## *OEM and Service Provider Attractiveness and Management in High Value-Added Manufacturing Industries*

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# OEM AND SERVICE PROVIDER ATTRACTIVENESS AND MANAGEMENT IN HIGH VALUE-ADDED MANUFACTURING INDUSTRIES

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**ABSTRACT**

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Value creation is considered to be the heart of the customer-supplier relationship. Yet, the concept of supplier attractiveness is underexplored in explaining relationships from an expected value perspective. Furthermore, there is lack of empirical research in the context of service-infused relationships. Particularly, there is deficiency of knowledge about the degree to which original equipment manufacturers (OEMs) may be considered more attractive than service providers and vice versa or if these types of suppliers may need to be managed differently.

The study attempts to contribute to at least two streams of literature by (1) expanding understanding of supplier (OEM and service provider) attractiveness from expected value and inter-firm co-operation perspectives; and (2) identifying practices deployed in contemporary management of relationships in service business networks. To achieve this, a qualitative approach was taken supported by abductive mode of enquiry and multiple case study design.

Findings indicate that vendor attractiveness is viewed as a combination representing the main value dimensions plus other additional factors, showing that supplier attractiveness cannot be considered in isolation from a vendor's embeddedness in service business networks. Also, although service providers and OEMs can have similar competitive priorities, customers have differing expectations from these two groups of vendors. This is reflected in supplier selection criteria and consequently 'the ideal vendor profiles', and in anticipated benefits arising from cooperation. Furthermore, it appears that these types of suppliers need to be managed differently, which is not mentioned in existing theory. Finally, contrary to some of the literature, the importance of tangible and intangible aspects of a purchase does not vary depending on the core product part (tangible goods versus services), and customers do not have direct ties with all service business network members.

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# Contents

**List of tables**

**List of figures**

**Statement of Copyright**

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# CHAPTER 1: INTRODUCTION

## 1.1 Introduction

The objective of the thesis is to explore OEM and service provider attractiveness and management in high value added manufacturing industries. Through this exploration the author is attempting to contribute to academic theory development by advancing existing knowledge on 'supplier attractiveness' (e.g. Hald et al., 2009; Mortensen, 2012) and 'relationship management' (e.g. Henneberg et al., 2013; Moller, 2013; Natti et al., 2014; Ramos et al., 2013) streams of industrial marketing literature in service business networks context. It is also anticipated that the knowledge generated by this enquiry will bring some new insights and provide an informed perspective for the managers.

The chapter begins with an overview of the research background, context and problem (Section 1.2). Section 1.3 outlines the research purpose and questions. Thereafter follow a summary of the research approach (Section 1.4), and the study's contributions (Section 1.5). The chapter ends with brief overview of the thesis structure (Section 1.6).

## 1.2 Background, context and research problem

### 1.2.1 Background

Despite being central in explaining a business relationship, the concept of supplier attractiveness remains unexplored (Ellegaard and Ritter, 2007). Particularly there is lack of knowledge on the determinants of supplier attractiveness and its relation to value (Mortensen, 2012). Building on the fact that the concept of supplier attractiveness can be understood as (1) supplier attractiveness to the customer during the development of buyer-supplier relationship, and as (2) supplier portfolio management (Mortensen, 2012), knowledge of this phenomenon can be improved by addressing it from mainly two perspectives, these being: determinants of OEM and service provider attractiveness; and supplier relationship management within service business networks.

*Determinants of OEM and service provider attractiveness*

As already mentioned, there is a general lack of understanding concerning what makes an attractive supplier (Mortensen, 2012). Hence, OEM and service provider attractiveness is not easily conceptualized.

Although services have four distinctive characteristics (i.e. intangibility, perishability, inseparability and variability) (Giannakis, 2008; Moeller, 2010) and are more difficult to manage (Giannakis, 2008), Lovelock and Gummesson (2004) have questioned the benefits of defining services due to the vagueness of their differences from the manufacturing sector. Certainly, both OEMs and service providers sell to their customers' products that are purely tangible goods or purely services but more often their products are the amalgamations of both.

This begs other questions concerning the degree to which OEMs and service providers differ, one such question relating to whether they offer equal benefits from buyer-supplier cooperation to their customers. In this connection, and despite the fact that the main benefits arising from buyer-supplier cooperation have been well identified (Ahlstrom et al., 2008; Hollos et al., 2012; Kafouros, 2008; Liu et al., 2010; Lunnan and Haugland, 2008; Siler et al., 2003; Tsang et al., 2004, etc.), it is unknown whether these benefits vary for the customers depending on whether they cooperate with OEMs or service providers. Certainly, scholars (Bowen and Ford, 2002; Gebauer and Fleisch, 2007; Kotabe and Murray, 2004; Li, 2011 Thomas, 1978; etc.) have pointed out that sources of competitive advantage differ for these two types of businesses. That said, these studies are principally conceptual in nature, and have been mainly based on the business-to-consumer (B2C) context.

Manufacturing- and service-oriented businesses have also been studied from service infusion perspective. However, the findings of these academics were contradictory. For example, some authors advocate the advantages of strategic move to services (Homburg et al., 2003; Gebauer, 2007; Eggert, et al., 2011), whilst others advise the opposite (Antioco et al., 2008; Fang et al., 2008; Gebauer et al., 2004; Markides and Williamson, 1996; Matthyssens and Vandenbempt, 2008).

The attractiveness of these two types of vendor can also be understood from customer perceived value perspective. Indeed, an appreciation of customer perceived value is crucial for firms wanting to generate competitive advantage (Slater and Narver, 1994; Woodruff, 1997), and therefore, be seen as attractive suppliers. Unfortunately the available knowledge on supplier evaluation and selection, and vendor fit to the 'ideal supplier profile' has a number of limitations, including absence of the research in contrasting environments (services versus manufacturing businesses) – a shortcoming which is discussed in more detail in the Literature Review.

Hence, although the existing literature sheds some light on the nature of manufacturing- and service-oriented businesses, as well as provides a general understanding of the customer value expectations (expressed by supplier selection criteria), and supplier ability to meet them (via fitting the 'ideal supplier profile), there remains a lack of understanding of the determinants of OEM and service provider attractiveness.

*Supplier relationship management*

Since the concept of supplier attractiveness is viewed as (1) supplier attractiveness to the customer during the development of buyer-supplier relationship, and as (2) supplier portfolio management (Mortensen, 2012), it is necessary to study vendor relationship management to fully understand the phenomenon.

Moreover, there is a need to expand the existing theoretical knowledge of service networks to B2B context (Morgan et al., 2007; Spohrer et al., 2007; Vargo and Lusch, 2004; etc.). In this respect, the management of these networks is one of the core directions for future research (Vandaele and Gemmel, 2007; Ramos et al., 2013). Particularly, there is lack of knowledge concerning the peculiarities of different business relationships as well as the organizational arrangements and practices required to manage them, including their creation and maintenance (Moller et al., 2005; Moller, 2013).

Furthermore, the available literature on portfolio approaches to procurement (Dubois and Pedersen, 2002; Gelderman and Van Weele, 2003; Gelderman and Semeijn, 2006; Ozcan and Eisenhardt, 2009; Sigfusson and Harris, 2013; Wagner and Johnson, 2004), techniques of supplier selection (Chai et al., 2013) and relationship governance mechanisms (Caniels et al., 2012; Lumineau and Henderson, 2012; Melander and Lakemond, 2015; Olsen et al., 2005; etc.) is characterized by significant gaps, and rather than facilitating the understanding of supplier relationship management, it provides very limited guidance (See the Literature review for more detail). Additionally, these three streams of literature do not differentiate between the manufacturing and services sectors, and consequently, it remains unknown as to whether OEMs have to be managed differently from service providers and vice versa.

Therefore, an exploration of how the relationships with OEMs and service providers are managed in service business networks has value for the literature and practitioners alike.

### 1.2.2 Context

Despite the importance and growth of services in global economies, the manufacturing sector is considered more advanced in process excellence and performance comparing with services (Giannakis, 2011). Moreover, according to Ellram et al. (2006), supply chain management (SCM) is still strongly skewed towards manufacturing, and the majority of procurement studies have been developed from this sector (Bustikza et al, 2013; Maull et al., 2012). Therefore, to uncover the best 'state of the art' supplier management practices, input of business organizations from these high value-added manufacturing industries (i.e. automotive and shipbuilding) is essential.

Furthermore, since the majority of knowledge within the marketing discipline was developed from within the US or Western-economy based fast-moving consumer goods context (Easton, 2002; Moller, 2013), there is a merit in exploring this particular phenomenon in a developing country business-to-business (B2B) market scenario (Biggemann and Fam, 2011; Puffer and McCarthy, 2011). And hence, the current study will introduce a new dimension by focusing on the B2B markets of two countries, one in a developed country, and the other in a developing one. In this connection, twelve buying and selling companies based in the UK and Russia have been selected, via the snowballing research technique, as research participants. These companies served to permit a multiple case study methodology, enabling the capture of rich, complex and nuanced qualitative data representing many different perspectives (Dubois and Araujo, 2007; Dubois and Gadde, 2002; Eisenhardt, 1989; Yin, 2009). Additionally, the method allowed for the comparison of data across the cases, the two countries, and the two industries, thereby highlighting contrasting outcomes.

### 1.2.3 Research problem

The literature so far noted indicates the lack of knowledge on (1) the determinants of OEM and service provider attractiveness, and (2) OEM and service provider management. Hence, a study of these two areas in contemporary high value added manufacturing industries will be beneficial for both theory development, and the enhancement of procurement and operational management practices within companies and industries in less advanced environments.

## 1.3 Research purpose and questions

Given the research problem, the aim of the study reported in this thesis is to explore OEM and service provider attractiveness and management in two high value added manufacturing industries (automotive and shipbuilding). As part of this process the following two research questions are addressed:

> *(1a) How do customers and (1b) suppliers perceive the attractiveness of OEMs and service providers from expected value perspective in service-infused business relationships?*
> *(2a) How are the relationships with apparently attractive OEMs and (2b) service providers managed in service business networks?*

### 1.4 Research approach

Due to the uniqueness of each business situation from the participants and influential factors perspectives and continuous changes in the business environment, to understand it fully interpretivism and social constructivism have been deployed as epistemological and ontological philosophical positions. And within that, to enable looking at the phenomenon through a practitioner-oriented lens the multiple qualitative case study was employed as the research strategy (Riege, 2003). Furthermore, to achieve practical relevance as well as scientific rigor, an abductive mode of enquiry as advocated by Nenonen et al. (2017) was chosen.

The choice of a qualitative methodological approach and strategy is pertinent for 'sensitive' research topics as they foster a better response level and deploy those data collection methods that are more likely to obtain the required sensitive data (Lee, 1993). Within this research strategy, multiple in-depth data collection methods were adopted, these being: focus groups, face-to-face and telephone interviews and documentary analysis encompassing both secondary internal and external published and commercial data. The research sample consisted of 12 UK and Russian buying and selling organizations, and the selection of one developed and one developing country was a deliberate choice, made in recognition of Biggemann and Fam's (2011) and Easton's (2002) comments that marketing as a discipline has largely drawn its insights from the US and Western economies. The UK and Russia were chosen due to the lack of business and management research based on Russian context (Puffer and McCarthy, 2011), and for other economic, historic and political reasons (see Methodology chapter for more details).

Data collection was accompanied by on-going thematic analysis and literature review. The analysis involved continual refinement of the codes, and was guided by the study's conceptual framework; and from this it was possible to synthesize the findings such that the researcher was able to draw several conclusions, as well as develop a number of managerial implications and recommendations for future research.

### 1.5 Contributions

Contributions to knowledge and practice can be seen from three perspectives.

*Theoretical perspective*

It is anticipated that better understanding of the studied phenomenon will advance academic theory from two perspectives, namely those relating to 'supplier attractiveness' and 'relationship management' in service business networks. This improved appreciation will be achieved by:

(1) Identifying whether supplier attractiveness must be understood differently for manufacturing businesses as opposed to services in terms of (a) expected value (expressed via supplier selection criteria from customer perspective or strategic fit to 'the ideal supplier profile' from supplier perspective) and (b) inter-firm cooperation.

Expanding understanding of the concept of supplier attractiveness from the expected value perspective is one of the research priorities as pointed out by Mortensen (2012). Furthermore, identifying the factors that make suppliers attractive to their customers, and that generate the 'ideal supplier profile', will facilitate the development of an assessment mechanism in respect of the phenomenon of strategic fit, as recommended by Nielsen and Gudergan (2012), Peng et al. (2011) and Smith and Reece (1999) for future research.

(2) Exploring whether suppliers must be managed differently depending on the nature of the business (manufacturing or services) in service business networks. Additionally, as part of this process the author is aiming to establish:

> (a) organizational arrangements and practices deployed to manage supplier relationships in service business networks (including but not limited to techniques deployed in supplier selection), as prioritized by Moller et al. (2005) and Moller (2013) for future theory development;

(b) whether the omission of the time factor in portfolio approaches, as highlighted by Dubois and Pedersen (2002), is critical for supplier management practices, and

(c) whether relational and contractual governance mechanisms substitute (Corts and Singh, 2004; Kalnins and Mayer, 2004) or compliment (Caniels et al., 2012; Melander and Lakemond, 2015; Poppo and Zenger, 2002) each other, since two opposing viewpoints on this issue are held by academics.

*Methodological perspective*

A contribution is also made by the study in methodological terms as it: (1) uses an abductive mode of enquiry to enhance managerial relevance as advised by Nenonen et al. (2017); and (2) follows Biggemann and Fam's (2011), Easton's (2002) and Puffer and McCarthy (2011) recommendation to expand marketing knowledge through studying the B2B context not only in a Western country but also in a developing nation with a political and economic history of communism.

*Managerial perspective*

The study also contributes from the managerial perspective as it brings new insights and provides an informed perspective for managers from less advanced companies or industries wishing to improve their daily practices in a number of areas as follows:

(1) Better understanding of the factors that make suppliers attractive, as outlined in this thesis, may help to strengthen the businesses for

a. the customers by seeking out the most attractive vendors and imposing supplier selection criteria that recognize important supplier attributes, and
b. the suppliers by prioritizing the areas valued by their customers, and therefore, fitting better to their respective 'ideal supplier profiles'.

Hence, this will help to respond to the managerial questions posed by Moller et al. (2005) and Moller (2013) as to: what partners should be selected, what criteria and procedure should be imposed, and how the roles and responsibilities among these actors should be negotiated. Furthermore, knowledge of these main factors or what to assess to fit the 'ideal supplier profile' will facilitate the development of appropriate assessment mechanisms for strategic fit to the 'ideal supplier profile' by the business organizations to suit their processes and needs, thereby

responding to the call of Nielsen and Gudergan (2012), Peng et al. (2011), and Smith and Reece (1999).

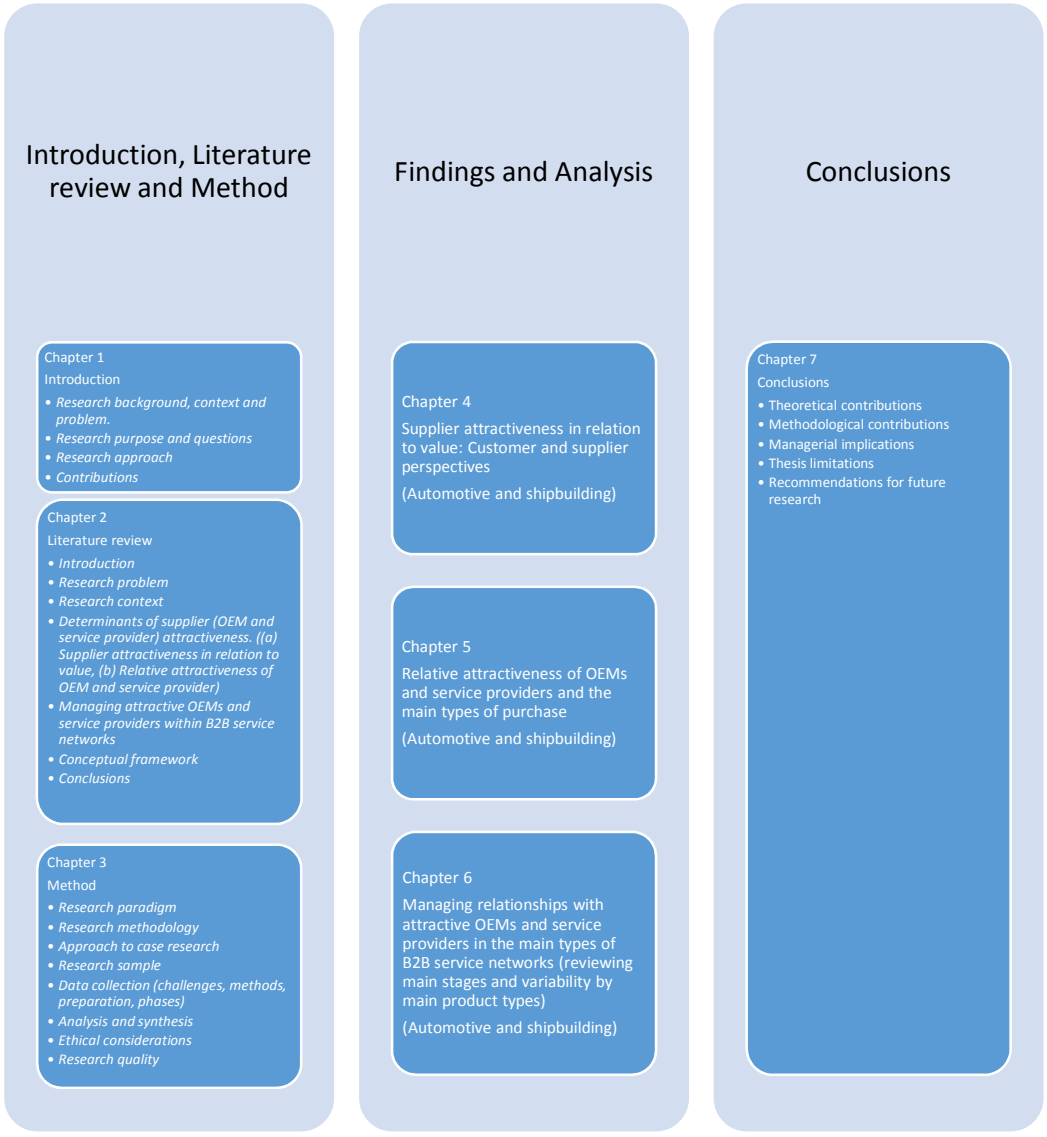
(2) Knowledge of the supplier management practices from high value added manufacturing industries will help:

a. customers to manage their suppliers more effectively based on how customers from more advanced industries from supply and operational perspectives do it (including supplier selection techniques, supplier portfolio management, relationship governance mechanisms, etc.),
b. suppliers by preparing them to respond to their customers' expectations based on the examples given in this thesis. Thus, the gap illuminated by Moller et al. (2005) and Moller (2013) concerning the shortfall in knowledge about the peculiarities of different business relationships as well as the organizational arrangements and practices required to manage them, including their creation and maintenance, will be addressed and managers will receive guidance in this respect, and
c. to bridge the gap between the conceptual problems and the utilization of portfolio models deployed in supplier relationship management, in practice as observed by Gelderman and Van Weele (2003), Gelderman and Semeijn (2006), Sigfusson and Harris (2013) and Wagner and Johnson (2004).

### 1.6 Thesis structure

This chapter has introduced the research topic and provided a justification for the research, such that the scene is comprehensively set for the study. The next chapter takes the reader through the literature, presenting a review of the existing body of relevant knowledge, and the following chapter introduces the research method. Thereafter follow three chapters dedicated to the research findings and their analysis. In these, attention is given to the supplier attractiveness from the expected value perspective; and the relative attractiveness of OEMs and service providers, and management of apparently attractive OEMs and service providers in service business networks. The concluding chapter summarizes and closes the literature, draws several theoretical conclusions, and makes managerial recommendations as well as outlines thesis limitations and directions for future research. Figure 1.1 depicts the structure diagrammatically.

*Figure 1.1 Thesis structure*



## CHAPTER 2: LITERATURE REVIEW

### 2.1 Introduction

The purpose of this chapter is twofold. Firstly, it reviews and analyzes existing theory in relation to the research topic in order to identify and summarize the present knowledge in this respect, and to identify theoretical gaps that need to be addressed in the current study, via their formulation as research questions. And secondly, it situates the findings obtained after asking these research questions within an already existing theoretical framework.

In order to identify the relevant literature, the author explored multiple information sources, including books, professional journals, Internet resources, and periodicals. All these sources were accessed either through Durham university libraries or via the following online databases: Web of Science, Science Direct, Emerald, Scopus, First Search, EBSCO, Westlaw, JSTOR, and Google Scholar. Google and Yandex search engines have also been utilized to find relevant primary and secondary literature sources. Selection was limited to only those publications written in English and Russian, and mainly to those produced within the last five to ten years. The ABS rating was used to prioritize grade 3 and 4 journals over journals graded 1 and 2.

The following key words were used to perform the literature search: services, services' businesses, manufacturing businesses, service infusion, service transition strategies, competitive advantage in services, competitive advantage in manufacturing, value, value creation, value in business networks, service business networks, third parties in business relationships, roles of third parties, supplier attractiveness, vendor attractiveness, attractive supplier, attractive vendor, buyer-supplier co-operation, business co-operation, inter-firm alliances, supplier selection, vendor selection, supplier selection criteria, selection criteria, main value dimensions, strategic fit, fit to the 'ideal supplier profile', managing business networks, managing business relationships, managing services, portfolio approaches to procurement, relationship portfolios, product categorisation, purchase categorisation, relationship governance, supplier selection, supplier evaluation, vendor evaluation methods, and supplier evaluation techniques.

During the ongoing literature review and analysis as well as continuous data collection, analysis and synthesis, three themes emerged, these being: (1) supplier attractiveness in relation to value (Theme A), (2) relative attractiveness of OEMs and service providers (Theme B), and (3) managing relationships with attractive OEMs and service providers

in the main types of B2B service networks (Theme C). All these themes helped to structure the current chapter and are discussed in more detail in the later Findings and Analysis chapters. Relevancy of the publications to these three themes was used as the criteria for retaining and discarding the literature reviewed.

The literature review and analysis was ongoing throughout the data collection, analysis and synthesis, and was undertaken as part of the study during the period from 2012 to 2018. As part of this process several streams of literature were critically reviewed. The next section of the chapter poses the research problem by reviewing it from the perspectives of: (1) OEMs and service transition strategies and (2) supplier attractiveness, with the latter being understood as (a) the development of buyer-supplier relationship and (b) vendor portfolio management. The research context (high value-added manufacturing industries) is outlined within the review. Section Four reviews the determinants of attractive supplier in relation to (1) value (presented from the perspectives of (a) strategic fit to the 'ideal supplier profile', and (b) vendor evaluation and selection) and (2) the relative attractiveness of OEMs and service providers based on the existing knowledge concerning (a) the peculiarities of services businesses, (b) strategy in services as opposed to manufacturing, and (c) inter-firm co-operation. Section Five outlines the input and limitations of: (1) relationship management in service business networks; (2) portfolio approaches to procurement, (3) techniques deployed in supplier selection, and (4) relationship governance mechanisms in managing relationships with attractive OEMs and service providers. These four sections of the literature represent the scope of the literature review, as shown in Table 2.1.

The next section of the literature familiarizes the reader with the research problem, while the other three sections enable the identification of gaps and omissions, highlight contradicting opinions in existing theory, and subsequently pose the research questions. These research questions are discussed in more detail during the reviews of each topic in Sections 3 to 5 of the chapter, which culminate in the research implications. Then follows Section 6, summarizing all the reviewed material in the study's conceptual framework, thereby further contributing to the ongoing development of the study. Thereafter follow the chapter conclusions, in which the main points of the literature review are highlighted.

*Table 2.1: Scope of the literature review*

| Understanding OEM and service provider attractiveness and management | Determinants of attractive suppliers (section 2.4) | Managing relationships with attractive OEMs and service providers (section 2.5) |
|---|---|---|
| **Research problem (section 2.2):**<br>1. OEMs and service transition strategies (section 2.2.1);<br>2. Understanding supplier attractiveness (section 2.2.2):<br>- During the development of the buyer-supplier relationship; and<br>- Attraction in vendor portfolio management.<br>**Research context (section 2.3):**<br>3. High value-added manufacturing industries. | 1. **Supplier attractiveness in relation to value** (section 2.4.1):<br>- From a strategic fit perspective;<br>- From a vendor evaluation and selection perspective<br>2. **Relative attractiveness of OEMs and service providers** (section 2.4.2):<br>- Services versus manufacturing;<br>- Is strategy different in services?; and<br>-Inter-firm co-operation | 1. Managing relationships within service networks (section 2.2.4)<br>2. Portfolio approaches to procurement (section 2.5.1)<br>3. Techniques deployed in supplier selection (section 2.5.2)<br>4. Relationship governance mechanisms (section 2.5.3) |
| Research problem and context | Research question 1 | Research question 2 |
| - | Themes A and B | Theme C |

## 2.2 Research problem

The problem of this thesis requires understanding from two perspectives: OEMs and service transition strategies (see 2.2.1) and supplier attractiveness (see 2.2.2).

### 2.2.1 From OEMs and service transition strategies perspective

Due to the facts that the world economy is becoming more service-driven while the manufacturing sector is experiencing slower growth, and that increasing commoditization and declining profitability are evident, there is more and more interest from industrial manufacturers to expand beyond their core products market and pursue 'service transition strategies' or service infusions (Fang et al., 2008; Forkmann et al., 2017; Hakanen et al., 2017; Salonen, 2011; Spohrer and Maglio, 2008; Vargo and Lusch, 2004; Wise and Baumgartner, 1999).

The transformation from manufacturing-oriented to service or solution-oriented companies has been explored by a number of authors (see for example, Brax, 2005; Oliva and Kallenberg, 2003; Reinartz and Ulaga, 2008, Eggert et al., 2011, Salonen, 2011, Forkmann et al., 2017), but the reported outcomes have been contradictory. And while having an opportunity to improve company performance in terms of profitability, market share, cash flow and customer satisfaction (Homburg et al., 2003; Gebauer, 2007; Eggert, et al., 2011; etc.), manufacturers do run the risk of making a wrong

strategic decision by losing long-term focus, creating internal conflicts, mis-managing resources, and losing the loyalty of existing customers (Fang et al., 2008).

One group of researches (Antioco et al., 2008; Gebauer, 2009: Homburg et al., 2003, Eggert et al., 2011) has found a positive impact of a transition to services on manufacturing companies' performance, competitiveness, and sustainability. Among the reasons advocating service transition strategies are: revenue generation from servicing installed core products with a long life-cycle (Knecht et al., 1993; Potts, 1988, Salonen, 2011); revenue stability as services are more resistant to economic cycle fluctuations (Quinn, 1992); being able to sell more due to service orientation (Mathe and Shapiro, 1993); being able to influence more customer satisfaction (Burger and Cann, 1995); and facilitating the adoption of new products (Franmach et al., 1997). It has also been proven that transition to services improves customer confidence and supplier credibility (Hawes, 1994), as well as customer perceptions in terms of value proposition, know how, and product performance (Vandermerwe, 1994). Additionally, a move to services is considered a viable option when maintaining technological superiority (Gronroos, 1990) and cost leadership is problematic (Zeithami and Bitner, 1996). Furthermore, due to their intangible and difficult-to-copy nature, services are considered by Anderson and Narus, (1995), and Oliva and Kallenberg (2003), to provide an opportunity to create an attractive customer offering.

On the other hand, manufacturers should be aware of the competition from professional service organizations (Antioco et al., 2008; Markides and Williamson, 1996), the fact that margins associated with services supporting clients' actions are lower than margins in services supporting suppliers' products (Gebauer et al., 2004), resource requirements (Matthyssens and Vandenbempt, 2008), and service market entry barriers. (Levitt, 1981; Salonen, 2011; Matthyssens and Vandenbempt, 1998; Wagner, 1987).

Since there is no definitive answer to the question of what makes for OEMs' successful transition to services, several studies have been conducted in order to establish whether it is possible to pre-determine the outcome of such a strategic move to the service sector by considering a number of variables.

In this respect, it has been identified that industry and company characteristics contribute towards the result of the change. If the industry is experiencing growth it is not advised to initiate change from manufacturing to service orientation and vice versa (Fang et al., 2008). From the organizational viewpoint, Fang et al. (2008) considered communalities between products and services in order to be able to utilize the resources used for

product value-creation businesses in services. Auguste et al. (2006), and Bowen et al. (1989) stressed the importance of service offerings being able to fit into the product propositions and their competitive strategies. Sharfman et al. (1998) emphasized that the development of new strategic ideas is possible if there are resources available and no disruption to existing business operations is envisaged. Alternatively, if manufacturing business organizations require substantial investment and resources in order to be able to create service offerings and compete in the service sector, they are less likely to succeed (Kim and Finkelstein, 2008; Kraatz and Zajac, 2001).

Human resource management and corporate culture have received more attention from scholars, than have other types of resources. Antioco et al. (2008), Donaldson (1995), Gebauer (2007), and Homburg et al. (2003) have all discovered in their studies, a positive connection between industrial services and organizational performance via management commitment and cross-functional communications.

Although all these studies undoubtedly represented significant steps forward in terms of understanding the positive and negative outcomes of the strategic move to services, and the factors that are likely to make service transition strategies successful, unfortunately, *there is no clear answer to why the OEM may be considered a more attractive supplier than a service provider, or vice versa.*

### 2.2.2 From supplier attractiveness perspective

Although the concept of attractiveness is central to the explanation of a business relationship, it is not well-defined, and requires a significantly deeper understanding to be developed (Ellegaard and Ritter, 2007; Moon and Bonney, 2007; Mortensen, 2012). Attractiveness has been mentioned sporadically in the business relationship literature since the late 1980s (i.e. Dwyer et al., 1987, and Halinen, 1997), but it was only in the 2000s that Ellegaard et al. (2003), Ellegaard and Ritter (2007), and Hald et al. (2009) started searching for its fundamental essence. Even now attractiveness is still considered a new concept, and is perceived in different ways due to the scarcity of existing theory (Mortensen, 2012). Mortensen (2012) has studied all the literature related to the concept of supplier attraction, and identified the fact that it has been used mainly in two areas: supplier attractiveness to the customer during the development of the buyer-supplier relationship, and attraction in vendor portfolio management. Hence, a better understanding of supplier attractiveness relies on a review from these two perspectives.

#### 2.2.2.1 Supplier attractiveness to the customer during the development of the buyer-supplier relationship

Dwyer et al. (1987) were the first authors to distinguish attraction as an essential and explanatory element of a dyadic business relationship, from initiation to its further development. They proposed five phases of business relationship, building on social exchange theory (Thibaut and Kelley, 1959; Scanzoni, 1979). The developmental phase of the business relationship begins with awareness prior to any interaction between the parties. During the exploration phase, suitable partner searches are made and trial relationships allowed to occur. If the partner achieves satisfactory performance during this stage the relationship further progresses to the expansion stage. The developmental phase is then followed by the commitment in terms of inputs, durability and consistency, and dissolution. Dwyer et al. (1987) saw attractiveness as the extent to which buyers and sellers achieve more than a minimum level of reward-cost outcome in their interaction with each other, reward being associated with both tangible and intangible gratifications, and cost relating to economic and/or social deterrents.

Halinen (1997), Harris (2003), and Hald et al. (2009) were inspired by Dwyer et al. (1987), and viewed attraction in dyadic business relationships from an even more dynamic perspective. Halinen (1997) defined attraction as a firm's interest in trading with another company, that interest being driven by economic and social reward-cost outcomes expected from the relationship over time. Thus, she views attraction as a 'future-oriented bond' that draws and keeps the relationship together based on conscious and unconscious expectations. According to the author, relational bonds contain the continuity dimension of business relationships between the two parties and, therefore, are identified through three evolving bonds: attraction, trust, and commitment.

Building on the works of Dwyer et al. (1987), and Halinen (1997), Harris et al. (2003) explained attraction as three components of a dyadic relationship: initiation, development, and maintenance. Their general theoretical framework is based on attraction incorporating past, current, and future economic, resource-based or social rewards, and the emergence of trust, commitment, co-operation, and relationship development. They view attractiveness as the degree to which relational partners see past, current or potential partners as professionally appealing in terms of their ability to provide superior economic benefits, access to important resources, and social compatibility.

Wilkinson et al. (2005) referred to attraction as 'business mating' with expected value being its core. The latter represents an initial spark that ignites and then develops the relationship. According to the researchers, since attraction is perceived by individuals it is more likely to occur between individuals who share similar backgrounds, morals, ways of doing, codes of conduct, complimentary skills, and reputations.

Ellegaard and Ritter (2007) distinguished two perspectives of attractiveness in business relationships: 'customer attractiveness' and 'supplier attractiveness'. They argue that it is a mutual construct, which describes the strengths of the mutual interest of the two actors to each other. In their understanding, attractiveness is determined by three main factors: value creation (potential value), interaction process (trust and commitment), and emotion. Clearly, emotion brings an irrational approach to decision-making. And Ellegaard and Ritter (2007) emphasized the importance of empirical research in this area.

Also inspired by social exchange theory, Hald et al. (2009) explained attraction as a force stimulating voluntarism in purchasing and marketing exchange, pushing a buyer and supplier closer together in a mutually- beneficial relationship (p. 968). They argued that attractiveness can be seen as a function of: P[Expected value]; P[Trust]; and P[Dependence].

Hence, every outlined literature source has highlighted the vital role of expected value in understanding supplier attractiveness. Ulaga (2003) and Hald et al. (2009) have even attempted to establish relationship value drivers or main dimensions of value. While both of the authors distinguished costs, innovation, and time compression, Ulaga (2003) also found product quality, service support, and delivery to be important. However, the findings of these two authors have been considered insufficient, and the literature is still lacking elaboration on the determinants of attraction (Mortensen, 2012). Moreover, *the empirical exploration of supplier attractiveness in relation to value would be extremely beneficial in the development of both theory and business organizations, whether they be in the customer or supplier role* (Hald et al., 2009; Mortensen, 2012).

#### 2.2.2.2 Attraction in vendor portfolio management

Mortensen (2012) suggested the existence of a strong association between the concept of 'attraction' and portfolio management. In this connection, attractiveness can be understood in relation to suppliers' relative attractiveness as perceived by the customer. In this way attractiveness is used as a dimension of assessment to evaluate the

supplier's 'total package' as its current or future potential for the customer. Indeed, Olsen and Ellram (1997) actually referred to supplier attractiveness as portfolio management, perceiving it as a measure enabling customers to prioritize their suppliers, and manage them accordingly. In considering suppliers, several purchasing portfolio models suggest the need to differentiate purchasing and vendor management strategies based on the type of purchase. (Existing portfolio approaches to procurement are discussed more comprehensively in sub-section 2.5.2 of this chapter.)

Consequently, *a consideration of the concept of supplier attractiveness from the vendor portfolio management perspective requires an understanding of how attractive suppliers can be managed*.

### 2.2.3 Summary

The literature outlined within the last two sub-sections of the chapter, and the limitations within it, point to the fact that a more grounded appreciation of supplier (OEM and service provider) attractiveness and management is required. Based on the gaps in theory outlined earlier, this understanding can be obtained by addressing this phenomenon primarily from two perspectives: (1) determinants of supplier attractiveness with regard to (a) its relation to value, and (b) relative attractiveness of OEMs and service providers (see Section 2.4), and (2) managing relationships with attractive suppliers (OEMs and service providers) in the main types of B2B service networks (see Section 2.5). Table 2.2 simplifies the above two subsections and displays the main literature.

