



**HAL**  
open science

## Towards a Set of Capabilities for Orchestrating IT-Outsourcing in the Retained Organizations

Bas Kleinveld, Marijn Janssen

► **To cite this version:**

Bas Kleinveld, Marijn Janssen. Towards a Set of Capabilities for Orchestrating IT-Outsourcing in the Retained Organizations. 14th Conference on e-Business, e-Services and e-Society (I3E), Oct 2015, Delft, Netherlands. pp.314-325, 10.1007/978-3-319-25013-7\_25 . hal-01448049

**HAL Id: hal-01448049**

<https://inria.hal.science/hal-01448049v1>

Submitted on 27 Jan 2017

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Distributed under a Creative Commons Attribution 4.0 International License

# Towards a set of capabilities for orchestrating IT-outsourcing in the retained organizations

Bas Kleinveld<sup>1,2</sup> and Marijn Janssen<sup>2</sup>

<sup>1</sup>The Orchestra Group B.V., Managing partner.  
Lichttoren 32, 5611 BJ, Eindhoven  
bas.kleinveld@orchestrate-group.com

<sup>2</sup> Faculty of Technology, Policy and Management, Delft University of Technology,  
Jaffalaan 5, 2628 BX Delft, The Netherlands  
M.F.W.H.A.Janssen@tudelft.nl

**Abstract.** Managing outsourcing processes requires a retained organization to orchestrate an organization's IT functions into a concerted whole. Nowadays multiple outsourcing vendors need to be managed. The purpose of this research is to identify capabilities affecting orchestration of outsourced IT functions. An existing framework for outsourcing capabilities is used as a starting point. Due to the scarcity of research a qualitative research approach based on two case studies is taken. The findings shows that the core IS capabilities as found in the literature are found to be too abstract, ambiguous and that several essential capabilities are missed. A framework containing a refined and extended set of capabilities is derived. Four new capabilities were found including: demand, financial, (service) delivery and service portfolio management.

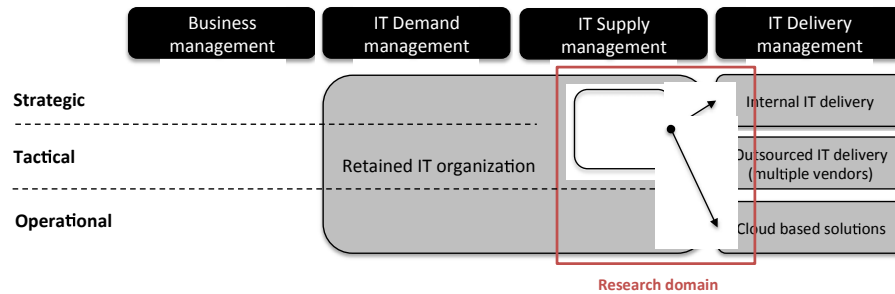
**Keywords:** Capabilities, IT Outsourcing, Multi-vendor outsourcing, capability, Orchestration, Retained organization

## 1 Introduction

Many organizations have outsourced (part of) their IT functions to one or more outsourcing vendors. The IT outsourcing and services offering have changed over time. Due to technology developments such as cloud and market developments companies do not rely on a single vendor any more. Many organizations struggle with their sourcing strategies; retained capabilities and the way function to orchestrate the sourcing providers should be embedded in the organization. In practice, existing capabilities fall short and retained organizations should consider improving their capability in orchestrating sourced IT functions to achieve their objectives. This paper investigates capabilities needed by retained IT organizations for orchestrating sourced IT functions.

When outsourcing IT to other parties the IT still need to be managed by the outsourcing party. For this purpose the client needs a *retained organization*, which orchestrates the various outsourcing vendors. The Figure below shows the retained or-

gation, which is matching the demands from the business (IT demand management) and with the delivery of IT services by either internal or external delivery partners (IT supply management).



