

A Capability-Based View of Service Transitions

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Why this paper might be of interest to Alliance Partners:

Although it is clear that turning to a service-oriented business model requires companies to deploy an adequate set of capabilities, there are concerns that manufacturers may not understand what distinctive capabilities they need in order to successfully integrate vertically from products to services.

This paper describes the initial steps of a study that is examining the cases of 138 companies from the aerospace and defence industry to provide evidence on how manufacturing companies configure and orchestrate service-relevant capabilities in practice. In particular, we focus on the documentation of the capabilities identified by the Alliance 'Service Capability Audit' tool and examine their link with composition of the service offering and company's financial performance.

By doing this, we seek to show what capabilities manufacturing companies can best leverage in the context of the shift to services. We further seek to provide the Alliance companies with insights on how to achieve the alignment between configuration of the service offering and organisational capabilities. The paper describes how we have set the study up and provides some initial findings.

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A capability-based view of service transitions

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We identify a range of organisational capabilities that are conceptually intertwined with manufacturers' ability to implement service-growth strategies. We examine the cases of 138 companies from the aerospace and defence industry to identify connections between the presence of these capabilities, the composition of the service offering, and companies' financial performance. Our methodology is based on rigorous content analysis of annual report narratives and secondary quantitative data.

Introduction

Market forces, often customer demands, mean that many traditional product-manufacturing companies are transitioning towards providing increasingly comprehensive services and customised solutions. To make this transition, companies must learn how to leverage existing product-based capabilities to service activities and to build new service-specific capabilities (Cova ad Salle, 2007; Ulaga and Reinartz, 2011; Raddats et al., 2014).

Categorisations and taxonomies of the capabilities that underpin the shift to services have appeared in the literature on integrated solutions (e.g. Davies, 2004; Ceci and Prencipe, 2008; Ceci and Masini, 2011; Storbacka, 2011), reflecting a general concern that companies may not understand the distinctive capabilities they need in order to develop and deliver services. The consideration of capabilities has been increasingly explicit also in the broader operations management and marketing literature. For example, Spring and Araujo (2013) delve into the nature of the connection between manufacturing and service capabilities. Matthysens et al. (2009), Ulaga and Reinartz (2011) and Raddats et al. (2014) suggest key capabilities for service-infusion strategies.

With this study, we seek to contribute to this recent body of research in three ways. First, while also identifying different forms of service-relevant capabilities, we dwell less on delineating categories and typologies of additional or substitutive capabilities, and more on providing a view of the actual capabilities possessed by manufacturers that have servitized, i.e. have vertically integrated from products to services. By doing this, we seek to empirically test and explore the relative importance of various potential service-relevant capabilities. With the exception of Raddats et al. (2015), existing research on capabilities within service-infusion strategies has been largely descriptive or normative in nature, providing modest and suggestive empirical evidence on how manufacturing companies configure and orchestrate service resources and capabilities in practice. In a similar vein, previous studies tend to assume all service-relevant capabilities are equally important, providing little indication of what such capabilities can firms best leverage in the context of the shift to services.

The second way in which we complement extant literature is by linking our examination of capabilities for service transition to the services that a company offers and to the financial performance that it achieves. The literature acknowledges that the service offering determines the requirements of the service process (Kowalkowski et al., 2011) and thus the necessary competences to make the transition (Ulaga and Reinartz, 2011). However, so far most studies of service-relevant capabilities have focused on services in the aggregate, without further exploring differences among service types. With regard to performance, existing studies make the operating assumption that greater service capabilities contribute to greater service success and stronger corporate performance, yet performance outcomes are rarely explicitly measured.

Finally, the study is based on secondary data. In particular, the study links objective performance measures to services and capabilities captured through content analysis of companies' annual report narratives. Although the use of secondary data and objective measures is highly recommended, many empirical studies on service strategies rely on interviews or survey data (i.e. subjective, self-reported measures).