*Table 2.2: Research problem and relevant literature*

| **Research problem: OEM and Service Provider Attractiveness and Management** | | |
|---|---|---|
| **From OEM and service transition strategies perspective** | **From supplier attractiveness perspective** | |
| | **Understood as 'Supplier Attractiveness to the Customer during the Development of the Buyer-supplier Relationship'** | **Understood as 'Attraction in Vendor Portfolio Management'** |
| **Literature:** Eggert et al., 2011; Fang et al., 2008; Forkmann et al., 2017; Hakanen et al., 2017; Reinartz and Ulaga, 2008; Salonen, 2011; Spohrer and Maglio, 2008; Vargo and Lusch, 2004; Wise and | **Literature**: Dwyer et al., 1987; Ellegaard and Ritter, 2007; Hald et al., 2009, Halinen, 1997; Harris et al., 2003; Komulainen et al., 2005; Mortensen et al., 2008; Mortensen, 2012 and Ulaga, 2003. (See **section 2.2.2.2**) | **Literature:** Mortensen, 2012; Olsen and Ellram, 1997. (See **section 2.2.2.2**) |

| | | |
|---|---|---|
| Baumgartner, 1999, etc. (See section 2.2.1) | | |

## *2.3 Research context*

Countries with the highest GDP growth have their economic activity concentrated onhigh value-added products, e.g. automobiles, airplanes, medical devices, computers, electronics, etc. (Kalpakjian and Schmid, 2008). Manufacturing these products is very important for national and even global economies, and the role of such manufacturing in creating direct and indirect employment cannot be underestimated (The Society of Motor Manufacturers and Traders, 2014).

Furthermore, despite the importance and growth of services in global economies, the manufacturing sector is considered more advanced in process excellence and performance when compared with services (Giannakis, 2011). And moreover, according to Ellram et al. (2006), supply chain management (SCM) is still strongly skewed towards manufacturing. Indeed, the majority of procurement studies have been developed from this sector (Maull et al., 2012, cited in Bustikza et al., 2013). Therefore, it is beneficial to explore procurement practices within these more advanced from procurement and operational perspectives industries, i.e. automotive and shipbuilding.

Vehicle manufacturers and shipbuilders are typical examples of the customers from B2B markets. Although these markets make a larger impact on national economies and the lives of human beings in comparison with B2C equivalents, B2B marketing knowledge had limited scientific identity up until the last three decades (Ellis, 2011). Furthermore, only the latest theory makes a clear distinction between the two (Hadjikhani and La Placa, 2013; La Placa, 2009; Vargo and Lusch, 2011). *Hence, exploring OEMs and service providers' attractiveness in high value-added manufacturing industries will be advantageous for both B2B marketing knowledge development and the enhancement of less advanced from a procurement and operational perspectives managerial practices viewpoint.*

### 2.4 Determinants of attraction in suppliers

With the aim of establishing those qualities and features that make an attractive supplier, the author has reviewed the existing literature from two perspectives: supplier attractiveness in relation to value (see Section 2.4.1), and the relative attractiveness of OEMs and service providers (see Section 2.4.2).

### 2.4.1 Supplier attractiveness in relation to value

The main dimensions of value (or relationship value drivers) suggested by Ulaga (2003) and Hald et al. (2009) (see Section 2.2.2.2), coincide with two other streams of literature focusing on value in business relationship from either the supplier or customer perspective. The first is expressed by the notion of strategic fit to the 'ideal supplier profile', while the second concerns supplier evaluation and selection.

#### 2.4.1.1 Strategic fit to the 'ideal supplier profile'

As a 'situated activity', strategy transforms and is transformed by the environment (where it occurs), and it cannot therefore be considered in isolation from that (Jarzabkowski, 2005). The concept of fit is widely used within the strategy literature to refer to congruent relationship between the business organization and its environment (Nielsen and Gudergan, 2012). Based on contingency theory (Lawrence and Laursch, 1967), a company with the internal features best suited to external environmental demands, will outperform its competitors in the market. According to Miles and Snow (1978), the absence of alignment between the environment and the company business strategy, structure, processes, and technology leads to organizational inefficiency and below-average performance.

Within the academic community there is no single understanding of the concept of fit, and its utilization within the literature varies. Geringer (1988) used it to denote particular partner characteristics, such as resource-based matching of capabilities. Jemison and Sitkin (1986) argued that it was important to distinguish strategic from organizational fit, since whilst the former is concerned with similarities in technology, products, and markets, the latter refers to communalities in organizational processes, such as culture, administrative, and human resource systems and policies (Jemison and Sitkin, 1986). Beamish (1988) referred to the concept of fit when studying inter-partner compatibility and complementarity. And it has also been used as a concept to describe strategic congruence or symmetry (Harrigan, 1988), strategic fit (Saxton, 1997), inter-firm diversity (Parkhe, 1991), and ideal profile deviation (Venkatraman, 1989; Hult et al., 2006; Kabadayi et al., 2007; Vorhies and Morgan, 2003, 2005; Zaefarian et al., 2013). Expanding on this last interpretation, more recent researchers (Nielsen, 2010; Nelson and Gudergan, 2012) have articulated the concept of strategic fit as a deviation of the outcome of the supplier business strategy from the ideal supplier relationship profile.

This study adopts the ideal profile deviation view just described. According to this perspective, a customer may want to benefit from its business partner in many different ways at the same time. Following this logic, if a business organization is able to satisfy customers' needs better than its competitors can, it has more business and thus more profit, which enables it to pay personnel reasonable salaries, provide suppliers with more opportunities, and shareholders with more income.

Since every strategy has the ultimate target of creating enduring value for every stakeholder (Pettinger, 2004), it must determine the directions through which the company intends to compete, and either competitive criteria are imposed in respect of their suppliers (Hill and Brown, 2007) or the agreed competitive priorities of a strategic business unit are followed. The degree to which the supplier matches the criteria, determines the choice of the vendor. The customer decision in this respect dictates the level of strategic fit of each of the potential vendors and, therefore, the outcome of its business strategy – loss or gain of the business or a neutral position.

The competitive priorities or criteria are required to manage and assess the level of strategic fit (Peng et al., 2011). Although the literature on strategic fit to the 'ideal supplier profile' is highly inconsistent in terms of the research context and its empirical assessments (Nielsen and Gudergan, 2012; Peng et al., 2011), according to Lillis and Sweeney (2013) these competitive priorities normally contain cost, quality and delivery dimensions. On the other hand, due to the fact that operational performance is typically assessed along five dimensions (cost, quality, delivery, flexibility and innovation) (Ferdows and De Meyer, 1990; Noble, 1995), various combinations of these dimensions have been studied in relation to suppliers' strategic fit (Peng et al., 2011). However, as mentioned earlier available theory on strategic fit is highly inconsistent in terms of the granular attributes within the studied dimensions and the research context. Furthermore, there is a call for empirical research in services (Hill and Brown, 2007) and emerging countries (Peng et al., 2011) contexts.

*Hence, the available literature on fit to the 'ideal supplier profile' is inconsistent from both theoretical and empirical perspectives, lacks granularity, and consequently struggles to assess the phenomenon due to absence of knowledge on (1) the factors used to evaluate due to its inconsistency, and (2) how to evaluate (Nielsen and Gudergan, 2012; Peng et al., 2011; Smith and Reece, 1999). It also struggles to address so popular nowadays network perspective on business relationship based on its only five known dimensions (see section 2.5.1 for more details). Furthermore, it has not studied the*

*phenomenon in contrasting environments (services versus manufacturing businesses or developed versus developing countries), and therefore, it is unknown whether supplier strategic fit varies based on these contexts (*Hill and Brown, 2007; Peng et al., 2011).

#### 2.4.1.2 Vendor evaluation and selection

Vendor evaluation and selection is of strategic importance for the performance of any business organization (Bhutta and Huq, 2002; Weber et al., 1991). It is an essential part of the holistic and strategic approach towards demand, operations, procurement, and logistics process management (Kuei et al., 2002). Supplier selection criteria, containing the main value dimensions for the required products, are widely used by the business organizations to define the value and assess the propositions of supplier offerings against each criterion.

Supplier selection criteria, and supplier performance measurement are issues that have been a focus of attention by both academics and practitioners since the 1960s. One of the early works in this area is that by Dickson (1966), who summarized 50 distinct factors (characteristics of vendor performance) from the purchasing literature, identifying 23 of these as the most significant. The top ten factors were established as being: quality, delivery, performance history, warranties and claim policies, production facilities and capacity, price, technical capability, financial position, procedural compliance, and the communication system. Subsequently, with the growing importance of just-in-time (JIT) manufacturing strategies, Weber et al. (1991) tracked the evolution of supplier selection criteria in JIT systems by reviewing the relevant literature written between 1967 and 1991 to identify the importance of each of the criteria over time. His work demonstrated that quality, delivery, net price, geographical location, production facilities and capacity, technical capability, attitude, management and organization, packaging, operational controls and repair service appeared to be the most important.

Later Krause et al. (2001) considered the relationship between competitive strategy and functional area strategies by evaluating main competitive priorities within the manufacturing strategy literature. They identified from 13 years of empirical research literature published between 1984 to 1996, that cost, quality, delivery, and flexibility had the highest degree of strategic importance for the organization. After drawing this conclusion from the literature, these researchers tested it within various industries (chemicals, electronical/electronic equipment, food, machinery, miscellaneous manufacturing, transportation equipment etc.), finding that all four factors are extremely important for these businesses.

Although these studies identified and summarized the key supplier selection criteria, they represent a high-level of generalization and do not explain why each factor within the overall criteria is highly important for particular businesses. Moreover, work performed by other authors demonstrates that the degree of importance of these criteria, supplier evaluation and decision-making process, and personnel involvement in each of these areas varies significantly by country, company, organizational size, and type of purchase.

For instance, Dong and Glaister (2006) pointed out that motives and partner selection criteria differ across countries. And similar conclusions were reached by Ebrahimpour and Mangiameli (1990) as they discovered significant differences in vendor evaluation criteria and perceived organizational performance in their comparison of American and Japanese firms. From a supplier country of origin (or location) perspective, Maltz et al. (2011) identified significant differences in respondents' feedback regarding supplier attributes for different low cost countries, e.g., labour and transport costs, work ethic, flexibility, attractiveness of the local market, government corruption, and support for business, etc.

The study by Fink et al. (2011) also suggests that company performance associated with the supplier relationship varies based on the company's size and resources. However, Pearson and Ellram (1995) had earlier argued that the industry and its competitive environment are more influential upon selection criteria than is company size. They also discovered that larger organizations tend to have a more formalised approach towards supply base management and greater involvement of engineering and production/ operations personnel in supplier evaluation and selection. Patton III (1997) considered individual and joint decision-making in industrial vendor selection and distinguished three decision style clusters summarizing their deployment depending on organizational size, personnel experience, and attitude towards risk. He also discovered that these three groups made different vendor selection decisions. Swift (1995) found that supplier selection criteria differ depending upon whether purchasing managers prefer single sourcing or multiple sourcing. And Kannan and Tan (2006) highlighted more recently, that buyer-supplier relationships impact on supplier selection and buyer-supplier engagement, which in turn have an influence on supplier performance expectation.

Kotabe and Murray (2002), and Wuyts et al. (2009) identified differences between services procurement and partner selection, and tangible product equivalent, stressing the importance of these differences for supplier positioning. This conclusion agrees with

the logic of Lehmann and O'Shaughnessy (1974), Kraljic (1983), Lambert and Schwieterman (2012), and Rezaei and Ortt (2013) who emphasized the importance of product and supplier categorization as a means of improving vendor relationship management, and hence, company performance.

*Thus, the existing literature suggests that although several main factors used for vendor selection have been identified, their significance cannot be determined in isolation from the industry, country, business environment, product type, and company size. Additionally, the supplier evaluation process tends to be company specific, and therefore, general guidelines are not applicable.*

*Furthermore, the majority of the literature on main value drivers or dimensions of value and supplier selection criteria is principally quantitative or conceptual and hardly have studied the phenomenon in a services context. Moreover, some of these studies were performed two or even three decades ago, and based on the distinguished factors do not capture the network perspective on business relationships (see section 2.5.1 for more details), nor have they explored the issue of whether the main relationship value drivers or dimensions of value and supplier selection criteria differ for vendors depending on the core element of their products.*

### 2.4.2 Relative attractiveness of OEMs and service providers

#### 2.4.2.1 Services versus manufacturing

A number of academics have argued that services must be distinguished from the manufacturing sector for several reasons. Firstly, unlike manufacturing goods, services have four special characteristics: intangibility, inseparability, perishability, and heterogeneity (Giannakis, 2008; Moeller, 2010). As a result it is believed that they cannot be transported, stored or made in the same way as goods due to the simultaneous process of its production and delivery. Secondly, their heterogeneity leads to the lack of performance metrics and best practices for services, which makes them significantly more challenging to manage (Giannakis, 2008). And finally, Morgan et al. (2007) and Morgan and Tax (2004) have stated, and more recently Ramos et al. (2013) have emphasized that unlike in manufacturing, service business networks are characterised by direct ties between the customer and all the other actors.

On the other hand, however, it is argued by some scholars that the distinction between services and manufacturing is not clearly defined. In this respect, it has been noted that

differences between products and services are actually quite vague, which questions the benefits of defining services at all (Gronroos, 2007; Lovelock and Gummesson, 2004). Indeed, although both OEMs and service providers sell products that are pure tangible goods or pure services, it is more likely that what they sell are amalgamations of both. Secondly, some services have tangible goods characteristics and are difficult to define, which can lead to initiating inappropriate marketing strategies for these businesses (Lovelock and Gummesson, 2004). And thirdly, available statistics are based on a business sectors classification created in the industrial era, which undermines the value of quantitative research in this area (Gronroos, 2007). Without being able to clearly identify and quantify certain categories of tangible goods and services, theory building and testing is problematic in terms of reliability, repeatability, and validity.

*Hence, it is unclear how all these factors affect the competitive strategies of these two types of suppliers, and what reasons exist for making the choice of OEM or service provider or their relative attractiveness.*

#### 2.4.2.2 Is strategy different in services?

For over three decades academics have been highlighting the fact that the strategy required by service organizations is different from that concerned with organizations providing tangible goods (Bharadwaj et al., 1993; Bowen and Ford, 2002; Hennenberg et al., 2013; Gebauer and Fleisch, 2007; Kotabe and Murray, 2004; Matthyssens and Vandenbempt, 1998; Thomas, 1978; and others).

Thomas (1978) was one of the first scholars to argue that competitive advantage is different for services businesses as opposed to manufacturing; however, his conceptual assertions have never been empirically tested. He suggested that due to their local nature, services have less chance to benefit from economies of scale. Nor can service businesses utilize automation or value engineering as a means of cutting the labour or manufacturing costs. The physical nature of tangible products helps to check their appearance and function, and this is important for the customers as well as for the facilitation of research and development. Thus, unlike services where staff are the main asset during growth through acquisition, in manufacturing also physical assets can be highly valuable. Additionally, unlike manufacturing in which capital represents the main barrier to competitive market entry, services businesses are able to use proprietary technology and service differentiation as an alternative. However, according to Thomas (1978), while manufacturers utilize their brand for differentiation purposes, services rely

mainly on their reputation. As a result, pricing in services is often based on value, rather than price competition.

Later Bharadwaj et al. (1993) summarized the existing services literature and developed a conceptual model with 14 research propositions. Although their assumptions were in line with Thomas's (1978) logic, contrary to that reasoning, they emphasized the importance of branding in services. Further, they suggested prioritizing customer relationships and pre-commitment contracts, and managing the tangible element of services in a manufacturing way (e.g., benefiting from economies of scale) to secure a sustainable competitive advantage.

Building on the earlier literature, Matthyssens and Vandenbempt (1998) conducted a qualitative survey to explore competitive advantage in a B2B services context. They found that innovation, explicit quality, ability to provide an integral solution or one-stop shopping, higher degree of customization, excellent problem-solving ability, project-management skills, professional authority, and the ability to establish strong personal ties all drive success in services.

In 2002 Bowen and Ford comprehensively discussed and summarized the available literature on the subject matter, and provided several examples from the B2C context. Nonetheless, they did not empirically test their findings in any way. Their suggestion was that while industry standards are utilized to assess manufacturers' effectiveness and efficiency, in services they are determined by the customer. In line with earlier studies, Bowen and Ford (2002) highlighted the complexity and variability of services, the limited ability to test and store them, and to measure the manufacturing inputs and outputs as well as the simultaneity of their production and delivery. As a result, they distinguished six personnel-related services' peculiarities: staff interaction with customers, importance of customer relationship skills and culture, management of emotional labour, greater potential for role conflict, and the expectation for customers to be part-time marketers (Bowen and Ford, 2002).

Krause and Scannell (2002) empirically studied supplier development practices in US tangible goods and service businesses. From the quantitative data gathered in 527 questionnaires, they found that product-based respondents had a significantly higher ratio of purchases to sales in monetary terms as well as a greater number of employees. Product-based firms place more emphasis on purchased product quality, while service companies prioritized costs, delivery performance, level of service or responsiveness, and the financial strengths of their suppliers. Additionally, product-based firms appeared

to rely significantly more on formal supplier evaluation, supplier certification and assessment, whereas service providers were seen to prefer to use competitive pressure and supplier switching. Also, unlike service businesses, product-based companies appeared to invest more time in supplier performance improvement via site visits, education, training, and direct supplier investment.

Building on the work of Bateson (1992), who argued that from an intangibility perspective, services can be differentiated into 'pure' service activities, and service activities that are embedded in goods, Kotabe and Muray (2004) performed a mail survey across Fortune 500 B2C US service firms to try to distinguish the differences between the two. They found that although the level of service innovativeness is equal in companies supplying both of the product types, and both firm types utilized approximately the same level of internal sourcing of core service activities, some significant differences were evident in these two types of businesses. The level of inseparability of 'pure' service firms appeared to be significantly greater than those provided by 'non-pure' service firms, and transaction-cost drivers tended to be more important for 'pure' service firms than for those supplying 'non-pure' services. However, 'non-pure' service firms relied more on foreign sourcing than did 'pure' service firms, and the level of external availability of 'non-pure' service firms was significantly higher than for 'pure' service firms.

Later, Gebauer and Fleisch (2007) conducted a study deploying both qualitative (five focus groups with 32 companies), and quantitative (survey received from 187 German and Swiss manufacturing firms) methods. They found a lack of motivation and a high level of risk aversion amongst the management of the manufacturing companies when it comes to offering services businesses as part of their product portfolio. This was caused by the lack of recognition of potential business opportunities arising from services, historic over-ambitious targets for expanding to services, substantial resources and investment requirements to accommodate change, and the generation of a relatively small amount of service revenue.

Further exploring the servitization, Gebauer (2008) interviewed Western European manufacturing businesses and formulated four service strategies to complement strategy configuration within these companies based on the data gathered during those interviews. Manufacturing innovators were found to concentrate on quality, flexibility, service and price; caretakers were seen to focus entirely on price; marketers were concerned to optimize flexibility, quality, service and product variability; and outsourcing partners were found to combine cost leadership with medium levels of product

differentiation and customers' expectations in order to reduce both the initial investment and high level of operational services.

Later, Li (2011) surveyed 403 manufacturers based in Hong Kong, finding integrated solutions to be positively associated with relationship value perceived by their suppliers. This can be achieved by cross-functional information dissemination and innovation competencies disclosed at higher rather than lower levels.

More recently, Henneberg et al. (2013) have pointed out that in service business networks, the importance of tangible or intangible aspects varies depending on the proportion of service within the supplier proposition. While in product-based service-infused exchanges, tangible aspects are more important than intangible ones, in service-based interactions it is the other way round. The authors have also distinguished a scenario where the proportions of service and tangible products are equal. In this case, both tangible and intangible aspects need to be taken into consideration.

*Although the literature outlining services peculiarities and strategy in services as opposed to manufacturing businesses and vice versa provides some valuable insights, it is either relatively old or conceptual or quantitative in nature. Therefore, it is struggling to capture all the nuances and complexity, and to answer 'why' questions. Furthermore, this theory is based primarily on the developed countries context, i.e., the US and Western Europe. Hence, it may be beneficial to conduct a qualitative in-depth study contrasting developed and developing countries.*

*It is also worth investigating whether the fact that strategy is different in services and manufacturing, as argued by the scholars discussed, is influential upon the advantages to be gained from co-operation with OEMs as opposed to co-operation with service providers, and vice versa.*

#### 2.4.2.3 Inter-firm co-operation

OEM and service provider attractiveness for their customers can also be reviewed from intrer-firm cooperation and alliances perspective. Cooperation is understood as 'situations in which parties work together to achieve mutual goals' (Morgan and Hunt, 1994, p. 26). It is believed to be beneficial for companies' performance via providing access to a number of benefits.

The advantages arising from buyer-supplier relationships have been studied over the last three decades. Amongst the main advantages of cooperation as identified in the literature are: the provision of access to resources (Ahlstrom et al., 2008, Dyer and Singh, 1998; Hitt et al., 2000; Yan and Luo, 2001), support in learning, innovation, new product and knowledge development (Dyer and Singh, 1998; Hitt et al., 2000; Ho and Wahg, 2015; Kotabe et al., 2003; Yli Renko et al., 2001; Soosay et al., 2008), flexibility and problem-solving (Brito and Mariotto, 2013), the facilitation of innovation and technological discoveries (Kafouros, 2008), enhanced labour productivity (Siler et al., 2003), improved customer satisfaction (Tsang et al., 2004), and financial (Alvarez and Barney, 2001; Ernst et al., 2001; Hitt et al., 2000; Hughes, 2008; Jarillo, 1988; Lyles and Salk, 1996), ecological and social (Hollos et al., 2012) performance, the facilitation of risk management, and ability to cope with uncertain environments (Alvarez and Barney, 2001; Das and Teng, 1996, 2000), market entry (Alvarez and Barney, 2001), company growth in the market (Ernst et al., 2001; Lunnan and Haugland, 2008), a better network position (Liu et al., 2010) and the ability to offer links to key government officials (Yan and Luo, 2001).

*Although the benefits arising from inter-firm co-operation have been extensively explored, the literature to date does not provide any guidance regarding whether they differ for services businesses as opposed to manufacturing and vise versa.*

Additionally, it has been acknowledged by several academics that the concept of cooperation is context dependant (Brito et al., 2014; Ho and Wang, 2015; Vereecke and Muylle, 2006). Hence, the vast majority of recent studies on buyer-supplier cooperation have a very narrow focus and tend to explore either a particular benefit arising from inter-firm cooperation or cooperation from the perspective of only one partner (Kim et al., 2010) or within a particular context. None of the studies explore the concept in contrasting environments – both services and manufacturing. For instance, Li, Lui and Lui (2011) studied knowledge acquisition in manufacturer-distributor supply chains. Olalla, Rara, Lopez-Sanchez and Mendez (2015) explored product innovation in Spanish manufacturing. Makkonen and Mervi (2014) investigated the role of information technology in buyer-supplier relationships.

Furthermore, a large number of studies of cooperation in services are still focused on consumer and rather than business markets. As an example, Zhang, Tang, Guo and Xu (2018) studies consumer cooperation in services, i.e. weight loss, alcohol-quitting and debt management programs.

*Hence, it is worth exploring the issue of whether all the benefits from buyer-supplier relationships hold for both services and manufacturing. In other words, whether customers perceive OEMs as more attractive suppliers than service providers or vice versa, and what reasons exist for any such perceptions.*

(Further discussion on buyer-supplier relationship is outlined in section 2.5.)

### 2.4.3 Summary

The limitations of the literature on supplier attractiveness in relation to value, and the relative attractiveness of OEMs and service providers outlined earlier within this section, necessitates an in-depth empirical study demonstrating the perceptions of parties in both developed and developing countries. This study responds to that need, by exploring how vehicle manufacturers and shipbuilders and their suppliers (OEMs and service providers) perceive the attractiveness of OEMs and service providers when purchasing products representing a mixture of tangible goods (OE) and services.

*Hence, Research question 1 is*: How do suppliers and customers perceive the attractiveness of OEMs and service providers from the expected value perspective in service-infused business networks?

This question is addressed by the two themes entitled 'Supplier attractiveness in relation to value' and 'Relative attractiveness of OEMs and service providers' (Themes A and B respectively), which have emerged jointly from the ongoing literature review and simultaneous data collection and analysis. (See Table 2.3) More detail of these themes appear in Chapters 4 and 5.

*Table 2.3: Summary of the literature on the determinants of attraction in suppliers*

| Determinants of Attraction in Suppliers | |
|---|---|
| **Key words:** motivation for a relationship between the parties, benefits from the business relationship, partner selection, supplier evaluation, competitive priorities, key competitive success factors, relationship value drivers, main value drivers, main dimensions of value, supplier selection criteria and strategic fit to the 'ideal supplier profile' | **Key words:** buyer-supplier cooperation, inter-firm alliances, inter-firm cooperation, buyer-supplier relationships, business partnerships, relationship value, inter-organizational cooperation, business partnerships, supply chain collaboration, relationships in business networks, competitive advantage in service industries, industrial services, service businesses |
| **Literature:** | **Literature**: |

| | |
|---|---|
| *From supplier attractiveness as an 'expected value' or a motivational aspect of the relationship between the parties and its development perspective:* Dwyer et al. (1987), Ellegaard & Ritter (2007), Hald et al. (2009), Halinen (1997), Harris et al. (2003), Komulainen et al. (2005), Mortensen et al. (2008), Mortensen (2012) and Ulaga (2003).<br><br>*From the perspective of competitive priorities, the main value drivers or main dimensions of value and supplier selection criteria:* Abratt (1986), Krause et al. (2001), Maltz et al. (2011), Weber et al. (1991), etc.<br><br>*From the strategic fit to the 'ideal supplier profile' perspective:* Cui et al. (2014), Hill and Brown (2007), Murray et al. (2009), Nielsen and Gudergan (2012), Peng et al. (2011), Smith and Reece (1999), Venkatraman (1989), Zaefarian et al. (2013), Zeriti et al. (2014) | *From buyer-supplier cooperation and inter-firm alliances perspective:* Ahlstrom, et al., 2008; Alvarez and Barney, 2001; Brito and Mariotto, 2013; Dyer and Singh, 1998; Hitt, et al., 2000; Ho and Wahg, 2015; Tsang, et al., 2004, etc<br><br>*From competitive advantages in services perspective:* Bharadwaj, et al., 1993; Bowen and Ford, 2002; Brouthers and Brouthers, 2003; Giannakis, 2011; Krause and Scannell, 2002; Matthyssens and Vandenbempt, 1998; Thomas, 1978. |
| **Theme A:** Supplier attractiveness in relation to value | **Theme B**: Relative attractiveness of OEMs and service providers |
| **Subthemes:** n/a | **Subthemes**: (1) Relative attractiveness of OEMs, (2) relative attractiveness of service providers |
| **Research question 1:** How do suppliers and customers perceive the attractiveness of OEMs and service providers from the expected value perspective in service-infused business networks? | |

### 2.5 Managing relationships with attractive OEMs and service providers in B2B service networks

To appreciate how the relationships with attractive OEMs and service providers are managed, the author reviewed the following four literature streams: managing relationship within service networks (see Section 2.5.1), portfolio approaches to procurement (see Section 2.5.2), techniques deployed in supplier selection (see Section 2.5.3), and relationship governance mechanisms (see Section 2.5.4).

### 2.5.1 Managing relationship within service networks

According to Hennenberg et al. (2013), Morgan et al. (2007), and Morgan and Tax (2004), 'services' and particularly 'service networks' are two contested concepts. Despite the proven importance of service business networks, and growing academic attention to this area, the existing literature appears to be focused mainly on the manufacturing sector, leaving research on services networks yet to be done (Henneberg et al., 2013; Morgan et al., 2007; Rust and Chung, 2006; Scott and Laws, 2010). Indeed, Ostrom et al. (2010) have argued that services networks research is one of the ten overarching research priorities.

Moreover, the majority of the services theory was developed based on the business to consumer (B2C) context. Thus, due to considerable differences between business and consumer services (Morgan et al., 2007), the findings obtained cannot be generalized to the business context without considerable level of evaluation. As a result, several authors have acknowledged the need to expand the theoretical knowledge concerning services to the B2B context (Normann and Ramirez, 1993; Spohrer et al., 2007; Syson and Perk, 2004; Vargo and Lusch, 2004, etc.).

Although business service networks theory is in its infancy, several definitions of 'service networks' can be found in the academic literature. Morgan and his colleagues (Morgan and Tax, 2004; Morgan et al., 2007) were among the first theorists to offer a definition of the business service network. Their view was that companies enter service networks with two or more organizations linked formally or informally, to solve a short or long-term problem for the customer through their value proposition developed by performing several activities and resources utilization in the form of outsourcing or partnering. Following this logic, Ford (2011) has argued that service business networks are therefore, formed to co-produce the business service by service providers via continuous interaction, co-operation and deployment of the resources and technologies available within the network to cope with the problems of each of the network members. According to Ramos et al. (2013), based on this definition, (1) all the network members have direct contact with the customer; (2) each actor is involved in performing service activities together with all other actors within the network, and (3) as with service networks all of the definitions (both service networks as well as business service networks) focus on service provider networks.

Later Maglio and Spohrer (2008, p.18) and Maglio et al. (2009) defined service networks or service systems as configurations of human beings, technology, and value

propositions between external and internal service systems as well as shared information generated for value creation purposes. A similar definition was developed by Razo-Zapata et al. (2012, p. 47), who viewed the service network as a group of individuals that build the relationships with their homogeneous equivalents to deliver a particular service.

Influenced by the industrial network approach and service transition strategies (Edvardsson et al., 2006), Ramos et al. (2013) came up with a broader definition of business service networks. They described them as complex interdependent relationships, formed to provide customer-driven solutions via the involvement of traditional service providers, to perform services for other companies (e.g. hospitals, telecommunications, consultancy firms) or industrial companies to deliver services by integrating them into the core product that they manufacture. This view emphasizes that service can be delivered not only by the service providers but by traditional manufacturing companies as well.

As mentioned earlier a number of authors have acknowledged the need to expand the theoretical knowledge of service networks to B2B context (Morgan et al., 2007; Normann and Ramirez, 1993; Spohrer et al., 2007; Syson and Perk, 2004; Vargo and Lusch, 2004, etc.), with their management being one of the core directions for future research (Vandaele and Gemmel, 2007; Ramos et al., 2013).

Business networks are either perceived as open or closed systems of firms and their relationships (Valkovari, 2014). Scholars drawing on economic sociology and social network tradition (Powell et al., 1996; Moller and Rajala, 2007) as well as the authors of IMP Group emphasize the historical, evolutionary and embedded character of business networks and view them as self-organizing structures without goals and clear boundaries, that are created in a bottoms-up way from local interactions (Hakansson and Snehota, 1989; Hakansson and Ford, 2002; Hakansson and Snehota, 1995; Moller and Rajala, 2007; Valkovari, 2014). On the other hand, authors representing strategic management and resource-based view (RBV) perspectives suggest that there are also more intentionally created ‘strategic networks’ or ‘value nets’, that include a number of organizations with agreed roles and resources, that can be managed (Brandenburger and Nalebuff, 1996; Jarollo, 1993; Jarvensivu and Moller, 2009; Moller, 2013; Moller and Rajala, 2007; Moller, Rajala and Svahn, 2005; Moller and Svahn, 2003; Parolini, 1999, Svahn and Westerlund, 2007).

Significant differences exist in the way these two groups of theorists view the networks' manageability, and the role of management. Scholars adopting the 'networks of organizations' perspective (Achrol, 1997), tend to draw on the self-organizing aspects of networks and believe that networks cannot be managed by any single company. According to this view, companies and networks are seen as complex adaptive systems, consisting of interacting sets of organizational and social relationships, in which each actor is pursuing his/her own goals (Stacey, 1996). Consequently, based on this view networks are perceived as only weakly manageable, with no single 'hub firm' being able to provide direction to or control over, any network (Ritter et al., 2004). On the other hand, authors, focusing on network organizations with deliberately created structures, and negotiated roles and objectives, argue that business networks must be managed to be efficient (Dyer, 1996; Dyer and Nobeoka, 2000; Dyer and Singh, 1998, 2000; Lorenzoni and Lipparini, 1999).

The current study adopts the 'strategic networks' view, and therefore, believes that networks are intentional and can be managed. That said, the author also recognizes the fact that the direction of the network dynamics is driven by human beings who bring their subjective perceptions about the network to the situation. In this thesis, the words 'network' and 'net' will be used interchangeably.

Drawing on 'strategic nets' logic, Jarillo (1988, p. 32) described strategic business networks or strategic business nets as long-term intentional arrangements between interlinked for-profit companies that enable them to generate and sustain competitive advantage or alternatively, to keep their competitors outside of the network. Taking into account more recent works of the other authors (Halinen and Tornroos, 2005; Moller et al., 2005; and Moller and Rajara, 2007), business networks can be defined as long-term co-operative entities that consist of more than two partners, and that have clear boundaries and joint goals. The partners in the networks share knowledge and resources (including financial means) while conducting their respective activities, which are driven by their roles and responsibilities, to sustain or improve their competitive positions. A strategic business net can only exist when all of its members recognize the joint goals and are willing to work together to deliver them (Valkovari, 2014).

Management in a network context can be complicated due to the embedded and reciprocal character of business relationships forming the strategic nets (Ford and McDowell, 1999; Hakasson and Ford, 2002 cited in Moller et al., 2005). Such complexity requires conceptual tools that can simplify management. According to the works of Moller and Halinen (1999), and Moller et al. (2005), the management of strategic nets

falls within four inter-related levels: (1) industries as macro networks; (2) strategic nets; (3) the net and relationship portfolio; and (4) strategic relationships. Each of these groups has its peculiarities and managerial challenges. Given the research topic, the focus in the current study will be on the management of strategic networks on the relationship portfolio and strategic relationships levels.

Unfortunately, management within strategic networks is still in its embryonic stage (Moller et al., 2005), and several important issues are not yet resolved, thereby generating crucial theoretical and managerial questions (Moller and Rajala, 2007; Moller, 2013). *Consequently, there is a need for more knowledge about the organizational arrangements and managerial practices that allow for the effective management of business relationships within nets.* Additionally, according to Dhanaraj and Parkhe (2006), marketing theory is lacking understanding of the management behaviour of the hub firms, typical examples of those being vehicle manufacturers. *And Moller (2013) argues that business marketing theory from both relationships and networks perspectives is lacking studies answering 'why' and 'how' questions. Particularly, the attention is on the kinds of relationship modes and their peculiarities based on the business context, and firms' arrangements to manage them (including those associated with their creation and maintenance).*

### 2.5.2 Portfolio approaches to procurement

Supply chain networks are one of the three main types of networks that affect B2B marketing managers most (Ellis, 2011). The portfolio approach has been widely utilized over the last three decades to categorize purchased products and the suppliers providing them, with the intention of managing both effectively. It is based on portfolio theory that is believed to be beneficial for risk management when it comes to financial investments and returns (Markowitz, 1952). Relationship-portfolio management is driven by the actors' positions and roles (Moller et al., 2005). The challenge of portfolio management is to determine the value generated by each of the actors, and to adapt the required investments in these relationships based on their value. It is also important to weigh the potential risks and benefits of these bonds.

Several portfolio approaches have been successfully deployed in purchasing and strategic supplier management (Kraljic, 1983; Turnbull, 1990; Nellore and Soderquist, 2000; Olsen and Ellram, 1997; Bensaou, 1999, etc.) to suit particular strategic or operational goals (Liao and Hong, 2007). Kraljic (1983) used the approach in the context

of the supply market to determine the best matching combinations of supplier and manufacturer strength. Olsen and Ellram (1997) developed it for supplier management based on the strategic importance of a purchase and the difficulty of managing the purchasing situation. Bensaou (1999) formulated the investment portfolio approach to match buyers to suppliers. And Nellore and Soderquist (2000) deployed the approach for engineering design purposes to manage specifications and their providers. The most cited portfolio approaches are shown in the Table 2.4 which indicates the two dimensions used as guidance for supplier relationship management. As can be seen from Table 2.4, there is no consistency across the main portfolio dimensions. All the authors have selected different factors to advise appropriate supplier management strategy.

*Table 2.4: Most-cited Portfolio Approaches and their Main Dimensions*

| Portfolio Dimensions | Supporting Reference |
|---|---|
| Profit impact and supply risk | Kraljic (1983) |
| Difficulty of managing the purchase situation and the strategic importance of the purchase | Olsen and Ellram (1997) |
| Supplier-specific investment and buyer-specific investment | Bensaou (1999) |
| Technology and collaboration | Kaufman et al. (2000) |
| Supplier commitment and commodity importance | Svensson (2004) |
| Supplier and buyer dependency risks | Hallikas et al. (2005) |
| Supplier capabilities and supplier willingness | Rezaei and Ortt (2012) |
| Power and dependence | Gelderman and Van Weele (2000) |
| Market attractiveness and strengths of relationship | Nellore and Soderquist (2000) |

Many well-known successful companies rely on their portfolios of ties to enhance their performance, and therefore, portfolio approaches are central for future research (Gulati, 2007; Ozcan and Eisenhardt, 2009; Wagner and Johnson, 2004). However, despite their popularity, they have not been widely and systematically researched (Dubois and Pedersen, 2002; Gelderman and van Weele, 2002; Nellore and Soderquist, 2000; Olsen and Elllram, 1997; Tang, 1999, Wagner and Johnson, 2004). Furthermore, they have been criticized for the 'conceptual and anecdotal nature' of the contributions (Gelderman and Van Weele, 2003), oversimplification of the reality, and focus on the limited number of factors that are believed to be inadequate for capturing the complexities of the business context (Dubois and Pedersen, 2002; Wagner and Johnson, 2004). Also, due to the resent shift from company level to dyadic and network perspectives, they fail to capture the required level of business context (Dubois and Pedersen, 2002, Wagner and Johnson, 2004). On the other hand, Ozcan and Eisenhardt (2009) argued that portfolios are the engines of network evolution as networks do not evolve by themselves. Instead by adjusting their portfolios, companies change the networks in which they operate.

