accounted for 33 percent of the total revenue and the software division did not exist at this time. Gerstner initiated the company's transformation and his successor Samuel Palmisano expanded this strategy, which, among other things, attended divestments in the product area and acquisitions of service companies. In response to decreasing demand and severe losses, IBM sold the hard drive business to Hitachi in 2002 and substantiated the objective to increasingly focus on the services business with the acquisition of the consulting division of PricewaterhouseCoopers in the same year. In December 2004, IBM decided to back out of the highly cyclical personal computers business and sold the PC division to the Chinese computer manufacturer Lenovo. According to official statements, with this move the company wanted to encounter the foreseeable end of the PC era and shift its focus towards services even more. With its 2007 acquisition of Cognos, IBM is also in direct competition with SAP and Microsoft in the field of business intelligence (Harreld et al. 2007).

With revenue of over \$103 billion, a net profit of \$12.3 billion, 400,000 employees and a service ratio of more than 59 percent, today IBM is still one of the largest IT companies in the world. Since 1993, the company's market value grew from \$32 billion to \$150 billion in 2007. Currently IBM organizes its activities in the divisions Global Technology Services, Global Business Services, Software, Systems and Technology and Global Financing. Table 1 provides an overview of major service figures.

	1993	1998	2003	2008
Service Ratio	33.8%	38.9%	51.0%	59.3%
Services Revenue	\$21,172M	\$31,793M	\$45,461M	\$61,451M
Services Profitability	35.9%	28.9%	26.2%	31.3%
ROS	0.49%	11.2%	11.9%	16.3%

Table 1: IBM Service Figures 1993-2008.

Compared to other large technology companies such as Xerox and Philips, IBM has successfully managed to transfer its competencies into new business areas and to pointedly develop new resources and competencies in the past 20 years. IBM's successful transformation is largely based on the practical application of Dynamic Capabilities and the Company's ability to cope with ambidexterity. IBM has succeeded to be successful in its traditional business and to shift the bigger part of the value added to new fields (O'Reilly & Tushman 2008). Two insights were crucial in this con-

text. First, to realize that the company's problems did not result from a lack of resources and competencies or a miscalculation of the market, but that IBM was not able to shift its resources and to adapt its organization according to the challenges at that time. Second, that the new solution provider strategy required a significantly higher level of customer orientation, organizational permeability, and the use of existing competencies while establishing new ones at the same time (Gerstner 2002, O'Reilly et al. 2009).

The example of IBM also shows that the increased focus on services can be associated with the increasing spin-off or outsourcing of product resources. However, this resource shift does not show any negative impact so far. Due to IBM's success, several competitors started emulating the transition strategy in the meantime. Hewlett Packard and its 2008 acquisition of EDS is the best known example in this respect.

4.2 The Realignment of a Construction Company – Bilfinger Berger AG

The example of Bilfinger Berger AG illuminates the service transition phenomenon from a different perspective and against the backdrop of a completely different business area. In historical terms Bilfinger Berger is an international construction company with headquarters in Mannheim, Germany. The company is renowned for projects like the construction of the Gotthard Base Tunnel in Switzerland, its participation in the construction of offshore wind farms in the Baltic Sea or the construction of the Cologne subway. However, with consulting, development, planning, financing, turnkey construction, maintenance and operation, the portfolio of the 'Multi Service Group' is much more comprehensive. Berger Bilfinger provides the facility management of the Commerzbank Arena in Frankfurt, is involved in the engineering and maintenance of power plants and supplies the entire life cycle management for many industrial plants worldwide.

As shown in table 2, the activities of Bilfinger Berger AG are divided in the business segments Civil, Building and Industrial, Concessions, and Services. The service division subdivides into the segments Industrial Services, Power Services and Facility Services. In 2008 the company generated revenue of almost €9.8 billion. The number of employees amounted to 61,000.