**Fig. 1.** Research domain

The retained organization needs capabilities for managing the interdependencies with the multiple outsourcing vendors. In this paper we focus on strategic and tactical capabilities. The main reason for focusing on strategic and tactical capabilities is that operational capabilities are associated with delivery functions performed mostly by suppliers or operational delivery teams, whereas the strategic and tactical aspects of the capabilities are relatively unknown. Lots of non-academic literature on management and governance frameworks is available, but limited scientific literature was identified investigating capabilities needed for orchestrating IT functions. The *goal* of this research is to identify capabilities affecting the orchestration of sourced IT functions.

This paper is structured in sections as follows. First we present the reviewed literature on the capabilities of retained organizations and orchestrating the sourced IT-function. Next the research approach is presented followed by the description of case studies. The case studies include the analysis of the orchestration function, as well as the identified capabilities. These capabilities are elaborated on and further discussed. Finally, conclusions are drawn.

## 2 Literature Background

Organizations have a set of capabilities to remain competitive and conduct their activities. Feeny and Willcocks (2006) defined a capability as a distinctive set of human resource-based skills, attitudes, motivations and behaviors that contribute to achieving specific activities and influencing business performance. Teece et al. (1997) define dynamic capabilities as “the ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments” (p. 516). In 1998, Feeny and Willcocks developed an IT governance and management framework out of two streams of research. The first stream concerned characteristics of high performers in the Information Technology (IT) function; the second examined the retained capa-

bilities needed to run effective IT outsourcing deals. Feeny and Willcocks (1998) synthesized the findings into an IT governance and management framework suggesting four tasks of the future IT function and the nine core capabilities organizations need to retain in-house.

In detailed case research into major IT outsourcing arrangements Kern and Willcocks (2001) and Lacity and Willcocks (2000) found that the relationship dimension between client and suppliers a critical, but also complex to manage. According to Willcocks, Feeny and Olson (2006) governance has a central task to devise organizational arrangements (structures, processes and staffing) to successfully manage the interdependencies, and ensure that the IT function delivers value for money. The model from Feeny, Willcocks and Olsen (2006) presents a number of serious human resource challenges. It requires high performers in each role. Furthermore, in contrast to the more traditional skills found in IT functions there needs to be a much greater emphasis on business skills and orientation in all but the two very technical capabilities, i.e. architecture planning and making technology work. There is a significantly increased requirement for 'soft' interpersonal skills across all roles, all roles demand high performers, and each role requires a specific set of people behaviors, characteristics and skills (Feeny, Willcocks and Olsen 2006). Managing the outsourcing processes required a retained organization to orchestrate the IT functions in a concerted whole. Empirical research remains scarce and there is little known about the underlying theories and management principles. One exception is Plugge and Janssen (2013) who investigated multi-vendor governance by focusing on how resources are coordinated and which resources the organizations are dependent on.

When orchestrating a portfolio of capabilities some capabilities will be executed adequately, others poorly; but a few must be superior to the competition if the business is to sustain a market position that is valuable and difficult to match (Day, 1994). Managers must become thought leaders and strategic architects in determining the company's core functions, building on an in-depth understanding of the potential competitiveness and value contributions of external providers (Spiller et al., 2014).

In multivendor outsourcing, vendors experience a strong degree of distrust between each other, due to lack of unclear strategic roles and responsibilities and lack of structure (e.g. meetings, forecasts). In particular, the vendors' inability or unwillingness to cooperate in delivering IT services to the client affected their relationship negatively. The various roles, activities and responsibilities of each party are often not clear (Plugge & Janssen, 2013). The coordination of IT activities that reflects the relationship between the client and the vendors, however, reveals that no particular coordination mechanism is used. Based on analyses by Plugge and Janssen (2013) research demonstrates that clients and vendors need to develop and implement clear governance structures and mechanisms to coordinate the delivery of IT services successfully. The executive management of both client and vendors has to implement these governance structures to be able to proactively monitor changes in a multivendor landscape.