According to Moller et al. (2005), there are several theoretical and managerial questions relating to the relationship portfolio applying to the main actors within a specific net, these being: what partners should be selected, and according to what criteria and procedure; how should the roles and responsibilities among these actors be negotiated and how the network operation can be effectively co-ordinated (Moller et al., 2005). In line with this view, Gelderman and Van Weele (2003), Gelderman and Semeijn (2006), and Sigfusson and Harris (2013) have observed that there is a gap between the conceptual problems and the utilization of portfolio models in practice. Drawing on this logic, Padhi et al. (2012) have argued that purchasing strategies are not well explained in the literature. Hence, a

study of the actual deployment of portfolio models in purchasing would be highly beneficial (Padhi et al., 2012; Wagner and Johnson, 2004).

Additionally, it is possible to distinguish two more limitations of the portfolio approaches theory, which are linked to the research problem. Although supplier attractiveness is a dynamic concept (Harris et al., 2003; Olsen and Ellram, 1997), none of the existing portfolio approaches takes the time factor into account when providing guidance for vendor management (Dubois and Pedersen, 2002). Furthermore, none of the most cited business relationship portfolios (Bensaou, 1999; Gelderman and Van Weele, 2000; Hallikas et al., 2005; Kaufman et al., 2000; Kraljic, 1978; Nellore and Soderquist, 2000; Olsen and Ellram, 1997; Rezaei and Ortt, 2012; Svensson, 2004) distinguishes the relationships based on the core element of the supplied product (service versus tangible goods) and provides relevant managerial recommendations. The present study attempts to review the criticality of the timing in supplier (OEM and service provider) relationships management, and whether these two types of supplier need to be managed differently by considering the different types of supplier offerings.

### 2.5.3 Techniques deployed in supplier selection

To facilitate managers' selection of the best suppliers for their businesses, several authors have formulated various approaches (or models or techniques). After analyzing the appropriate literature written between 2008 and 2012, Chai et al. (2013) have distinguished 26 methods helping practitioners to make decisions in supplier selection, which could be broadly divided into three groups: *multi-criteria decision-making techniques* - analytic hierarchy process (AHP) (Levary, 2008), analytic network process (ANP) (Lin et al., 2010), elimination and choice expressing reality (Sevkli, 2010), preference ranking organization method for enrichment evaluation (Chen et al., 2011), technique for order performance by similarity to ideal solution (Saen, 2010), multi-criteria optimization and compromise solution (Chen and Wang, 2009), decision-making trial and evaluation laboratory (Chang et al., 2011), and the simple multi-attribute rating technique (Chou and Chang, 2008); *mathematical programming* - data envelopment analysis (DEA) (Wu and Blackhurst, 2009), linear programming (Lin et al., 2011), non-linear programming (Hsu et al., 2010), multi-objective programming (MOP) (Yi et al., 2012), goal programming (Bhutta and Huq, 2002; Kull and Talluri, 2008; Punniyamoorty et al., 2012; Percin, 2006; Ohdar and Ray, 2004), and stochastic programming (Li and Zabinsky, 2011), *and artificial intelligence techniques* - genetic algorithm (Guneri et al.,

2011), grey system theory (Tseng, 2011; Wu, 2009), neural networks (Lee and Ouyang, 2009; Siying et al., 1997), rough set theory (Chang and Hang, 2010), beyesian networks (Ferreira and Borenstain, 2012), decision tree (Guo et al., 2009), case-based reasoning (Faez et al., 2009), particle swarm optimization (Xu and Yan, 2011), support vector machine (Guo et al., 2009), association rule (Lin et al., 2009), ant colony algorithm (Tsai et al., 2010), and Dempster Shafer theory of evidence (Wu, 2009)). There are also integrated approaches that represent a mixture of these techniques.

Despite this great variety of techniques to facilitate supplier selection, only a few of them have actually attracted a decent amount of attention from the academic community, and been deployed in business practices. Amongst the most cited techniques are total cost of ownership (TCO) or total acquisition cost (TAC), AHP, compromise methods, simple multi-attribute rating technique, DEA, MOP and goal programming. On the other hand, due to the inability to guarantee a truly optimal solution, and to provide only approximate solutions for complex optimization problems, artificial intelligence techniques have not received the same level of attention from academics as have other methods. Nor have they been as popular in business practices (Chai et al., 2013).

The TCO approach to procurement (Ellram, 1993, 1995; Handfield et al., 1999; Monckza and Trecha, 1988) helps managers to choose the supplier not only on a pure price but also on the total cost associated with the purchase, including the costs of manufacturing, packaging, delivery, maintenance and disposal. AHP (Levary, 2008) is a multi-attribute utility method that attempts to assign a preference value to each alternative as a basis for ranking or choice. Compromise methods include a technique for order performance that is similar to the ideal solution and multi-criteria optimization and compromise solution. They were established by Yu (1973) and are based on selecting a compromise that is the closest to the ideal solution. While the first of the two methods uses linear normalization to eliminate the units of criteria function, the second one relies on vector normalization (Opricovic and Tzeng, 2004) for these purposes. The simple multi-attribute rating technique is relatively basic, and can deal with both qualitative and quantitative data. It uses a simple additive weight method to obtain the total value as a ranking index. DEA is a non-parametric technique used to evaluate the relative efficiency of decision-making units based on their multiple inputs and outputs (Adler et al., 2002). MOP is utilized to manage situations with multiple and conflicting objective functions, which can be optimized by applying a set of feasible solutions. Like MOP, goal programming deals with multiple and conflicting objectives; however, it is also given a goal value to achieve.

Although these supplier evaluation methods facilitate supplier selection, by their definition they do not provide any guidance on how to manage supplier relationships after the most suitable vendor has been chosen. Neither is there any recommendation regarding what methods are more suitable for services businesses as opposed to manufacturing, and vice versa. This study aims to address these limitations.

### 2.5.4 Relationship governance mechanisms

A number of authors have noted that activities within business relationships require appropriate relationship governance mechanisms. Jap and Ganesan (2000) defined the latter as safeguards that business organizations deploy to govern inter-organizational exchange. The literature distinguishes two types of governance mechanisms: relational, and contractual or formal (Kohtamaki et al., 2006; Poppo and Zenger, 2002; Sobrero and Schrader, 1998; Yu et al., 2006). The first group normally utilizes formal legal practices to manage the relationships, and is based on contracts and authority. On the other hand, inter-firm relationships within the second group are based on solidarity, information-sharing, flexibility, and norms existing within the network, and are therefore, governed by relational norms and trust.

Formal contracts are legally binding documents where the parties write down their agreed rights and obligations as part of the transaction execution (Burkert et al., 2012). Authority is the power or right to make decisions, give orders, and influence the outcomes. Relational norms represent expectations regarding the actors' appropriate and deviant behaviour in the relationship (Heide and John, 1992), while trust can be defined as the perceived credibility and benevolence of a target of trust (Doney and Cannon, 1997).

Although various types of governance mechanisms have been extensively discussed, there is no consensus in the literature as to whether they can substitute or complement each other. And there is a call to further validate the idea of their complementarity (Caniels et al., 2012; Lumineau and Henderson, 2012; Melander and Lakemond, 2015; Olsen et al., 2005).

One group of academics have argued that due to the presence of the vast number of challenges in business relationships, and the complimentary characteristics of the governance mechanisms, they can be combined (Bradach and Eccles, 1989; Caniels et al., 2012; Das and Teng, 1998). Indeed, Das and Teng (1998), Ferguson et al. (2005),

and Haugland and Reve (1994) emphasized that contractual and relational governance mechanisms have different objectives and functionalities, and hence, it is beneficial to utilize them both simultaneously. Moreover, Olsen et al. (2005) have argued that contracts, authority, and trust are complementary, and the deployment of one of these mechanisms supports the deployment of the others. In line with this view, Poppo and Zenger (2002) suggested that trust can help to overcome some limitations of the contracts. Stinchcombe (1985) highlighted the benefits of combining contractual price incentives with the authority.

More recently, Caniels et al. (2012) suggested that a well-formulated contract can not only prevent opportunism but also stimulate collaborative behaviour between business partners. Lumineau and Henderson (2012) were of the same opinion when they found a combination of the governance mechanisms to be advantageous when pursuing different negotiation strategies. And more recently, Melander and Lakemond (2015) discovered that due to the complimentarity of purchasing and R&D professionals' roles within their organizations, the use of both types of governance mechanisms is highly beneficial to control the levels of supplier involvement and collaboration.

On the other hand, Corts and Singh (2004), Crocker and Reynolds (1993), Hill (1990), Granovetter (1985), Ghoshal and Moran (1996), Gulati (1995), and Kalnins and Mayer (2004) have all argued that relational norms and trust are substitutes for contracts and authority. According to Gulati (1995), the relational mechanism has the expectation of reduced opportunism and has therefore, eliminated the requirement in contracting. In line with this opinion, Hill (1990), and Dyer and Singh (1998) highlighted that relational governance represents a self-enforcing safeguard and is more effective and less costly than contractual mechanisms. Moreover, Ghoshal and Moran (1996), and Malhorta and Murninghan (2002) found that contracting can negatively affect existing or developing relational norms between the parties. Furthermore, Granovetter (1985), and Ghoshal and Moran (1996) emphasized that contracts in inter-organizational relationships can be an indication of mistrust, and therefore, encourage opportunistic behaviour.

This suggests, that empirical study is required to shed light on whether relational and contractual governance mechanisms can act as substitutes or complement each other. Furthermore, the literature does not provide any guidance on which one of them is more suitable for manufacturing as opposed to services businesses, and vice versa. The current study aims to address these two shortcomings.

### 2.5.5 Summary

The above limitations of the theory on relationship management within service business networks, portfolio approaches to procurement, techniques deployed in supplier selection, and relationship governance mechanisms reveal the need to empirically explore arrangements and practices utilized by contemporary business organizations to manage relationships with attractive OEMs and service providers in the main types of B2B service networks.

Thus, *Research question 2 is*: How are the relationships with attractive OEMs and service providers managed in service business networks?

Through the ongoing literature review and simultaneous data collection, analysis and synthesis, the theme 'Managing relationships with attractive OEMs and service providers in the main types of B2B service networks' (Theme C) emerged. This is helpful in answering this research question as is seen in Chapter 6.

*Table 2.5: Summary of the literature on managing relationships with attractive suppliers (OEMs and service providers) in the main types of B2B service networks*

| **Managing relationships with attractive suppliers (OEMs and service providers) in the main types of B2B service networks** |
|---|
| **Key words:** service relationships, managing relationship, managing relationship portfolios, buyer-supplier relationships, purchasing portfolio approach, alliance portfolios, relationship governance mechanisms, methods of supplier performance evaluation, supplier assessment methods |
| **Literature:**<br>*From managing relationships within business networks perspective*: Moller (2013), Partanen and Moller (2012) etc.<br><br>***From B2B service networks perspective:*** Henneberg et al. (2013), Natti et al. (2014), Ramos et al. (2013), etc.<br><br>***From relationship portfolios management perspective*:** Bansaou (1999), Gelerman and Van Weele (2000), Hallikas et al. (2005), Kaufman et al. (2000), Kraljic (1983), Nellore and Soderquist (2000), Olsen and Ellram (1997), Rezaei and Ortt (2012), Svensson (2004), etc.<br><br>***From methods of supplier performance evaluation perspective*:** Dey et al. (2014), Ellram (1993; 1995), Monckza and Trecha (1988), etc.<br><br>***From relationship governance mechanisms perspective*:** Kalnins and Mayer, 2004; Lumineau and Henderson, 2012; Melander and Lakemond, 2015; Poppo and Zenger, 2002; Sobrero and Schrader, 1998; Yu et al., 2006; etc. |

| |
|---|
| **Theme C:** Managing relationships with attractive OEMs and service providers in the main types of B2B service networks |
| **Subthemes:** (1) Managing relationships with attractive OEMs in the main types of B2B service networks, (2) Managing relationships with attractive service providers in the main types of B2B service networks |
| **Research question 2:** How are the relationships with attractive OEMs and service providers managed in service business networks? |

### 2.6 Conceptual framework

The literature reviewed in this chapter, combined with the author's experience and evolving understanding of the topic throughout the research process underpins the conceptual framework of the study (see Figure 2.1). This framework is essential in guiding the research process and determining the methodological choices in terms of research paradigm, design, data collection methods, and strategy for analysis (see Chapter 3). Being driven by the literature, the research questions and the data gathered, it is also crucial in the development and iterations of the coding scheme. Hence, it provides a structure for reporting, interpreting, analyzing, and synthesizing the findings.

Concepts can be defined as the building blocks of theory, and are therefore, essential elements of theoretical frameworks (Fisher, 2007). They simplify the reality by being parts of analytical schemes and linking with each other to demonstrate meanings and understandings. Each of the concepts in this framework has derived from the study's research questions, and in processing the data gathered in respect of those research questions, a number of themes have been identified, explored, and analyzed.

'Supplier attractiveness in relation to value' (Theme A) and 'Relative attractiveness of OEMs and service providers' (Theme B) have emerged as two themes that facilitate understanding of how customers and suppliers perceive the attractiveness of OEMs and service providers from the expected value perspective in service-infused business relationships. And finally, Theme C 'Managing relationships with attractive OEMs and service providers in the main types of B2B service networks' presents a mechanism for helping to answer the second research question. Table 2.6 offers some information about these themes, based on the literature reviewed.

Data gathered over the course of the collection process as well as the ongoing literature review enabled the exploration of these three themes and the links between the identified concepts, as well as providing insights leading to new ideas. Hence, the original

conceptual model was continually revised, such that themes were added, collapsed, and deleted, and links between the main concepts re-moulded. As a result of these revisions and refinements, the conceptual level of the research has been sharpened and enriched.

*Table 2.6: Conceptual framework*

| **Research problem reviewed from *2 perspectives*:**<br>**(1) OEMs and service transition strategies**<br>**(2) Supplier attractiveness as (a) the development of buyer-supplier relationship and (b) as portfolio management** | | |
|---|---|---|
| **Research topic:** OEM and service provider attractiveness and management | | |
| **Theoretical gap 1:** Determinants of supplier attractiveness in relation to value | **Theoretical gap 2**: Determinants of attraction in suppliers for manufacturing and services businesses | **Theoretical gap 3**: Managing supplier relationships within B2B service networks |
| **Theme A:** Supplier attractiveness in relation to value | **Theme B**: Relative attractiveness of OEMs and service providers | **Theme C:** Managing relationships with attractive OEMs and service providers in the main types of B2B service networks |
| **Subthemes:** n/a | **Subthemes**: (1) Relative attractiveness of OEMs, (2) relative attractiveness of service providers | **Subthemes**: (1) Managing relationships with attractive OEMs in the main types of B2B service networks, (2) Managing relationships with attractive service providers in the main types of B2B service networks |
| **Research question 1:** How do suppliers and customers perceive the attractiveness of OEMs and service providers from the expected value perspective in service-infused business networks? | | **Research question 2**: How are the relationships with attractive OEMs and service providers managed in service business networks? |

## 2.7 Conclusions

The transformation of companies from being manufacturing-oriented to service or solution-orientated has been studied by several researchers (Brax, 2005; Forkmann et al., 2017; Hakanen et al., 2017; Oliva and Kallenberg, 2003; Reinartz and Ulaga, 2008, Eggert, et al., 2011, Salonen, 2011), but their findings have been contradictory. On the one hand, manufacturers can gain the opportunity to improve company performance in terms of profitability, market share, cash flow, and customer satisfaction (Homburg et al., 2003; Gebauer, 2007; Eggert, et al., 2011; etc.). On the other hand, they can make a

wrong decision through abandoning their long-term focus, creating internal conflicts, mismanaging resources, and consequently losing the loyalty of existing customers (Fang et al., 2008).

Although the main sources of competitive advantage arising from inter-organizational co-operation are widely known, a review of this phenomenon from a service infusion perspective provides promising research prospects (Gebauer, 2008; Kathuria, 2000). A number of academics have pointed out that sources of competitive advantage differ between the service and manufacturing industries (Bharadwaj et al., 1993; Bowen and Ford, 2002; Matthyssens and Vandenbempt, 1998; Thomas, 1978). Hence, this factor is likely to affect the attractiveness of manufacturing-oriented and service or solution-orientated suppliers to those customers who purchase products that are in themselves amalgamations of goods and services.

Despite being relatively new, and lacking in attention from the academic community, the concept of supplier attractiveness is central in explaining a business relationship (Ellegaard and Ritter, 2007). Indeed, several authors have highlighted its importance in future business relationships research (Hald et al., 2009; Halinen, 1997; Harris et al., 2003). The determinants of supplier attraction are deemed as being particularly important for the development of marketing knowledge (Mortensen, 2012).

The literature on the determinants of supplier attraction coincides with the theory on strategic fit to the ‘ideal supplier profile’ and vendor evaluation and selection. However, the majority of studies reported are quantitative or conceptual, and relatively old. They also struggle to address the network perspective on business relationships based on the factors considered. Additionally, they indicate that although several main criteria have been identified in respect of vendor selection, their significance cannot be determined in isolation from the industry, country, business environment, purchase type, and company size. Moreover, the literature on fit to the ‘ideal supplier profile’ is inconsistent from theoretical and empirical perspectives, lacks granularity, and therefore is ineffective in assessing the phenomenon due to the lack of knowledge of (1) what factors to consider, and (2) how to evaluate them (Nielsen and Gudergan, 2012; Peng et al., 2011; Smith and Reece, 1999).

All these literature highlight the theoretical gap in customers and suppliers understanding of OEM and service provider attractiveness from the expected value perspective in service-infused business relationships.

Relatedly, service business network theory is in its infancy, and there is a call for research in this context (Morgan et al., 2007; Morgan and Tax, 2004 and Henneberg et al., 2013). Particularly, there is a lack of knowledge about the peculiarities of different business relationships as well as the organizational arrangements and practices required to manage them, including their creation and maintenance (Moller et al., 2005; Moller, 2013). Also the available literature on managing relationships within service networks, portfolio approaches to procurement, techniques of supplier selection, and relationship governance mechanisms have some limitations and do not differentiate between the manufacturing and services businesses. Furthermore, two groups of academics have differing views whether relational and contractual governance mechanisms substitute (Corts and Singh, 2004; Crocker and Reynolds, 1993; Hill, 1990; Granovetter, 1985; Ghoshal and Moran, 1996; Gulati, 1995 and Kalnins and Mayer, 2004) or complement (Bradach and Eccles, 1989; Caniels et al., 2012; Das and Teng, 1998; Lumineau and Henderson, 2012; Melander and Lakemond, 2015; Olsen et al., 2005) each other. This reveals the need to explore how contemporary business organizations manage their relationships with OEMs and service providers in an effort to understand whether these two types of businesses have to be managed differently.

Taking these theoretical limitations into account, the research attempts to answer two research questions:

> *(1a) How do customers and suppliers perceive the attractiveness of OEMs and (1b) service providers from the expected value perspective in service-infused business relationships?*
> *(2a) How are the relationships with attractive OEMs and (2b) service providers managed in service business networks?*

Answering these research questions will as a minimum:

i) Expand understanding of the concept of supplier attractiveness in relation to value and its determinants;
ii) Explore organizational arrangements and practices deployed to manage supplier relationships in service business networks.

Hence, the study's findings will contribute to at least two streams of marketing literature: 'supplier attractiveness', and 'relationship management' in service business networks.

# CHAPTER 3. METHOD

## 3.1 Introduction

The purpose of the chapter is to outline the author's ontological, epistemological and axiological positions and consequently the logic behind the chosen research design. It depicts the study's research methodology and contains discussion of the following areas: (1) research paradigm, (2) research methodology, (3) approach to case research, (4) research sample, (5) data collection, (6) analysis and synthesis of data, (7) ethical considerations, and (8) research quality. Thereafter follows a concluding summary in which the key points of the chapter are outlined.

## 3.2 Research paradigm

Since every piece of research aims to advance knowledge within a particular field, it is important to outline the reality, the nature of this knowledge, and the process of its development. These issues are all driven by the adopted research paradigm, which is itself a philosophical framework based on the researcher's assumptions about the world and the truth. This theoretical paradigm derives from ontology (assumptions about the nature of reality), axiology (the role of values and ethics), epistemology (assumptions about acceptable, valid, and legitimate knowledge and its further development), and methodology (research methods to study reality in order to advance knowledge) (Collis and Hussey, 2009). Ontology, axiology, and epistemology will be discussed within this section, while methodology will be outlined later in the present chapter.

The subject of the thesis, main research question and objectives determined the author's choice of epistemological and ontological philosophical positions. Due to the fact that every company functions in a constantly changing environment with its influential factors and each business situation is unique and determined by various circumstances and participating people, to understand it fully interpretivism and social constructivism must be deployed (as will be explained below).

Automobile manufacturers and shipbuilders (customers) choose OEMs and service providers (suppliers) whom they see as the most attractive based on the requirements of their businesses. Given the complex nature of service-infused business network structures within the two markets in two countries, vehicle manufacturers and shipbuilders may require different organisational arrangements and practices to manage

OEMs and service providers depending on their relative attractiveness. Furthermore, customers and suppliers may view these buyer-supplier relationships differently depending on their culture (the UK or Russia), companies' objectives and functional areas of the personnel, participating in these relationships, and hence, interpret OEM and service provider attractiveness in different ways. Additionally, suppliers themselves may perceive their attractiveness differently to how their customers see it. Social constructionism enables to capture this multitude of perspectives and consequent interpretations of the social actors. Chosen axiological stance seeks to provide explanations based on the identification of the main types of supplier relationships within these service-infused business network structures (Bloomberg and Volpe, 2016) and to consider the viewpoints of both customers and suppliers participating in each of the main types of these relationships.

The researcher believes that there is no single reality that is external and independent of human consciousness and knowledge about the world is socially constructed (Denzin and Lincoln, 2000; Eriksson and Kovalainen, 2008). Every company functions in a constantly changing environment with its influential factors, and each business situation is unique and determined by various circumstances and actors participating in it. Although business networks are created in a bottom-up way from local interactions, they also have their goals, as does every business organisation. In addition, due to networks' complexity and the involvement of multiple actors, managers have a challenge to manage them in order to look after the interests of their organisations. Furthermore, the process of vendor selection is influenced by the company customer base, market legislation/ regulations, organisational structure, requirements, norms, procedures, experiences, participants, etc. Hence the phenomenon of supplier attractiveness and management is highly complex and is in a constant state of revision. This necessitates a nuanced understanding of this phenomenon, and therefore, adoption of interpretivism.

Indeed, this complexity of the research topic resulted in lack of knowledge on network management, pointed out by Moller et al. (2013). The author trusts that the selected research paradigm enables integration of theory and practice in research and adopting normative and practical objectives in research settings rather than purely descriptive or explanatory ones (Eriksson and Kovalainen, 2008). Looking at the phenomenon through a practitioner-oriented lens will be facilitated by applying a multiple case study methodology (Riege, 2003). (See Section 3.3.)

To gain a better understanding of reality, the researcher takes a step further and explores in-depths the network structures within automotive and shipbuilding markets that shape everyday business life and determine OEM and service provider attractiveness (Denzin and Lincoln, 2000; Eriksson and Kovalainen, 2008; Matthews and Ross, 2010; Saunders, 2016). By studying the process of value creation and its influential actors within the two industries and identifying the main types of products purchased by automobile manufacturers and shipbuilders, the author is seeking to establish the desired vendor profiles for these purchases. As part of this process, perceptions of the relevant customers and suppliers themselves (OEMs or service providers) on their attractiveness are obtained based on their experience within the relevant markets. This multitude of perspectives and the researcher's interaction with the research subjects are specific features of interpretivism research (Eriksson and Kovalainen, 2008). Hence, it justifies the researcher's choice of the interviews as the primary mode of data collection adopted in this thesis (see Section 7).

To capture the main supply networks complexity in detail current study will focus on micro and meso levels of the business organization (Cuncliffe, 2011). By adopting a 'zoom in' approach (Leroy, Cova and Salle (2013) cited in Ellis (2014)) the author is attempting to understand the nuances of investigating businesses and the reasons behind OEMs and service providers attractiveness and management. 'Zooming in' will enable to explore the nature of selected markets, existing supply chain networks, demand peculiarities, customer requirements, their internal processes and objectives as well as experiences with the main types of suppliers (both OEMs and service providers). Reviewing these areas will enable to establish the main product types purchased by vehicle manufacturers and shipbuilders, to find out the importance of certain factors in supplier selection respective each of these main product types, the reasons why they are important as well as how these two types of customers manage potential suppliers and which internal stakeholders are involved in this process. This will help to shed light on how OEM and service provider attractiveness and management are understood by particular customers and suppliers themselves from automotive and shipbuilding industries.

Although the author has seven years of purchasing management experience, including automotive and shipbuilding industries, when it comes to the research, she sees herself as 'an outsider' or 'disinterested scientist' (Lincoln and Guba, 2000). This 'outsider view' of the processes and activities within the business is considered to be particularly beneficial for business research (Eriksson and Kovalainen, 2008). The axiological

approach, which considers the author's personal beliefs, feelings, and values, only influenced the choice of the research topic, whereas the research process was value-free and objective (Bryman et al., 2003). The author took a proactive listener role trying to make sense of the information provided by the respondents and linked it with the existing theory facilitated by a preliminary as well as an on-going literature review.

Current research involves ongoing cycles of research and reflection (Dubois and Araujo, 2007; Dubois and Gadde, 2002; Easton, 2010). The abductive mode of enquiry facilitates this continuous movement back and forth between theory and empirical data (Bryman and Bell, 2011) with the intention to provide both academic rigour and enhance managerial relevance (Nenonen et al., 2017). During this process, main categories and themes/concepts have been identified as well as their relationships (Saldana, 2016; see sections 3.4 and 3.8 for more details).

## *3.3 Research methodology*

After reviewing the relevant literature, Lee (1993) concluded that sensitive topics are those dealing with the areas that are private, stressful, and sacred. According to Bradburn and Sudman (1979) and Goyder (1987), one of the areas where respondents are particularly misgiving or unease about the questions is related to finance. Although it was not immediately obvious, after consideration was given the study's research topic and the research questions were aiming to obtain highly confidential information, that has a direct impact on the financial performance of the companies participating in the research. Therefore, the 'sensitivity' of the current research project affected the research process in terms of methodological choices and ethics.

Since in interpretivism knowledge is socially constructed (Denzin and Lincoln, 2000; Eriksson and Kovalainen, 2008) the author has adopted a qualitative approach. Unlike quantitative research, which is primarily concerned with proving or disproving the relationships between the variables and dealing with large numbers of people without communicating face-to-face, qualitative studies aim to capture the nuances and complexity of the social situation under study and normally involve personal and face-to-face interactions with the subjects (Flick, 1998; Janesick, 2000). Qualitative design is holistic. This means that it searches for understanding of the whole picture given social settings (looks at relationships within systems) without necessarily making predictions about those settings (Janesick, 2000).

Another reason for conducting qualitative research emerged from the literature review on the selected subject matter. It appeared that some of the services have tangible goods characteristics and are difficult to define (Lovelock and Gummesson, 2004). This suggests that available data may be lacking the required accuracy. Furthermore, available statistics are based on business sector classifications created in the industrial era (Gronroos, 2007). These two factors undermine the value of quantitative research in this area. Without being able to clearly identify and quantify certain categories of tangible goods and services, advancing theory using a quantitative approach is problematic in terms of the reliability, repeatability, and validity of the research.

Within this philosophical framework, the study was most suited to a multiple case study design. Furthermore, interpretivism provides epistemological and ontological justification for this strategy of enquiry. Indeed, Harrison and Easton (2000) suggested that multiple case studies can offer novel insights on how to bridge the gap between philosophy, epistemology, and research methods. This research strategy will enable the researcher to obtain a rich and comprehensive understanding of OEM and service provider attractiveness and management in high value-added manufacturing industries when purchasing products that are themselves amalgamations of tangible goods (OE) and services from the detailed and intensive analysis of each case (Bryman et al., 2003; Perry, 1998; Woodside and Wilson, 2003).

Multiple cases and replication are thought to provide better explanations than single cases (Eisenhardt, 1989; Miles and Huberman, 1994; Yin, 1994). In the present collective case study (Stake, 2000), purchasing activities of automobile manufacturers and shipbuilders constitute a common frame around a number of the individual cases. Within this contextual setting, the author is hoping to find some similar (common) and dissimilar (particular) characteristics across the cases while studying the phenomenon. Understanding of these variations between the cases will enable the researcher to answer the research questions outlined in the previous chapter and therefore advance existing theory on this subject.

Case studies have been recognised as the most powerful research strategy in operations management (Voss et al., 2002). Furthermore, Dubois and Araujo (2007) have pointed out that case studies have much to contribute to purchasing and supply management theory development. This research method is mostly used in order to gain a rich understanding of the research context via applying various data collection methods. According to Yin (2009), the distinctive need for a case study arises from the desire to understand complex social phenomena, e.g. group behaviour, organisational and

managerial processes, and international relations. Where causal links in real-life interventions are too comprehensive and studied situations have no clear, single set of outcomes (i.e. the context requires investigation), then a case study is more advantageous than other (survey or experimental) strategies (Yin, 2009). It is also believed that the interactions between a phenomenon and its context are best understood through in-depth case studies; therefore, this research strategy is ideal for studying business networks (Dubois and Gadde, 2002).

Additionally, the chosen methodological approach and strategy of enquiry are well suited for 'sensitive' research topics. Unlike alternative research methods (surveys), they facilitate a better response level and use those data collection methods that are more likely to obtain the required sensitive data (Lee, 1993). This will be discussed later within the present chapter.

However, the case study research strategy has been criticised for leaving room for biased views (Yin, 2009), risks of resulting in an overly complex and weak theory ('says very little about very much'; Eisenhardt, 1989; Easton, 1995), being used in a 'quasi-deductive theory-testing way' (Easton, 1995) and risks being time-consuming. Case study research has also been noted for a lack of systematic procedures (mainly the absence of its commonly accepted ways of data analysis; Fisher, 2007) and little basis for scientific generalisation due to the inability to conduct randomised field trials or 'true experiments' (Creswell, 1998; Yin, 2009). To address these limitations of the chosen research strategy, the author undertook careful planning and selection of the approach to theory and the processes of data collection (selecting a sample, designing the interview, etc.) and analysis, and transparently presents them within this chapter (see sections 3.4, 3.5, 3.6, and 3.7.).

To avoid biased views, an overly complicated weak theory, and quasi-deductive theory-testing, the author adopted an abductive approach to case research (Dubois and Gadde, 2002; Easton, 1995) as explained in further detail in 3.4 below. Additionally, the researcher's previous work experience within the research context facilitated more effective time management. Thematic analysis encompassing three phases of data collection in combination with an abductive mode of enquiry was utilised as a very prescriptive step-by-step mean of handling the data analysis, as recommended for qualitative research (Bryman and Bell, 2011; Saldana, 2016; Saunders, 2016). To provide a foundation for analytical generalisation (also known as external validity or transferability), the researcher strived to achieve logical coherence, an important quality

criterion of case research (Strauss and Corbin, 1990). Since in complex structures and processes, typical for deep case studies, relationships and patterns cannot be tested, and theory generation and confirmation are inseparable, credibility of these studies are determined by their logical coherence (Dubois and Gadde, 2002; Pfiffer, 1982). The latter is achieved via making the most appropriate methodological choices concerning the approach to theory, research sampling, and methods of data collection and analysis (see sections 3.4 – 3.11).

## *3.4 Approach to case research*

The sensitivity of the research topic and the desire to develop a new vision of knowledge resulting in an empirically valid theory led to the selection of an abductive approach to the theory of the research (Dubois and Gadde, 2002). Abduction is characterised by continuous movement back and forth between the data and theory. Here, flexibility varies based on the collected data and read literature, and there is a focus on not only the links between variables but also their interpretation in business (Bell, 2008; Peters and Howard, 2001). Such flexibility is typical for the case study method and is a major advantage, as it allows this constant interplay between the various stages of the research project (Easton, 2010; Verschuren, 2003).

Moreover, unlike deductive and inductive approaches, abduction facilitates powerful cross-fertilisation where new conceptual frameworks are developed as a result of established theoretical models and new unanticipated findings from the collected data. While the deductive approach is unlikely to bring new insights and induction struggles with inferences, the abductive mode of enquiry offers insights that are usable for the managers (Nenonen et al., 2017).

The researcher's work experience within the field generated interest in the research topic. However, to avoid her biased views and to provide a broader understanding of the research context, taking into account the partially deductive nature of the study, a literature review was carried out prior to primary data collection. Information obtained during the literature review facilitated conceptual expansion and formulation of detailed research questions and propositions, as well as generation of the initial conceptual framework. However, limitations of the available literature indicated the need for more detailed understanding of the research topic via intensive primary data collection. During this process, the partially inductive nature of the study enabled the researcher to focus on not only the links between the constructs, but also an in-depth understanding of their live functioning in business overseen by each of the interviewees as well as described

in the gathered documentation data (Bell, 2008; Peters and Howard, 2001). Simultaneous qualitative data collection and analysis and the continuous interplay between theory and empirical findings helped to complete the process of developing codes and categories. It also allowed for identifying and enriching the main themes/concepts and shaping the explanatory propositions of the research. The final conceptual framework is displayed in Chapter 2: Literature review.

Broad practical knowledge of the researcher in supply chain management, work experience in shipbuilding and automotive industries, and limitations of the secondary external published data (concerning supplier attractiveness and management, influence of the third parties and their relation to value) indicated the advantages of in-depth data collection. At the same time, to avoid biased views, broaden understanding on the research subject matter, and enrich the emerging categories and themes/concepts, continuous literature review was beneficial. This determined the appropriateness of the abductive mode of enquiry (Saunders et al., 2016). As part of this process, the author's previous exposure to service business networks within the required business environment facilitated better understanding of the research topic, access to primary data, and establishment of trust with the research participants. The latter is particularly important due to the sensitivity of the research topic. All these factors helped to address the risk of higher time consumption associated with abductive case study research and enhance the reliability and validity of the study.

In addition, the continuous interplay between data and theory typical for abduction helped the researcher to avoid 'telling very little about too much' and being selective (Easton, 1995). It is done via redirecting the research issue a number of times until 'all the parts fit into the final jigsaw puzzle' (Dubois and Gadde, 2002) and a fit between the theory and reality is finally achieved.

### 3.5 Research sample

As mentioned earlier (see literature review chapter), high value-added manufacturing industries are considered to be more advanced from procurement and operational perspectives (Bustikza et al., 2013; Ellram et al., 2006; Giannakis, 2011; Maull et al., 2012). Furthermore, they contribute most to national and global GDP as well as the creation of direct and indirect employment (Kalpakjian and Schmid, 2008; The Society of Motor Manufacturers and Traders, 2014). Therefore, the researcher believes that it is

beneficial to review procurement practices within these high value-added manufacturing industries, i.e. automotive and shipbuilding.

For instance, the UK automotive sector generates approximately 50 billion GBP gross domestic product in annual turnover and approximately 10 billion GBP in net value-added to the UK economy (Society of Motor Manufacturers and Traders Ltd., 2011). Numerous publications of the Society of Motor Manufacturers and Traders Ltd., the New Automotive Innovation Growth Team, The UK Department for Business, Innovation, and Skills, and The Automotive Council highlight the importance of the automotive industry for national economic growth and employment and even the significance of its net value-added to European countries' economies due to its growth and strong export element. These organisations also emphasise the importance of automobile manufacturers' procurement capabilities and management for two reasons. First, approximately 65-80% of the components used in building vehicles are outsourced from suppliers located in Japan, Europe, the USA, India, China, and other countries. Second, these outsourced products account for approximately 40% of the retail price of a passenger car (The Automotive Council, 2011; Society of Motor Manufacturers and Traders Ltd., 2011).