	Civil	Building and Industrial	Concessions	Services	Consolidation, Other
Revenue	€2,728M	€1,991M	€678M	€4,506M	
EBIT	€17.1M	€14.3M	€9.2M	€223.8M	€33.7M
EBIT in %	5.7	4.8	3.1	75.1	11.3

Table 2: Bilfinger Berger AG – Revenue and EBIT by Business Segments 2008.

Although Bilfinger Berger benefited from the construction boom following the German reunification, the company decided to change its strategy because of the increasing price competition and the cyclical and project dependent core business. Thus, the original motive for the company's service transition was to encounter the industry developments and the associated attempt of reducing the business risk.

The transformation of Bilfinger Berger started in 2002, when the nuclei of today's service business were acquired. The company primarily expedited its transformation through acquisitions and took over a total of 32 companies between 2002 and 2008. 25 of the acquired companies were service companies in the facility management, industrial services and engineering area. Table 3 illustrates the evolution of Bilfinger Berger's services business on the basis of some key figures.

	1998	2003	2008
Service Ratio	3.89%	34.3%	53.1%
Revenue	€4,012M	€4,560M	€9,757M
ROS Services	NA	2.43%	4.49 %
ROS Total	-1.04%	2.90%	3.05%

Table 3: Bilfinger Berger AG Key Figures 1998-2008.

At the beginning of its transition Bilfinger Berger did not have significant resources and competencies in the new business areas. However, the company could build upon existing resources, such as flexible, skilled and motivated employees, a service-oriented corporate culture, established brands and good reputation, international partners and great financial power. The competencies and resources established in the course of the transition process were also a crucial factor of success. Especially the company's integration competence and the ensuing dynamic capabilities are noteworthy in this context. Bilfinger Berger managed to successfully assimilate more than 30 acquired companies within less than ten years. This competence is based on the modularization of networked divisions, which on the one hand side provides a lean and flexible organization and on the other side guarantees optimum flow of information. The combination of different modules allows for the individual customization of offerings according to customers' needs. This core competence generates a perceptible added value for the customer and helps to significantly distinguish the company from competition. It also reflects the company's great sales competence. Bilfinger Berger uses existing contacts from its construction and BOT projects for cross-selling and leverages its engineering know-how for the marketing of its real estate services. At this, the company relies on using the umbrella brand of Bilfinger Berger and its deliberately preserved sub-brands. This allows for combining the group's reputation with the awareness of the acquired companies and therefore, to also ad-

dress smaller customers that would be otherwise deterred from cooperating with a major corporation.

Based on the exploitation and reconfiguration of existing resources and competencies and the purposeful exploration of new resources and competencies, Bilfinger Berger managed to generate dynamic capabilities that enabled the company's successful service transition. Despite the great success in the service sector, Bilfinger Berger does not aim to renounce the construction business completely. Against the background of the offering of holistic solutions and the overall success, the former core business remains strategically relevant.

The example of Bilfinger Berger AG represents one of the few cases that can be classified as diversification into unrelated services. Most service strategies of industrial firms are located in the area of related services. This is also highlighted by the investigation of the services business of the sample companies. It is apparent that unrelated services usually can only be found in a company's portfolio when the respective business was acquired. The organically grown service business of industrial firms consistently shows product relatedness. Although this relatedness appears to diminish over time, also services like financial services are still very much related. Conversely, however, it cannot be assumed that acquisitions only target on unrelated areas. The example of IBM has shown that all acquisitions had strong connection to the existing business.

Both presented companies not only share the success of their service transition strategy, but they also both managed to transfer their existing competencies into new business areas and to develop new competencies during the transition process. While IBM relied on a mixture of organic change and some targeted acquisitions, Bilfinger Berger bet on a pure acquisition strategy. This shows that service transition asks for an individual approach, taking into account the individual resources and capabilities of enterprises and the respective industry conditions.

It is also evident that both companies paid considerable attention on the organizational anchoring of the service business. Especially with regard to the ambidexterity subject, the examples illustrate the importance of the organizational integration of the services business and stress the need for exploration with regard to the Operations Capability.