Governing multivendor outsourcing arrangement is a continuous process that requires regular management attention (Plugge & Janssen, 2013). Managing complex vendor relationships and contracts requires levels of project management skills typi-

cally expected of category managers. This creates significant opportunities to lead increasingly complex sourcing relationships and manage these external relations to maximize value. According to Coltman and Devinney (2013) the need to match supply with demand has gained a prominent position in the service operations (Roth & Menor, 2003) and the wider operations management (Cachon & Terwiesch, 2012) literature. However, the role that managers play in the alignment process has been rarely investigated. Several companies have recognized the need to improve the end-to-end orchestration of their value chains (Spiller et al., 2014).

The findings of a study by Plugge, Bouwman, and Molina-Castillo (2013) demonstrates that outsourcing capabilities and organizational dimensions are perceived to be critical factors in achieving quality performance, and that a fit between them is paramount. The outcome of this study demonstrates that the outsourcing experts perceived that the client's need was less important in influencing organizational structure (Plugge et al., 2013). The results suggest that monitoring and assessing changing client circumstances regularly is a prerequisite for providers to be an agile organization. Consequently, they must be willing and able to adapt their outsourcing capabilities and organizational structure to achieve high quality performance and thus to remain competitive.

### **3 Research Approach**

The goal of this research is to identify capabilities affecting the orchestration of sourced IT functions. This research focuses on situations in which services are continuously delivered. The main reason for this focus is that orchestrating continuous service delivery is complex in nature, since it is related to multiple internal and external suppliers working together. Case study research is employed to gain insight into the capabilities desired and the actual capabilities an organization has to orchestrate. The case studies were investigated by reading reports and conducting interviews. In total two case studies were investigated meeting the following requirements. The companies should be an international company with more than 20.000 employees. The organization should have a mix of internal delivery teams and external multiple vendors and the IT budget should exceed 100 million euro's.

Semi-structured interviews have been conducted on the required core capabilities in orchestrating sourced IT functions will be held. The interviews were conducted between January and May 2015, with 6 senior managers and took 60 to 90 minutes and are important since interviews enable the collection of in-depth information from senior managers. The interview scheme is included as appendix to this paper. Interviews were conducted with the service delivery manager, IT director Applications, EMEA IT manager, program director, director of sourcing, and IT director Platforms.

## **4 Case Studies**

The case studies help us to gain results gain in-depth insight in the nature of orchestration function in IT organizations and the capabilities needed and actual capabilities for orchestration.

### **4.1 Case 1**

The company is one of Europe's largest electricity companies with approximately 31,000 employees. Operations are conducted in different European countries with revenues exceeding 15 billion euro in 2013. The business activities are divided into several Business Units.

The IT organization is divided in a demand and supply management structure. How the demand and supply interact with one another is a central factor for the success of the IT strategy and orchestration function. The IT organization is based on a federated organizational model, where all corporate resources are allocated to IT. The company has over 2.500 applications, of which around 1.200 applications are supported (and financed) by IT. IT supply & delivery management is divided in 3 main IT delivery pillars: IT infrastructure, and 2 application solutions groups

### **4.2 Case 2**

This company is a leading global manufacturing company based in The Netherlands. The company supplies industries and consumers worldwide with innovative products. Its portfolio includes well-known international brands. The company is consistently ranked as one of the leaders in the area of sustainability. The company has global operations with more than 50.000 employees. The revenue in 2013 exceeded 15 billion euro. The company is organized in three main business units.

The IT organization is divided in a demand and supply management structure. Demand and Supply Management manages the interface between business and IT, maintaining the balance of demand and supply of IT services. IT supply is divided in 3 main delivery pillars: Infrastructure services, and two application services groups.

### **4.3 Capabilities in the orchestration function**

When analyzing the orchestration function of both cases, the companies struggle with their sourcing strategies, related capabilities and the way orchestration function should be embedded in the organization. In interviews and documentation, core capabilities to perform the orchestration function were identified. In both cases the core capabilities are primarily performed by external resources. The main reason is the lack of required skills within the organization, and lack of available resources to perform the activities. As a consequence orchestration function in organizations did not have a high maturity level. Further research in this domain is recommended.