The paper is structured as follows. After summarising the literature on capabilities for service infusion strategies, we present the service capability framework used in this study. Then we summarise the research method and present some initial data. We propose results in the next section, followed by concluding remarks.

Service-relevant capabilities in manufacturing companies

The first taxonomies of capabilities for service-based strategies have appeared in the literature on integrated solutions. Based on the case studies of five international suppliers, Davies (2004) identified four types of integrated solutions capability requirements: system integration, operational services, business consulting, and financing. While system integration capabilities focus on providing customers with turnkey solutions, operational, consulting and financing capabilities help the customers plan, maintain, manage and acquire such solutions. Both Ceci and Prencipe (2008) and Ceci and Masini (2011) have examined Davies' (2004) taxonomy from a contingency perspective and found that similarities in organisational and environmental factors lead to different capability configurations. These early studies, then, characterised capabilities in terms of content the market offering, rather than as underlying abilities and skills. Indeed, in their introduction to the Industrial Marketing Management Special Issue on 'Project Marketing and the Marketing of Solutions', Cova and Salle (2007) argue that, in addition to Davies' (2004) capabilities, solution providers need to acquire a number of other skills, including risk analysis, risk management, information management. In line with this view, Storbacka (2011) examines the provision of solutions from a process perspective and defines key commercialisation, industrialisation and platform capabilities (i.e. abilities and management practices) for each of the four steps of developing solutions, creating demand, selling and delivering solutions. Finally, Paiola et al. (2013) dwell on the approach to capability development. Based on the combination of the type of approach (internal, external, or mixed) and the type of service components driving the service offering, they identify four different strategic options for the development of solutions.

As for the broader literature debating the shift to services, the role of capabilities is touched upon by the numerous studies that have discussed the challenges and implementation issues associated with a service strategy orientation but it is rarely explicitly considered. Among the few studies that have more fully delineated capability needs for service infusion strategies, Kindström (2010) proposes four types of key capabilities: ability to promote and explain advanced service-intensive value propositions, relationship building competences, consciousness of the customer portfolio, and ability to design a dynamic service portfolio. Four types of capabilities are also proposed by Ulaga and Reinartz (2011), including: service-related data processing, execution risk assessment and mitigation, design-to-service, hybrid offering sale, and hybrid offering development capabilities. Importantly, Ulaga and Reinartz (2011) also identify four service categories that require very different levels of these capabilities, thus outlining that capabilities must be aligned with the elements of the service offering. More recently, Parida et al. (2014) have emphasised the role of business partners in service systems, summarising key capabilities as: business model design, network management, integrated development, and service delivery network management. Finally, Raddats et al. (2015) combine resource components that are either important to all firms or especially critical to service-focused firms into five different resource configurations (industry standing, services methods and tools, leaders and personnel, collaborative approach, solution approach).

It is clear from this background that there is no unanimity regarding the capabilities that are needed by manufacturers that integrate vertically from products to services. In addition, the majority of existing classifications have focused on company internal capabilities, thereby not taking into sufficient account aspects of ecosystem awareness, networked operations, accountability spread. Such aspects are instead included in the framework used in this study and described in the next section.

The capability audit tool

The capability audit tool assists in the examination of service-relevant capabilities of product companies along four areas: ecosystem awareness, value proposition, value delivery, and accountability spread. It was developed within the Cambridge Alliance using case studies and in-depth interviews with senior executives at twelve leading service-oriented manufacturing companies. These manufacturing firms were purposively sampled as they were widely recognised in leaders in the shift to services. The framework, which is shown in Figure 1, consists of four key categories, twelve bundles of capability and over seventy individual capabilities. At the highest level, the framework asserts that, when transitioning towards a service business model, manufacturers find it necessary to innovate their **value proposition**, often by focusing on the outcomes their customers seek. They do so in a broader context of an emerging **ecosystem**, which they have to understand and track. To deliver the value proposition they often have to partner with third parties, creating networks of firms with pooled or shared capabilities - hence they innovate the value **delivery system**. Crucially, if there is innovation in both the value proposition (taking on more responsibility for outcomes) and in the value delivery system (partnering with others to deliver these outcomes), the prime contractor can increase their risk or **accountability spread** - they have taken on more responsibility, while potentially reducing their direct control over all of the resources needed to deliver the value proposition. These four broad categories - value

proposition, value delivery system, accountability spread and ecosystem - are further detailed in the capability framework as shown in figure 1.