5 Empirical Analysis

According to the theoretical remarks and based on the two case studies, it can be assumed that especially companies who managed to explore and exploit their Service and Operations Capabilities will be successful with service transition. The following empirical investigation examines this hy-

pothesis and aims to clarify the initial questions by taking a closer look at a sample of 25 international companies and their Service and Operations Capabilities.

The companies of the S&P Global 1200 Index serve as basis of the sample. By extracting the four selected industries mechanical engineering, IT, electronics & electrical & medical tech, and aerospace & defense and the corresponding two-digit SIC (Standard Industrial Classification) codes 35, 36, 37, 38, and 73, the sample is reduced to the range to 180 companies. Since the identification of the service ratio constitutes a crucial condition for further calculations, this marks the next selection criterion and reduces the sample size to 44 companies. In order to map the entire period of investigation, it is also necessary that the service ratio is disclosed throughout the period 1998-2007. This additional criterion reduces the sample to the final number of 25 companies. The sample consists of 16 U.S., seven European, and two Japanese companies. According to industry membership (illustrated by three-digit SIC codes), it is composed as follows:

- eight IT companies (357, 737),
- six electronics & electrical & medical tech companies (360, 365, 382, 384),
- five aerospace & defense companies (372, 381),
- six mechanical engineering companies (353, 355, 356).

Industry	Ø Market Cap. in M		Ø Service Ratio		Ø Revenue in M		Ø ROS	
	1998	2007	1998	2007	1998	2007	1998	2007
Mechanical Engineering	\$8,793	\$14,335	13.8%	32.0%	\$4,465	\$7,712	7.1%	10.1%
Aerospace & Defense	\$14,029	\$38,098	18.6%	30.4%	\$17,584	\$32,871	10.3%	10.7%
Electronics & Electrical Engineering & Medical Tech	\$86,017	\$81,216	21.6%	24.0%	\$44,281	\$72,647	10.3%	11.1%
IT	\$60,285	\$88,830	32.5%	42.9%	\$25,123	\$40,684	18.4%	17.3%
Total	\$43,136	\$58,978	26.3%	35.8%	\$23,069	\$38,679	12.1%	12.8%

Table 4: Key Figures of the Sample.

The selection of the four industries is justified by their relative maturity. With regard to aerospace and defense and mechanical engineering, the large installed base and the high ratio of installed base to new products sold serves as an additional argument. Both criteria potentially favor an increased service focus of the respective industrial companies. As shown in table 4, this is highlighted by the relatively high average service ratio and its increase during the period under review. Only one company shows a reduced service ratio over time. All data were extracted from the COMPUSTAT Global database. Table 5 provides an overview of the organization of the service business in the sample companies.

Organization of the Service Business	1998	2003	2007
Integration in Existing Business Segment	15	13	14
Independent Business Segment	13	17	19
Subsidiary	1	3	4
Outsourcing	1	1	0

Table 5: Service Organization. Multiple observations included.

Corporate performance is operationalized via return on sales (ROS). Multiplying 2007 return on sales with the change in return on sales over time leads to a ranking of the most successful companies. With this, six top and six flop performing companies can be identified. This form of ranking takes the 2007 reference value and the company's development into account.

Operations Capability is operationalized by the service organization and the service ratio. Seven organizational forms can be distinguished:

- Combination of subsidiary, independent business segment and integration in existing business segment (10)
- Combination of subsidiary and integration in existing business segment (10)
- Subsidiary (8)
- Combination of independent business segment and integration in existing business segment (8)
- Independent business segment (8)
- Integration in existing business segment (4)
- Outsourcing (2)

The values in brackets are assigned to the respective organizational structure. Identical values imply a comparable service organization level. The change in service organization is assessed by comparing the years 2007 and 1998 and by subtracting the corresponding values. An unmodified service organization receives the value 1. In order to have a reference value and to include the current level of the Operations Capability, the values resulting from the subtraction are multiplied with the value of 2007. It is also assumed that the service ratio has influence on the Operations Capability. Hence, the final Operations Capability value of the respective companies (OC_i) results from multiplying the previously determined value with the service ratio in 2007.

$$\text{Operations Capability } OC_i = (O_x - O_y) O_x D_x$$

O_x indicates the value of the organizational form in 2007, O_y indicates the value of the organizational form in 1998, and D_x indicates the service ratio in 2007.