**Table 1.** Overview of capabilities

Type of Capabilities	Case: Company X	Case: Company Y
IT-Architecture	<ul style="list-style-type: none"> <li>• IT architecture consists of enterprise architecture, solution architecture and domain knowledge / architecture.</li> <li>• Guarding existing templates / systems while keeping-up the pace with new technologies.</li> </ul>	<ul style="list-style-type: none"> <li>• IT Architecture is considered enterprise architecture, solution architecture, and to a limited extend domain and technical architecture</li> <li>• Although architecture is considered a core capability, it can be sourced from externals in certain situations</li> </ul>
Contract management and sourcing	<ul style="list-style-type: none"> <li>• Managing contracts between key suppliers and the business.</li> <li>• Not implemented at Company X, but is considered key.</li> </ul>	<ul style="list-style-type: none"> <li>• Managing (outsourced) contracts and vendors</li> <li>• Contract management is performed by Sourcing (purchasing), not by IT</li> </ul>
Supplier & vendor management	<ul style="list-style-type: none"> <li>• Managing supplier performance</li> <li>• Managing the vendors and the related IT services.</li> <li>• Supplier management is not implemented during times of this research</li> </ul>	<ul style="list-style-type: none"> <li>• Managing suppliers on the operational performance, KPI management and operational budget</li> <li>Contract management is performed by IT</li> </ul>
Team & relationship management	<ul style="list-style-type: none"> <li>• Managing relationships, stakeholder and people is a capability often underestimated, it remains a people business.</li> <li>• Right team balance between performance, capabilities, internal and external resources.</li> </ul>	<ul style="list-style-type: none"> <li>• Close relationships with the business on their needs and requirements will improve the orchestration function related to sourced IT functions</li> </ul>
Content knowledge related to business domains and (ERP) systems	<ul style="list-style-type: none"> <li>• Content knowledge is understanding of the business processes and map to functionality and IT solutions.</li> <li>• Performed by many externals.</li> </ul>	<ul style="list-style-type: none"> <li>• Content knowledge is understanding of the business processes and map to functionality of the applications in use (strategic applications)</li> <li>• Performed by many externals, although there is a clear strategy to replace externals on this capability.</li> </ul>
Demand management	<ul style="list-style-type: none"> <li>• Stakeholder management</li> <li>• Understanding of business needs</li> <li>• Managing the business demand for IT.</li> </ul>	<ul style="list-style-type: none"> <li>• Managing the demand of IT needs from the business.</li> <li>• Mapping the needs to right IT groups</li> </ul>
Service delivery management	<ul style="list-style-type: none"> <li>• Managing the IT solutions operational delivery (on both internal and external side) on a day-to-day basis.</li> </ul>	<ul style="list-style-type: none"> <li>• Managing the operational delivery on a day-to-day basis including quality assurance.</li> </ul>
Financial management	<ul style="list-style-type: none"> <li>• Mapping the costs to activities, matching this to the actual and forecasted costs made by suppliers</li> </ul>	<ul style="list-style-type: none"> <li>• Charge out model for projects and support services.</li> <li>• Manage supplier statement of works and service level agreements to invoicing and financial bookings.</li> <li>• Although this is considered a core capability, this activity is not optimal performed.</li> </ul>

Service portfolio management	<ul style="list-style-type: none"> <li>• Not indicated as capability by interviewees</li> </ul>	<ul style="list-style-type: none"> <li>• Defining the services to be delivered to the business</li> <li>• IT departments will act more as service providers to their internal customers</li> <li>• Ability to understand what to deliver to internal customers</li> </ul>
------------------------------	---	---

#### 4.4 The orchestration function analyzed

During interviews, the interviewees were asked which capabilities influenced their orchestration function in IT. These capabilities were collected and analyzed using a data matrix. The table below visualizes the capabilities provided by the interviewees from the case studies, including additional capabilities. Some capabilities in the case studies have been confirmed during the interviews, although there is still a gap between case study capabilities and the capabilities identified in literature.