Area	Capability Dimensions
ECOSYSTEM AWARENESS	<ul style="list-style-type: none"> How well do you know the members of your ecosystem?
	Customer perspective Partner perspective Influencer perspective
	<ul style="list-style-type: none"> How well do you understand the economics of your ecosystem?
	Value creation perspective Value capture perspective Power perspective
VALUE PROPOSITION	<ul style="list-style-type: none"> How well do you understand the dynamics of your ecosystem?
	Dynamics perspective Skills and assets perspective Competition perspective
	<ul style="list-style-type: none"> How well do you understand your client's business model and the broader ecosystem?
	Value creation perspective Value capture perspective Constraint perspective
VALUE DELIVERY	<ul style="list-style-type: none"> How clearly can you articulate your value proposition and the associated benefits?
	Customer recognition perspect. Internal recognition perspective Cost perspective
	<ul style="list-style-type: none"> Have you clearly and unambiguously demonstrated your delivery skills in relation to your value prop.?
	Customer confidence perspective Demonstrated capability persp. Pilot capability perspective
ACCOUNT= ABILITY SPREAD	<ul style="list-style-type: none"> How well have you defined the value proposition and designed the value delivery system?
	Internal capability perspective Ecosystem capability perspective Technology perspective
	<ul style="list-style-type: none"> How well have you identified partners and developed appropriate governance mechanisms?
	Partnership perspective Trust perspective Governance perspective
ACCOUNT= ABILITY SPREAD	<ul style="list-style-type: none"> How well do you co-ordinate multi-party delivery?
	Incentive perspective Partnership perspective Cultural perspective
	<ul style="list-style-type: none"> How well do you understand the risks associated with your value delivery system?
	Performance risk perspective Financial risk perspective Long-term risk perspective
ACCOUNT= ABILITY SPREAD	<ul style="list-style-type: none"> How good are your systems for measuring and quantifying risk?
	Measurement perspective Data access perspective Data quality perspective
	<ul style="list-style-type: none"> How well do you price and flow risk to your ecosystem partners?
	Risk ownership perspective Risk pricing perspective Risk mitigation perspective

Figure 1 – The Capability Audit Tool

Methodology

Capabilities assume different features in different industries. For this reason, the empirical context for our study is a single industry. We looked at the aerospace and defence industry. The aerospace and defence industry is especially suitable for our purpose as the transition to services is a salient issue in this industry and covers a broad spectrum of service offerings (Johnstone et al., 2008). We focused on the 138 companies listed in the Standard & Poor's Capital IQ database that have aerospace and defence as primary industry classification, are publicly listed, and have more than 100 employees.

We sought evidence of the framework capabilities by content analysing the information available in the companies' annual report (10-K filing or equivalent) narratives. The annual report expresses the companies' key undertakings, achievements and performance during the financial year and is one of the key documents referenced by investors. Stock market analysts and investors read through the annual reports on a repeated basis, to determine the business priorities, capabilities and processes important of the firm. Any reference to service-related capabilities in the annual report can then deemed to be important to the company. However, such textual information that is included in the narrative of the annual report is often unstructured, and extracting meaningful information can be time-consuming

and difficult. The content analysis methodology and supporting software tools enable rigorous analysis of vast amounts of audited textual data available in the annual reports.