This example from the automotive industry clearly demonstrates the importance of the purchasing practices within high value-added manufacturing industries. Taking this into account and considering the importance of high value-added manufacturing industries in general for the national and global economies and the fact that the manufacturing sector is more advanced in SCM as discussed earlier, the author took the decision to study OEMs and service providers' attractiveness and management in automotive and shipbuilding industries. The choice of the industries was driven by the nature of the demand within these two markets – mass-production in automotive and prototype orientation in shipbuilding. The researcher intends to explore whether this difference in the demand between the two industries affects the subject matter.

Since marketing as a discipline was created largely in the US and within a Western economy context (Easton, 2002), existing knowledge is mainly based on experience from within developed countries. However, a number of authors have pointed out the increasing importance of emerging economies in the global business arena and BRIC (Brazil, Russia, India, and China) countries in particular (Biggemann and Fam, 2011). Thus, the researcher believes that to advance existing knowledge, it is important to study the research topic both inside and outside a Western-economy environment in the one developed and one developing countries. This will expand the present knowledge on the

subject matter and determine if existing knowledge is applicable to automotive and shipbuilding industries as well as developing countries.

The United Kingdom (the UK) and Russia have been selected as countries representing developed Western and emerging BRIC economies. By selecting the research participants from a developed country (the UK) and a developing country (Russia), the author aimed to obtain a deep understanding of OEM and service provider attractiveness and management within high value-added manufacturing industries in these countries and contrast them. The rationale for the choice of countries was three-fold.

First, both of the countries are participating in the global economy; one is a Western developed country and the other is an emerging BRIC economy. The UK is one of the leading developed global economies (the sixth largest GDP in the world (CIA The World Factbook, 2017; IndexMundi, 2017) and the third largest in Western Europe (CIA The World Factbook, 2017; IndexMundi, 2017)), while Russia takes tenth place in the global arena based on its GDP (CIA The World Factbook, 2017; IndexMundi, 2017).

Second, by choosing one country that has been historically very well integrated into the global economic exchange and another that has been the least integrated from the BRIC countries (had a 'closed' market until 1991), the author intends to examine whether these historic and cultural differences affect the subject matter. The USSR's communism history, significant level of government control, and decades of economic and political isolation from non-USSR countries as a result of Iron Curtain doctrine resulted in a lack of research based on the experience from within this country (Puffer and McCarthy, 2011). Thus, having participants from Russia enabled the researcher to reveal the differences in OEMs' and service providers' attractiveness and management within Russian automobile manufacturers' and shipbuilders' business practices compared to the Western-European equivalent.

Third, due to the importance of context in qualitative research, the research topic sensitivity and the fact that the author is bilingual (Russian-English), the researcher believed that Russia and the UK as the examples of emergent and developed countries would be more suitable than others. The researcher's language helped to obtain knowledge about the subject matter within the Russian and the UK automotive and shipbuilding markets in great detail. This includes understanding of both spoken and written (documents) languages. In addition, knowledge of the Russian and UK business cultures from the author's previous work experience within these two business environments (both in Russia and the UK) facilitated better understanding of the

interviewees' positions and interests, establishing trust and therefore enhancing the response level and transparency. Additionally, according to Fontana and Fray (2000) and Xian (2008), not having interpreters helps to avoid an 'added layer of meanings and biases' that is likely to lead to misunderstanding. Indeed, Xian (2008) notes that translating the interviews is associated with three types of problems in research: linguistic, sociocultural, and methodological.

Due to the fact that the majority of the knowledge within the marketing discipline was developed from within the fast-moving consumer goods (FMCG) context, as mentioned earlier (Easton, 2002), the present study focuses not on the downstream (consumer) but the upstream (supplier) business-to-business markets. By exploring the perceptions of automobile manufacturers and shipbuilders as well as their suppliers (OEMs and service providers) regarding the attractiveness of OEMs and service providers and their management, the researcher intends to expand existing knowledge on supplier relationships within service business networks.

Based on the researcher's previous work experience, she believes that the main business networks in the automotive and shipbuilding industries are intertwined and the main network members intimately know each other. Taking this into account and given the qualitative nature of the current study, the research topic sensitivity, and the initial difficulty in obtaining data (see Section 3.7.2) the author felt that the snowball sampling strategy was the most appropriate to study OEMs' and service providers' attractiveness and management within service-infused business networks (Bryman and Bell, 2011; Saunders et al., 2016). Snowball sampling is a non-probability sampling strategy purposively selected by the researcher due to its accessibility and intention to gather rich and nuanced information on the subject matter. This sampling strategy is deemed particularly useful where the research population is difficult to define, and the research participants help to establish contacts with other parties to take part in the subsequent phases of data collection (Bryman and Bell, 2011; Saunders et al., 2016).

To answer the research questions of current study, it was crucial to establish the main purchase types of the customers from high value-added manufacturing industries and the main service-infused business networks associated with these purchases, as well as their main members and their roles. Applying the snowball sampling strategy enabled the author to make initial contact with her previous employers to obtain the required data on the research topic, as well as the information regarding the main business networks and their members. Reviewing obtained information on service-infused business

networks and their members, together with the available literature including the data available on the companies' websites, enabled the researcher to create a list of companies for the next phase of data collection. This list was discussed with the author's previous employers to gather further insights into the main market players. The researcher was allowed to refer to the names of the companies that participated in the first phase of data collection in order to obtain access to other companies to participate in the second phase of data collection (customers). In some cases, the author's previous employers contacted relevant market players to request participation in the research on the researcher's behalf. The same process took place to negotiate access to the business organisations that participated in phase three of data collection (suppliers).

## 3.6 Data collection

### 3.6.1 Preparing for data collection

Prior to approaching the potential respondents (automobile manufacturers and shipbuilders as well as their suppliers – OEMs and service providers) the researcher decided to create three documents as part of the process of preparation for data collection. These documents are very important in qualitative research, particularly case studies, to handle the limitations discussed earlier within this chapter (Yin, 2009). These three documents are: a letter of introduction (see Appendixes A and B), a consent form (see Appendix C), and the interview questions (see Appendix D). All the documents were created in two languages: English for the UK participants and Russian for Russian participants.

The decision to utilise these documents was made for three reasons: first, to stress the legitimacy of the research by making an association with an academic institution and therefore positively influencing the response level; secondly, to inform the potential research participants of how the obtained data would be utilised and their rights and allow participants to confirm their willingness to take part in the research and be contacted with additional questions after the data was collected; and finally, to create familiarity with the research subject matter prior to the actual data collection process. The author believes that the latter gave the approached organisations a clear idea of the research subject and thus enabled them to recommend relevant personnel who had the required knowledge and experience to participate in the research. Furthermore, providing the interview questions prior to the actual data collection enabled the research participants to gather the required information internally within their organisations and be prepared for the interviews, and therefore, have more fruitful discussions and challenge the researcher's views if felt necessary.

In the letter of introduction, the author briefly introduced herself by stating the institution of study, year, and discipline and outlining the purpose of the research and the main areas of interest. In this document, the author also requested a face-to-face or telephone interview lasting between 30 and 60 minutes with the relevant company personnel dealing with the research subject on a regular basis. Due to the sensitivity of the research topic, to increase the response level (Lee, 1993), the author strived to make the letter informal and personal and keep the research areas as generic as possible. Another reason for not being too prescriptive when it comes to the researcher's areas of interest is to avoid the bias that case studies have been criticised for (Yin, 2009) and attract genuine responses. Additionally, within this document, the author offered to sign a non-disclosure agreement to guarantee confidentiality and anonymity for participating companies and their employees. Participants were also given the opportunity to review the interview summary to validate the information provided after the conversation and to withdraw the provided data at any time if necessary. In addition, within this introductory letter, the researcher offered to share the obtained findings after the data collection process.

The consent form contained information regarding the project's title and researcher's name and requested confirmation from the research participant of his or her understanding of the interview questions, the voluntary nature of participation in the research and anonymity, acceptance of data tape recording and handling, and willingness to be contacted after the data collection.

In the interview questions document, the author provided a brief overview of the research topic, scope, industries, and potential respondents. Here, the interview questions and objectives were also outlined.

### 3.6.2 Data collection challenges

Due to sensitivity of the research topic, data collection was a difficult and lengthy process. Initially, the researcher experienced a great challenge in obtaining access to the relevant companies. Since the focus of the study is concerned with automotive and shipbuilding industries, the author believed that it would be beneficial to approach the automobile manufacturers and shipbuilders from the selected two countries first. The

author assumed that automobile manufacturers and shipbuilders could provide a complete picture when it comes to their procurement practices compared to their suppliers, who only deal with the purchasing matters of their customers specific to the products that they supply. However, after calling a number of companies and providing them with the details on the research outlined in the three documents discussed earlier, none of the approached business organisations agreed to participate in the research. Potential respondents felt that discussing the research topic and questions may disadvantage them in the market place and declined participation in the research. Some of the approached companies also felt uncomfortable regarding the tape recordings of the interview and signing a consent form.

Interviewees' anxiety associated with audio recording has been acknowledged by a number of authors. It appears that tape recorders are likely to disconcert respondents and make them feel self-conscious or even alarmed (Bryman and Bell, 2011). Additionally, it is not uncommon for tape recording to be the reason for the approached participants to refuse to take part in a research project. Furthermore, interviewers often find that the most valuable parts of the interview take place when their tape recorders are switched off (Bryman and Bell, 2011; Hammersley and Atkinson, 1995). Considering the research subject matter, the researcher felt that the disadvantages of using a tape recorder outweighed its advantages. For the author, it was more important to make the respondents feel relaxed so that they expressed themselves freely on the subject matter, rather than capture all the nuances of the way that they expressed their opinion with the tape recorder. For this reason, the researcher made the decision to not use an audio recorder and to take detailed notes instead.

After facing this initial difficulty and considering the fact that there are few automobile manufacturers and shipbuilders based in the UK and Russia, the author decided to take a different approach. Taking into account the researcher's previous work experience within the two industries, the decision was made to approach previous employers and request their support, i.e. have group interviews on the required subject matter with relevant personnel, discuss the main market players and their roles within the relevant networks, and obtain recommendations concerning further research participants and permission for the author to refer to these companies as previous employers during further data collection. In addition, in some cases, the researcher's previous employers contacted the relevant service-infused networks' members to request their participation in the research on the author's behalf. Taking into account feedback from the companies who had already declined their participation and to increase the response level, the

author decided not to record the interviews and made signing of the consent form voluntary. Based on this new approach, the data collection process encompassed three phases (see Section 3.7.4).

Although four to ten cases are recommended for a multiple case study design (Eisenhardt, 1989; Stake, 2006) and four to five cases is suggested as a sufficient number for themes identification and cross-case theme synthesis (Creswell, 2006), the author obtained data from 12 participating companies. Among these companies were two global automobile manufacturers (one based in Russia and the other in the UK), three shipyards selling their products globally with manufacturing facilities based either in Russia (two companies) or globally (one company), one service provider operating in the UK automotive market, one service provider operating in Russia and the CIS countries shipbuilding market, one service provider capable of providing services for both markets within the UK, two OEMs, operating in the global and regional (Russia and CIS countries) automotive market, and one global OEM offering products for both of these markets. Each organisation was chosen as a single case with the intention of contrasting industry (mass-production vs. customised) and country (developed vs. emerging).

### 3.6.3 Utilised methods

Within the present multiple case study research, semi-structured face-to-face and telephone interviews with individuals or groups of people consisting of three people maximum (focus groups) having the required knowledge on the subject matter and documentary data were utilised. The reasoning for choosing these data collection methods was four-fold.

First, based on the research subject matter, adopted qualitative approach and the research paradigm, the chosen data collection methods appeared to be the most appropriate (Eriksson and Kovalainen, 2008). It is not possible to study the subject matter by observing the procurement practices within the relevant departments of the automobile manufacturers and shipbuilders. Issues to do with OEM and service provider attractiveness and management in high value-added manufacturing industries are not likely to appear on a regular basis. The only viable means of obtaining data on the required subject matter is to discuss it with the relevant personnel and study relevant documentary data. This, therefore, makes group and individual interviewing in combination with documentary data analysis more suitable than other qualitative data

collection methods such as observation. Furthermore, the chosen data collection methods allowed the researcher a greater breadth of coverage via access to a wider group of service-infused business network members to discuss the purchasing situations associated with the main types of purchases. This would not be possible if other data collection methods were deployed.

Second, these three methods of data collection complement each other. Existing documentary data must be seen as 'social facts' and therefore treated seriously (Silverman, 2000). However, documents can be interpreted differently (Hodder, 2000). Furthermore, although documentary data is produced, shared, and utilised in a socially organised way, it does not transparently reflect the routines, evaluation procedures, and decision-making processes of the business organisations. Therefore, it is impossible to learn from documentary data alone, and 'talk has increasingly become recognised as the primary medium through which social interaction takes place' (Silverman, 2000, p. 63). Indeed, business globally is conducted through spoken interaction (Heritage, 1984). Conversely, people's statements can be different to their actions and therefore, documentary data together with individual and group interviewing can add rigour, breadth, and depth to the study (Cresswell, 2013; Denzin and Lincoln, 2011).

Third, the sensitivity of the research topic restricts the researcher's choice of data collection methods. Unlike some other research methods (i.e. surveys), noted as being unsuitable for research on sensitive topics, in-depth interviewing including group interviewing has been successfully utilised in sensitive research for a number of decades (Lee, 1993). In addition, from a disclosure perspective, there is very little evidence that face-to-face interviewing is more favourable than telephone interviewing (Lee, 1993).

Fourth, applying these three methods of data collection was driven by the desire to reduce the likelihood of misunderstanding and to clarify meanings and interpretations (Stake, 2000). Thus, using a variety of data sources enables data triangulation, a technique that helps to confirm whether the researcher correctly understood the social world (Brymen and Bell, 2011). This therefore increases credibility or trustworthiness of the study.

In the present study, interviewing (both individual and group interviewing or focus groups) was utilised as the main data collection method. The researcher believes that this method enables collection of rich and very detailed data on the subject matter. Furthermore, due to the research topic sensitivity, the author thought it is unlikely that

business organisations would have written records on the research topic, or if there were some available documents regarded as sensitive, they would be written with prospective scrutiny by others in mind (Brymen and Bell, 2011). This therefore makes documentary data of secondary importance in the present study. Moreover, both individual and group interviewing provides flexibility and therefore the opportunity to clarify statements and probe for additional information (Bloomberg, 2016). In addition, in-depth interviewing enables the researcher to grasp the interviewees' perspectives based on their experiences (Cresswell, 2013; Denzin and Lincoln, 2013).

Due to the adoption of a multiple case study design, semi-structured group and individual interviews were more suitable than structured or unstructured ones. Qualitative approach to research, the desire to obtain rich and detained answers and to see the research topic from the perspectives of the research participants, as well as the research topic sensitivity, required open-ended questions and flexibility during the interviews. This partially unstructured approach helped the researcher to avoid presuppositions and certain expectations and to see the world as the research participants saw it. Conversely, a clear focus of the researcher on the selected subject matter was necessary to avoid the interviewees' departure from the research questions. Furthermore, conducting multiple case study research requires some structure to ensure cross-case comparability (Bryman and Bell, 2011). This makes semi-structured interviewing more favourable compared to its structured or unstructured equivalents.

As previously mentioned, both face-to-face and telephone interviews were utilised during the data collection. According to Lee (1993), unlike questionnaires, noted for their poor response levels, there is little evidence that face-to-face interviews are more favourable than their telephone equivalent from a disclosure perspective. Thus, in order to obtain data from the geographically distant companies, telephone interviews were utilised. Due to the research topic, the author believed that it was more important to capture the respondents' perspectives on the research questions rather than observe their body language during the interviews. Furthermore, Bryman and Bell (2011) emphasise that telephone interviews can be more suitable when asking sensitive questions, as there may be less likelihood of the interviewees being distressed and a greater ability to terminate the conversation when the interviewer is not physically present. Additionally, for the interviewer, there are fewer costs involved.

Since interviewing (group and individual) was the main data collection method of the study, the researcher cultivated the criteria of a quality interviewer proposed by Brinkmann and Kvale (2015), Bryman and Bell (2011) and Kvale (1996), that were relevant to the present research. In order to maximise the chances of obtaining fruitful data, the author strived to be thoroughly familiar with the interview subject by conducting a preliminary literature review and developing an initial conceptual framework (see final conceptual framework in literature review chapter). The author also attempted to be structured and flexible to a certain extent, clear (focused and explicit), open, balanced (no dominance and equal participation), ethical yet critical, and interpretive when it came to the interviewees' statements. The latter was particularly important for the author as a means of clarifying the respondents' understanding of the research questions and their views via asking specifying, direct, indirect, follow-up, and interpretive questions as well as prompting further discussions through probing questions (Kvale, 1996). Utilising these types of questions therefore enhanced the validity and reliability or trustworthiness of the study.

For the reasons indicated at the beginning of this section, during each of the three phases of data collection, individual or group interviewing was complemented by the documentary data. The latter included secondary internal (documents outlining value definition, assessment and creation, purchase reports, market overviews, briefing notes, project management templates, etc.), published (primary, secondary and tertiary literature sources), and commercial (websites of vehicle manufacturers, shipbuilders and their suppliers, advertising exposure data) external data. Primary literature sources included different types of legislation that have been created specifically for high value-added manufacturing industries, i.e. the Strategy of Russian shipbuilding industry development until 2020, Federal Law FZ 223, etc. Secondary literature sources contained various publications of the Society of Motor Manufacturers and Traders Ltd. (2017), the New Automotive Innovation Growth Team (2017), the UK Department for Business, Innovation and Skills (2002, 2011), the Automotive Council (2010, 2011, 2017), and the Russian government, in addition to internal reports of the participating companies, professional, academic, and trade journals, books, and the internet (Durham University e-library and other sources). Tertiary literature sources were mainly utilised as a point of reference to gain access to other data deemed relevant.

The researcher believes that the use of documentary data provides additional representations of businesses' reality and can therefore offer some insights into the managerial decisions and actions relevant to the research topic. According to Brymen

and Bell (2011), documents have a distinctive ontological status and can be seen as forming a separate 'documentary reality'. This is particularly useful due to the adoption of interpretivism as a research paradigm. From this perspective, documentary data is utilised to reveal the reality generated by the service-infused business network structures (understood from focus groups and interviews).

In seeking to understand OEM and service provider attractiveness and management in high value-added manufacturing industries, the researcher conducted two face-to-face group interviews and ten individual face-to-face and telephone interviews and obtained internal (organisational and personal documents) and external (public and other documents) documentary data over the 1.5-year time period. (See figure 3.1 and table 3.1.) All chosen data collection methods did not require significant financial expenditure and were conducted within the required time scale. See the phases of data collection for further details (Section 3.7.4).

*Figure 3.1 Research data considerations*

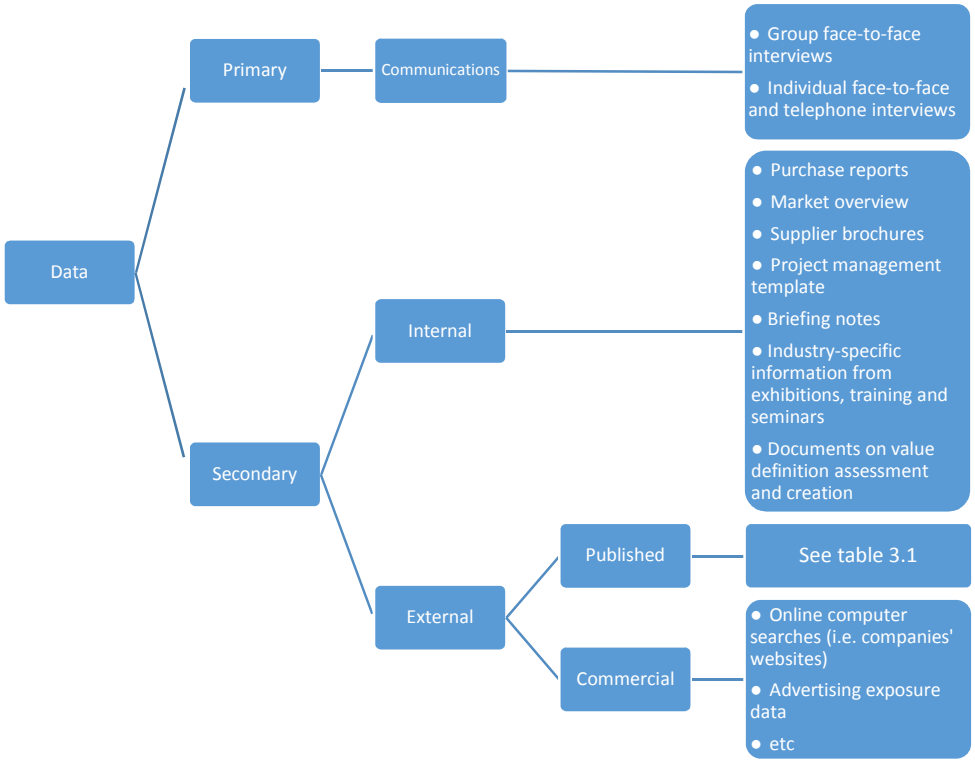


*Table 3.1 Data-related literature sources*

| Data-related literature sources | | |
|---|---|---|
| Primary | Secondary | Tertiary |
| • Strategy of Russian shipbuilding industry development until 2020 (Russian Federal Law Committee, 2002).<br>• Russian government project of the law of foreign investors' participation in Russian strategic industries (Russian Federal Law Committee, 2009).<br>• Russian federal programmes (Civil maritime techniques development for 2009-2016 (Russian Federal Law Committee, 2008).<br>• Russian Federal Law FZ 223 outlining the supplier management process in Russia | • Financial and purchase reports of the research participants and other vehicle manufacturers, shipbuilders and their suppliers publicly available in electronic format<br>• Data from the companies' websites<br>• Marine engineering conference proceedings (Gorbach, 2009; Gorbov, 2009)<br>• Report of General Manager of Russian United Shipbuilding Corporation V.Kireev regarding its development (Kireev, 2009).<br>• Society of Motor Manufacturers and Traders publications<br>• New Automotive Innovations and Growth Team publications<br>• The UK Department for Business, Innovation and Skills publications<br>• The Automotive Council publications<br>• Russian government publications regarding:<br>o Measures for maritime vessel financing;<br>o Measures for creating Russian 'super shipyards';<br>o Plans for buying foreign licenses, establishment of a price formation centre in shipbuilding;<br>o Marine engineering market support;<br>o etc.<br>• Professional and trade journals: *Korabel* (Franzev, 2008), *Shipgaz* (Lundberg, 2009), *Maritime Exchange* (Logachev and Chugunov, 2009; Mesheryakov and Ovcharenko, 2009), *Metals of Euroasia, Yachts, Flotexpert* (Glazyrin, 2009), and others<br>• Books and academic journals covering automotive and shipbuilding environments<br>• Internet (Durham University e-library and other sources) | • Indexes<br>• Abstracts<br>• Catalogues<br>• Encyclopaedias<br>• Dictionaries<br>• Bibliographies<br>• Citation indexes |

### 3.6.4 Phases of data collection

#### 3.6.4.1 First phase of data collection (group interviews)

The purpose of the first phase of data collection was three-fold: (1) to obtain rich and detailed data; (2) to pilot the research questions and interviewing to have the opportunity to improve them for the second and third stages of data collection; and (3) to obtain support in establishing contacts with other relevant business organisations for the second and third phases of data collection. Seven interview questions were developed to obtain the required information (see Appendix D) and were determined by the conceptual framework discussed in Chapter 2.

In order to gather the granular data, the researcher decided to interview two groups of people (focus groups) with the required knowledge of the subject matter. Two companies were purposively selected in order to obtain this data. They were contacted via telephone and the researcher requested participation of the relevant personnel who had knowledge of the subject matter based on their work experience. The author also requested supporting documentary data. Both of the business organisations were the researcher's previous employers and were willing to support the research project. One was a global automobile manufacturer and the other was a service provider operating in Russian and CIS countries' shipbuilding market. Both companies were based in Russia. Group members were selected based on their knowledge and experience relevant to the research topic and questions (see table 3.2).

Among the first discussion group were the company deputy director, who had been with the company from the start and held various positions, and the project manager, who oversaw various shipbuilding projects from both technical and commercial perspectives on a daily basis. The second discussion group consisted of the purchasing manager in charge of all the plant purchases and two senior engineers looking after the technical side of purchases, representing amalgamations of tangible goods and services. One of the engineers had experience of working for three different global automobile manufacturers and was well aware of these companies' technical aspects of purchases in the Russian market. Another service engineer had 20 years of experience working within the same company in various positions, primarily in the UK, but was also involved in a number of projects carried out at the automobile manufacturing plant in Russia.

The researcher felt that two focus groups, one representing the shipbuilding market and the other representing the automotive industry, would be sufficient for the first stage of data collection to generate initial categories and themes/concepts. Although the recommended group size ranges from six to ten members (Morgan, 1998), for the author, groups consisting of two or three members were sufficient due to the participants' positions within their organisations and the knowledge and experience that they had of the required subject matter. Furthermore, in this instance, group sizes could not be changed; simply adding more participants would not benefit the research as other employees would not have had the required knowledge to support the study.

The choice of data collection method was based on the author's desire to gain a range of opinions on the subject matter (single theme), understand differences in perspectives, and collect ideas that emerged from the group discussion (Bloomberg and Volpe, 2016; Brymen and Bell, 2011). This research method therefore provides an in-depth understanding of the issues being studied. Further advantages of this method are its flexibility, the ability to clarify the researcher's understanding based on the obtained data, and the ability to prompt further discussion (Liamputtong, 2011). Although this data collection method has elements of both participant observation and individual interviews, the author felt that observing the dynamics within the group was unnecessary due to the research topic, as long as each member of the group explicitly expressed his or her opinion in response to each of the interview questions.

However, this research method has some disadvantages. First, it requires having strong facilitation skills, i.e. planning, structuring, and managing the conversation and the data (recording, transcribing, and analysing), ensuring that each group member expresses their opinion on the raised issues, and managing dominant speakers. Second, it often entails some logistical difficulties. And third, the outcome of the group discussion can be unpredictable due to the researcher's lower level of control compared to individual interviewing (Bloomberg and Volpe, 2016; Brymen and Bell, 2011; Fontana and Frey, 2003). These challenges were handled well due to the researcher's familiarity with the two companies and knowledge of the subject matter and some of the research participants from previous work experience. Additionally, logistics was not an issue due to the researcher's dual nationality. Furthermore, the researcher found her previous experience as an interviewer useful.

In addition to the information obtained during the group interviews, participating companies were also requested to provide some additional documentary data that they would be comfortable to share (see table 3.1). Among the supplied documents were: a Russian and CIS countries market overview provided by the marketing department with the permission of the company deputy director, copies of the brochures from the latest marine exhibitions, copies of suppliers' catalogues, an example of the shipyards' lists of purchases, documents outlining the process of value definition, assessment and creation in automotive industry and an internal project management template. Having the opportunity to discuss the obtained documents with the two participating companies enabled the author to ensure their authenticity, credibility, representativeness, and accuracy of their meanings.

Furthermore, after conducting the group interviews and obtaining organisational documents from participating companies, the researcher also reviewed some public documents (i.e. Russian Federal Law FZ223/94 outlining supplier management practices in the Russian market, the Strategy of Russian Shipbuilding industry development until 2020, various publications of Society of Motor Manufacturers and Traders, etc.), information from the companies' websites, and other available literature (see table 3.1). This heterogeneous documentary data can be viewed as a window to the reality of service-infused business networks (Brymen and Bell, 2011). Utilisation of this documentary data enabled the author to have a richer picture of the research subject matter.

During the group discussions, it appeared that although members of each of the two groups held different occupational positions and therefore represented different functional areas within their organisations, they all had the same understanding of OEM and service provider attractiveness and management. This suggests that business organisations within these two industries can be seen as having a single voice. Therefore, even a single research participant can provide the information on behalf of his or her company, assuming that this participant has the required knowledge and experience of the subject matter and is delegated by his/her employer to support the research.

Combining the two data collection methods and conducting an ongoing literature review during the first phase of data collection process enabled the generation of codes, categories, and themes and an exploration of the relationships between these

categories. It further allowed the researcher to develop a hypothesis regarding these relationships (see data analysis section).

Based on the researcher's view on the progress of the two conducted face-to-face group interviews and the feedback from the research participants, the interview questions did not require any changes for the second and third phases of data collection. Additionally, the research participants from the two focus groups found the approach taken by the facilitator during the interviews well structured (gave the purpose but did not enforce her own opinion), balanced (neither the interviewer nor the interviewees talked too much or too little), ethically correct (see section titled 'Ethical Considerations'), open-minded, clear, and flexible (allowed to discuss certain areas in more detail). The interview approach was therefore suitable for further phases of data collection.

As previously mentioned, based on the data obtained during current phase of data collection on the main purchase types of the customers from high value-added manufacturing industries and relevant service-infused business networks and their members, as well as the literature sources, including the information available on the companies' websites, the researcher wrote down a list of companies to approach during further phases of data collection. This list was discussed with the researcher's previous employers to obtain a deeper understanding of the roles of these companies within the relevant networks and the benefits of their participation in the research project. In some cases, to increase the chances of obtaining access to certain market players, the author's previous employers contacted these companies on the researcher's behalf.

#### 3.6.4.2 Second phase of data collection (customers' views)

The second phase of data collection was concerned with the customers' views (automobile manufacturers and shipbuilders) on the research subject and therefore can be seen as representing the first research setting. The researcher decided to approach shipbuilders and automobile manufacturers prior to their suppliers (see Phase Three of Data Collection below) to have a better understanding of the procurement practices of these organisations. According to the author's logic, supplier understanding of their customers procurement practices is likely to be fragmented and only relevant for the products that they supply.

Potential research participants were contacted by telephone and three shipyards and one automobile manufacturer agreed to support the research project after receiving the

letter of introduction, consent form, and interview questions' documents. Two of these shipyards were based in Russia while the third shipyard and the automobile manufacturer were based in the UK. Purchasing managers or directors (one person from each company) were recommended as interviewees due to their knowledge of the subject matter.

Since only one person was recommended for an interview, the researcher utilised semi-structured individual face-to-face or telephone interviewing based on open-ended questions. The latter help to avoid the researcher's bias and obtain in-depth understanding on the subject matter. Interview type was driven by the interviewee's location and availability as well as the preference for either of these two methods. Participating companies preferred not to have the interviews audio recorded but were comfortable for the researcher to take notes so that the interview summary was generated and sent to the interviewees for approval and validation.

After the apparent homogeneity of the respondents' views (from within the same company) on the research questions revealed during the first phase of data collection the researcher was confident that a single employee having the required experience and knowledge could speak for his or her company and therefore provide rich insights into the subject matter. All the participants were also requested to provide some supporting documentary data. Internal purchasing reports outlining products' categorisation and their main characteristics were obtained together with the briefing notes and industry specific information gathered by one of the participating companies internally from exhibitions, trainings, and seminars (see table 3.2).

Data obtained during this phase of data collection was in line with data obtained during the group interviews. After undertaking a review of secondary published data (literature, public documents, etc.), the categories distinguished in the previous phase of data collection were enriched within the research setting representing customers' views in high value-added manufacturing industries. This enabled the researcher to test hypotheses regarding the relationships between the categories developed during phase one of data collection and generate explanations to the main research questions (see findings and analysis chapters).

#### 3.6.4.3 Third phase of data collection (suppliers' views)

During this phase of data collection, the researcher explored the applicability of the theory that emerged during the second phase of data collection in a different research setting focusing on suppliers' (OEMs and service providers) perspectives regarding the topic of the study.

Based on the data gathered during the first two phases of data collection, references made by some of the respondents specific to particular market players, and the information available on the companies' websites, a list of the business organisations was created for the next round of snowball sampling. These firms were OEMs and service providers that supplied their products to automobile manufacturers and shipbuilders. The research participants were chosen based on the main purchase types (products representing amalgamations of tangible goods and services) and their importance either from financial or technical perspectives to the customers that emerged during the first two stages of data collection (see Chapter 5).

As in the previous stage of data collection, potential research participants were contacted by telephone and were provided with a letter of introduction, consent form, and the interview questions via email. Six companies agreed to support the research project and nominated a single relevant employee for the interview. During this phase of data collection, the researcher utilised the same approach and methods of data collection as in the previous phase. Since only one person was delegated from each company, the researcher used individual semi-structured face-to-face and telephone interviews based on open-ended questions depending on the interviewee's availability, location, and preference for either of the two methods (face-to-face or telephone interview).

Amongst the interviewed companies were: a Russian and CIS countries vehicle parts supplier (OEM 1), two UK suppliers of general technical services in automotive and shipbuilding markets (service providers 2 and 3), a global supplier of unique equipment and services and unique technology/ software and services for both markets (OEM 3), and two global suppliers of medium and small equipment used for vehicle and vessel manufacturing facilities (OEM 2 and OEM 4). Interviewees nominated by these business organisations held different occupational positions (see table 3.2). They included: managing director, financial director, sales director, chief buyer, and two service engineers.

One of the participating business organisations also provided company brochures outlining its capabilities and the main points regarding the products and services that it supplied (see table 3.2). The researcher also utilised the information available on the

websites of the main members of service-infused business networks as well as the public documents and other relevant literature to gather more insights into the subject matter.

Although each of the companies participating in the current phase of data collection had knowledge regarding the procurement practices of their customers in relation to the products that their companies supplied, obtained data was highly consistent with the data gathered from customers (automobile manufacturers and shipbuilders) in phase two, as well as the group interviews (phase one of data collection). This indicated the applicability of the answers to the research questions generated earlier in another research setting (vendors' perspectives')

*Table 3.2 Data collection summary*

| Number of participating companies | Company name | Industry | Country | Number of people interviewed per company | Interviewee(s) | Interview type | Provided documentary data |
|---|---|---|---|---|---|---|---|
| ***1st phase of data collection –2 focus groups*** | | | | | | | |
| 1 | Automobile manufacturer 1 | Automotive | Russia | Three | Senior Engineer 1, Senior Engineer 2, and Purchasing Manager | Semi-structured face-to-face group interview | Project management templates, documents outlining the process of value definition, assessment, and creation |
| 2 | Service Provider 1 (vessel equipment-related services) | Shipbuilding | Russia | Two | Deputy Director, Project Manager | Semi-structured face-to-face group interview | Russian and CIS countries market overview, company brochure, copies of the brochures from the marine exhibitions, copies of suppliers' catalogues, example of the shipyard's list of purchases |
| ***2nd phase of data collection – 4 interviews with buying organisations*** | | | | | | | |
| 3 | Automobile Manufacturer 2 | Automotive | The UK | One | Purchasing and Logistics Director | Semi-structured telephone interview (individual) | - |
| 4 | Shipyard 1 | Shipbuilding | The UK | One | Purchasing Manager | Semi-structured face-to-face interview (individual) | Purchase reports, briefing notes and industry specific information from exhibitions, trainings, and seminars. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 5 | Shipyard 2 | Shipbuilding | Russia | One | Purchasing Director | Semi-structured telephone interview (individual) | - |
| 6 | Shipyard 3 | Shipbuilding | Russia | One | Purchasing Director | Semi-structured face-to-face interview (individual) | - |
| ***3rd phase of data collection – 6 interviews with supplying organisations*** | | | | | | | |
| 7 | Service Provider 2 (general technical services – engineering) | Automotive | The UK | One | Managing Director | Semi-structured face-to-face interview (individual) | Company brochure |
| 8 | Service Provider 3 (general technical services – construction) | Automotive and Shipbuilding | The UK | One | Chief Buyer | Semi-structured face-to-face interview (individual) | - |
| 9 | OEM 1 (vehicle parts) | Automotive | Russia | One | Financial Director | Semi-structured face-to-face interview (individual) | - |
| 10 | OEM 2 (general equipment and services – facilities) | Automotive | The UK | One | Service Engineer | Semi-structured telephone interview (individual) | - |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 11 | OEM 3 (general equipment and services – facilities) | Automotive and Shipbuilding | The UK | One | Service Engineer | Semi-structured telephone interview (individual) | - |
| 12 | OEM 4 (unique equipment and services – facilities) | Automotive and Shipbuilding | The UK | One | Sales Director | Semi-structured telephone interview (individual) | - |

### 3.7 Analysis and synthesis of data

Qualitative data is non-standardised and based on meanings expressed through words (Saunders et al., 2016). In order to support the process of its analysis and avoid the author's biased views, initially, the researcher undertook the literature review on relationships within service business networks, value, vendor attractiveness, and service transition strategies. An initial conceptual framework was developed as a result of this process (see final conceptual framework in Chapter 2). This initial conceptual framework enabled the author to take an informed perspective to data collection and analysis, which is particularly important for qualitative interviews (Brinkmann and Kvale, 2016). Additionally, it facilitated formulation of the detailed research questions and interview questions, which gave the interviews structure to ensure cross-case comparability and guided the overall data collection and analysis processes (Bryman and Bell, 2011).