In our research we found 4 capabilities in addition to the capabilities suggested by Feeny and Willcocks (1998) and Willcocks, Feeny and Olsen (2006). Demand management, financial management, (service) delivery management and service portfolio management were found as capabilities, which were mentioned by the interviewees as shown at the bottom of the table. Several capabilities have been integrated to a single capability based on the interview outcomes. Making technology work and architecture planning are IT-architecture, while informed buying, contract facilitation, contract monitoring and vendor development are considered supplier management, contract management and sourcing. Relationship management has been extended to team and relationship management. The capabilities from the case studies and indicated by interviewees are described hereafter.

#### 4.5 IT-Architecture

IT-Architecture was mentioned by almost all interviewees consists of enterprise architecture, solution architecture, and to a limited extend domain and technical architecture. Interviewees indicate that although architecture is considered a core capability, it can be sourced from externals in certain situations. An interviewee quotes the importance of architecture as: “There are always excuses for not using the defined architectural standards. Finding reasons for exceptions creates complexity and issues in organizing IT services. The challenge is that IT delivery functions need to keep up the pace with new technologies while keeping alive the legacy technologies and systems”.





#### **4.6 Supplier management, Contract management and sourcing**

Supplier management, contract management and sourcing are recognized as a core capability by all interviewees to perform the orchestration function of IT. Although this is recognized, several interviewees see developments in this domain. It is recognized as core capability while interviewees indicate that supplier and contract management is a domain for improvement

#### **4.7 Team and relationship management**

Interviewees recognize the need for relationship management and good team management. Managing relationships, stakeholder and people is a capability often underestimated, as all performed activities is still about people. Close relationships with the business on their needs and requirements will improve the orchestration function related to sourced IT functions (interviewee). “At the moment we have a balance and right mix of capabilities. Externals contribute to the right mix of this balance in team management”.

#### **4.8 Content / technical knowledge related to business domains/functions**

Many interviewees indicate that content and technical knowledge related to business domains and functions is a key capability in IT departments, and a key capability in orchestrating sourced IT functions. Content knowledge relates to understanding of the customer’s business and translate this to IT solutions, but also related to the understanding of processes and company dynamics. In addition resources with technical knowledge are needed to be able to judge supplier and internal delivery performance, related to their objectives. Content and technical knowledge related to business functions and domains can relate back to architecture. Some capabilities that have been indicated by interviewees do not match the capabilities from literature and the case studies. Service integration management was a capability from the case studies that was not mentioned by interviewees.

#### **4.9 Demand management**

Demand management is not a capability from literature, but indicated to be important from the cases. Managing the business demand has been indicated as a capability that influences the orchestration function by half of the interviewees. Customer intimacy and business information management are given as areas that are important for demand management.

#### **4.10 Financial management**

Almost all interviewees have indicated that cost optimization if an important driver in their objectives and goals of IT departments. In the findings that influence capabilities, interviewees mentioned cost optimization as important issue. Although this is an important issue, financial management of their IT functions is only recognized by a

number of interviewees, Customer organizations should consider financial management as capability in orchestrating sourced IT functions related to their financial objectives.

#### **4.11 (Service) delivery management**

The delivery of IT services to the business is considered a capability to organizations, as interviewees indicate that it will become even more important. “When outsourcing more services, the capability of delivery management changes. We’ve experienced this and now adapt the philosophy: eyes on, hands off”, according to an interviewee. Mechanisms that can improve delivery functions mentioned across several interviewees is to introduce shared KPI’s across multiple IT towers in delivery and more output measurement rather than activity management. Focus on end result rather than activity.

#### **4.12 Service portfolio management**

One firm believes that service portfolio management will become a more important capability now and in the future, as IT departments will act more as service providers to their internal customers. Interviewee quotes: “This is a core capability organizations should have to be able to understand what they deliver to their internal customers”. Cloud solutions drives the business to buy services directly from the market, while the value for IT departments will decrease if they don’t deliver services to their internal customers, rather than resources.