Content analysis is a "technique for making inferences by objectively and systematically identifying specified characteristics of message" (Holsti 1969). Content analysis gained legitimacy as a methodology in the field of management in the 1980s for systematic analysis of the information contained in corporate documents (Bowman 1984) and for drawing inferences from the textual communications of managers (D'Aveni and MacMillan 1990). More recently it has been employed to understand the modification of marketing activities in reaction to stock returns and volatility (Chakravarty and Grewal 2011), planning for mergers and acquisitions (Vaara and Monin 2010) and managing media reaction after firms' wrongdoings (Zavyalova et al. 2012). However, it has rarely been applied to study service processes (Tangpong 2011).

We identified evidence of the service-related capabilities in each company annual report, accounting for where the term occurs and examining the context for correct use. We removed all irrelevant uses, and references regarding forward looking statements, risk factors, duplicates and negative connotations. We focused on the latest annual report (2013 or 2014, depending on the fiscal year adopted by each company). Although we consulted multiple sources (Capital IQ database, SEC website, company websites, email contact), the annual report was available for 105 of the 138 companies, which forced us to reduce our sample size. Some companies were simply not reachable, or didn't have an English version of their annual report, or only reported financial data.

Table 1 – Service categories

Service Category	Examples
1 Trading and Distribution Services	Trading, sale of used assets, distribution, licensing, direct selling
2 Logistic Services	Logistics, transportation, delivery, packaging, warehousing, order fulfilment, supply chain management, inventory management, inventory planning, inventory control, material handling
3 Procurement and Purchasing Services	Procurement, purchasing, sourcing, vendor management
4 Maintenance and Support Services	Maintenance, repair, calibration, overhaul, MRO, spare parts, accessories, helpdesk, documentation, technical/operational support, fuelling
5 Certification and Testing Services	Certification, testing, inspection, auditing, quality assurance
6 Design and Development Services	Design, development, research, engineering, reengineering, prototyping
7 Consultancy Services	Consultancy, advice, process optimisation, problem analysis, simulation
8 General Outsourcing Services	Site management, site operation, infrastructure management, management oversight, staffing services, data collection, data management, information management, surveillance, planning
9 Financial Services	Financing, leasing, rental, financial clearing, warranty
10 Renewal and Upgrade Services	Product modification, conversion, enhancement, upgrade, refurbishing, reconditioning, retrofitting
11 End-of-life Services	Remanufacturing, recycling, decommissioning, disassembly, demolition, disposal
12 Installation and Implementation Services	Installation, implementation, configuration, commissioning, relocation
13 System Integration	System integration, integrated solutions
14 Training Services	Training, education
15 Operations and Management Services	Product operation, asset management, fleet management, lifecycle management, project management, programme management

We further considered 15 categories of services that aerospace and defence companies may offer (table 1) and content analysed the Capital IQ long business descriptions searching for evidence of these service categories. For 26 companies, for which no long business description was provided in Capital IQ, we gathered the information from the company website. At this stage, it became evident that our sample included 9 companies that offered no services, i.e. 9 non-servitized companies. We kept these in the sample to enable comparisons with the servitized ones.

Preliminary findings

Service-relevant capabilities

The coding of annual report narratives is still in progress. However, the data collected so far suggest some initial findings.

All of the four broad categories of capabilities identified in the original case studies feature in the annual reports of the manufacturing firms we have analysed. However, within each category, evidence seems to concentrate on certain capabilities rather than on others. For example, within the value delivery category, we found significant discussion suggesting that the firms understand the internal capabilities that enable the delivery of the value proposition, e.g.:

“The success of the Company's businesses, including their ability to retain existing business and to successfully compete for and win new business, is primarily dependent on the management, marketing and business development, contracting, engineering and technical skills and knowledge of its employees, rather than on productive capital (plant and equipment, and technology and intellectual property).” (L-3 Communications Holding – 2013 10-K form)

On the contrary, capabilities related to the coordination of multi-party delivery, e.g.