To avoid the risk of repetition and overwhelming and unfocused data, data collection and analysis were conducted simultaneously throughout the three phases of data collection (Bloomberg and Volpe, 2016; Merriam, 1998, 2009). This was supported by a thematic analytic approach towards issues such as supplier attractiveness and its relation to value, relative attractiveness of OEMs and service providers, and organisational arrangements and practices for managing attractive OEMs and service providers in service-infused business networks. Thematic analysis is considered particularly relevant to qualitative case studies, as it offers an orderly and logical way to analyse data while allowing flexibility during this process (Braun and Clarke, 2006; Saunders et al., 2016). Furthermore, it resonates with the adopted research paradigm and abductive approach to theory advocated by the contemporary industrial marketing scholars studying business networks (Debois and Araujo, 2007; Easton, 2010; Peters et al., 2013; Ryan et al., 2012).

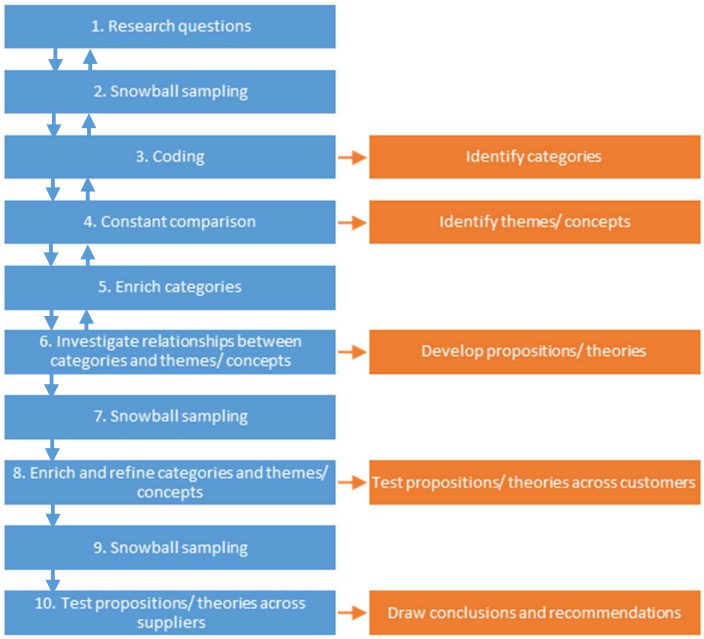
Carried out thematic analysis involved continuous working with the data - from the raw verbal (interviews and focus groups) or visual data (documents and literature) gathered to continuous reviews of that data. Guided by the initial conceptual framework derived from the literature (see Literature review chapter), during the process of thematic analysis data has been interpreted, summarised and categorised. Throughout this process the researcher has continuously been returning to the raw data to check its interpretations, to look at it from various perspectives trying to decompose the data into smaller pieces and making the links between these pieces of data within each case as

well as looking for similarities across the cases to compare the responses across the countries, industries, core part of supplied product (service versus equipment) and respondents (customer versus supplier).

Originally both verbal and visual raw data gathered have been transcribed. This transcribed data has then been decomposed into ‘chunks’, which were single words, phrases, sentences or paragraphs. The ‘chunks’ of verbal data have then been compared with the ‘chunks’ of documentary data as well as the literature. Data index, subcodes, codes, subcategories, categories and themes that emerged from the two types of data helped to navigate through the data as well as flag up the main issues. The researcher has continuously been asking herself: ‘What do they say about …?’, ‘Why do they say that…?’ or ‘What do them mean by…?’. To ensure that the researcher’s understanding and interpretation of obtained documentary and interview data was correct the author has contacted the interviewees to double-check that her understanding of the main issues was correct.

Building on the categories and descriptions driven by the initial conceptual framework, the emic responses of research participants (cf. Ellis and Hopkinson, 2010), and continuously reviewed scholarly literature, consistent protocol-based text coding was carried out (see example in Appendix E). To avoid association with particular research participants and companies, the author has removed their names from the transcripts to code them blindly. Cutting and pasting coded participant views on the subject matter and their synthesis enabled the researcher to reconstruct holistic and integrated explanations. The latter facilitated identification and description of the main categories and themes (A to E – see Chapter 1: Introduction) and their interrelationships, which emerged after the first phase of data collection. The interrelationships between the categories and themes enabled the researcher to generate research propositions/theories, which were then tested during the second and third phases of data collection and refined where appropriate (see figure 3.2). The researcher also prepared written narratives after assigning the codes, in order to cross-check the data and serve as a secondary analysis. These narratives and the coding schemes were shared with the project supervisors after completion of the data collection to confirm the researcher’s designations.

*Figure 3.2 Scheme of the research process*




The main data 'chunks' identified enabled to construct codes-to-themes models. The latter helped to summarise the data gathered as well as look at it, first, within one case as well as, second, look into each of the identified subcodes, codes, subcategories, categories, themes, etc. across all the cases for comparability (check for similarities and differences) purposes (See figures 3.3 to 3.5). Appendix E and figures 3.3 to 3.5 demonstrate how the categories were developed and how the author worked with them to produce themes.

After reviewing the literature on the deployment of qualitative data analysis software including its advantages and disadvantages, and trialling the N-Vivo program, the researcher decided to conduct data analysis and synthesis manually. The author felt that the multiplicity of the data sources and complexity of obtained data were unlikely to be supported by the existing programs. A number of authors have highlighted that software does not analyse the data but facilitates its organising (Bloomberg and Valpe, 2016; Brinkmann and Kvale, 2016; Bryman and Bell, 2011; Saldana, 2016; Saunders et al., 2016; Weitzman, 2000). However, the data organisation that existing programs offer has a number of limitations. First, only a few programs can track individual cases through multiple documents. Second, none of the programs perform data organisation better than its alternative. Third, display building still requires significant development, especially matrices. Finally, the possibility of importing and exporting marked-up, coded, and annotated documents is still under development. Furthermore, software can distance the

researcher from its data, which is a major disadvantage in qualitative research (Brinkmann and Kvale, 2016; Weitzman, 2000).

Due to the intricacy and multi-layered nature of the obtained data, the author felt that the study would not benefit from a word count or other program-generated frequency charts within or across the cases. The research participants had a very broad vocabulary allowing them to discuss one category or theme by referring to it from various perspectives and therefore using different words. Hence, both single case and cross-case analyses, outlining peculiarities of the cases as well as similarities and differences between them, were carried out manually. As advised by Miles and Huberman (1994), to support this process, a number of matrices, tables, flowcharts, logical dependency diagrams, cause and effect relationship diagrams, and rating and ranking techniques were utilised. These tools facilitated data classification into categories and themes. These categories and themes as well as their interrelationships were finalised after the three phases of data collection and are displayed in figures 3.6 to 3.10. They all are specific to the research questions and conceptual framework (see literature review).

Conducting analysis and synthesis of the data enabled the researcher to consider the broader implications of the research and draw several conclusions as well as theoretical and managerial recommendations. These will be discussed in Chapters 4 to 7.

*Figure 3.3 Supplier attractiveness from expected value perspective: codes-to-themes model of qualitative enquiry*

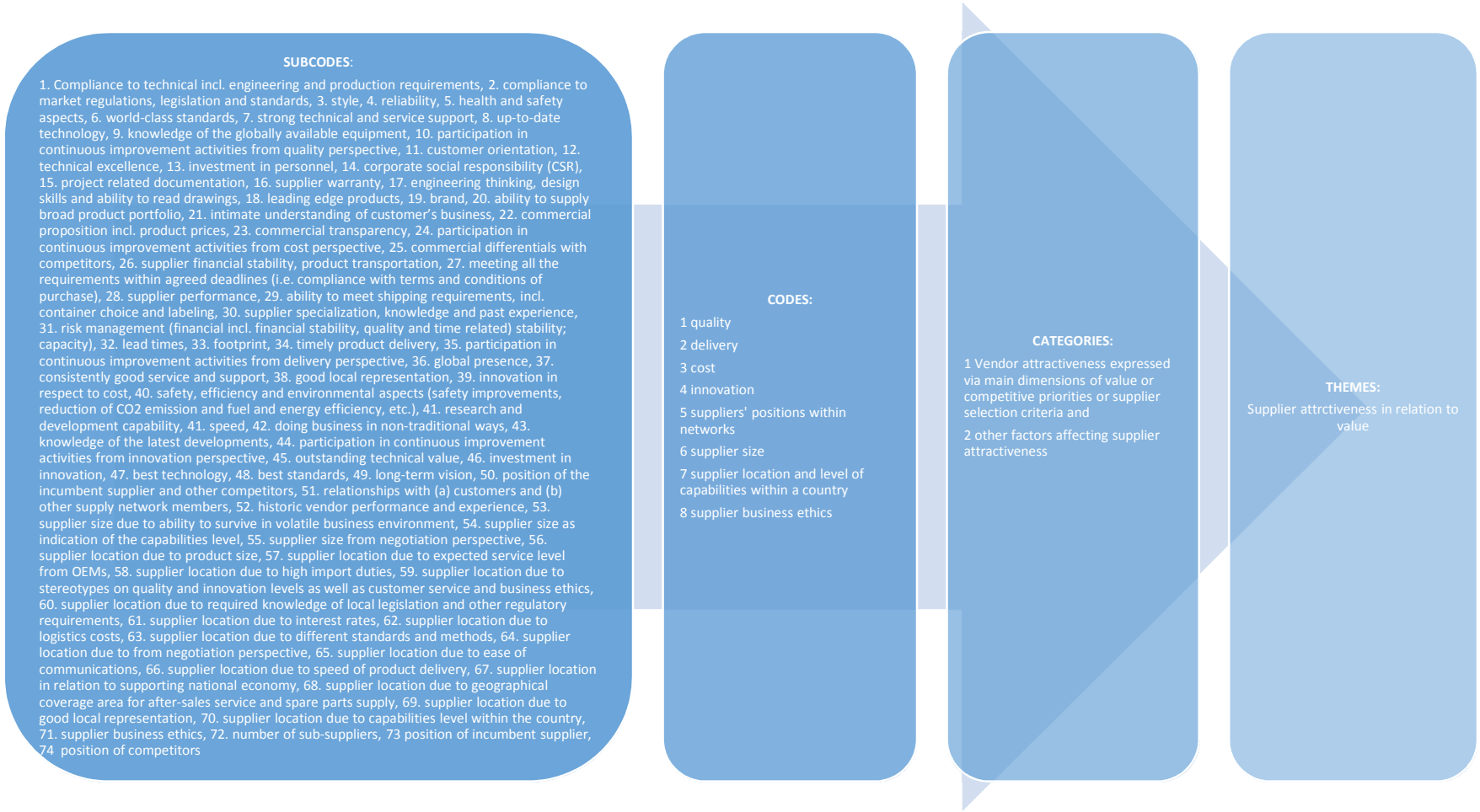


*Figure 3.4 Relative attractiveness of OEMs and service providers: codes-to-themes model of qualitative enquiry*

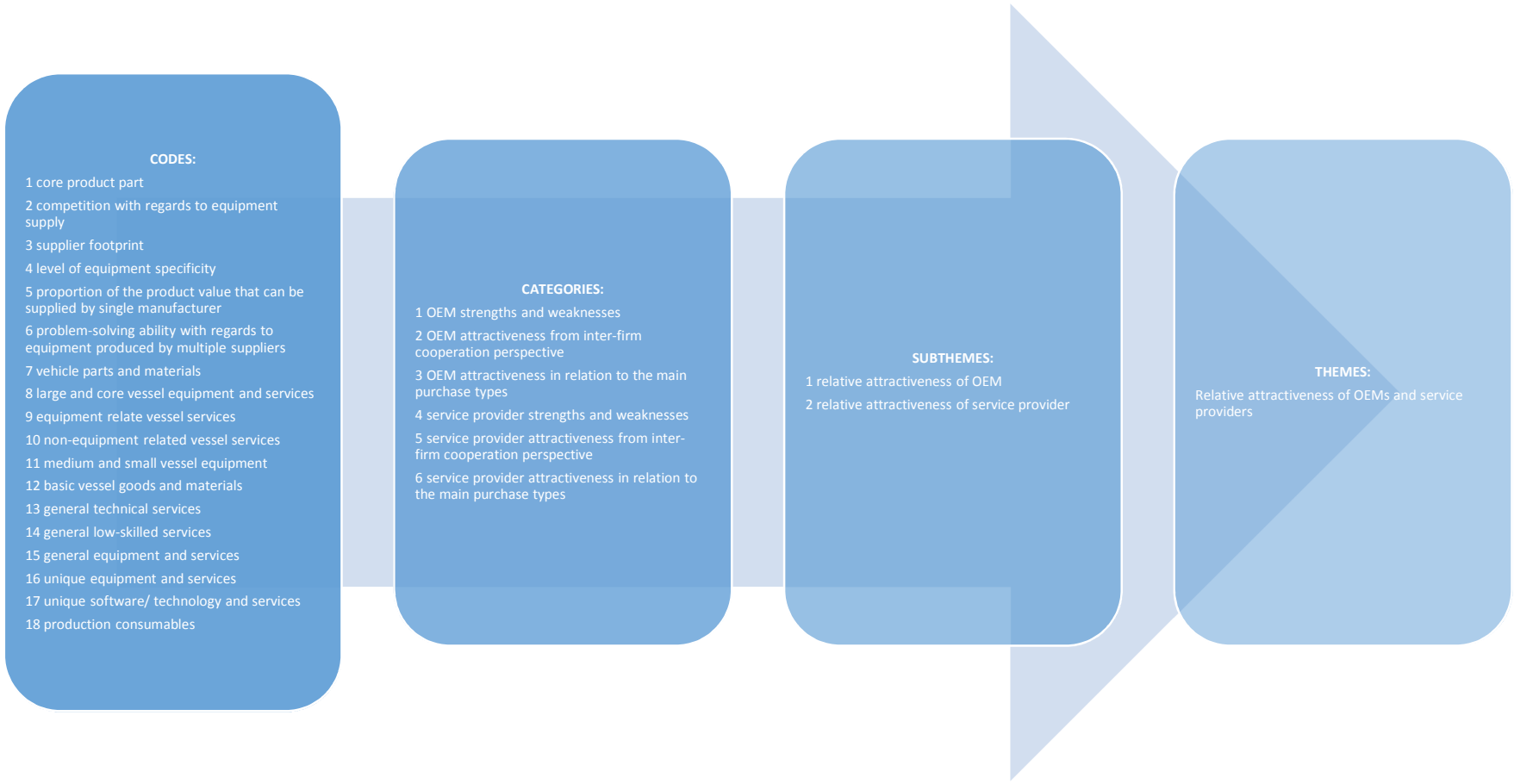
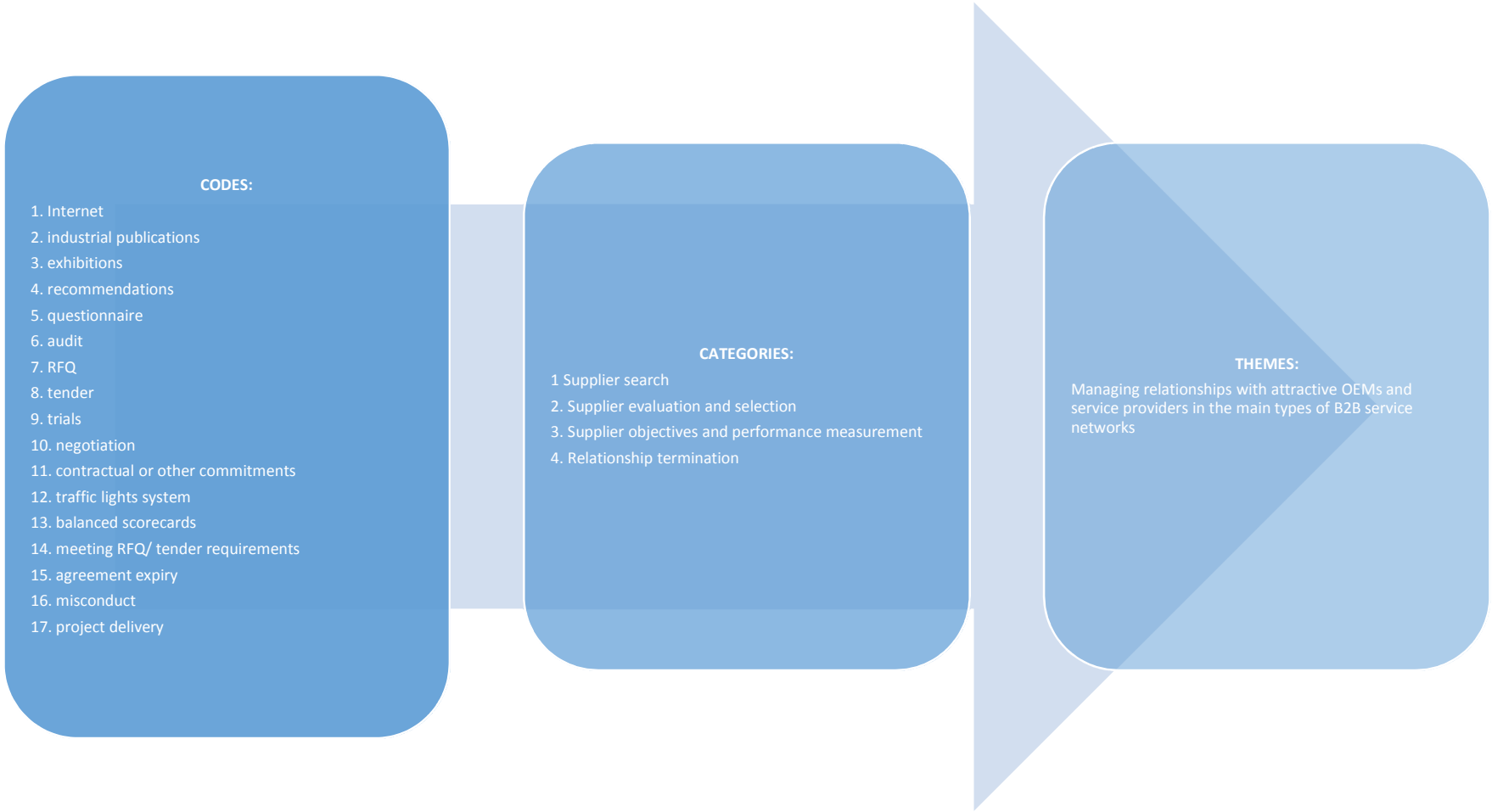


*Figure 3.5 Managing attractive OEMs and service providers: codes-to-themes model of qualitative enquiry*



### 3.8 Ethical considerations

Ethics can be defined as moral principles, norms, and standards of behaviour that guide moral choices about the behaviour of the individuals and their relationships with others (Blumberg et al., 2005). Hence, research ethics is about how the researcher formulates and clarifies the research topic, designs the research, gains access to and collects, stores, and analyses the data, and presents the findings in a moral and responsible way (Saunders et al., 2007).

According to Bryman and Bell (2011), there are a number of professional associations that formulate codes of ethics and principles in business and management research. Among the most important ones are: the Academy of Management, the Association of Business Schools/ British Academy of Management/ Higher Education Academy, the Social Research Association, the British Sociological Association, and the American Sociological Association (Bryman and Bell, 2011). Based on the guidelines of these organisations, several authors have developed the main principles of ethical research. Synthesising publications of Bloomberg and Volpe (2016), Bryman and Bell (2011), Silverman (2013), and other authors, ethical research is based on five main principles: a voluntary nature and the right to withdraw; no harm; protection and privacy of participants and their rights and interests; informed consent; and no deception.

Despite the research topic sensitivity, the author managed to gain access to 12 business organisations to gather a sufficient amount of valid and reliable data and had the opportunity to ask additional questions after the data collection process to ensure accuracy of understanding, authenticity, credibility, and representativeness. This was possible only for one reason - the credibility of the researcher obtained via research ethics.

In order to establish trust between the researcher and the research participants, the author took a deontological perspective (arguing that unethical research cannot be justified) towards the companies that facilitated the current multiple case study. As mentioned earlier, each participating company was contacted by telephone, and after informing these business organisations of the research and their rights both verbally and by email (letter of introduction, interview questions' and consent form documents), the author requested permission to conduct the research. After gaining approval to conduct the study and acceptance of the research design, the researcher gave a promise not to disclose any commercially sensitive data. The researcher further guaranteed the privacy,

confidentiality, and anonymity of the participants, the voluntary nature of participation, and ethical collection, storage, analysis, and reporting of the data. In order to prove that these promises would be delivered, the researcher offered to sign confidentiality agreements. However, all the business organisations participating in the research did not find it necessary.

During data collection, all the participants were informed regarding the research topic and their rights (confidentiality and anonymity). The time of the interviews was arranged when it was convenient for the participants and there was no pressure on them to participate. The research topic and structure of the interviews prevented any embarrassment, stress, discomfort, pain, or harm of the participants.

Data processing and storage complied with Directive 95/46/EC (European Commission, 1995) and the Data Protection Act 1998 (The National Archives, 1998). All the participants knew about their rights to freedom, including their right to privacy and fair and lawful processing of their data. The adequate, relevant, and not excessive data was obtained for research purposes only and kept securely for no longer than it was needed. Cautionary measures were taken to secure the storage of the data relevant to the research. Nobody other than the researcher had access to this material. Sensitive personal data (racial or ethnic origin, religious or other similar beliefs, political opinions, etc.) was not applicable to current research.

Data analysis and reporting were objective. The research participants were given the interview summaries to validate the accuracy of obtained data and ensure that the researcher's understanding of it was correct. This confirms that the author has not been selective about the data and the findings have not been misinterpreted. Ethical issues of confidentiality and anonymity have been maintained. The author has not disclosed the names of the companies that participated in the research project or their employees. The research conclusions have not disadvantaged any of the participating companies or their employees.

All of the above demonstrates that the research ethics has met the requirements of the 12 business organisations participating in the research and the ethical guidelines of Durham University.

### 3.9 Research quality

The quality of qualitative research is expressed by its trustworthiness (Bloomberg and Volpe, 2016). LeCompte and Goetz (1982), Lincoln and Guba (2000), Mason (1996), Spencer et al. (2003), Yardley (2000) argue that trustworthiness should be assessed differently for qualitative and quantitative studies. To achieve this, these authors propose several criteria of trustworthiness. Although the criteria have been classified and named differently, they refer to the same research quality attributes. Since the majority of the qualitative research methods literature uses the terms of trustworthiness suggested by Lincoln and Guba (2000), the researcher will also refer to these criteria in seeking to evaluate the quality of the current qualitative research. They are: credibility, dependability, confirmability, and transferability (Lincoln and Guba, 2000).

#### 3.9.1 Credibility

Credibility concerns whether the research findings are accurate and credible based on the canons of good practice from the standpoint of the author, the research participants, and the reader (Bloomberg and Volpe, 2016; Bryman and Bell, 2011). This criterion is deemed to be the main component of the research design (Cresswell, 2014; Marshall and Rossman, 2015; Miles and Huberman, 1994; Miles, Huberman and Saldana, 2014).

The researcher strived to enhance the credibility of the study by approaching it from two perspectives: methodological and interpretive (Mason, 1996).

The first perspective involved methodological choices with respect to the components of the research design, based on the research topic and questions. A review of the literature on the research methods was carried out to understand the advantages and limitations of various research methods and their previous application in business studies and to select the most suitable components of the research design given the objectives of the current study. The author has also discussed the research methodology with her supervisors to gather their opinions on this matter. All these measures have been taken to achieve logical coherence (Dubois and Gadde, 2002; Pfiffer, 1982; Strauss and Corbin, 1990).

To enhance the interpretive credibility the researcher took a number of actions. As mentioned earlier these included: providing the research participants with the information on the research subject matter both verbally and in writing prior to the interviews;

selection of the data collection methods that allowed clarification of the researcher's understanding of the interviewees' perspectives and the research participants' understandings of the interview questions on the subject matter; and the respondents' validations of the interview summaries based on the conducted discussions. Furthermore, gathering data from multiple sources using multiple methods enabled triangulation of data sources and methods. This allowed for a richer and more nuanced picture of the phenomenon under study. Reviewing and discussing the obtained findings with the supervisors was another way of ensuring that the reality seen by the research participants was adequately captured by the author in the research findings.

### 3.9.2 Dependability

Dependability in qualitative research is concerned with the replication of the research findings by other similar studies (Bloomberg and Volpe, 2016). To achieve consistency of the findings and ensure that they align with the collected data, it is important to keep the records of all the phases of the research process and consistently utilise coding schemes and categories (Bloomberg and Volpe, 2016; Bryman and Bell, 2011; Lincoln and Guba, 2000). To fulfil this criterion of research trustworthiness, the researcher transparently documented the research problem formulation, selection of the research participants, phases of data collection and associated challenges, and data analysis decisions and interpretations.

### 3.9.3 Confirmability

The criterion of confirmability corresponds to the notion of the objectivity of the research findings and avoiding biases and subjectivity of the researcher (Bloomberg and Volpe, 2016; Bryman and Bell, 2011; Lincoln and Guba, 2000). To prevent biases and subjectivity and to enrich the research contextually, the author conducted a literature review throughout the entire research process. Additionally, as mentioned previously, obtained primary data was validated by the research participants. Furthermore, as part of establishing the confirmability, the researcher left an audit trail (Lincoln and Guba, 2000) by documenting the logic behind the researcher's thinking and rationale for the decisions made during the study.

### 3.9.4 Transferability

According to Lincoln and Guba (2000), transferability refers to whether the phenomenon in one context can transfer to another particular context. The researcher attempted to address this issue by providing rich and detailed descriptions of the main concepts and categories under study as well as the context (Geertz, 1973). This provides the basis to determine the relevance of the research in a broader context (Schram, 2003).

### 3.10 Chapter summary

The current chapter has provided a detailed outline of the methodology of the present research. A qualitative approach was chosen to study the phenomenon of OEM and service provider attractiveness and management in high value-added manufacturing industries (automotive and shipbuilding). The research sample consisted of 12 business organisations. Group and individual interviews and documentary data were utilised as the data collection methods. An initial literature review was carried out to develop an initial conceptual framework. Collected primary and secondary data and an on-going literature review enabled development and modification of the initial conceptual framework, as well as identification and saturation of the main categories and themes. Obtained research findings, their interpretations, and comparison with the literature enabled the researcher to draw the conclusions and recommendations for both academic and business purposes. This will be discussed in more detail in Chapters 4 to 7.

# CHAPTER 4: UNDERSTANDING SUPPLIER ATTRACTIVENESS FROM THE EXPECTED VALUE PERSPECTIVE

## 4.1 Introduction

The objective of this chapter is to explore how customers and suppliers themselves (OEMs and service providers) perceive the attractiveness of OEMs and service providers from the expected value perspective in service-infused business relationships, and if their understanding of the phenomenon varies based on the main purchase type and core part of the product. Subsequently studying this area will contribute to the vendor attractiveness stream of marketing literature.

The data gathered is then compared with the relevant literature on supplier attractiveness in relation to value (Hald et al., 2009; Ulaga, 2003), customers' competitive priorities (Lillis and Sweeney, 2013; Peng et al., 2011) and the main value drivers and supplier selection criteria (for example, Krause et al., 2001; Maltz et al., 2011). Additionally, the author reviews how suppliers of the respective product types see their strategic fit to the 'ideal supplier profile' for the products they supply (such as Nielsen and Gudergan, 2012; Zaefarian et al., 2013).

The next two sections explore this issue within the context of the UK and Russian contemporary automotive and shipbuilding industries. Thereafter, follows a discussion and interim conclusion, summarising the main points of the chapter.

## 4.2 Automotive

### 4.2.1 Supplier attractiveness: Customer perspectives

Interviews conducted with two automobile manufacturers (customers) revealed that, to determine supplier attractiveness, both companies assessed vendor propositions in relation to the main dimensions of value or relationship value drivers, as driven by their competitive priorities. These dimensions of value capture the essence of vendor offerings and are reflected in the supplier selection criteria used for main purchase types. Moreover, the interviewees also referred to other factors that are considered when assessing supplier attractiveness. Suppliers' positions within business networks were amongst them. All four of these dimensions of value ('delivery', 'quality', 'innovation' and 'cost') as well as some other factors were viewed differently for service businesses, as opposed to manufacturing, and vice versa.

This suggests that the available literature on the main dimensions of value and supplier selection criteria can be used to shed light on the concept of supplier attractiveness in relation to value (Maltz et al., 2011 and other authors – see Discussion section). The relevancy of this literature will be reviewed within this chapter.

#### 4.2.1.1 Main dimensions of value

The interview data indicates that, as part of value maximisation, customers from high value-added manufacturing industries differentiate their purchases into several types (see Appendix F) to establish their main value drivers as well as other relevant factors and their importance to choose the most attractive suppliers for these products. This lends support to the studies of Lambert and Schwieterman (2012), Rezaei and Ortt (2013) and other academics, which argue that supplier selection criteria varies based on the purchase type. Table 4.1 shows the main supplier selection criteria by the main purchase types. Appendix F provides more details on that issue.

*Table 4.1 Supplier selection criteria for main purchased product types - Automotive*

| Core product part | Product types | Importance/ stringency of supplier selection criteria | | | |
|---|---|---|---|---|---|
| | | Delivery | Innovation | Quality | Cost |
| Goods/ equipment | Vehicle parts and materials | High | Depends on the part/ material | High | High |
| Services | General technical services | High | Vary by project | Medium to High | Medium to High |
| Services | General low-skilled services | High | Low | Medium | High |
| Goods/ equipment | General equipment and services | High | Medium | Medium to High | Medium to High |
| Goods/ equipment | Unique equipment and services | High | Medium to High | High | Medium to High |
| Services | Unique software or technology and services | High | High | High | Medium to High |

The detailed descriptions provided in Appendix F indicate that there is no difference in the requirements stringency of the main dimensions of value between the service-based products as opposed to goods/ equipment-based. However, the requirements themselves vary depending on the product type and core product part – see below.

While both companies used quality, cost, delivery and innovation as the main dimensions of value for their purchases, they referred to these main dimensions differently, and prioritised different supplier/supply attributes within these dimensions depending on the purchase type (see table 6.3). This concurs with the existing literature on supplier selection criteria, competitive priorities and supplier evaluation and selection, which emphasises the pivotal role of these four value drivers in buyer-supplier relationships (such as Maltz et al., 2011; Terpend et al., 2011 and other authors). It also coincides with the available theory on supplier attractiveness in relation to value, highlighting the importance of quality, delivery, service support, personal interaction, cost reduction, time compression and innovation including know-how as relationship value drivers (Hald et al., 2009; Ulaga, 2003).

Furthermore, both vehicle manufacturers' views on the main dimensions of value (delivery, cost, quality and innovation) were different based on whether the purchase was service- or equipment-based, which is discussed more comprehensively further within this section. This undermines the value of those quantitative studies that established the importance of each of the criteria across all surveyed companies' purchases for several industries (for instance, Kannan and Tan, 2003; Wuyts et al., 2009). It also points out that the concept of supplier attractiveness may be understood differently for service businesses, as opposed to manufacturing. This therefore, indicates that the reasons or benefits for the customers from supplier cooperation are different for these two types of businesses (see Chapter 5).

*Delivery*

Based on the interviews conducted with two Senior Engineers and a Purchasing Manager from Automobile Manufacturer 1, for every purchase made by their organisation, perceptions of value are expressed through the supplier selection criteria, consisting of the four earlier mentioned elements: delivery, innovation, quality and cost.

Delivery can be considered as, first, product transportation from point A to point B (logistics) and, second, the process of delivering 'the promise' to the customer, by meeting all the requirements within agreed deadlines. This finding supports the earlier studies of Dickson (1996), Krause et al. (2001) and Weber et al. (1991), suggesting the importance of product reliability and conformance to customer specifications, timely delivery and packaging ability.

While the actual process of transportation is undoubtedly important, for service-based products required for plant facilities, the 'delivery' associated with supplier performance was more of a concern for Automobile Manufacturer 1. According to the feedback from the two Senior Engineers, there are many companies within the industry who say they can do the job, but, in fact, only a few actually can. While supplier statements of this kind can be proven during the trials of the parts and materials (equipment or material-based products) used in vehicle manufacturing (direct business activity), in projects related to plant facilities *'you have to take a supplier's word for it'* (Senior Engineer 2 of Automobile Manufacturer 1). For this reason, the Automobile Manufacturer 1 team, when considering suppliers for service-based products required for plant facilities, look for evidence that suppliers can deliver on the task – see quote below. This indicates that 'delivery' dimension of value is understood differently by the vehicle manufacturers depending on the core product part.

> *Delivery is very important when evaluating vendor attractiveness. If a potential supplier is unknown to the customer, there is no way the supplier delivery performance can be predicted upfront. It can be specified, but there are no guarantees. However, supplier experience within the industry, including participation in similar projects, as well as its brand, are always positively perceived. It is unlikely that a reputable supplier is going to risk its reputation in the market and brand image for the sake of one customer order… The more reassurance a supplier can demonstrate at this stage, the better (Senior Engineer 2 of Automobile Manufacturer 1).*

As can be seen from the above quote supplier's experience and brand can positively affect its attractiveness. This finding empirically validates the conceptual model, developed by Morgan et al. (2007), which advocates the positive impact of branding on business relationships within service networks. It also lends support to the studies by Dickson (1966), Weber et al. (1991) and Wuyts et al. (2009), highlighting the positive impact of vendor performance history on business relationships with customers.

Like the company's competitor, when discussing the 'delivery' dimension of value, the Purchasing and Logistics Director of Automobile Manufacturer 2 referred to a supplier's area of specialisation, knowledge and experience, as well as its ability to meet shipping requirements, including container choice and labelling. This is again in agreement with the previous literature (see 'Discussion' section for more details). The interviewee emphasised that *'an attractive supplier must be an expert in required subject matter'*. This can be seen from the following quote.

> *If Automobile Manufacturer 2 builds a conveyer, it will invite conveyer experts. If service is required, it will consider service providers who are experts in the*

*'final service' (Purchasing and Logistics Director of Automobile Manufacturer 2).*

Thus, based on the feedback from the two automobile manufacturers, the delivery dimension of value involves both transportation and risk management. The latter includes financial, product quality and time related risks. Although both transportation and risks are considered for equipment and service-based purchases, risk is managed differently for these two product types. While for tangible products customers perform product trials, with services they evaluate carefully supplier experience and performance history and validate information supplied by this type of vendor. Both of the interviewed companies also acknowledged that a supplier's financial stability is crucial before this potential vendor can be considered. Additionally, the Purchasing and Logistics Director of Automobile Manufacturer 2 provided other examples of risks and the methods his company manages them – see below.

*There are some product-related risks, which can be picked up during the technical reviews with suppliers. To mitigate that, the company either chooses more expensive, but higher quality, products from alternative vendor or builds a level of contingency into the production processes. It depends on where the issue is and how far the supplier is from the given target. Keeping the timeline in a project is another risk factor. It is very costly to stop production and all measures must be taken to prevent it. So, the actual product delivery from quality and time perspectives is crucial (Purchasing and Logistics Director of Automobile Manufacturer 2).*

This finding lends support to earlier studies on supplier selection, stressing the importance of risk management as part of the supplier business relationship (for example, Delbufalo, 2015; Srinivasan et al., 2011).