## **5 Discussion and Conclusions**

In both case studies the interviewees are aware of the importance of orchestrating sourced IT functions and the need to build the right capabilities. The orchestration function is identified as an abstract capability consisting of a subset of capabilities that IT organizations should retain after outsourcing services to external providers. Most interviewees indicated that content and technical knowledge related to business functions is a key capability for their IT department, and a key capability in orchestrating sourced IT functions. When analyzing the orchestration function of the cases, the companies struggle with developing their orchestration capabilities and the way orchestration function should be organized in their organizations. In the cases core capabilities of the orchestration function are often performed by external people or by persons not equipped to perform the role. The main reason for this is the lack of people having the required skills within the organization. Two interviewees indicated that although architecture is considered as a core capability, it can be sourced from externals in certain situations.

When comparing to the findings of the case studies with the literature a clear gap can be seen. Feeny and Willcocks synthesized the findings into an IT governance and management framework suggesting four tasks of the future IT function and the nine core capabilities organizations need to retain in-house. The model from Feeny and

Willcocks (1998) presents a number of serious human resource challenges. However in the literature limited attention has been paid to invest in the relationship, while the cases show that relationship and team management are essential capabilities for orchestration. Furthermore, in contrast to the more traditional skills found in IT functions there needs to be a much greater emphasis on business skills and orientation in all but the two very technical roles. Although the four tasks and nine capabilities of Feeny and Willcocks (1998) show the need for these capabilities, the interviewees in the cases indicate that that the capabilities identified need to be usable in practice. Some of the capabilities of Feeny and Willcocks were found to be formulated at a too high level of abstraction for being usable by the interviewees. In our research we found four new capabilities which were not identified in prior research, e.g. demand management, financial management, (service) delivery management and service portfolio management. Retained organizations should consider financial management as capability for orchestrating sourced IT functions in order to be able to achieve their financial objectives. Furthermore in our research we extended the capability relationship management with team management, as collaboration in teams was found to be a key component.

## References

1. Chadee, D. & Raman, R. (2009). International outsourcing of information technology services: review and future directions. *International Marketing Review*, Vol. 26, no. 4/5, pp. 411-438.
2. Coltman & Devinney (2013). Modeling the operational capabilities for customized and commoditized services, *Journal of Operations Management*, Vol. 31, pp. 555 – 566.
3. Day, G.S. (1994.) The capabilities of market-driven organizations. *Journal of Marketing* 58 (10), 49–63.
4. Feeny, D.F. & Willcocks, L.P. (1998). Core IS capabilities for exploiting information technology. *Sloan Management Review*, Vol. 39, no. 3, pp. 9-21.
5. Gartner Executive Report Series, IT Spending: How Do You Stack Up (2003). Retrieved from the Gartner Inc. website: <http://www.gartner.com>
6. Gartner predicts limited IT outsourcing growth and increased volatility (2013). Retrieved from [http://www.cio.com/article/737472/Gartner\\_Predicts\\_Limited\\_IT\\_Outsourcing\\_Growth\\_and\\_Increased\\_Volatility](http://www.cio.com/article/737472/Gartner_Predicts_Limited_IT_Outsourcing_Growth_and_Increased_Volatility)
7. Gill, Stewart, Treasure and Chadwick (2008). Methods of data collection in qualitative research: interviews and focus groups, *British Dental Journal*, Vo. 204, no. 6, pp 291 - 295
8. Hall, J.A. & Liedtka, S.L. (2005). Financial Performance, CEO Compensation, and Large-Scale Information Technology Outsourcing Decisions. *Journal of Management Information Systems*, Vol. 22, no. 1. pp. 193-221.
9. Jae-Nam Lee, Minh Q. Huynh, Ron Chi-Wai Kwok, and Shih-Ming Pi, (2003). IT outsourcing evolution – past, present, and future. *Communications of the ACM*, Vol. 46, No. 5, pp. 84-89.
10. Janssen, Gortmaker, & Wagenaar (2006). Web service orchestration in public administration: challenges, roles and growth stages. *Information Systems Management*, Vol. 23, No. 2, pp. 44-55.