“We are involved in teaming and subcontracting relationships with some of our competitors... Opportunities associated with these programs include roles as the program's integrator, overseeing and coordinating the efforts of all participants on a team, or as a provider of a specific component or subsystem.” (General Dynamics Corp. – 2014 10-K form)

are more rarely mentioned, suggesting that perhaps the sample companies tend to rely on an internal delivery system rather than a networked one.

Similarly, in the ecosystem category, the case companies examined so far offer many instances suggesting that they understand the dynamics of their ecosystems – i.e. how the ecosystem is evolving, e.g.:

“Many OEMs are moving toward developing strategic, and sometimes risk-sharing, partnerships with their larger suppliers.” (LMI Aerospace inc. – 2013 10-K form)

but they do not discuss the economics of their ecosystem, namely where power and value lie in the ecosystem.

Intriguingly, the value delivery category provides significantly richer evidence than the value proposition one. For example, the companies often highlight their abilities to establish strong and enduring relationships with business partners, e.g.:

“Thales is a long-standing partner to military and security forces around the world, providing support on the ground to increase operational effectiveness as well as ensure the highest levels of protection.” (Thales SA – 2013 Annual Report)

On the contrary, evidence such as:

“The Company is comprised of talented and dedicated people committed to providing outstanding service to our customers.” (LMI Aerospace inc. – 2013 10-K form),

suggesting that the company has a service value proposition that is supported and recognised internally, did not appear in many annual documents.

Finally, the accountability spread category appeared particularly rich in evidence. However, such evidence is mostly focused on acknowledging the firms’ awareness of their business risks, rather than their ability to control, share or mitigate risks. Namely, we found significantly more hits such as:

“the introduction of new aircraft programs... involves increased risks associated with meeting development, testing, production and certification schedules. As a result, our ability to deliver aircraft on time, satisfy regulatory and customer requirements, and achieve or maintain, as applicable, program profitability is subject to significant risks. (The Boeing Company – 2014 10-K Form)

rather than:

“Under the new target cost arrangements, the industrial participants’ fee includes a 50:50 risk share arrangement providing greater cost performance incentives.” (BAE Systems, plc – 2013 Annual Report).

Services and firm performance

In addition to coding service capabilities, we have undertaken some initial comparisons of the financial performance of the companies by type and number of services offered. As previously outlined, companies’ service offerings were determined by content analysing the long business descriptions in Capital IQ. Financial information was instead gathered from Capital IQ queries.

Table 2 – Type of servitization and firm performance

\$m	#	Avg. Assets	Avg. % Inv.	Avg. Revenues	Avg. Gross Margin	Avg. % R&D	Avg. Operating Income	Avg. Operating Margin	Avg. Market Cap
Trading and Distribution	33	7,125.55	0.22	4,765.38	25.77	0.06	561.21	5.94	6,438.54
Logistics	35	18,103.54	0.26	14,126.97	21.61	0.05	1,382.68	5.70	15,928.17
Procurement and Purchasing	5	6,639.63	0.24	4,587.84	21.16	0.05	394.28	7.85	5,410.23
Maintenance and Support	76	10,637.30	0.24	8,211.03	23.85	0.05	812.98	5.86	9,483.96
Certification and Testing	30	9,648.77	0.24	6,991.22	21.74	0.06	700.12	7.53	7,661.37
Design and Development	56	11,868.83	0.24	9,491.15	22.54	0.05	953.09	5.92	10,835.67
Consultancy	25	16,378.01	0.33	12,197.21	24.28	0.05	989.40	7.07	12,338.64
General Outsourcing	20	20,770.38	0.19	16,014.79	25.04	0.05	1,759.99	9.04	19,658.54
Financial	16	16,089.01	0.40	11,810.10	25.68	0.05	958.54	7.04	12,334.16
Renewal and Upgrade	34	17,706.13	0.26	14,100.74	23.16	0.04	1,295.90	7.85	15,038.87
End-of-Life	3	268.01	0.01	131.45	20.44	0.01	17.37	9.13	193.10
Install and Implement.	25	8,650.01	0.16	6,420.04	24.81	0.07	857.45	7.63	10,272.97
System Integration	47	12,189.31	0.17	9,276.00	26.34	0.05	999.03	8.47	11,261.30
Training	45	13,763.14	0.27	10,696.55	25.82	0.04	985.39	7.97	11,709.71
Management & Operation	30	18,949.10	0.21	15,296.62	21.77	0.04	1,633.39	5.36	18,872.94