*Innovation*

In agreement with the existing literature (such as Maltz et al., 2011; Terpend et al., 2011; and other authors) both primary and secondary data indicate that innovation is another important dimension of value, which affects supplier attractiveness. However, both interviewed automobile manufacturers believe that the required level of innovation depends on the purchased product type and the peculiarities of the job or project. This applies to both service-based and equipment or material-based purchases. Although always being desirable, it appeared to not always be necessary for both interviewed companies. According to the Purchasing Manager of Automobile Manufacturer 1, normally the greater the innovation level, the higher the cost, which makes it unnecessary in some cases. This finding undermines the credibility of previous quantitative studies, which established the importance of the value dimensions across

all the purchases of the surveyed organisations (for example: Kannan and Tan, 2003; Wuyts et al., 2009).

Although the importance of innovation varies for both services and tangible goods, it was understood differently for these two kinds of products. According to the interviewed vehicle manufacturers, while suppliers of tangible goods are expected to participate in continuous improvement activities focused on product innovation, this was not the case in services. Mass production allows repeatable orders, which makes it necessary to control the level of innovation for products supplied on the same vehicle model produced. However, customised nature of services requires selection of those service providers who are experts in their fields as every purchase is unique and requires participation of professionals.

During the interview with the management team from Automobile Manufacturer 1, it became apparent that the main innovative directions of the automotive market are safety improvement, reduction of CO2 emissions, and fuel and energy efficiency. Therefore, suppliers offering innovative products in these areas are considered particularly attractive. This is particularly important for OEMs as 'manufacturing is the core of automotive industry and supplied equipment must be up-to-date' (Senior Engineer 2 of Automobile Manufacturer 1). After a new piece of equipment is available in the market, service providers then learn how to work with this newly released equipment so that equipment produced by different manufacturers can 'work together' (Senior Engineer 2 of Automobile Manufacturer 1).

From the data gathered it also became clear that the global recession and rising competition from low cost countries (LCC) have increased commercial pressure in the market. To handle these challenges, Automobile Manufacturer 1 is prioritising one area over another (innovation versus cost), depending on the product type, and looking for innovative products that can help to save costs, without compromising value. Thus, innovations in respect to costs can make suppliers attractive too. For instance, process automation through robots, or software that can conduct the required level of quality control and handling with less human resource involvement, which again is more applicable to equipment manufacturers than service providers.

*Cost*

Due to the maturity of the industry all *'low hanging fruits have been taken'* (Senior Engineer 2 of Automobile Manufacturer 1), and vehicle manufacturers expect only some

incremental improvements in terms of technical and technological innovations within the market. This shifts the focus of sourcing management into the commercial area. *'Once the technical team confirms that the technical requirements are met, cost comes into play'* (Senior Engineer 2 of Automobile Manufacturer 1).

The data gathered suggests that the cost dimension of value includes product prices (see quote below), commercial transparency and participation in continuous improvement activities. Suppliers competitive in these areas are attractive. This supports the findings of Kannan and Tan (2003), Krause et al. (2001) and Weber et al. (1991), which highlighted the importance of pricing, as well as the willingness of suppliers to share confidential data in the selection process. On the other hand, as participation in continuous improvement activities are typical for equipment or material-based businesses only, it highlights that this value dimension is understood by the research participants differently, based on the core part of the purchased products.

> *Prices must be fair to the customer and the supplier. A customer needs to be commercially competitive to sell the cars, a supplier must be able to afford to generate the new ideas and innovate to go forward. (Purchasing and Logistics Director of Automobile Manufacturer 2)*

According to the feedback from the two automobile manufacturers, supplier transparency through pricing structure disclosure (an 'open book' principle) is essential to enhance the value of vehicle parts and components, as well as, occasionally, other pieces of machinery, by tackling it from the cost perspective. Knowledge of all the cost components enables the parties to take a long-term approach towards their relationship and focus on further improvements throughout the entire supply network. However, this is not the case when it comes to the majority of the purchased services.

*Quality*

In line with the existing literature on supplier selection (for instance, Maltz et al., 2011; Terpend et al., 2011), quality was found to be another crucial dimension of value that affects supplier attractiveness. It was understood in the same way for both manufacturing businesses and services, with the exception of supplier participation in continuous improvement activities from quality perspective, which applied primarily to vehicle parts and materials and occasionally other pieces of machinery. Both interviewed customers acknowledged that meeting quality requirements is very important for every purchased product, which can be seen from the following quote.

> *If a potential supplier cannot meet the specified technical requirements, the chance of winning the business is poor, even if the cost is attractive. However, in some cases if cost differentials are very significant, Automobile Manufacturer 1 might move forward with a 'more basic' specification, as long as the difference with the original one is negligible (Purchasing Manager of Automobile Manufacturer 1).*

According to Automobile Manufacturer 1's team, when a customer buys a car, it may not be the fastest or the most stylish. However, since the purchase of a car is a considerable investment, the consumer still expects it to be reliable and work for several years. For this reason, the quality of purchased products must meet all the relevant criteria. The latter is expressed via several areas: health and safety aspects, compliance to the required market regulations and legislation, style, and engineering and production requirements. Irrespective of the proportion of service within the product, these criteria are captured in the specification utilised during the supplier selection process.

These findings support those of Krause et al. (2001), who identified a supplier's ability to provide durable products conforming to customer specifications as an important factor affecting the quality dimension of value.

#### 4.2.1.2 Additional factors affecting supplier attractiveness

In addition to the four main dimensions of value, the two interviewed companies also identified several other factors, which they believe affect the attractiveness of potential vendors. These are: suppliers' positions within networks, supplier size as well as location and capabilities' level within a country.

##### 4.2.1.2.1 Suppliers' positions within networks

Based on the interview data with two vehicle manufacturers suppliers' positions within networks appeared to be extremely important in supplier assessment. These vendors' positions are expressed by the position of the incumbent supplier and other competitors within their respective networks, historic vendor performance, number of sub-suppliers and the relationships with other supply network members. Relationships with other supply network members appeared to be particularly important for manufacturing businesses, due to their participation in continuous improvement activities. On the other hand, historic vendor performance was more crucial for service businesses, as opposed to OEMs, due to their intangible nature.

Although the business network impact on a business relationship is currently not captured by the relevant theory (see 'Discussion' section for more details), according to the respondents it is undoubtedly worth considering when it comes to supplier attractiveness (see below).

*Position of the incumbent supplier*

According to all interviewees, no matter what product type is purchased, if, during the benchmarking process, the incumbent supplier is only slightly less competitive than the alternative one, the company preference will be not to change. This is due to the fact that every change is time consuming and risky, and therefore, is likely to be costly. This agrees with the theory stressing the importance of risk consideration in supply chains (Delbufalo, 2015; Srinivasan et al., 2011 and other authors). On the other hand, contrary to Heide and Wathne (2006), Wathne et al. (2001) and Wuyts et al. (2009), none of the respondents acknowledged the importance of good relationships and personal interactions with the suppliers as businesses are driven by their performance towards their objectives expressed by value dimensions. Suppliers achieving their targets are those valued by their customers.

*Position of other competitors*

Irrespective of the product type, the same principle applies to comparing a supplier, well-known within the industry, with a new, unfamiliar one. Experience and knowledge of supplier performance within the company or the industry help to minimise potential risks associated with potentially poor delivery. If, however, commercial differentials are significant, there will be a strong drive for change. In this case, specialists from the relevant departments (i.e. quality, engineering, procurement) will conduct thorough supplier evaluation prior to a potential change.

*Historic vendor performance within network*

Both interviewed customers believe that supplier relationships are crucial for a company's success. They have a long-term approach to their supply bases and certain expectations in terms of supplier performance. For the interviewees' vendor performance indicates the capabilities of supplier network. Reliable vendors, with above average performance, are what the vehicle manufacturers are looking for. This is outlined in the following quote.

> *Being clear on what is required, in terms of quality, technical and commercial standards, production volumes, as well as year on year or project-related targets, 'tough but fair' is an essential part of the company sourcing management. Both incumbent and potential suppliers must be given an opportunity to achieve the required targets. For both new and existing vendors, targets are associated with the quantifiable product performance or commercial improvements over the current status. Supplier metrics are utilised to measure the performance of each of the vendors within their respective networks (See Chapter 6).* (Purchasing and Logistics Director of Automobile Manufacturer 2)

This lends support to the findings of Dickson (1966), Weber et al. (1991) and Wuyts et al. (2009) who identified the positive impact of vendor performance history on the customer business relationship. These studies, however, did not consider this factor in relation to the supplier network (supplier performance is indicative of its network capabilities) as opposed to the data gathered.

Additionally, as mentioned previously this factor is more important for service businesses, due to their intangible nature and inability to trial products prior to purchase. Unlike the situation with services, vehicle manufacturers may decide to develop a supplier of equipment or goods with no previous supply experience if there is a commercial benefit. Unfortunately, neither this fact is reflected in the literature.

*Number of sub-suppliers*

Another factor, which was important for both interviewed companies, was the desire to minimise the number of suppliers. Automobile manufacturers prefer to reduce the number of vendors to make it easier to manage. This applies to plant, regional and global levels. Additionally, they do not have the resources to handle broad supply networks – *'suppliers of the suppliers'* (Purchasing and Logistics Director of Automobile Manufacturer 2). Therefore, it will always be the preference to employ the main contractor to take overall responsibility for the job, and let this contractor manage all the subcontractors. This factor is equally important for service or goods/ equipment-based products.

*Relationships with other supply network members*

For high-spend strategic commodities, which are mainly related to vehicle parts and materials, supplier participation in continuous improvement activities is crucial for value enhancement. Value associated with these purchases can be considerably increased from quality and cost perspectives. Normally these opportunities are related to vehicle

materials and parts, and involve working with tier two and three suppliers directly. This suggests that the available literature on supplier attractiveness in relation to value, competitive priorities, relationship value drivers or the dimensions of value and supplier selection criteria fails to address the impact of network perspective on business relationships, which appeared to be very important for the interviewees.

The Purchasing and Logistics Director of Automobile Manufacturer 2 acknowledged that it is also not uncommon within the industry for some suppliers to refuse to work with certain vendors. One of the examples given by the interviewee, was an instance when two suppliers of interlocking components refused to work with each other. This negatively affected their attractiveness and, as a result, their levels of business with the customer.

#### 4.2.1.3.2 Supplier location and capabilities' levels within the country

According to the Purchasing and Logistics Director of Automobile Manufacturer 2, although the company works with suppliers from all over the world, and supplier location is not the most important factor in vendor selection, for certain products it can be *'a game-changer'*. For instance, it is important for bumper suppliers to be local, or have a facility on site, due to high transportation costs of sizable products. Hence this factor is mainly applicable to goods/ equipment-based purchases.

Additionally, Automobile Manufacturer 1 highlighted the importance of supplier location, referring to the poor service level of those OEMs or service providers who do not have representation within the relevant country.

Supplier location can also be *'a game changer'* (Purchasing and Logistics Director of Automobile Manufacturer 2) in countries with high import duties. The interviewees highlighted that, in some emerging countries, these duties discourage the import of goods from abroad, and it is significantly more beneficial to manufacture them locally. When entering these countries, Automobile Manufacturer 2 tends to bring its own global suppliers. However, at the same time, it starts working with local vendors, with the intention to develop them. As the market is heavily legislated, and due to the generally quite low technological level of suppliers from emerging countries, it is impossible to start trading with the local players right from the beginning. These vendors have much to learn to reach the required level of expertise and obtain the necessary accreditations. It takes time and financial resources for automobile manufacturers to develop these local suppliers. Hence, this normally applies to OEMs supplying repeatable orders and not service providers.

Senior Engineer 2 of Automobile Manufacturer 1 provided another example where supplier location is very important. From his perspective, although some of the cars produced in Russia will be exported to other countries, in terms of construction, process engineering and services manufacturing, the plant must follow Russian legislation, in addition to the standard Automobile Manufacturer 1 internal requirements (see quote below). Therefore, a supplier's knowledge of the technical requirements within the relevant country affects its attractiveness. This is equally important for both potential service providers and OEMs.

> *Standard original equipment purchased for Russian plant facilities requires some tweaks to fulfil the requirements of local regulatory bodies. This becomes even more complex when the project involves a number of different pieces of equipment, including those old ones that are already installed, and the supplier must find a solution for how to make them all work together (Senior Engineer 2 of Automobile Manufacturer 1).*

These examples clearly show various reasons (see table 6.3) for the importance of supplier location, which concurs with the researchers who identified the importance of this factor in sourcing decisions (such as Cui et al., 2014; Maltz et al., 2011). However, none of the existing studies reviewed the reasons behind supplier location for services as opposed to manufacturing businesses.

#### 4.2.1.3.3 Supplier size

Supplier size was another important factor for Automobile Manufacturer 1. It was acknowledged that the unstable and rather unpredictable Russian market makes it hard for small and medium sized businesses to survive. Therefore, there is a general perception that larger companies are more likely to sustain their market position, be forward thinking and have a long-term approach to their customers. From the respondents' experience, this very often impacts the following areas: being up-to-date with regulations and legislation, investing in personnel and their development, and research and development (see quote below).

> *Medium and small businesses in Russia have a rather short-term focus, with very little interest in long-term relationships. Firms that exist today might not exist in one year's time, or even tomorrow. Accounting information, indicating supplier financial stability, is made to suit the taxation purposes. Companies are interested in making money, gaining business as a first priority and only then considering the ability to fulfil customer requirements properly… Suppliers, on many occasions, do not fully understand customers' needs and*

*show low interest in knowing them (Senior Engineer 2 of Automobile Manufacturer 1).*

This is in line with the findings of Kannan and Tan (2003) and Dong and Glaister (2006), who identified company size to be among the supplier selection criteria when studying vendor selection in US, European and Chinese firms.

#### 4.2.1.3.4 Supplier business ethics

Automobile Manufacturer 1 also acknowledged the importance of a supplier's business ethics for its attractiveness. Senior Engineer 2 of Automobile Manufacturer 1 referred to negative experience when suppliers attempted to charge more in the case of specification discrepancies. Some market players are notorious for exploiting situations of these kinds and taking advantage of their customers. According to the interviewee, these cases are not unnoticed by the vehicle manufacturers and consequently these suppliers are considered less attractive with regards to future projects.

Additionally, Automobile Manufacturer 1's employees associate a supplier's country of origin with its suggestive business ethics, based on their experience within the industry. From their previous work with both foreign and Russian vendors, they believe that Russian suppliers are more forceful and opportunistic and less diplomatic. They underestimate how much their business ethics affects their attractiveness, which can be seen from the following quote:

*The business ethics of the suppliers, even subsidiaries of international brands, in the Russian market is lower than it is anticipated in Europe… Suppliers usually widely use an opportunity to charge extra for something that has not been specified or is outside of the original agreement (Senior Engineer 2 of Automobile Manufacturer 1).*

This highlights the importance of the supplier's attitude and business ethics for contemporary automobile manufacturers, and supports the studies of Weber et al. (1991) and Kannan and Tan (2003), which found these factors to be among the main supplier selection criteria. It also confirms the findings of Johnson and Sohi (2001), showing the influence of firm predispositions respective their country of origin/ location on inter-firm relationship formation.

### 4.2.2 Supplier attractiveness: Vendor perspective

To be seen as an attractive supplier in the market, each vendor that participated in the research makes strategic emphasis on the development of certain competitive capabilities or priorities. These competitive priorities are driven by the supplier's ambition to fit the 'ideal supplier profile' (Venkatraman, 1989) for products supplied based on the supplier's understanding of its customers' requirements expressed in the main value drivers and other important factors used in the supplier selection criteria. This suggests that the existing theory on the main dimensions of value and supplier selection criteria, discussed in the previous section of the chapter, is closely related to the literature on competitive priorities and strategic fit to the 'ideal supplier profile'. Furthermore, these two streams of literature (see Literature review) are likely to facilitate a better understanding of supplier attractiveness.

Additionally, the obtained data clearly shows that, contrary to existing studies on strategic fit to the 'ideal supplier profile' (such as Kabadayi et al., 2007; Peng et al., 2011), there are more than five competitive priorities (quality, cost, delivery, innovation and flexibility). Furthermore, these competitive priorities represent blocks of factors and consist of several supplier or supply-related attributes (see Table 4.2). These attributes within each single competitive priority are considered by the interviewed vendors in their competitive strategies to be seen as attractive suppliers and fit 'the desired profile' better than competitors. These findings indicate significant limitations in terms of the inconsistent and fragmented nature of the available literature on this subject matter. Lack of granularity of the available theory results in a limited opportunity to assess supplier ability to fit the 'ideal supplier profile'. This will be comprehensively discussed in the 'Discussion' section.

The data obtained has shown that like their customers both OEMs and service providers distinguished the same main (main dimensions of value) and additional factors affecting their attractiveness. Within each of these factors they have prioritised the same (i.e. importance of customer service), as well as different (see below), attributes based on the peculiarities of these two types of businesses. For instance, the gathered findings indicated a greater emphasis placed on historic vendor performance and experience for service providers, as opposed to manufacturers. On the other hand, participation in continuous improvement activities from cost, innovation, delivery and quality perspectives appeared to be more relevant to manufacturers, as opposed to service providers. Furthermore, driving innovation in manufacturing appeared to be more important for OEMs than service providers. OEMs explained how they do it together with the involvement of the vehicle manufacturers and their first tier suppliers. This is in line

with the customer interview data reviewed earlier, suggesting differing views on supplier attractiveness for these two types of businesses.

#### 4.2.2.1 Vehicle parts and materials

According to the Finance Director of OEM 1, the attractiveness of a supplier of parts and materials used directly in vehicle manufacturing, and, therefore, its potential to win new business, is based on the ability to comply with customer requirements in terms of quality level, delivery and cost. Moreover, these value dimensions can be further enhanced by a supplier's participation in continuous improvement activities. This agrees with the customer interview data, suggesting the importance of OEMs participation in these activities, as opposed to service providers.

Based on interviewee feedback, innovation is not largely important in the automotive market, as many areas are specified, including quality and assembly requirements. It is mainly driven by the vehicle manufacturers and government. If a supplier is on the right quality level, cost is the next major influencer, due to the mass production manufacturing orientation. This is in agreement with Peng et al. (2011), who also identified these four factors as the main organisational competitive priorities. Additionally, it lends support to Kabadayi et al. (2007), who believed that competitive advantage can be developed by focusing on either cost or quality, innovation and delivery capabilities. Hult et al. (2006) and Wheelright (1984) also found cost and quality to be two of the three main competitive capabilities in supply chains. However, contrary to Hult et al. (2006), Peng et al. (2011) and Wheelright (1984) this and other interviewed companies did not think that flexibility as a factor can make them being perceived as more attractive vendors by their customers.

The Finance Director of OEM 1 believed that for the products his company supplies, cost is the most important factor, as the quality requirements are relatively standard. Therefore, to be seen as an attractive supplier, OEM 1 is continuously examining the various means of reducing costs as indicated in the quote below.

> *Cost is mainly driven by the production scale in a number of manufactured units, logistics and the cost of capital or interest rates. The greater the production scale, the lower the price per unit, as well as the easier it is to take a credit for production expansion. Interest rates for businesses across different countries vary from two to three percent to up to 13 to 14 percent. Logistics affect costs, as well as lead times. All these factors are associated with certain supplier expenses, which are built into product prices. Therefore, any actions that can influence these three areas are very important for the*

*attractiveness of supplier of vehicle parts and materials (Finance Director of OEM 1).*

The interviewee's feedback suggests that OEM 1's understanding of supplier attractiveness is very similar to that expressed by the interviewed automotive customers. Once quality and delivery requirements are met, cost is the next significant dimension of value. Furthermore, by making a reference to logistics and interests rates, the Finance Director of OEM 1 unintentionally raised the importance of supplier location or country of origin. This lends support to the findings of Cui et al. (2014), Maltz et al. (2011) and other authors (see Discussion section).

#### 4.2.2.2 General technical services

To capture the vendors' perspectives on the attractiveness of general technical services in relation to value, two service providers supplying products of this type have been interviewed. One of them specialises in construction projects, while the other has an electrical engineering profile.

*Service Provider 3*

According to the Chief Buyer of Service Provider 3, value maximisation in the construction industry is driven by the customer's budget and the nature of the project. The latter is based on the object of construction and the market sector. As each project is unique and each time the customer has its own selection criteria, there is no single solution. Thus, even within the same sector, some projects are very basic, some have very stringent health and safety requirements and some require creative civil engineering solutions and innovative thinking to be cost competitive.

Based on these demand peculiarities, Service Provider 3 sees itself in the market as *'a provider of cost-effective solutions to construction challenges'* (Chief Buyer of Service Provider 3). Thus, Service Provider 3 believes that speed, knowledge of the latest innovations in the materials' market and conducting business in non-traditional ways based on the knowledge obtained within the relevant business network are very important characteristics for an attractive supplier. With the latest technological achievements, several materials are now available that enable companies to save money without compromising on quality, including the health and safety and environmental aspects of the purchased products. Vendor supply network capabilities are crucial in all these cases.

This suggests that, along with the importance of supplier network, interviewee also referred to ‘cost’, ‘innovation’ and ‘quality’ dimensions of value. While stringency of ‘innovation’ requirements varies within the industry, the ‘cost’ and ‘quality’ dimensions of value are always very important. Additionally, the Chief Buyer of Service Provider 3 also acknowledged the importance of the ‘delivery’ dimension of value, by referring to supplier experience, size and ability to act as main contractor, as outlined below. This is in line with the earlier mentioned literature, which will be discussed more comprehensively in the ‘Discussion’ section.

Different construction companies specialise in different areas. For the customer, it is important to be dealing with professionals. The only way to demonstrate this is to show participation in relevant projects, as can be seen from the following quote. This is in line with the customer interview data, highlighting the greater importance of supplier performance history and experience for service providers, as opposed to OEMs.

> *If you have never done similar projects, you have no experience in potential challenges, e.g. over budgeting, meeting the deadlines, compliance with the required standards that go ‘hand in hand’ with it… Work on the project involves a lot of thinking it through, anticipation of potential challenges, visualising and, of course, the delivery based on the customer expectations… (Chief Buyer of Service Provider 3).*

Additionally, Service Provider 3 highlighted the importance of supplier size and ability to act as a main contractor as indicators of the delivery dimension of value. This concurs with research by Cui et al., (2014), who suggested that small and medium-sized enterprises can be more vulnerable to challenges arising from international markets, as well as the findings of other authors (Dong and Glaister, 2006; Kannan and Tan, 2003).

According to the Chief Buyer of Service Provider 3 it is relatively easy to manage small jobs within a project, and there are many companies who can complete these relatively low-skilled works. However, it is not as easy to create the design for a project, find the right supply partners to support concept development and deliver the solution within the required timescale and budget. Hence, past experience in sizable projects is extremely important to demonstrate a sufficient level of understanding of what the client wants – see quote below.

> *The larger and the more complex the job is, the less competition the company has. For instance, there are not so many companies who can build a £20 million manufacturing facility, but there are plenty of suppliers who can build a car show room (Chief Buyer of Service Provider 3).*

For this reason to be seen as an attractive supplier, the service provider strives to demonstrate to customers its ability to integrate knowledge from different fields and apply it in complex projects, where small players do not have a sufficient level of experience. Expertise in construction, design, management, procurement and programming, as well as risk and asset management, are required to manage these types of projects. This again indicates the importance of service provider performance history for customer business relationships, in agreement with the customer data and earlier mentioned literature.

*Service Provider 4*

Although both Service Provider 3 and Service Provider 4 had similar views towards their main competitive priorities, Service Provider 4 prioritised different attributes within the four areas, and highlighted the importance of other additional factors for its attractiveness, due to its electrical engineering as opposed to construction specialisation.

The Director of Service Provider 4 believes that customers see his company as attractive for several reasons. These are: world-class quality standards, expected by the global vehicle manufacturers, strong technical and service support, timely product delivery, proven reliability over time and reasonable pricing in line with the rest of the market. Additionally, while discussing the attractiveness of suppliers of general technical services, the interviewee highlighted the importance of previous experience with the customer or within the industry, company location, ability to supply a diverse product portfolio and act as main contractor as well as pivotal role of supply network.

This concurs with the earlier mentioned studies on strategic fit to the 'ideal supplier profile' as well as indicates their limitations in terms of its inconsistent and fragmented nature, lack of granularity, and therefore, limited ability to evaluate the phenomenon. The data outlined below indicates that contrary to the literature (Peng et al., 2011), there are more than five competitive priorities (quality, cost, delivery, innovation and flexibility) containing many supply or supplier-related factors that need to be considered by the vendors to be seen as attractive and fit the 'desired profile' better than competitors (see Table 4.2).

For Service Provider 4, quality is the most important factor that senior management believes makes the company attractive. According to the interviewee, while brand can be seen as an indicator of the product quality of OEMs, quality of supplied services can be demonstrated by experience with the customer through *'background knowledge'*

(Director of Service Provider 4), or in similar projects (see quote below). This is in line with the feedback from Service Provider 3 and both interviewed vehicle manufacturers, emphasising the importance of relevant experience and historic performance within network, particularly for services suppliers.

> *Long standing history with the customer is very important. It is always taken into account during supplier selection. Knowledge of the customer equipment and the latest works carried out at the manufacturing facility reduce the risks to production from product, quality and health and safety perspectives, as well as prevents potential technical mistakes (Director of Service Provider 4).*

To provide its customers with high quality products, Service Provider 4 focuses a lot of attention on service excellence. According to the interviewee, a combination of knowledge of the globally available equipment and strong local support is particularly powerful. As the market is highly specialised, it is not possible to deliver high-quality products without continuous training. For this reason, service excellence significantly relies on labour skills, as can be seen in the following quote. According to the Director of Service Provider 4, in the construction industry, where jobs are standard, it is possible to use foreign labour and change it often. However, this is not the case when it comes to a highly specialised engineering environment.

> *It takes time and financial resources to train people and it is important to retain them, even on a part-time basis. Less successful competitors, however, quite often use foreign labour from other European countries for different projects. It is cheaper, but personnel capabilities could not be proven, unless they work for a company for a while… Also, customers like dealing with dedicated people from the service providing company and prefer not to call different people each time (Director of Service Provider 4).*

Additionally, as part of product quality and service management, Service Provider 4 strives to consolidate potential business, reduce number of sub-suppliers and solely manage the projects undertaken. According to the Director of Service Provider 4, customers always prefer to know that one company is fully in charge. Therefore, single sourcing helps to avoid vendors blaming each other in case of a problem. If a problem occurs, Service Provider 4 will be able to explain immediately what could have happened and save the customer time associated with going to other parties to carry out the investigation. Also, a smaller number of suppliers is easier to manage. This again indicates the importance of the business network considerations concerning the supplier attractiveness.

Thus, the detailed descriptions presented above indicate that, to maximise value arising from quality, the company integrates knowledge of globally available equipment and

service excellence within network, invests in its personnel via regular training and retention and solely manages projects where possible.

The Director of Service Provider 4 believes that, unlike quality, delivery and time management can be important in some cases, but not always. When the customer can wait, it will choose the service provider who it can trust (see below the importance of supplier performance within network). However, in high value projects involving many vendors, time management is critical as the jobs are interrelated.

Nor innovation is a key success factor for service providers supplying automobile manufacturers, based on the interviewee's feedback. Vehicle manufacturers all prefer to know how the solution works for their competitors, before they consider undertaking any changes. However, technology, in terms of health and safety and meeting the required standards, must be up-to-date otherwise the market position will be lost.

The senior management of Service Provider 4 think that cost is important, but only to a certain extent. It is not necessary to be the cheapest to win business, but the company needs to be in line with the competition. Five to six percent commercial differentials are not significant, while 15 to 20 percent are.

Apart from the four main dimensions of value outlined above, the Director of Service Provider 4 also acknowledged the importance of the company's country of origin and historic performance within network for its attractiveness. This lends support to Cui et al. (2011), who argued that unfamiliarity with certain countries influence a company's business strategy and likelihood of its successful performance as well as other studies that have also highlighted the importance of supplier location (for example, Carter et al., 2008; Maltz et al., 2011) and performance (such as Wuyts et al., 2009).

Based on Service Provider 4's experience within the industry, overseas suppliers, who do not have the knowledge of customer equipment and processes, are normally more expensive when it comes to any type of engineering modification works. Also, different countries use different standards and methods. This affects the product's compliance with required legislation and, consequently, supplier attractiveness (see example below). Hence, the earlier outlined studies, highlighting the importance of supplier country of origin, need to be considered when contemplating the fit to the 'ideal supplier profile'.

> *When it comes to health and safety, there are different standards in Europe compared to the Far East, Australia and Asia. Supplier conformance to CE (European Conformity) marking is essential for the European customers.*

> *Japanese companies have a completely different mind-set, and therefore, very often use different methods, which at times may not work well in Europe. A good example is health and safety systems and mechanisms. In Japan, people follow the written rules without questioning them. European people are more inquisitive – they may not always follow the rules and question the statements. This requires extra safety measures for the works carried out in Europe. (Director of Service Provider 4)*

As mentioned earlier, historic supplier performance within network is another factor deemed by the Director of Service Provider 4 as crucial for vendor attractiveness. Historic performance acts as quality assurance for potential customers. Unfortunately, the available literature on the fit to the 'ideal supplier profile' is lacking in this important vendor attribute. According to the interviewee, every project is unique and it is more important to give the customer reassurance that you can handle the project successfully, rather than competing on cost – see quote below.

> *The automotive market is a 'closed market' or a 'small community', where everybody knows each other. Regularly doing a good job is the best way of demonstrating your strengths and capabilities (Director of Service Provider 4).*

The network view has also not been captured by the literature in relation to the 'ideal supplier profile'. According to the interviewee, supplier relationships within the relevant networks are paramount. The Director of Service Provider 4 demonstrated the importance of this factor by discussing the company's history. Service Provider 4 became known to the automotive market back in the late 1980s, when it was introduced to one of its main customers. By consistently demonstrating its capabilities, the company was awarded with an 'approved contractor' status. This status enabled Service Provider 4 to be invited to quote for various products, when the automobile manufacturer needed it. It also allowed them to gain loyalty from other well-known global automobile manufacturers based in the UK.

> *Normally automobile manufacturers have around three approved contractors for electrical and mechanical engineering solutions and contracting. Being an 'approved contractor' proves that the company can do a good job, in line with the market expectations and industry standards. This status is then retained through continuous cooperation with the customer (Director of Service Provider 4).*

According to the Director of Service Provider 4, if a service provider is on the list of approved contractors, it is likely to be awarded with business on a regular basis. Also, being approved by one customer helps to gain more business, not only from the various automobile manufacturers, but suppliers (OEMs) too, when they are used in a main contractors' capacity – see quote below.

> *Some OEMs have their recommended local services providers, while others do not. Even when the recommendation exists, an automobile manufacturer, as a customer, may insist on using its approved contractors for certain jobs. Due to the global buying power of the automobile manufacturers, their 'approved' service providers being able to demonstrate the required level of specialisation and expertise normally get the business (Director of Service Provider 4).*

This example clearly demonstrates how important the supplier performance within the relevant business networks was for the success of the company in the market, and therefore, its attractiveness, not only for the existing customer, but for new customers too. Consistent with the previously outlined interview data, this finding shows the gap in the existing theory on the fit to the 'ideal supplier profile' from the business network perspective.

#### 4.2.2.3 Unique equipment and services and unique software and services

Although the interviewed supplier of 'unique equipment and services' and 'unique software and services' product types is primarily the equipment manufacturer and not a service provider (a core part of the supplied products is equipment and not services), its management believes that, for the company's attractiveness, service and support capabilities are crucial. Furthermore, like the interviewed service providers, and in line with the previously mentioned literature (see 'Discussion' section for more details), the company recognises the importance of its location in being able to provide customers with timely and consistently good services.

OEM 4 is a globally well-known manufacturer, and the basis for the company's attractiveness is its distinct culture of innovation, as well as a global presence and customer orientation. Although technical excellence and high standards create a positive company image within the automotive and other high value-added industries, OEM 4 does not want to be associated purely with new machinery, purchased approximately once in 25 years. Therefore, it also emphasises service and support capabilities available worldwide to its customers. This suggests that companies from both the service and manufacturing sectors can have similar competitive priorities.

Based on the interview and website data, research and development (R&D) generates the core value of OEM 4 products and therefore significantly contributes to the company's attractiveness. The firm is very focused on the efficiency of processes delivered with OEM 4 machinery and continuous improvement. Product productivity and outstanding technical value, leading to a reduced total cost of ownership for the

customer, are the areas where value is maximised. Continuous investment in innovation, development of its personnel and the high-quality level of its products, contribute to achieving the required targets.

Furthermore, as previously mentioned, the global presence of the company is another factor that the Sales Director of OEM 4 thinks makes the business attractive. The company is directly represented in 28 countries and has over 13,500 employees. The best available technologies, together with global strengths and reach, result in OEM 4's ability to apply the best standards across different countries and provide consistently good service and on-going support. The latter includes the projects required during the entire buying cycle of its machinery: customer facilities upgrades, modifications and retrofits, after-sales services, spares, training and trouble-shooting.

On the other hand, the cost dimension of value is not a priority for OEM 4. According to the Sales Director, the company would never enter a project where quality and technical standards were compromised by cost, or where the company has hesitations regarding meeting the budget as can be seen from the following quote.

> *Some customers are not very thorough when developing a specification for the project and things get forgotten. When there is no proper checklist, it can be difficult to make a comparison 'like for like'. When OEM 4 provides the quote, it makes sure that all required quality standards are high and the project budget is met. Some competitors may not have the same approach, and if something is missed in the specification, it will be left outside the project. But, if at the later stage of the process the customer needs something, there will be an extra charge (Sales Director of OEM 4).*

Apart from the reference to the cost dimension of value, this quote is also unintentionally relevant to the vendor's business ethics. As outlined above, OEM 4 recognises the possibility of customer specification inaccuracy and describes the way the company manages it. The interviewee also highlights that OEM 4 competitors may not necessarily manage these situations in the same manner, which will not be welcomed by their customers and therefore negatively affect their attractiveness.

Although the interviewee did not directly emphasise the importance of the delivery dimension of value, including risk management, for his company attractiveness, from the interview and website data it is understood that it is an integral part of the company image. For instance, the Sales Director of OEM 4 gave the following example of risk management.

*Production assets within OEM 4 are relatively low. As a result, the company can react more flexibly in an economic downturn, and has a smaller business risk compared to the competitors with a high production depth (Sales Director of OEM 4).*

Additionally, the primary and secondary data gathered indicate the importance of OEM 4 performance within supply network with regards to customer continuous improvement targets for its attractiveness. According to its Sales Director, OEM 4 depends on the long-term capital spending behaviour of its industrial customers. To assess the success of its corporate strategy, the company evaluates its contribution to improving the customers' production efficiency. The relevant indicators include optimisation of quality and the consumption of material, energy and other resources, as well as other factors, such as customer satisfaction and follow-up business. This is in line with the customer interview data and feedback obtained from OEM 1, stressing the importance of OEM participation in vehicle manufacturers' continuous improvement activities as opposed to service providers.

The detailed descriptions presented above show consistency in the understanding of the main dimensions of value with the other interviewed companies, as well as some of the other previously distinguished factors, and therefore, the relevancy of the previously outlined literature. On the other hand, these findings show limitations of theory on the fit to the 'ideal supplier profile' in terms of the main factors and their granularity. This will be discussed comprehensively in the 'Discussion' section.

#### 4.2.2.4 General equipment and services

Although the value of the products supplied by OEM 2 is significantly lower than OEM 4's, to be seen as attractive suppliers, both companies prioritise the quality and delivery aspects of supplied products. Furthermore, like the interviewed service providers, outstanding levels of customer service and support are considered as core factors affecting their attractiveness. This again indicates that service providers and OEMs can have the same competitive priorities.

Sales of OEM 2 mainly represent a combination of small to medium value equipment and services. Products of this kind belong to the 'general equipment and services' product type, based on the purchase categorisation established in Appendix F. According to the Sales Engineer of OEM 2, within the automotive environment it is very important to prevent any down time. If a conveyer stops due to machinery failure, the scale of expenses is massive. As a way of preventing this, suppliers like OEM 2 must focus on product reliability and delivery.

Product reliability is achieved through world-class quality standards and prioritisation of product health and safety aspects, while delivery is concerned with customer relationships and service, as well as the actual process of delivering the products or projects to the customer. Timely supply of high quality products is the best way to demonstrate the prioritisation of these two dimensions of value. To achieve timely product delivery, when there is a continuous relationship with the customer, OEM 2 keeps the required stock levels within the country or region. But even if a completely new product is purchased, delivery from another continent will take no longer than three weeks.