Service Capability (SC_i) is operationalized by the relation of service profitability and service ratio. Since not all companies disclose their service profitability over the whole period of time, this dimension of ambidexterity has to be analyzed with a smaller sample of nine companies.

$$\text{Service Capability } SC_i = (R_x - R_y)(D_x - D_y)R_x$$

R_x indicated the gross profit of the service business in 2007, R_y stands for the same parameter in 1998. D_x indicates the service ratio in 2007, the service ratio in 1998 is indicated by D_y .

Table 6 shows that the success of the top-performers is very well explained by the service ratio increase, while, contrary to the findings of Fang et al. (2008) and Skaggs & Droege (2004), there is no overall correlation between service orientation and corporate performance. There is also no significant correlation regarding the flop-performers failure and the development of their service ratio. This finding confirms the necessity of the investigation of capabilities in the context of service transition and emphasizes that the simple extension of service efforts does not necessarily lead to the desired improvement of corporate performance.

By observing the development and the results, which are quite heterogeneous at first sight, the conclusion comes to mind that there is critical imbalance in exactly this point. On the one hand, the service competencies of manufacturing firms are very distinct in the areas of, thus providing increased opportunities and incentives for their exploitation and inducing to neglect the development of new competencies. In areas such as marketing, sales and especially organization, on the other hand, manufacturing firms do not seem to use their existing potential, while exploration largely does not take place at all. As a result, these areas partially reveal massive deficits (Cohen et al. 2006).

	Mean	SD	1	2
Sample N=25				
1. Performance	0,11137	0,02111	1	
2. Service Ratio	0,31285	0,03357	-0,084	1
Top-Performer				
1. Performance	0,18537	0,02509	1	
2. Service Ratio	0,50189	0,04309	0,833**	1

Flop-Performer				
1. Performance	0,11531	0,06058	1	
2. Service Ratio	0,35251	0,03476	-0,482	1

** p < 0,01

Table 6: Descriptive Statistics and Correlation Matrix Corporate Performance, Service Ratio.

Also with regard to the various industries, the investigation of the correlation between service orientation and corporate performance shows the same results. An assumed correlation between the relatively high increase in profitability in the mechanical engineering industry, for example, cannot be explained by the service ratio increase within the same industry.

Thus, while there is no clear connection between service orientation and corporate performance, the situation is different with regard to Operations and Service Capability. The analysis presented in tables 7 and 8 shows clear evidence that companies that managed to align their organization to services and that use their Service Capabilities tend to be more successful than companies that do not sufficiently meet these criteria.

Sample N=25	Mean	SD	1	2
1. Performance	0,00338	0,01325	1	
2. OC	4,16380	4,38334	0,845**	1

Model Summary			
R	R ²	Adj. R ²	Std. Error
0,845	0,714	0,701	0,00724

ANOVA					
	Sum of Squares	df	Mean Square	F	Sig.
Regression	0,003	1	0,003	57,388	0,000 ^a
Residual	0,001	23	0,000		
Total	0,004	24			

** p < 0,01; ^a Predictor: OC

Table 7: Descriptive Statistics, Correlation Matrix, and Regression Model 1.

Sample N=9	Mean	SD	1	2	3	4
1. Performance	0,00832	0,01789	1			
2. OC	6,40350	6,48289	0,978**	1		
3. SC	0,00145	0,00321	0,875**	0,844**	1	
4. ROS Services	0,02241	0,06077	0,894**	0,876**	0,967**	1

Model Summary			
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R	R ²	Adj. R ²	Std. Error
0,983	0,965	0,945	0,00421

ANOVA					
	Sum of Squares	df	Mean Square	F	Sig.
Regression	0,002	3	0,001	46,482	0,000 ^a
Residual	0,000	5	0,000		
Total	0,003	8			

** p < 0,01; ^a Predictors: OC, SC, ROS Services

Table 8: Descriptive Statistics, Correlation Matrix, and Regression Model 2.