Table 2 proposes some descriptive statistics regarding companies that offer different types of services. Gross margin is very consistent across all the service types, ranging from 20 to 26%. Such values are significantly below the typical values achieved by pure service firms (e.g. consultancy gross margins are around 70-80%), suggesting that servitization does not impact the cost of goods. The highest levels of average inventory (40%) correspond to the companies that offer financial services. Indeed, these companies may be offering financial services in order to push and facilitate product sales. Average R&D expenses are quite low (around 0.05%) but appear to be higher for companies that offer Installation & Implementation services (0.07%). Considering that such services can only be offered in conjunction with the sale of new product units, R&D is likely to be related to product innovation. Thus, the obvious question is how much are the sample companies benefiting from service innovation. The companies offering General Outsourcing and End-of-Life services appear to be the most profitable, with average operating margin 9.04% and 9.13% respectively (although the small sample size of end-of-life services firms should be noted). Interestingly, they also appear to be on average the largest and smallest companies in the sample (average total assets \$20,770m and \$268m, respectively). In terms of market value, the best performing companies are those offering General Outsourcing and Management & Operations services, as shown by market capitalisation (\$19,658m and \$18,872m, respectively).

While these figures suggest that there are differences in firms' performance that can possibly be related to the types of services offered, the diagrams in figure 2 indicate that also the breadth of the service offering may be relevant. In particular, figure 2 (Panel A) suggests an inverse U-shaped relationship between number of services offered and average assets and operating income. The inflection point seems to be around 8-9 services. The effect is even more pronounced when considering market capitalisation (Panel B).