11. Joha, A. (2003). *The retained organization after IT outsourcing, the design of its organizational structure*. Master Thesis, Delft University of Technology, Delft, The Netherlands.
12. McFarlan, W. E., & Nolan, R. L. (1995). How to Manage an IT Outsourcing Alliance. *Sloan Management Review*, 36-2, pp. 9-23.
13. Mehta, N. & Mehta, A. (2010). It Takes Two to Tango: How Relational Investments Improve IT Outsourcing Partnerships. *Communications of the ACM*, 53-2, pp. 160-164.
14. Ordoobadi, S. (2005). Development of a decision model for strategic outsourcing. *Journal of Applied Business and Economics*, 5-2, pp. 7-24.
15. Pai, A.K., & Basu, S. (2007). Offshore technology outsourcing: overview of management and legal issues. *Business Process Management Journal*, 13- 1, pp. 21-46.
16. Peslak, A.R. (2012). Outsourcing and offshore outsourcing of information technology in major corporations. *Management Research Review*, 35- 1, pp. 14-31.
17. Plugge, A.G. & Bouwman, H. (2013), Fit between sourcing capabilities and organizational structure on IT outsourcing performance. *Production Planning & Control*, 24- 4/5, pp. 375-387.
18. Plugge, A.G. & Janssen, M. (2014). *Governance of Multivendor Outsourcing Arrangements: A Coordination and Resource Dependency View*. Doctoral dissertation, Delft University of Technology, Delft, The Netherlands.
19. Plugge, A.G, Bouwman, W.A.G.A., Molina-Castillo, F.J. (2013) Outsourcing Capabilities, Organizational Structure and Performance Quality Monitoring: Towards a fit model, *Information & Management*, 50(6), pp 275-284.
20. Prahalad, C.K. & Hamel, G. (1990). The core competence of the corporation. *Harvard Business Review*, 68- 3, pp. 79-91.
21. Quinn, J. (1999). Strategic outsourcing: leveraging knowledge capabilities. *Sloan Management Review*, vol. 35, pp. 43-55.
22. Sambamurthy & Zmud (1999), Arrangements for Information Technology Governance: A Theory of Multiple Contingencies, *MIS Quarterly*, Vol. 23, No. 2, pp. 261-290
23. Schroeder, R.G., Bates, K.A., Junttila, M.A (2002). A resource-based view of manufacturing strategy and the relationship to manufacturing performance. *Strategic Management Journal* Vol. 23, pp. 105–117.
24. Sirmon, D.G., Hitt, M.A., Ireland, R.D., Gilbert, B.A. (2011). Resource orchestration to create competitive advantage: breadth, depth, and life cycle effects. *Journal of Management*, Vol. 37, no. 5, 1390–1412.
25. Spiller, Reinecke, Ungerman & Teixeira (2014). New role for the CPO: orchestrating the end-to-end value chain. *Supply Chain Management Review*. July/August 2014, pp. 27 - 33,
26. Strategic Road Map for Outsourcing Competencies. Gartner research G00250619 (2013). Retrieved from the Gartner Inc. website: [www.gartner.com](http://www.gartner.com)
27. The Reality of IS Lite. Gartner research G00117022 (2003). Retrieved from the Gartner Inc. website: <http://www.gartner.com>
28. Tompkins, J. (2003). Outsourcing: solution or setback? Retrieved from the Tompkins International Associates website: [http://www.tompkinsinc.com/publications/competative\\_edge/articles/04-04-Outsourcing.asp](http://www.tompkinsinc.com/publications/competative_edge/articles/04-04-Outsourcing.asp)
29. M. Troost (2009). *Sourcing the retained organization in IT outsourcing*. Master Thesis , Delft University of Technology, Delft, the Netherlands.
30. Willcocks, Fenny & Olsen (2006), IS Capabilities: Feeny-Willcocks IT Governance and Management Framework Revisited. *European Management Journal* Vol. 24, No. 1, pp. 28–37.