For companies like OEM 2, having its plant engineers and maintenance specialists offering support to its customers is crucial to fulfil the 'quality' and 'delivery' requirements. For this reason, the company differentiates itself on the level of service and technical support through *'relationship selling'* (Sales Engineer of OEM 2). Every day, an OEM 2 sales engineer is present at the vehicle manufacturing facility to provide the required service level. The Sales Engineer of OEM 2 highlighted that helping engineers in challenging situations builds reassurance and trust between the companies, which is invaluable for the customers as can be seen from the following quote.

> *Providing continuous support to the customers influences future purchases…There was one instance when the manager said: 'I am only seeing you, because you supported my engineers'… Being active and providing continuous service is very important to be successful.* (Sales Engineer of OEM 2)

Furthermore, the Sales Engineer of OEM 2 saw significant value for both vehicle manufacturers and his company in good supplier-customer relationships. The interviewee suggested that, within a project-based business environment, there is a high level of uncertainty, and customer requirements may not be clear from the start. It takes time to understand the nuances of the automobile manufacturers' businesses, their internal structures, decision-making units and develop positive relationships. Having relationships with the relevant people helps to develop a good understanding of the customer's needs. This facilitates the creation of a better solution, compared with those competitors who do not have this knowledge. This lends support to the emphasis placed by Wuyts et al. (2009), Heide and Wathne (2006) and Wathne et al. (2001) on the importance of customer relationships in buyer-supplier cooperation.

Since the equipment supplied by OEM 2 must meet required technical specifications, the Sales Engineer of OEM 2 suggested that innovation is only important to a certain extent.

The areas where vehicle manufacturers are currently focusing are: low noise, energy savings via reduced use of compressed air or less compressors and being on top of current and upcoming legislation. Particularly for OEMs, continuous improvement is very important. For this reason, the company is focused on developing products with a longer life, to reduce total ownership costs for the customer.

Although cost is one of the main areas contributing to OEM 2's attractiveness, it is not as highly prioritised as the other main dimensions of value. According to the interviewee, if the commercial differentials with competitors are insignificant, the quality and delivery aspects of purchase, including service, are likely to be more valued by the customers.

Apart from the four main dimensions of value, OEM 2 also recognised the importance of relationships with members of the relevant business networks. According to the Sales Engineer of OEM 2, most of the demand for OEM 2 products derives mainly from automobile manufacturing plant modifications, required for building new models. However, these projects are confidential and all relevant information is kept in secrecy from external organisations. A similar situation is seen with the vehicle manufacturer's first three tier suppliers, who are also important customers for OEM 2. Therefore, several industrial teams spend time understanding the requirements of these clients and the main developmental directions within the industry, to make sure that OEM 2 is up to date with these developments and can provide the required solutions. Likewise, awareness of OEM 2 capabilities is also very valuable in these cases for all these important groups of customers.

These findings are consistent with the rest of the gathered data and outlined above literature on the main dimensions of value, supplier selection criteria and some of the studies on the fit to the 'ideal supplier profile', showing the importance of quality, cost, delivery and innovation as the main organisational competitive priorities. However, both the primary and secondary data also indicated the significance of the other important factors. This reveals the major limitations of the current studies on the strategic fit to the 'ideal supplier profile' in terms of its consistency, granularity, and hence, ability to evaluate the phenomenon. Furthermore, the current study also indicated the omission of other crucial factors in the literature, these being: the incumbent supplier and competitors' positions and the network perspective. This will be discussed more comprehensively in the 'Discussion' section.

### 4.3 Shipbuilding

#### 4.3.1 Supplier attractiveness: Customer perspective

Similar to the situation in the automotive market, shipbuilding customers associate supplier attractiveness with the main dimensions of value commonly recognised within the industry as well as other factors driven by the peculiarities of the project. Additionally, like in the automotive industry, it was impossible to establish differing views on the service providers' attractiveness, as opposed to OEMs, and vice versa. However, based on the prototype nature of demand in shipbuilding it was understood differently comparing to the situation in the automotive environment. Moreover, the highly customised nature of the market made it more difficult for the customers to define supplier attractiveness respective of the main types of purchase identified in Appendix F. Nonetheless, the Purchasing Manager of Shipyard 1 managed to provide some guidelines based on product categorisation used within his company. The following three sections outline these issues in more detail.

##### 4.3.1.1 Main dimensions of value

As the shipbuilding market is project-based, respondents from all three interviewed shipyards stated that value is driven not just by a purchase type alone, but also by the characteristics of the project and the customer budget. Despite the difficulty in defining it precisely, all respondents shared their understanding of vendor attractiveness in relation to value within the shipbuilding industry, based on their experience.

For the Purchasing Manager of Shipyard 1, supplier attractiveness is expressed through the supplier's corporate social responsibility (CSR), financial stability, product health and safety, compliance to required market regulations and technical requirements, as well as their commercial proposition. Shipyard 2 described vendor attractiveness through its product quality, including project related documentation confirming compliance with the required legislation, costs and delivery times. And Shipyard 3 viewed this concept as a combination of cost, quality (including supplier warranty), manufacturing and delivery times, as well as supplier footprint.

As in shipbuilding every project is unique and there is very little repeatability from one order to another, all interviewed shipyards found it difficult to determine the precise average estimations in terms of selection criteria for each of the main purchased product types. Neither Shipyard 2 nor Shipyard 3 has selection criteria that can be used as a

guideline within their organisations. According to the purchasing directors of these two shipyards, client expectations and budget can affect the criteria considerably. Some customers are not afraid to take risks and move forward with the most competitive commercial offers, while others prefer *'to be on the safe side'* (Purchasing Director of Shipyard 2) and always chose quality, to minimise any potential risks. On the other hand, Shipyard 3 uses a selection criteria adapted from Kraljic's (1983) product categorisation for every product category and subcategory that they buy. (See Appendix F for more details.)

Similar to the situation in the automotive market, this contradicts the logic of those quantitative studies that have established the importance of certain supplier selection criteria across several industries and all the purchases of the participated organisations. Also the data gathered from Shipyard 3 supports those studies arguing that supplier selection criteria vary by the purchased product type. Hence, supplier attractiveness cannot be considered in isolation from the supplied product.

*Quality, Cost and Innovation*

According to the Purchasing Manager of Shipyard 1, although where possible, supplier selection is commercially driven, technical compliance always comes first. Quality, including health and safety, will not be compromised. This view was shared by the purchasing directors of the other two shipyards, who also prioritised compliance with specification requirements over the supplier's commercial proposition.

Furthermore, the Purchasing Manager of Shipyard 1 also highlighted that, apart from meeting quality requirements for certain products, attractive suppliers must demonstrate a sufficiently high level of innovation. On the other hand, despite acknowledging the importance of this parameter, both Shipyards 2 and 3 did not distinguish it from the quality dimension of value. According to the Purchasing Director of Shipyard 3, as every product purchase is specified in the project design, quality, including product innovation, is assessed based on the supplier ability to *'tick the required boxes'.*

> *…Additional premium characteristics are not considered, unless they are included in the design specification (Purchasing Director of Shipyard 3).*

All three interviewed shipyards highlighted that quality of the purchases required for both vessels and shipyard facilities and infrastructure can be assessed via compliance with the technical requirements, including health and safety. Additionally, the Purchasing

Manager of Shipyard 1 drew attention to the importance of a supplier's *'engineering thinking', 'design skills'* and *'ability to read and work with the drawings'.*

Both interview and documentary data indicate that project related documentation is an integral part of the product quality. It is required for vessel approval by the relevant classification society. This documentation represents a confirmation of product compliance with the requirements of the relevant classification society, based on the flag of the vessel (ABS, Lloyd's, RMRS, Norway Bureau Veritas, etc.) and other respective conventions (for example, required when buying additional exhaust systems).

The Purchasing Directors of Shipyards 2 and 3 highlighted that the supplier's ability to provide a warranty is also very important for its attractiveness. A warranty on supplied equipment and services is an essential part of its quality and represents some kind of guarantee for approximately one and a half to two years (see quote below). For instance, if the shipyard's customer has a problem, it is addressed to the vessel manufacturer. Presence of a warranty enables the shipbuilders to refer to the responsible supplier, so that the issue can be resolved.

> *…Many service providers in Russia do warranties free of charge in order to make their propositions look more attractive... They know that these warrantees are highly desired in the Russian shipbuilding industry (Purchasing Director Shipyard 3).*

*Delivery*

Although the interviewed shipyards had similar perceptions regarding the importance of product quality, innovation and cost for vendor attractiveness, they had slightly different views on product delivery. By the 'delivery' dimension of value, they all understood the actual transportation of the product, as well as the risks. However, for Russian shipyards, perceptions of these risks were higher, due to the national currency legislation resulting in significant negative commercial impact in case of shipping delay. Therefore, for Russian shipyards this dimension of value in relation to supplier attractiveness is more important than for their equivalent from Western Europe (see quote below).

> *Product delivery terms in Russian shipbuilding are not only important for the continuation of vessel manufacturing, but for commercial reasons too. Late product delivery causes significant fines, as a result of breaking Russian currency legislation (Purchasing Director of Shipyard 3).*

Unlike its Russian competitors, the Purchasing Manager of Shipyard 1 felt more relaxed about the risk of product delay. According to the interviewee, although risk mitigation is

a big factor in shipbuilding, it is important to differentiate these risks. Risks to quality and safety cannot be taken and they are assessed comprehensively at all stages of the product lifecycle. For instance, material change must be approved, as it has a significant impact on quality. However, risks to the production schedule may be taken, depending on the potential benefits.

This indicates that, although shipyards recognise the same dimensions of value as the automobile manufacturers, they have prioritised different factors within these main four blocks of requirements, due to the project-based nature of the market (see Table 4.2).

#### 4.3.1.2 Additional factors affecting supplier attractiveness

Similar to the situation in the automotive industry, among the additional factors that affected vendor attractiveness were: supplier size, location (or footprint or country of origin) and level of capability within the country, business ethics and historic performance and experience. Additionally, Shipyard 2 also acknowledged the desire to minimise the number of suppliers involved in a project where possible.

##### 4.3.1.2.1 Supplier size

Irrespective of whether the supplier is an OEM or a service provider, the Purchasing Director of Shipyard 3 admitted that company size is likely to affect the supplier's attractiveness. The interviewee suggested that negotiation tends to be more difficult with larger companies. It also takes them longer to make decisions and respond to customer requirements. On the other hand, small vendors can demonstrate exceptional quality excellence, as they know all the nuances of their area of expertise and care more about their company's reputation in the market. Small vendors can also be more commercially competitive, due to reduced overheads compared with the larger market players. The Purchasing Manager of Shipyard 1 agreed with this opinion and also favoured small, local players. Thus, this data shows that, in line with the studies of Ebrahimpour and Mangiameli (1990) and Kannan and Tan (2003), contemporary customers consider supplier size as an indicator of certain characteristics and capabilities when considering and choosing attractive vendors.

##### 4.3.1.2.2 Supplier location

Interviewees from all three shipyards suggested that a company's country of origin (or footprint or country of origin) also affects supplier attractiveness. Based on the interview data, the supplier's location is associated with suggestive product quality, overall

capabilities, stereotypes concerning business ethics within the country, the availability of prompt service and after-sales support, the ease of communications, lead times and delivery costs. Also according to the Purchasing Manager of Shipyard 1, depending on the geography of the supply base, transport costs can be significant due to the size of some of the purchased products.

Although all three interviewed shipyards highlighted that there is no preference for a supplier's country of origin if the required competences and capabilities are demonstrated (see quote below), they all admitted that there are certain stereotypes within the market respecting suppliers' countries of origins.

> *Logistics is not a big issue in shipbuilding. Moving hundreds of tons' weight of products around is not a problem. It is more important to find the right partner (Purchasing Manager of Shipyard 1).*

According to the Purchasing Director of Shipyard 3, the supplier country of origin *'can tell something about the supplier'* and therefore affects its attractiveness. For instance, the main advantages of triad suppliers are the levels of quality and innovation of their products, as well as good customer service. On the other hand, Russian suppliers are believed to be more flexible when it comes to payment terms, compared with competitors from triad countries.

The Purchasing Manager of Shipyard 1 gave another example with regards to supplier location. From his perspective, sourcing from low cost countries is becoming more popular and market players *'are not afraid of potential risks and greater supply network complexities'*. Particularly, high potential is associated with Eastern Europe and Asia. However, each of these locations have differing reputations to be considered when determining vendor attractiveness. For instance, there is nervousness from some clients about using Chinese suppliers, due to some historic quality issues. For this reason, these vendors are likely to be used only for basic products and services. On the other hand, South Korea and Malaysia have demonstrated very good quality and 'Western European' working practices.

In line with his competitor, the Purchasing Director of Shipyard 2 also acknowledged the unfavourable reputation of Chinese suppliers in the shipbuilding market. Furthermore, some of Shipyard 2's clients have an antipathy towards Chinese vendors, due to the historic product reliability issues. In these cases, the supplier's country of origin can completely undermine its attractiveness.

This feedback from all three interviewed shipyards provides empirical evidence of customer predispositions with regards to suppliers' countries of origins, as pointed out by Johnson and Sohi (2001).

The interview data also suggests that all three companies found local suppliers more attractive, if all other requirements were equally met. For instance, the Purchasing Manager of Shipyard 1 highlighted that it is always desirable to trade with the local market players, if the benefits from other criteria are not compromised. Thus, when two suppliers demonstrate comparable compliance with all the requirements, the local vendor is more likely to win the business. In these cases, Shipyard 1 tends to favour smaller, local market players.

Furthermore, according to the management of Shipyards 2 and 3, local suppliers have an advantage in communication and speed of product delivery, which is particularly important for services. Also Russian clients tend to choose local suppliers to support the national economy. Additionally, as previously mentioned by the Purchasing Manager of Shipyard 1, transport costs are driven by supplier location and product size, and therefore, can significantly affect vendor attractiveness. If, however, a foreign supplier is likely to be chosen, the management of Shipyard 2 believes that it is necessary to check its geographical coverage area for after-sales service. A supplier's ability to provide technical support in a country or region, as well as the timely availability of spare parts, are an essential part of the vendor value proposition and therefore affect its attractiveness.

This data indicates the importance of supplier location (for various reasons outlined above) when it comes to assessing vendor attractiveness, and therefore, lends supports to several previously discussed studies. It also indicates that this factor appear to be more important for service providers than OEMs, which is not mentioned in the literature.

#### 4.3.1.2.3 Supplier business ethics

Supplier business ethics was another factor affecting vendor attractiveness distinguished by the two interviewed shipyards. However, both of these shipyards made reference to the poor ethics of their local suppliers. The Purchasing Director of Shipyard 3 suggested that Russian companies are known as 'tough negotiators'. *'Often they are more expensive than foreign suppliers, plus take every opportunity to charge you more'* (Purchasing Director of Shipyard 3). The Purchasing Manager of Shipyard 1 was of the same opinion with regards to the ethics of Western European suppliers, who he believed

quite often try to charge more if there is a slight deviation from the originally approved construction drawing, compared to Asian or Eastern European suppliers. This suggests that, although business ethics is important for two out of the three interviewees, this factor is equally applicable to all suppliers, irrespective of their origins, again in agreement with the existing literature (Kannan and Tan, 2003; Weber et al., 1991).

#### 4.3.1.2.4 Supplier experience or historic performance

Unlike the situation in the automotive industry, none of the shipyards associated the 'delivery' dimension of value with risks caused by a lack of supplier expertise. However, all the interviewed companies acknowledged the importance of supplier experience. To be an attractive vendor, a candidate's ability to demonstrate previous performance through delivered projects, as well as references, certificates and accreditations within the industry, were seen as crucial. This supports the studies of Dickson (1966), Weber et al. (1991) and Wuyts et al. (2009), emphasising the impact of vendor performance history on the customer business relationship.

Vendor historic performance appeared to be particularly important for service providers as opposed to OEMs. According to the Purchasing Manager of Shipyard 1, when it comes to supplier experience shipbuilders go a step further with service providers. Unlike the situation with OEMs, it is not uncommon within the industry to request service providers to provide information on the personnel involved in the project, i.e. their CVs.

### 4.3.2 Supplier attractiveness: Vendor perspective

Interviews carried out with the suppliers operating in the shipbuilding market suggest that, similar to the situation in the automotive environment, suppliers focus on the selection criteria used by their clients to choose suitable vendors, as well as other factors that they believe are important for their attractiveness.

Despite the difference in the core part of the product (service versus equipment), the competitive priorities of Service Provider 1 appeared to be very similar to those of OEM 3. Interviewees from both companies highlighted the importance of quality, required a level of innovation, timely supply, a broad product portfolio, proven experience within the industry, a trust-based relationship with clients and other network partners and a strong emphasis on the level of service. On the other hand, data gathered indicates that generally service providers are perceived to provide better service and support due to their proximity as opposed to OEMs. Moreover, while with service providers, customers rely on their historic experience within the industry, when it comes to OEMs brand image

is taken into consideration.

#### 4.3.2.1 General equipment and services-facilities

Based on the company's website, OEM 3 sees itself as an experienced system partner, which not only offers a wide range of leading edge products, but also a comprehensive package of vital know-how, service and support. OEM 3 products can be found in daily use throughout several high value-added manufacturing industries, including shipbuilding and automotive, serving a vast range of applications in all sectors.

According to the Sales Engineer of OEM 3, shipbuilders and vehicle manufacturers look for suppliers with good local representation, a strong brand, high quality products, health and safety awareness, know-how and long-term vision. In these industries, it is more important to be on the right technological level and to intimately understand the customers' business, rather than *'being the cheapest'*. The commercial offer must be comparable with companies who provide similar quality products.

OEM 3 is a technology leader in sensors and application solutions for industrial use. The interviewee believes that OEM 3 is a 'trusted advisor' in the market, having maintained its technical leadership and brand power over the years. The latter was perceived more important for OEMs than service providers by OEM3 as it allows the manufacturers to sell their products globally. Another strength of OEM 3 is the ability to supply a broad product portfolio, which none of its competitors can offer. OEM 3 products help to achieve reliable and efficient control of processes, protect people from accidents and prevent environmental damage.

This data shows that OEM 3 prioritises the product quality, innovation and delivery dimensions of value, including service level, to be an attractive vendor for the customers. This concurs with the earlier outlined studies on the main dimensions of value, relationship value drivers, supplier selection criteria and the fit to the 'ideal supplier profile', including Morgan et al. (2007) emphasising the importance of branding.

The company has a global presence, with almost 50 subsidiaries and equity investments, plus numerous sales agencies. It currently directly employs about 6,000 people worldwide, as well as working with electrical service companies operating in the shipbuilding and automotive markets. According to the Sales Engineer of OEM 3, unlike OEMs, the majority of service providers are local and can provide support quicker. For this reason, to prioritise the 'delivery' dimension of value, OEM 3 strives to supply its

products, and the required service and support, to the customers as soon as possible. This is achieved through direct business relationships with its main customers, via a wide network of sales and service engineers, and through informal partnerships with distributors and resellers including service providers. These business relationships are built on on-going relationships and mutual trust. This shows pivotal role of supply networks for OEM 3 in order to achieve more sales and provide timely product delivery.

The main customers for OEM 3 are provided with technical service and support through site visits one to two days per week. OEM 3 also hosts several workshops for key customers within many industries, to share best practices across various applications. In addition, the company has an on-line portal, where clients can see prices and stock availability, obtain a quotation and convert it into a purchase order. Moreover, OEM 3 cooperates with the main players in the relevant markets these being powerful customers or suppliers for product development and innovation purposes.

The last two paragraphs show that supply networks are crucial to enhance company performance from perspectives of the main value dimensions (quality, innovation, delivery, cost) as well as other factors (supplier location and historic performance and experience) important for the customers. Unfortunately, this factor has not received the required level of attention from the academic community in respect to the subject matter.

#### 4.3.2.2 Vessel equipment-related services

Like OEM 3, Service Provider 1 also believes that providing a wide portfolio of products positively affects its attractiveness. According to the company website, Service Provider 1 is one of the leading service providers in Russian, CIS countries and the Baltic States shipbuilding markets. Among the services that the company provides are: various designs, including complete vessel design, equipment supply, mounting, commissioning, diagnostics, warranty, after-sales services and even ‘turn key’ construction of vessels.

Based on the interview and website data, Service Provider 1 believes that an emphasis on quality and delivery dimensions of value make the company attractive. This includes excellent product quality, service level and the ability to provide various levels of innovation, driven by customer preferences and industry regulations. Commercial propositions of the supplier, however, are in line with the rest of the market. This concurs with the previously mentioned studies that will be discussed more comprehensively in the ‘Discussion’ section of the chapter.

The Deputy Director of Service Provider 1 highlighted that, unlike for OEMs, for any service provider, the ability to provide prompt, local service is very important. As part of prioritising the delivery dimension of value, Service Provider 1 offers 24/7 service, delivery and customs clearance of their products to any place in the world, as well as access to partner service stations in Russia, CIS countries and the Baltic States.

To provide customers with high quality products at reasonable costs, Service Provider 1 was granted 'authorisation' and 'exclusivity' statuses by over 30 leading global OEMs for the Russian, CIS countries and Baltic States markets. As part of these business arrangements, Service Provider 1 personnel must undertake regular training at partner plants located all over the world. This familiarises the service engineers with the cutting-edge equipment and technologies developed by main global brands and enables them to perform world-class services at Russian, CIS countries' and Baltic State vessels circulating all over the world. In these instances service providers can be seen as the followers of OEMs in terms of innovation. Furthermore, to maintain the high quality of its products, including services, Service Provider 1 undertakes annual attestation at Rostekhnadzor and seeks approval for all carried out services through the Russian Classification Societies.

Cooperation with the leading global manufacturing brands also allows Service Provider 1 to offer varying levels of innovation, depending on the customer's needs as well as competitively price their products, due to commercial agreements with these OEMs, mainly via the rebates based on the agreed business volumes.

Although partnerships with the reputable brands (OEMs) is positively perceived by Service Provider 1 customers, the management does not see the value of branding its services. The management believes that unlike OEMs 'doing a good job is more important for a service provider than investing in its brand image' (Deputy Director of Service Provider 1). According to the Deputy Director of Service Provider 1, the company takes pride in having over 18 years of proven success in the market, including excellent relationships with the main market players. According to the interviewee, these are extremely important to the company's attractiveness. Service Provider 1 has trust-based relationships with most Russian, CIS countries and Baltic States ship owners, the world leading OEMs, shipyards and design bureaux, as well as a wide network of partner service stations in Russia, CIS countries and the Baltic States.

Detailed descriptions outlined above indicate that similar to other interviewed suppliers within the automotive and shipbuilding markets, Service Provider 1 recognised the same

competitive priorities (quality, cost, delivery and innovation). However, the interviewee prioritised different factors within these four main areas (see Table 6.3). Also in line with the other research participants, branding has not been perceived as important for service providers as it is for OEMs, while relationships within the relevant supply networks appeared to be paramount for the company to enhance the main dimensions of value (cost, quality, delivery and innovation) as well as other factors valued by its customers (supplier location, historic performance and experience).

## *4.4 Discussion*

The data collected allow for categories, codes and sub-codes to be distinguished with regards to supplier attractiveness in relation to value theme and the available marketing literature (see Appendix G). They all will be discussed within this section.

### 4.4.1 Main dimensions of value

With a few minor exceptions (see below) the primary and secondary data obtained showed a high level of consistency in terms of customer and supplier views on vendor attractiveness across the two industries and two countries. Supplier attractiveness in relation to value was associated with four main value dimensions (quality, delivery, cost and innovation) as well as several other important factors, these being: suppliers' positions within networks (includes position of the incumbent supplier, positions of the competitors, historic vendor performance within network, number of sub-suppliers, relationships with other supply network members), supplier size, location and business ethics. This contradicts the studies by Achnor (1991), Dong and Glaister (2006), Ebrahimpour and Mangiameli (1990), Maltz et al. (2011), Madhavan et al. (1998) and Pearson and Ellram (1995), which argued that drivers for partner selection are different for different countries and industries.

Unlike some of the literature (Weber et al., 1991), which treats each individual supply or supplier-related attribute as a separate supplier selection criterion, business organisations are more focused and tend to group several factors under one value dimension. Thus, each of these dimensions can be considered as a block of requirements, containing several of these attributes (see Table 4.2). For instance, when respondents were describing 'quality', they listed the main product technical characteristics and performance, compliance-related documentation, style, health and safety aspects, etc. 'Delivery' was associated with product transportation, packaging, labelling, product manufacturing and delivery time, meeting all the requirements, service

level, including after-sales support, supplier performance, etc. By ‘cost’ criterion respondents meant the actual prices for the products, commercial transparency, participation in continuous improvement activities from a cost perspective, etc. ‘Innovation’ was perceived as R&D capabilities, level of technical and technological knowledge within the company and market leadership in terms of required level of expertise, etc.

Interviewees from both markets across the two countries expressed very similar opinions regarding quality, cost and innovation. All the respondents found innovation important only if it is indicated in product technical requirements. Being innovative within the two industries was not deemed to be essential in all cases. Quality was perceived as the most important factor. If quality is not present, the potential supplier will not be considered, irrespective of the attractiveness of the other dimensions of value. In line with the literature (Morgan et al., 2007), some respondents also acknowledged the importance of the supplier’s brand (mainly applicable to OEMs) when making a supply source selection decision. In both industries, cost was generally considered after quality.

The delivery dimension of value was perceived differently in the automotive environment compared to the shipbuilding market. While in shipbuilding, there was a significant concern with product availability for timely vessel production due to Russian currency law, in vehicle manufacturing, respondents were more conscious of the supplier’s skills to complete the job, particularly when it came to services. Also, unlike shipbuilding, none of the interviewees from the automotive environment mentioned the importance of after-sales service, which is mainly expressed through warranties and timely spare parts availability. This suggests that it is less of an issue for the mass-production automotive market, compared to the bespoke shipbuilding environment.

Both customers and supplier reference to quality, cost, delivery and innovation, when discuss vendor attractiveness in relation to value, lends support to the existing literature on the main dimensions of value, the main relationship value drivers, supplier selection criteria, suppliers’ competitive priorities and the strategic fit to the ‘ideal supplier profile’ distinguishing these four main value dimensions (Abratt, 1986; Dwyer et al., 1987; Ellegaard & Ritter, 2007; Hald et al., 2009; Halinen, 1997; Harris et al., 2003; Hill and Brown, 2007; Kabadayi et al., 2007; Komulainen et al., 2005; Krause et al., 2001; Maltz et al., 2011; Mortensen et al., 2008; Mortensen, 2012; Murray et al., 2009; Nielsen and Gudergan, 2012; Ulaga, 2003; Venkatraman, 1989; Weber et al., 1991; Zaefarian et al., 2013). It also indicates that these streams of theory help to shed light on the concept of supplier attractiveness. However, contrary to the findings of Hult et al. (2006), Peng et

al. (2011) and Wheelright (1984), respondents did not find flexibility as important factor that makes suppliers more attractive.

*Table 4.2 Customers' and suppliers' understanding of vendor attractiveness*

| | CUSTOMERS | | | | | SUPPLIERS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | AUTOMOBILE MANUFACTURERS | | SHIPYARDS | | | SERVICE PROVIDERS | | | ORIGINAL EQUIPMENT MANUFACTURERS | | | |
| **Determinants of the attractive supplier** | **AM 1** | **AM 2** | **SY 1** | **SY 2** | **SY 3** | **SP 1** | **SP 3** | **SP 4** | **OEM 1** | **OEM 2** | **OEM 3** | **OEM 4** |
| **Main dimensions of value** | | | | | | | | | | | | |
| **1. Quality:** | | | | | | | | | | | | |
| -1a compliance to technical, including engineering and production, requirements; | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | ✓ | ✓ | | |
| -1b compliance to market regulations, legislation and standards; | | | ✓ | ✓ | ✓ | | | | | ✓ | | ✓ |
| -1c style; | ✓ | ✓ | | | | | ✓ | | ✓ | | | |
| -1d reliability; | ✓ | | | | | | | ✓ | | ✓ | | |
| -1e health and safety aspects; | ✓ | | ✓ | ✓ | ✓ | | ✓ | ✓ | | ✓ | ✓ | |
| -1f world-class standards, technical excellence and leading edge products | | | | | | ✓ | | ✓ | | ✓ | ✓ | ✓ |
| -1g strong technical and service support; | | | | | | ✓ | | ✓ | | ✓ | ✓ | ✓ |
| -1h up-to-date technology; | | | | | | | | ✓ | | | | |
| -1i knowledge of the globally available equipment; | | | | | | | | ✓ | | | | |
| -1j participation in continuous improvement activities from a quality perspective; | ✓ | ✓ | | | | | | | ✓ | ✓ | | ✓ |
| -1k customer orientation, intimate understanding of a customer's business; | | | | | | | ✓ | | | | ✓ | ✓ |
| -1l investment in personnel; | | | | | | | | ✓ | | | | ✓ |
| -1m corporate social responsibility (CSR); | | | ✓ | | | | | | | | | |
| -1n supplier warranty; | | | | ✓ | ✓ | | | | | | | |
| -1o engineering thinking, design skills and ability to read drawings; | | | ✓ | | | | ✓ | | | | | |
| -1p strong brand; | ✓ | | | | | ✓ | | | | | ✓ | |

| | CUSTOMERS | | | | | SUPPLIERS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | AUTOMOBILE MANUFACTURERS | | SHIPYARDS | | | SERVICE PROVIDERS | | | ORIGINAL EQUIPMENT MANUFACTURERS | | | |
| **Determinants of the attractive supplier** | **AM 1** | **AM 2** | **SY 1** | **SY 2** | **SY 3** | **SP 1** | **SP 3** | **SP 4** | **OEM 1** | **OEM 2** | **OEM 3** | **OEM 4** |
| | | | | | | | | | | | | |
| **2. Cost:** | | | | | | | | | | | | |
| -2a commercial proposition including product prices; | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | |
| -2b commercial transparency; | ✓ | ✓ | | | | | | | | | | |
| -2c participation in continuous improvement activities from a cost perspective; | ✓ | ✓ | | | | | | | ✓ | ✓ | | ✓ |
| -2d commercial differentials with competitors | | | ✓ | | | | | ✓ | ✓ | ✓ | ✓ | |
| | | | | | | | | | | | | |
| **3 Delivery:** | | | | | | | | | | | | |
| -3a product transportation; | ✓ | ✓ | | ✓ | ✓ | | | | ✓ | ✓ | | |
| -3b meeting all requirements within agreed deadlines (i.e. compliance with terms and conditions of purchase including container choice and labelling); | ✓ | ✓ | ✓ | ✓ | ✓ | | | | ✓ | | | |
| -3c supplier performance; | ✓ | ✓ | | | | | | | ✓ | | | |
| -3d supplier specialisation, knowledge and past experience; | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | ✓ |
| -3e risk management (financial, capacity, quality and time related); | | | ✓ | ✓ | ✓ | | ✓ | | | | | ✓ |
| -3f lead times and timely product delivery; | ✓ | ✓ | | ✓ | ✓ | | | ✓ | ✓ | ✓ | | |
| -3g footprint; | | | | | ✓ | | | | | | | ✓ |
| -3h participation in continuous improvement activities from a delivery perspective; | ✓ | ✓ | | | | | | | ✓ | ✓ | | ✓ |
| -3i global presence; | | | | | | | | | | | ✓ | ✓ |
| -3j good local representation, consistently good service and support; | | | | | | ✓ | | ✓ | | ✓ | ✓ | ✓ |
| -3k brand; | ✓ | | | | | ✓ | | | | | ✓ | |
| -3l supplier financial stability | ✓ | ✓ | ✓ | | | | | | | | | |

| | CUSTOMERS | | | | | SUPPLIERS | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | AUTOMOBILE MANUFACTURERS | | SHIPYARDS | | | SERVICE PROVIDERS | | | ORIGINAL EQUIPMENT MANUFACTURERS | | | |
| **Determinants of the attractive supplier** | **AM 1** | **AM 2** | **SY 1** | **SY 2** | **SY 3** | **SP 1** | **SP 3** | **SP 4** | **OEM 1** | **OEM 2** | **OEM 3** | **OEM 4** |
| | | | | | | | | | | | | |
| **4 Innovation:** | | | | | | | | | | | | |
| -4a in respect to cost; | ✓ | | | | | | ✓ | | | | | |
| -4b safety, efficiency and environmental aspects (safety improvements, reduction of CO2 emission and fuel and energy efficiency, etc.); | | | ✓ | ✓ | ✓ | | ✓ | ✓ | | ✓ | | ✓ |
| -4c research and development capability, knowledge of the latest developments; | | ✓ | ✓ | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| -4d speed; | | | | | | | ✓ | | | | | |
| -4e conducting business in non-traditional ways; | | | | | | | ✓ | | | | | |
| -4f participation in continuous improvement activities from an innovation perspective; | ✓ | ✓ | | | | | | | ✓ | ✓ | | ✓ |
| -4g outstanding technical value; | | | | | | ✓ | | | | | ✓ | ✓ |
| -4h investment in innovation; | | | | | | | | | | | | |
| -4i best technology and standards; | | | | | | ✓ | | | | | ✓ | ✓ |
| -4j long-term vision | | | | | | | | | | | ✓ | ✓ |

| | CUSTOMERS | | | | | SUPPLIERS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | AUTOMOBILE MANUFACTURERS | | SHIPYARDS | | | SERVICE PROVIDERS | | | ORIGINAL EQUIPMENT MANUFACTURERS | | | |
| **Determinants of the attractive supplier** | **AM 1** | **AM 2** | **SY 1** | **SY 2** | **SY 3** | **SP 1** | **SP 3** | **SP 4** | **OEM** | **OEM** | **OEM** | **OEM** |
| **Additional factors** | | | | | | | | | | | | |
| **5. Suppliers' positions within networks** | | | | | | | | | | | | |
| 5a position of incumbent supplier within network | ✓ | ✓ | | ✓ | | | | ✓ | | | | |
| 5b position of competitors | ✓ | ✓ | | ✓ | | | | ✓ | | | | |
| 5c historic vendor performance and experience | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | ✓ |
| 5d number of sub-suppliers (ability to supply a broad product portfolio or act as the main contractor) | ✓ | ✓ | | ✓ | | ✓ | ✓ | ✓ | | | ✓ | |
| 5e relationships with (a) customers and (b) other supply network members | a b | a b | | | | a b | | a b | | a b | a b | a |
| 6 **Supplier size** due to: | | | | | | | | | | | | |
| -6a ability to survive in volatile business environment; | ✓ | | | | | | | | | | | |
| -6b indication of the capabilities' level | | | ✓ | ✓ | | | ✓ | | | | | |
| - 6c from a negotiation perspective | | | | | ✓ | | | | | | | |
| 7 **Supplier location and level of capabilities within a country** due to: | | | | | | | | | | | | |
| -7a product size, logistics costs and import duties; | | ✓ | ✓ | ✓ | ✓ | | | | ✓ | | | |
| -7b service level expectations, i.e. good local representation and speed of product delivery; | ✓ | | ✓ | ✓ | ✓ | | | | | | ✓ | ✓ |
| -7c stereotypes on quality, innovation levels, customer service and business ethics; | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | |
| -7d required knowledge of local legislation, standards, methods and other regulatory requirements; | ✓ | | | | | | | ✓ | | | | |
| -7e interest rates; | | | | | | | | | ✓ | | | |
| -7f from a negotiation perspective; | | | | | ✓ | | | | | | | |
| -7g ease of communications; | | | ✓ | ✓ | ✓ | | | | | | | |
| -7h to support a national economy; | | | | ✓ | ✓ | | | | | | | |
| -7i geographical coverage area for after-sales service and spare parts supply; | | | ✓ | ✓ | ✓ | | | | | | | |
| -7j capability level within the country | | ✓ | ✓ | ✓ | ✓ | | | ✓ | | ✓ | ✓ | ✓ |
| 8 **Supplier business ethics** | ✓ | | ✓ | | ✓ | | | | | | | ✓ |

Data obtained from both customers and suppliers indicates the purchase-related nature of the vendor attractiveness concept. The data gathered enables to establish supplier selection criteria for the main product types purchased by vehicle manufacturers and

shipyards. This concurs with the existing literature, such as Kotabe and Murray (2002), Wuyts et al. (2009), Lehmann and O'Schaughnessy (1974), Kraljic (1983), Lambert and Schwieterman (2012) and Rezaei and Ortt (2013), arguing that supplier selection cannot be considered in isolation from the product type supplied. On the other hand, these findings point out limitations of the quantitative studies that established the importance of each of the main value dimensions across a number of industries and all the companies' purchases, i.e. Kannan and Tan (2003), Krause et al. (2001), Weber et al. (1991) and Wuyts et al. (2009).