For clarification figures 3 and 4 illustrate the Service Capability of the companies Agilent, General Electric, Hewlett Packard, IBM, Northrop Grumman, Oracle, Sun, United Technologies, and Xerox taken from regression model 2.

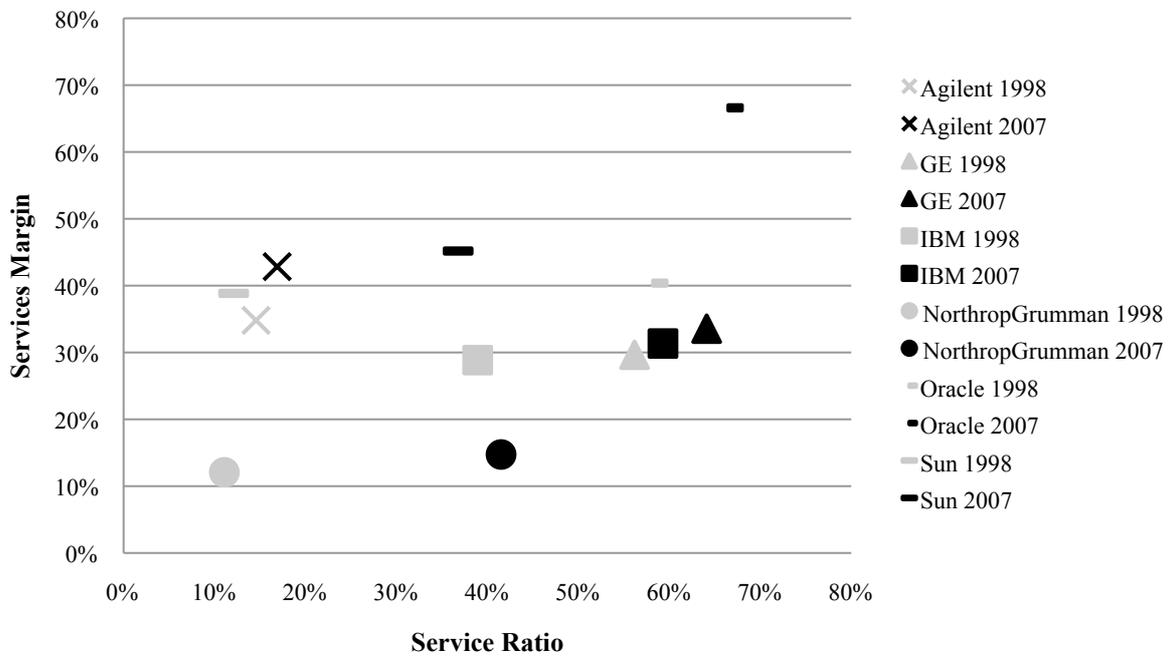


Figure 3: Companies with increasing Service Capability 1998 to 2007.