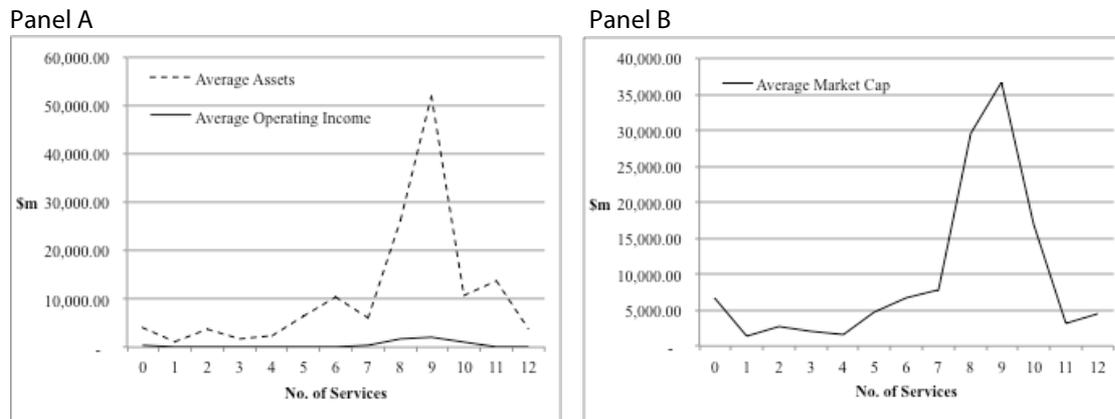


Figure 2 – Extent of servitization and firm performance

Conclusions

This paper contributes three main insights to the literature - in terms of method and content. First, in terms of method, the paper illustrates how a framework derived from case studies can be empirically tested and validated using secondary data and content analysis. The coding process used helped us review the language used in our original study and convert it to language more widely used in annual reports. It is interesting to note that the language used in day-to-day discussions differs from the language used to describe the same concepts in annual reports. Clearly annual reports are more structured and deliberately designed as communication mechanisms, but understanding the subtle changes of language between operational language used within the firm and that used to communicate externally is valuable as it highlights the need to understand which form of lexicon you are working with. Our research suggests that secondary source analysis requires a careful re-interpretation of the language being used.

Second, in term of content, we find evidence that all of the capabilities identified in the original case studies feature in the annual reports of the sample of manufacturing firms we have analysed. However, we find the extent to which these capabilities are discussed varies. This difference in emphasis is interesting and important, because our original case research suggested that these twelve bundles of capabilities were equally important.

Third, our findings identify performance differences among the sample firms that can be potentially explained by the type and extent of servitization. It is especially noteworthy that we found an inverse U-shaped relationship between number of services offered and both firm profitability and market value. This result is consistent with the diversification literature – while expanding a firm’s portfolio generates scope economies through the sharing of factors of production, cost and congestion associated with shared use of common factors limit the amount of diversification that can be proficiently engaged (Teece, 1980). At the same time, previous studies on service infusion have found that both share of service revenues (Fang et al., 2008; Suarez et al., 2013) and emphasis on the marketing of services (Kohtamäki et al., 2013) exhibit a U-shaped relationship with financial performance – results that have been attributed to the need for the service offering to achieve sufficient market

visibility, internal recognition and managerial experience. Hence, although only providing descriptive evidence from a relatively small sample of firms, our results underscore the importance of the metrics used to assess the extent of servitization when examining the impact on performance.

Finally, regarding future developments, completing the coding of service capabilities will enable us to establish with some confidence what capabilities are especially outlined in the business models that servitized manufacturers talk about in their annual reports. Based on the complete dataset, we will also be able to investigate the statistical relationships and associations between service-relevant capabilities, nature and extend of the strategic shift to services and firm financial performance. Nevertheless, future work will translate the emerging empirical evidence into managerial insights on how to achieve the alignment between configuration of service strategy and organisational capabilities.

References

- Bowman, E.H. (1984), "Content Analysis of Annual Reports for Corporate Strategy and Risk", *Interfaces*, Vol. 14, No. 1, pp. 61-71.
- Ceci, F. and Prencipe, A. (2008), "Configuring capabilities for integrated solutions: evidence from the IT sector", *Industry and Innovation*, Vol. 15, No. 3, pp. 277-296.
- Ceci, F. and Masini, A. (2011), "Balancing specialized and generic capabilities in the provision of integrated solutions", *Industrial and Corporate Change*, Vol. 20, No. 1, pp. 91-131.
- Chakravarty, A. and Grewal, R. (2011), "The Stock Market in the Driver's Seat! Implications for R&D and Marketing", *Management Science*, Vol. 57, No. 9, pp. 1594-1609.
- Cova, B. and Salle, R. (2007), "Introduction to the IMM special issue on 'Project marketing and the marketing of solutions' - A comprehensive approach to project marketing and the marketing of solutions", *Industrial Marketing Management*, Vol. 36, No. 2, pp. 138-146.
- D'Aveni, R.A. and MacMillan, I.C. (1990), "Crisis and the Content of Managerial Communications: A Study of the Focus of Attention of Top Managers in Surviving and Failing Firms", *Administrative Science Quarterly*, Vol. 35, No. 4, pp. 634-657.
- Davies, A. (2004), "Moving base into high-value integrated solutions: a value stream approach", *Industrial and Corporate Change*, Vol.13, No. 6, pp. 727-756.
- Fang, E., Palmatier, R.W. and Steenkamp, J.E.M. (2008), "Effect of service transition strategies on firm value", *Journal of Marketing*, Vol. 72, No. 5, pp. 1-14.
- Holsti, O.R. (1969), *Content Analysis for the Social Sciences and Humanities*. Addison-Wesley Publishing Company Inc, Reading, MA.
- Kindström, D. (2010), Towards a service-based business model – key aspects for future competitive advantage, *European Management Journal*, Vol. 28, No. 6, pp. 479-490.
- Kohtamäki, M., Partanen, J., Parida, V. and Wincent, J. (2013a), "Non-linear relationship between industrial service offering and sales growth: The moderating role of network capabilities", *Industrial Marketing Management*, Vol. 42, No. 8, pp. 1374-1385.
- Kowalkowski, C., Kindström, D. and Brehmer, P.O. (2011), "Managing industrial service offerings in global business markets", *Journal of Business & Industrial Marketing*, Vol. 26, No. 3, pp. 181-192.