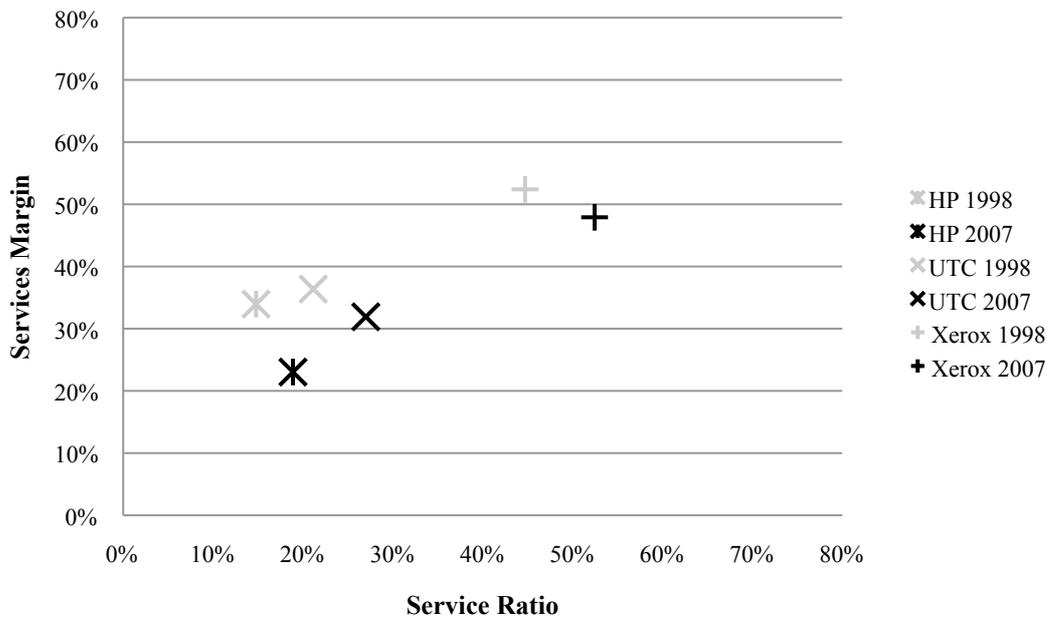


Figure 4: Companies with decreasing Service Capability 1998 to 2007.

The heterogeneous picture of the Service Capability and the connection between service profitability and service ratio underlines the necessity of mastering ambidexterity. It is especially striking that the three companies with decreasing service profitability show below-average Operations Capability. While these negative developments, as in the case of Xerox, can partially be explained by a historically service-intensive business environment and associated declining margins and increased competition, the development, however, clearly indicates that the exploration of the Operations Capability has been neglected in the cases at hand.

The study thus demonstrates that an increased focus on services can be a very promising strategy for industrial companies, but that resource exploitation necessarily must go hand in hand with the exploration of appropriate Service and Operations Capabilities. As is apparent from the analysis, the success of exploitation-based service transition is clearly limited. The establishment of a service organization seems indispensable. As the study also suggests, many companies appear to linger over exploitation in their transformation process without creating additional competencies and establishing appropriate conditions.

Hence, service euphoria is insofar dampened for the analyzed industries, as no simple correlation between service orientation and corporate performance can be proved. However, hope can be drawn from the observation that companies that manage the ambidexterity of exploiting and exploring their Service and Operations Capabilities register a significant performance improvement.

6 Conclusion

Service transition is an iterative process that often leads to different results for companies from different industries. Against this backdrop and with recourse to the Resource-based View, the paper dealt with the role of ambidexterity and the investigation of this phenomenon. Among others, the examples of IBM and Bilfinger Berger showed that the service business has enormous potential, while other companies provide evidence that increased efforts in the service sector do not automatically constitute a positive performance effect. The exploration of competencies is particularly iterative and far way from being completed at a large number of companies. This also becomes obvious by the often observed mismatch of service offerings and service organization. While many companies offer a wide range of services they miss out on a real transformation of the company.

The study identified the Service Transition Capability as key determinant of success. In addition to that, the example of Bilfinger Berger has shown that successful service transition is also a question of corporate culture and that acquisition strategies can also be successful if the company has excellent integration competence and the ability to explore its Operations Capability.

Especially with regard to the general optimism often associated with service transition, the findings of this study partially disagree with the studies of Fang et al. (2008), Skaggs & Droege (2004) and Gebauer & Putz (2007). The final clarification of the determinants and the success of service transition strategies requires analyzing a broader sample and the extension of the investigation to a longer observation period. However, the difficult data situation clearly hampers a serious expansion of the quantitative and temporal horizon. Moreover, further research is needed regarding the role of the management, the influence of industrial structures and the critical resources and competencies, which affect successful service transition in detail. The standards of Service Capability and Operations Capability applied to determine the dimensions of ambidexterity or Service Transition Capability can be further improved in their operationalization and shall be regarded as initial approach.

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