- Matthyssens, P, Vandenbempt, K. and Weyns, S. (2009), "Transitioning and co-evolving to upgrade value offerings: a competence-based marketing view", *Industrial Marketing Management*, Vol. 38, No. 5, pp. 504-514.
- Paiola, M., Sacconi, N., Perona and M., Gebauer, H. (2013), "Moving from products to solutions: strategic approaches for developing capabilities", *European Management Journal*, Vol. 31, No. 4, pp. 390-409.
- Parida, V., Sjödin, D.R., Wincent, J. and Kohtamäki, M. (2014), "Mastering the transition to product-service provision: insights into business models, learning activities, and capabilities", *Research Technology Management*, Vol. 57, No. 3, pp. 44-52.
- Raddats, C., Burton, J., Story, V., Zolkiewski, J., Baines, T. and Lightfoot, H. (2014), "Servitization capabilities for advanced services: a multi-actor perspective", Proceedings of the Spring Servitization Conference (SSC2014), Birmingham, UK, 2-14 May.
- Raddats, C., Burton, J. and Ashman, R. (2015), "Resource configurations for services success in manufacturing companies", *Journal of Service Management*, Vol. 26, No. 1, pp. 97-116.
- Spring, M. and Araujo, L. (2013), "Beyond the service factory: service innovation in manufacturing supply networks", *Industrial Marketing Management*, Vol. 42, No. 1, pp. 59-70.
- Storbacka, K. (2011), "A solution business model: capabilities and management practices for integrates solutions", *Industrial Marketing Management*, Vol. 40, No. 5, pp. 699-711.
- Suarez, F.F., Cusumano, M.A. and Kahl S.J. (2012), "Services and the business models of product firms: an empirical analysis of the software industry", *Management Science*, Vol. 59, No. 2, pp. 420-435.
- Tangpong, C. (2011,) "Content Analytic Approach to Measuring Constructs in Operations and Supply Chain Management", *Journal of Operations Management*, Vol.29, No.6, pp. 627-638.
- Teece, D.J. (1980), "Economies of scope and the scope of the enterprise", *Journal of Economic Behavior & Organization*, Vol. 1, No. 3, pp. 223-247.
- Ulaga, W. and Reinartz, W.J. (2011), "Hybrid offerings: how manufacturing firms combine goods and services successfully", *Journal of Marketing*, Vol. 75, No. 6, pp. 5-23.
- Vaara, E. and Monin, P. (2010), "A Recursive Perspective on Discursive Legitimation and Organizational Action in Mergers and Acquisitions", *Organization Science*, Vol. 21, No. 1, pp. 3-22.
- Zavyalova, A., Pfarrer, M.D., Reger, R.K. and Shapiro, L.D. (2012), "Managing the Message: The Effects of Firm Actions and Industry Spillovers on Media Coverage Following Wrongdoing", *Academy of Management Journal*, Vol. 55, No. 5, pp. 1079-1101.