The data gathered also indicates a high level of resemblance between the competitive priorities of the service providers and those of OEMs'. For instance, like the service providers, the OEMs also invest in personnel training and prioritise service and support elements within their offerings. On the other hand, supplier attractiveness was understood differently for service providers as opposed to OEMs. Supplier historic vendor performance and experience, and location appeared to be more important for service providers than OEMs (in both automotive and shipbuilding markets). The majority of OEMs appeared to be global market players, while service providers tended to be local companies. On the other hand, in both industries branding was more relevant for OEMs than service suppliers. Also since manufacturing is the core of automotive and shipbuilding industries, respondents perceived OEMs to be more innovative than service providers, who were viewed as followers in this respect. Furthermore, in the mass-production automotive environment, both customers and suppliers highlighted the importance of OEM participation in continuous improvement activities, with the intention to reduce costs and enhance value from the quality, delivery and innovation perspectives. However, this appeared not to be the case for service providers. See Table 4.3.

*Table 4.3 Understanding of OEM and service provider attractiveness from value perspective*

| Factor | Importance for OEM | Importance for service provider |
|---|---|---|
| **Participation in continuous improvement activities from cost, quality, innovation and delivery perspectives** | Important (in automotive) | Not important (in automotive) |
| **Branding** | Important (in automotive and shipbuilding) | Not important (in automotive and shipbuilding) |

| | | |
|---|---|---|
| **Historic vendor performance and experience** | Important (in automotive and shipbuilding) | Crucial (in automotive and shipbuilding) |
| **Innovation** | More important | Less important |
| **Supplier location** | Important - global (in automotive and shipbuilding) | Crucial - local (in automotive and shipbuilding) |

### 4.4.2 Additional factors affecting supplier attractiveness

During the research process, it appeared that there was a greater variety of factors considered during the supplier selection process than was in the literature. Apart from the four main dimensions of value, respondents from the two industries and two countries also acknowledged the importance of other additional factors affecting supplier attractiveness (see Table 4.2). These are: suppliers' positions within networks expressed by five supply or supplier-related attributes (see below), supplier size, ethics as well as location and capabilities' level within the country.

The multiplicity of these identified factors revealed significant limitations in the current studies on the strategic fit to the 'ideal supplier profile' (Hult et al., 2006, Kabadayi et al., 2007, Peng et al., 2011 and Wheelright, 1984), in terms of its inconsistent and fragmented nature, lack of granularity and as a result limited ability to assess the phenomenon. The obtained data clearly shows that there are more than five blocks of factors, consisting of several supply or supplier-related attributes, that need to be considered by vendors to be attractive and fit 'the desired profile'. Knowledge of all these factors can facilitate further theoretical development in terms of robust evaluation mechanisms that vendors can use to monitor their ability to fit the 'ideal supplier profile'.

Furthermore, available theory on the main dimensions of value, supplier selection criteria, supplier competitive priorities and the fit to the 'ideal supplier profile' struggles to capture the network impact on buyer-supplier relationships, which appeared to be extremely important within two contemporary high value-added industries. It includes: the position of the incumbent supplier, positions of competitors, historic vendor performance within network, number of sub-suppliers and relationships with other supply network members. Supply networks appeared to impact vendor ability to drive continuous improvement for the customer from cost, quality, innovation and delivery perspectives, facilitate developments within the industry, sales and distribution, forming new business relationships and enable sharing knowledge. All these influence positions of incumbent supplier and competitors as well as their ability to reduce a number of sub-suppliers desired by the customers.

Although Dickson (1966), Weber et al. (1991) and Wuyts et al. (2009) identified the importance of relevant supplier experience, they have not considered it from supply network perspective as was identified within this study. Neither these authors acknowledged its greater importance for service providers as opposed to OEMs.

Buyer-supplier relationship history (Kannan and Tan, 2003) and importance of good relationships and personal interactions with the suppliers were other factors already studied (Geiger et al., 2012; Heide and Wathne, 2006; Lindgreen et al., 2012; Wathne et al., 2001 and Wuyts et al., 2009). However, these factors were viewed from supplier selection and engagement perspective and not from network or service as opposed to manufacturing business viewpoints. While historic vendor performance within network was found to be important for both type of supplier in this study, the collected data did not show good relationships and personal interactions with the suppliers affecting OEM and service provider attractiveness. Businesses are driven by their objectives expressed via the main value drivers and are measured by their performance against these attributes. Good relationships and personal interactions, that are not fruitful, are not valued by contemporary customers.

The respondents also believe that supplier size can suggest whether a supplier can survive in a volatile business environment. It can also be an indication of supplier capabilities' level and negotiation techniques. This lends support to the findings of Kannan and Tan (2003), Dong and Glaister (2006) and Fink et al. (2011) with regards to US, European and Chinese practices and shows the applicability of this factor in high value-added manufacturing industries, as well as in the Russian context. Furthermore, as part of the supplier relationship, some of the interviewed vehicle manufacturers, shipyards and suppliers suggested that business ethics can also affect vendor attractiveness. This concurs with the studies of Kannan and Tan (2003) and Weber et al. (1991).

Supplier location and the overall level of capabilities within the country were other important factors identified by both customers and suppliers. These factors were important for several reasons, these being: product size and its impact on transport cost, service level expectations, high import duties, interest rates, country-specific standards and methods, supplier local representation and capabilities' level within the country, stereotypes concerning quality, innovation, customer service and business ethics. This lends support to earlier studies emphasising the importance of vendor location in supplier selection, such as Carter et al. (2008), Cui et al. (2014), Dong and Glaister (2006),

Ebrahimpour and Mangiameli (1990), Kannan and Tan (2003) and Maltz et al. (2011). However, unlike the existing literature that does not differentiate between services and manufacturing businesses current study suggests that this factor is more important for service providers as opposed to OEMs.

### 4.5 Conclusions

With the exception of slightly differing views on supplier attractiveness, based on the core parts of the product within the automotive environment (OEMs participation in continuous improvement activities as opposed to service providers), as well as a slightly different understanding of the delivery dimension of value between the two industries, the overall data obtained from both customers and suppliers was highly consistent across the two industries and two countries. This contradicts the studies (by Dong and Glaister (2006), Maltz et al. (2011), and other academics) that advocated the industrial and national differences in procurement practices. All respondents suggested that, to determine supplier attractiveness, vendor propositions are compared based on the main dimensions of value and other important factors, comprising several supply and supplier related attributes specific to the purchase type. Hence, the concept of supplier attractiveness appeared to be product-type related.

The purchase-related nature of supplier attractiveness agrees with the assertions of Lambert and Schwieterman (2012), Rezaei and Ortt (2013) and other authors. On the other hand, it highlights the limitations of those quantitative studies that established the importance of each of the main value dimensions across several industries and all the companies' purchases, i.e. Kannan and Tan (2003), Wuyts et al. (2009), etc.

Quality, cost, innovation and delivery were the main factors considered by customers when choosing attractive vendors. These factors were also found to be the suppliers' main competitive priorities. This concurs with the literature on the main dimensions of value, the main relationship value drivers, supplier selection criteria, suppliers' competitive priorities and the strategic fit to the 'ideal supplier profile', distinguishing these four main value dimensions. However, contrary to the findings of Hult et al. (2006), Peng et al. (2011) and Wheelright (1984), respondents did not find flexibility as an important factor that made suppliers more attractive.

Moreover, in agreement with the literature, respondents reported that supplier size (Kannan and Tan, 2003; Dong and Glaister, 2006; Fink et al., 2011), business ethics (Kannan and Tan, 2003; Weber et al., 1991), location (Carter et al., 2008; Cui et al.,

2014; Maltz et al., 2011 and other authors) and relevant experience (Dickson, 1966, Weber et al., 1991; Wuyts et al., 2009) were other factors affecting vendor attractiveness. However, the obtained findings also revealed other important factors that are currently not represented in the literature, such as the position of the incumbent supplier, positions of competitors, historic vendor performance within network, number of sub-suppliers and relationships with other supply network members. These five factors reveal the importance of network considerations in buyer-supplier relationships that is currently missing in theory.

Identification of all these factors has enabled this study to shed light on the concept of supplier attractiveness, by identifying the relevancy and establishing the applicability of the above theory. However, all this theory does not distinguish between the service and manufacturing sectors, which appeared to be very important based on the data gathered. Furthermore, this study revealed the inconsistent and fragmented nature of the literature on the strategic fit to the 'ideal supplier profile', resulting in its lack of granularity, and therefore, limited assessment ability.

Although the findings suggest that OEMs and service providers can have the same competitive priorities, driven by the supplier selection criteria of their customers, both customers and suppliers from two industries had different views on supplier attractiveness, based on the product supplied (services or tangible goods). This resulted in differing customer expectations from service providers as opposed to OEMs and vice versa.

The author believes that findings obtained answer the research question posed in the introduction. The understanding of supplier attractiveness in relation to value that has been established in this chapter will enable further discussion regarding the relative attractiveness of OEMs and service providers, which will be reviewed in Chapter 5.

# CHAPTER 5: RELATIVE ATTRACTIVENESS OF OEMS AND SERVICE PROVIDERS

## 5.1 Introduction

The purpose of the present chapter is to explore how customers and suppliers themselves (OEMs and service providers) perceive the relative attractiveness of OEMs and service providers from inter-firm cooperation perspective in service-infused business relationships. This enables to determine strengths, weaknesses and the main reasons for cooperation with these two types of suppliers. Also, within this chapter, the author discusses in which cases an OEM is seen as a more attractive supplier than a service provider and vice versa for the main product types purchased by vehicle manufacturers and shipyards. Reviewing the above areas will improve understanding of supplier attractiveness from two perspectives: supplier cooperation and services. Hence, exploring this area will contribute to these two streams of marketing literature.

Findings will then be compared to the relevant literature on cooperation and inter-firm alliances (e.g. Brito and Mariotto, 2013; Ho and Wahg, 2015; etc.) as well as service businesses and competitive advantages in services as opposed to manufacturing (e.g. Brouthers and Brouthers, 2003; Giannakis, 2011).

This topic is discussed in the context of the UK and Russian automotive and shipbuilding industries in the proceeding two sections, followed by the discussion and interim conclusions, where the main points of the chapter are outlined.

## 5.2 Automotive

Data obtained from the UK and Russian research participants suggest that the concept of vendor attractiveness is related to product type. Although neither vehicle manufacturers nor shipbuilders have a supplier preference (OEM versus service provider), in practice, certain products tend to be purchased from OEMs, while others from service providers (see Table 5.3). Respondents believe that service providers and OEMs have their strengths and weaknesses, which make them more or less attractive suppliers to cooperate with when it comes to particular purchasing scenarios. This, therefore, indicates that the advantages arising from OEM as opposed to service provider and vice versa cooperation for their customers are different.

### 5.2.1 Relative attractiveness of OEM and the main purchase types

Based on the interviews conducted with respondents from the UK and Russian automotive industries, OEM is more likely to win business when (a) the core product part is equipment and not service, (b) the equipment is highly specialised and deep knowledge of this particular equipment is required, (c) there is limited competition with regards to supplied equipment, (d) equipment value supplied by a single manufacturer is significant or (e) the customer is looking for a regional or global partner.

Interview data suggest that OEM is always a preferred supplier for those products where the core part is equipment or material and not service. These products include: the parts and materials required directly for building vehicles as well as for production consumables, i.e. hydraulic parts, fasteners, fixings or cables. This is because, when it comes to mass-production conveyer manufacturing, with the exception of assembly, sequencing or warehousing, no other services are required from the suppliers of these product types. Hence, customers here are looking for suppliers who have the knowledge in particular pieces of equipment. This includes equipment-related problem-solving, innovation, technological and environmental expertise. From this perspective customer will be making an equipment-related rather than labour-related purchase.

These findings support the views of those authors who emphasise the importance of tangibility attribute or equipment intensity of the manufacturing businesses as opposed to services (e.g. Bowen and Ford, 2002, Kotabe and Murray, 2004). Moreover, according to obtained findings it is evident that OEMs—as opposed to service providers—are more likely to provide access to equipment-based rather than labour-related resources. However, existing theory on the benefits from supplier cooperation does not differentiate between the resources that service providers or equipment manufacturers can provide (Ahlstrom, et al., 2008; Dyer and Singh, 1998; Hitt, et al., 2000; Yan and Luo, 2001).

Moreover, data collected within the industry suggest that OEMs are also chosen when deep knowledge of a specific piece of equipment is required and the value of this equipment represents a significant proportion of the supplied product. Services in these cases are equipment-related and can be provided by the manufacturer of this piece of equipment, i.e. design, training, installation, commissioning, maintenance, upgrade, trouble-shooting. In these instances OEMs have a better knowledge of equipment-related legislation, innovations, health and safety, technologies, materials, know-how and supply base than service providers. This allows them to come up with better product propositions than service providers.

Following this logic, Automobile Manufacturer 1 normally chooses OEMs as suppliers of the equipment and services, belonging to 'general equipment and services' product type. In these cases, OEMs will definitely have the best knowledge of the supplied equipment and equipment-related services and will, therefore, be more prepared to deal with the situation.

In line with the feedback from Automobile Manufacturer 1, sales engineers from OEM 2 and OEM 3 advised that their companies are employed on a main contractor basis if vehicle manufacturers require their equipment as a core part of the supplied product as well as services related to their equipment, i.e. design, assembly, installation. It is not uncommon, however, that the equipment produced by other manufacturers will be supplied as part of the offer. However, the proportion of value of the equipment manufactured by other companies is low compared to overall value of the supplied product.

Thus, these views within the industry suggest that it is important to differentiate the nature of supplier knowledge based on the core part of supplied product and as a consequence OEM as opposed to the service provider's role in problem solving, learning, innovation, new product and knowledge development. However, the available literature on these advantages arising from buyer-supplier cooperation does not differentiate between services and manufacturing businesses (for example, Brito and Mariotto, 2013; Ho and Wahg, 2015 and other authors – see Discussion section).

On the other hand, both OEM2 and OEM3 acknowledged that if the project is more complex and associated with more expensive pieces of equipment whereby their products only represent a relatively small part, customers either employ a manufacturer of larger and more expensive equipment or a service provider. (See 'general technical services', 'unique equipment and services' and 'unique software or technology and services' product types.) When other companies are leading the projects as main contractors, OEM 2 and 3 act as subcontractors, selling their products to these two types of suppliers directly. Procurement of 'unique equipment and services' or 'unique software or technology and services' product types can be good examples.

According to Automobile Manufacturer 1, when dealing with unique, very expensive and highly specialised equipment or software devices and technology and services ('unique equipment and services' and 'unique software or technology and services' product types), OEM will always be seen as a more attractive supplier than a service provider.

In these cases projects involve mainly the equipment produced by one particular OEM, potential risks and complexity are high and competition is very limited. Furthermore, manufacturers of equipment of this kind keep all the technical and technological knowledge strictly within the company. Service providers neither have the knowledge to supply this kind of equipment nor provide the equipment or technology-related services when it comes to products belonging to these two groups. Additionally, the significant commercial value of the job, the risk of stopping the production or damaging the manufacturing facility or compromising employees' health and safety make the selection of the OEM with the best knowledge to deal with these situations and manage the projects more favourable.

Sales Director of OEM 4 was of the same opinion, highlighting that it is OEMs who have the best knowledge of their equipment as well as the equipment-related legislative requirements from health and safety, technical, technological and environmental perspectives. Hence, OEMs are more likely than service providers to facilitate in equipment-related learning, product development, innovation and technological discoveries.

This data indicates the importance of OEM's project management skills in order to manage commercial and technical sides of the project, including health and safety and risks. This contradicts Matthyssens and Vandenbempt's (1998) argument that excellent project management is only essential for service providers. The data gathered also indicates the equipment-related nature of risk management when it comes to equipment purchases. Additionally, the interviewees' feedback suggests differing contribution in learning, innovation, product and knowledge development of OEMs as opposed to service providers, which is not reflected in current literature.

The interview data highlights the importance of considerations of support in learning, innovation, new product and knowledge development (e.g. Ho and Wahg, 2015; Soosay et al., 2008), problem-solving (Brito and Mariotto, 2013), the facilitation in innovation and technological discoveries (Kafouros, 2008), ecological and social (Hollos et al., 2012) performance, the facilitation in risk management, and ability to cope with uncertain environments (Alvarez and Barney, 2001; Das and Teng, 1996, 2000) from the perspective of manufacturing as opposed to services and vice versa. Frustratingly, the vast majority of the literature does not provide a direct comparison between the two sectors. However, looking at supplier knowledge and risk management from this viewpoint provides a better understanding of the concept of cooperation as well as supplier attractiveness in services as opposed to manufacturing industry and vice versa.

In line with his colleagues, Director of Service Provider 2 also thinks that OEMs are more suitable than service providers as main contractors when it comes to projects involving large pieces of high-value machinery, e.g. big conveyer systems or painting equipment. Such machinery facilitates automation or safer or more efficient manufacturing processes. Since manufacturing and installing pieces of machinery is the core part of these complex projects, the machinery manufacturers will have a better knowledge of services (i.e. (re)design, product development, training, maintenance, etc.) associated with it than service providers. OEMs will also be better placed than service providers to support learning, innovation, product development and improvement of ecological performance associated with these expensive pieces of equipment.

Hence, by having the equipment-related knowledge OEMs facilitate risk management and affect customer satisfaction, which according to the interview data service providers are less likely to do. However, existing theory concerning supplier facilitation in risk management does not contrast services and manufacturing businesses (Alvarez and Barney, 2001; Das and Teng, 1996). The same applies to the literature on suppliers improving customer satisfaction (Tsang, et al., 2004).

In these complex projects, local electrical and mechanical engineering service providers can only be involved on a sub-contractor basis to carry out assembly, installation and maintenance, while OEMs will be in charge of the project management (see quote below).

> *Normally high value original equipment is produced outside the UK, and OEMs do not have representation in every country. This makes their services being very expensive as well as generally less attractive comparing to the local service providers, unless they employ local subcontractors. The latter help to keep the costs down and take the risks out, as subcontractor will be taking responsibility for the quality of the provided services. Additionally, through developing a level of expertise on the specialist equipment service provider will be able to provide prompt local support services to the customer in the event of future problems. This is beneficial for all three parties. (Director of Service Provider 2)*

This quote illuminates the importance of OEM's subcontractors', cost and risk management as part of overall project management, which again highlights the importance of these skills for this type of supplier. Thus, contrary to Matthyssens and Vandenbempt (1998), excellent project management is not only essential for service providers to compete successfully but for OEMs too.

Purchasing and Logistics Director of Automobile Manufacturer 2 pointed out another area wherein OEMs are in a better position than service providers. The interviewee highlighted that his company always strives to leverage its global and regional buying power. For this reason, Automobile Manufacturer 2 prefers to deal with companies able to offer Pan-European deals. Unlike service providers, who are mainly restricted to national or—more rarely—regional boundaries, OEMs normally have a global or regional focus, which makes them more likely to become global or regional partners.

In line with the opinion expressed by Automobile Manufacturer 2, OEM 4 fully recognises the benefits of global expansion. For instance, to facilitate business growth in the third world and developing countries where labour is significantly cheaper, as well as to be closer to its clients, OEM 4 opened offices in these countries (i.e. Korea and China). However, at the same time, OEM 4, as part of risk management, strives to keep total responsibility for its projects and takes measures to minimise the involvement of external organizations, i.e. service providers and manufacturers of smaller equipment.

The views of interviewees from OEM 4 and Automobile Manufacturer 2 support the findings of Kotabe and Murray (2003), emphasising that, unlike manufacturers, service providers are less integrated in global sourcing. Additionally, global or regional focus in combination with minimum of supplier involvement of OEMs contribute to risk management and customer satisfaction in their cooperation with customers, which service providers are unlikely to offer. This important point is currently missing in the existing literature as no differentiation between services and manufacturing is evident from the risk management and customer satisfaction viewpoints (Alvarez and Barney, 2001; Das and Teng, 1996).

### 5.2.2 Relative attractiveness of service provider and the main types of purchase

Data gathered from among the UK and Russian research participants indicate that service providers are more likely to be seen as attractive vendors as opposed to OEMs when (a) the core part of the product is service; (b) the project involves a number of pieces of equipment, produced by a number of manufacturers; or (c) where availability of prompt service and support are required. This suggests that service providers affect customer satisfaction by different means than OEMs, which is not reflected in existing theory (Tsang, et al., 2004).

Based on the feedback from both suppliers and customers operating within the industry, service providers are normally more competitive when the core part of the supplied

product is service or the project is labour-intensive. This supports the view of Matthyssens and Vandenbempt (1998) who stressed the people-intensive nature of service businesses as opposed to manufacturing, as well as the assertions of Bowen and Ford (2002), Kotabe and Murray (2004) and other authors. Furthermore, as evident from the data service providers are more likely to provide access to labour-intensive products (or resources) as opposed to OEMs. This includes either cutting-edge professional expert services associated with supplied solution (consulting, legal, diagnostic, design or trouble-shooting) or low-skilled ones (welding, cabling and cleaning). As previously mentioned, the available literature on this benefit from supplier cooperation for the buyer does not contrast manufacturing and services businesses.

In line with this opinion (choice of service provider for labour-intensive jobs) within the industry and the literature, Purchasing and Logistics Director of Automobile Manufacturer 2 highlighted that, for a small welding sub-assembly project on two components, his company would look to employ local well-known engineering firms to do the job.

Following the same logic, Automobile Manufacturer 1 team stated that a service provider would be a preferred supply source for 'general low-skilled services' as hardly any equipment is required for these relatively basic jobs, while the service element represents 80 to 90 percent. Thus, in these cases, OEM can hardly add any value, while service providers, with a very narrow specialisation in their respective areas (cleaning, cabling, etc.), can do a really good job. Thus, service providers have greater chances than OEMs to be employed as suppliers of 'general low-skilled services'.

Another area where a service provider is more likely than an OEM to be awarded with business is where it can act as a general contractor, managing all the subcontracting and taking overall responsibility for the project. Normally jobs of this kind involve engineering idea that encompasses a number of pieces of equipment produced by different manufacturers. Broad technical and technological knowledge of service providers allow them to understand how to combine equipment produced by several companies in order to achieve customer goal from innovation, cost, legal (including health and safety) and operational performance perspectives. According to Automobile Manufacturer 1, this means that, for the customer, service provider will take all the risks of managing the subcontractors and therefore will represent a single point of communications. This means that for the customer there will be no need to manage several vendors (i.e. subcontractors) working on the same project.

From the experience of two interviewed senior engineers of Automobile Manufacturer 1, subcontractors often have different visions of the project, so it can be quite challenging to manage them. Having a service provider as a main contractor takes this challenge away. All the jobs and, therefore, associated potential issues and problems will be managed by this service provider. An automobile manufacturer will only be involved in master planning the project and the decision-making process regarding its key areas.

The interview data outlined above shows an example of service provider facilitation in risk management, which those OEMs supplying small to medium size equipment cannot do due to their area of expertise. This indicates differing contribution in risk management of the service providers as opposed to OEMs that is currently not reflected in the earlier mentioned literature.

The Director of Service Provider 4 was of the same opinion as the Automobile Manufacturer 1 team. He believes that service providers are successful when they act as system integrators. For delivering one project, his company can use up to a hundred different pieces of equipment from different manufacturers. Unlike service providers, OEMs supplying small to medium size equipment cannot be system integrators, as they only know their own specialised area. As an example, when, instead of installing a new production line or equipment, a vehicle manufacturer decides to modify the existing one, a service provider is more likely to become a main contractor than an OEM. According to Senior Engineer 1 of Automobile Manufacturer 1 a service provider has more knowledge of integrating different pieces of equipment produced by different manufacturers in one project and making them 'talk to each other' better than an OEM. Service providers are also more used to dealing with 'difficult projects' (Senior Engineer 1 of Automobile Manufacturer 1) where engineering ideas link multiple pieces of equipment. As a result service providers are better placed than OEMs to support innovation and learning related to engineering solutions rather than particular pieced of equipment.

Thus, based on the industry feedback, a service provider has more of a chance of being awarded with the contract for 'general technical services' product type than an OEM.

Hence, in line with Ferreira, et al. (2013) and Li (2011), the service provider in the outlined above instances would act as a 'problem solver' and a 'one-stop shop' or solutions integrator as well as an excellent project manager. Hence, this knowledge of the service provider (differing to that of OEM) is likely to support learning, innovation and new product and knowledge development, as well as facilitate problem-solving, risk

management and technological discoveries in a manner different than that of OEMs. This, on the one hand, shows the applicability of the existing literature on these advantages from supplier cooperation (such as Brito and Mariotto, 2013; Ho and Wahg, 2015; Kafouros, 2008 and other academics), and, on the other hand, its limitations (no differentiation between the two sectors).

Another reason for choosing a service provider is the requirement for timely local support, which, according to the respondents, may be problematic with some OEMs. The interview data below reflect the conclusions reached by Kotabe and Murray (2004) and their applicability in B2B context, emphasising the importance of a permanent local presence for the companies with core service activities due to their high level of customisation.

A number of interviewed companies (e.g. Automobile Manufacturer 1, OEM 3 and Service Provider 2) acknowledged that the majority of OEMs do not have representation in all countries, affecting the 'delivery' and 'cost' dimensions of value of their products. In contrast, service providers tend to be local and can provide the support cheaper and faster (see above).

For instance, Automobile Manufacturer 1 interviewees believe that those foreign OEMs without direct representation in Russia have poor support levels within the country. For this reason, Automobile Manufacturer 1 prefers to deal with local service providers. From the respondents' experiences, such local companies are a better solution than the OEMs when dealing with projects where the proportion of service is relatively high, the equipment is less specialised and there are a number of alternative manufacturers in the market.

In line with Automobile Manufacturer 1 interviewees, the Director of Service Provider 4 gave another example when service providers are seen as more attractive suppliers than OEMs. He suggested that some OEMs are not set up to handle orders with values less than £20k; therefore, their lower-value equipment is likely to be purchased from other sources in urgent cases. These OEMs tend to have very poor customer service and can only be reliable when it comes to expensive projects. Furthermore, some OEMs may not have spare parts in stock, and, although it would be cheaper to buy the required part from the respective OEM, it is more likely to be purchased at a higher price from a service provider which has it in stocks and is able to provide the missing part on time even if it is more expensive. In these cases, the ability to fix the problem quickly is more important than the equipment price.

The interview data outlined above indicates greater flexibility of service providers than those of OEMs but at a greater cost. It also demonstrates a different approach to risk-management, problem-solving and timelier provision of resources between the two types of businesses (services versus manufacturing), and hence, indicates the shortcomings of the available theory in terms of manufacturing and services differentiation from inter-firm cooperation perspective.

To overcome these issues, OEM 2 and OEM 3 have informal partnerships with local electrical service companies built on on-going relationships and mutual trust. Relying on service providers is important for selling the products in those markets where the OEM is not directly represented or to look after smaller customers.

These detailed data suggest that, as mentioned earlier, service providers have different means to influence customer satisfaction as opposed to OEMs, thus confirming the applicability of existing studies (Tsang, et al., 2004) as well as pointing out their limitations (absence of contrasting services and manufacturing sectors). See Discussion section for more details.

### 5.3 Shipbuilding

Similar to the situation in the automotive market, when both the UK and Russian respondents from the shipbuilding industry described the determinants of OEMs and service providers' attractiveness, they referred to a particular supply or supplier-related attributes as well as the main purchase types, as outlined below. This indicates the requirement in differentiating reasons for supplier cooperation in services as opposed to manufacturing businesses. However, none of the existing studies on the advantages for the customers arising from cooperation with the vendors contrasts these two sectors.

#### 5.3.1 Relative attractiveness of OEM and the main types of purchase

Based on the UK and Russian interview data, OEMs are more likely to be more attractive suppliers than service providers when (a) it comes to large, expensive and strategically important equipment produced by the single manufacturer; (b) the core part of the product is equipment; and (c) the required solution is related to a particular piece of equipment produced mainly by one company. This indicates that customer satisfaction

from inter-firm cooperation perspective must be understood differently for manufacturing as opposed to services businesses.

The data gathered suggest that an OEM is perceived as more an attractive supplier than a service provider, and therefore, it has a greater chance to be awarded with business, as in when shipyards buy products belonging to the 'large and core vessel equipment and services' product type.

According to the Purchasing Director of Shipyard 2, the large, expensive and strategically important equipment (e.g. engines, diesel-driven generators, etc.) required in building vessels, his company normally buys from the OEMs. The interviewee believes that OEMs know best the legislative and environmental requirements, technology and innovation with regards to equipment of this kind and therefore are better placed in terms of innovation, new product and knowledge development. This knowledge enables them to access the right resources (i.e. raw materials, smaller pieces of equipment, etc.) at a lower cost comparing to service providers. This is due to relatively narrow specialisation of their equipment manufacturing and greater purchasing power than those of service providers as a result of complete or partial order repeatability and global or regional focus. Purchasing Director of Shipyard 2 does not think, that service providers can add much value here and, therefore, finds it beneficial to shorten the supply chain and work directly with the manufacturers. Deputy Director of Service Provider 1, based on his experience within the industry, was of the same opinion – see quote below:

> *Equipment costing over EUR 300k in the majority of the cases is purchased from the OEMs... The more important the equipment is in the vessel building project (large, complex, expensive), the more likely the OEM will open representatives in the countries for direct trade to enter the market... Normally prices for this equipment vary from EUR 150k to EUR 2-3 mil… (Deputy Director of Service Provider 1)*

This concurs with the previously mentioned literature stressing the tangible or equipment-intensive nature of OEMs' businesses as opposed to that of service providers. Additionally, in line with the situation in the automotive market, OEMs, as opposed to service providers, are more likely to provide access to equipment-based and not labour-related resources (i.e. spare parts provision for purchased equipment, its maintenance and other equipment-related services), showing the applicability as well as limitations of the earlier indicated literature.

Following the same logic, the interview data indicate that, due to the core part of the product, the OEM is generally a preferred customer choice for 'medium and small vessel

equipment' product types. For instance, according to Purchasing Manager of Shipyard 1, OEMs are seen as more attractive suppliers when his company needs automation, regulation, measurement and control equipment, functional and general trade parts as well as pneumatics and piping. These include piping and pipe-laying equipment, winches, cylinders as well as hydraulic and pneumatic equipment. (See Appendix H.)

According to respondents from Shipyard 1 and Shipyard 2, the same principle applies to vessel goods and materials, i.e. adhesives, inks, varnishes, metal etc. These products are normally sourced from the manufacturers or their distributors, depending on how well the manufacturers are represented within the country.

However, interview data also indicate that shipyards also buy some services from the OEMs. According to the Purchasing Manager of Shipyard 1, these services are related to the vessel equipment ('equipment-related vessel services' product type) produced mainly by a single manufacturer and include design, engineering, machining and equipment-related construction. In these cases OEMs act as project managers taking all the risks and managing the timely project execution and potentially subcontracting. Thus, contrary to Matthyssens and Vandenbempt (1998), to manage the equipment manufacturing and the provision of these services, OEMs also need to be good project managers. Such a purchase normally takes place when the equipment is specialised, and the shipyard needs the suppliers with the best knowledge of this specific equipment.

These data suggest that knowledge of a particular piece of equipment and services associated with it can make its manufacturer more attractive than a service provider. Similar to the situation in the automotive market, this concurs with the theory on buyer-supplier cooperation and inter-firm alliances recognising the importance of this factor. However, the literature also struggles to address it from the perspective of manufacturing as opposed to services and vice versa; thus, it lacks granularity. Furthermore, based on the data gathered this difference in knowledge of the manufacturing businesses as opposed to services and vice versa results in differing input from these two types of suppliers in problem-solving, learning, innovation, new product and knowledge development and risk management. Moreover, OEMs utilise different (comparing with service providers) means to achieve customer satisfaction, indicating both the applicability and limitations of the earlier mentioned theory.

Based on obtained data, when it comes to products required for 'shipyard needs', the same principles as outlined above apply. Where large, strategically important and expensive equipment ('unique equipment and services' and 'unique software or

technology and services' product types) or 'general equipment and services' or 'production consumables' are required, shipyards prefer to go directly to the relevant OEM.

### 5.3.2 Relative attractiveness of service provider and the main types of purchase

Both the UK and Russian interview data suggest that service providers tend to be perceived as more attractive than OEMs and, therefore, win business in the following cases: when (a) the general knowledge of the equipment produced by a number of manufacturers is required; (b) the supplier acts as 'an integrator', supplying products produced by different manufacturers as part of 'the package'; (c) engineering ideas are required, related to 'technically challenging' equipment; (d) services represent the core part of the product; and (e) local support is required. Hence, service providers satisfy their customers' needs better than do OEMs in all these cases, indicating that service providers indeed improve customer satisfaction as argued by Tsang, et al. (2004). However, in their study, the authors did not distinguish between services and manufacturing sectors, which appeared to be important for the research participants.

According to Deputy Director of Service Provider 1, there are three classic examples where service providers are perceived as more attractive suppliers as opposed to OEMs. These cases are outlined in the following quote.

> *Shipyards are choosing service providers mainly in three areas. First, where supplied equipment is a part of a 'larger supply', containing a number of pieces of equipment produced by different manufacturers plus where customers need an engineering or technical solution or support in logistics. Second, where technically complex, perceived as 'difficult' equipment, i.e. heating and ventilation, navigation, etc., together with technical or engineering ideas are required. And finally, service providers are chosen, where the proportion of service within the offer is high and ability to provide timely local service is extremely important. (Deputy Director of Service Provider 1)*

This suggests that, in line with the earlier outlined literature, a service provider normally supplies 'intangible' or 'people intensive' products and acts as 'one-stop shopping', requiring excellent problem-solving ability, timely supply and project management. Additionally, the data gathered suggest that, compared with OEMs, service providers have better knowledge of various, less specialised equipment produced by different manufacturers. Therefore, they are more attractive when it comes to developing solutions involving such equipment. Hence, although these findings support the literature

on the importance of knowledge sharing in business relationships, they also reveal that this theory is unable to answer how this knowledge differs for OEMs as opposed to service providers in contemporary high value-added manufacturing industries. Additionally, due to the core part of its product (service and not tangible goods), pointed out by Deputy Director of Service Provider 1, unlike OEMs, service suppliers are more likely to provide access to labour-related resources. The products sold by service providers either have rather primitive labour-intensive nature (i.e. cleaning services, wiring, etc.) or developed by highly professional personnel, where engineering idea represents the essence of the product. In the second instance highly trained and qualified personnel will act as experts in the required subject matter and provide the required solution to achieve customer goal from various perspectives, i.e. innovation, product development, cost.

This distinctive nature of service providers' as opposed to OEMs' knowledge and utilized resources suggest that service providers are likely to support problem-solving, learning, innovation, new product and knowledge development and risk management differently than OEMs can. All these findings concur with the earlier mentioned literature as well as highlight its limitations in terms of the absence of distinction between services and manufacturing sectors.

In line with the opinion of Deputy Director of Service Provider 1, based on the experience of Purchasing Director of Shipyard 2, when a number of pieces of equipment with low to medium value produced by a number of manufacturers are supplied as part of the package, service providers, in most cases, are able to come up with more attractive propositions than OEMs. According to the interviewee, this works well for complex electro-automatic equipment, such as navigation, communication or control systems, whereby they need to buy a number of pieces of equipment, all from different manufacturers. Service providers can offer complex engineering solutions (*'integrator of full package'*) containing all such equipment and taking 100 percent responsibility for the supplied equipment, its installation, commissioning and after-sales service. Such an arrangement will be more desirable than going to a number of OEMs, as noted by the Purchasing Director of Shipyard 2:

> *As an example, if the project requires 3 to 5 different pumps for the shipyard it will be more beneficial to sign one contract with the service provider instead of 5 contracts with each of the OEMs... Expenses associated with dealing with one service provider are comparable with the expenses when you work with all these OEMs but one supplier is easier to manage than five. (Purchasing Director of Shipyard 2)*

Concurring with the data supplied by its competitor, Purchasing Manager of Shipyard 1 suggests that service providers are more suitable than OEMs when services represent the core part of the product and when engineering ideas comprising the equipment produced by more than one manufacturer are required. In these instances well trained and qualified personnel is aware of the latest legislative, technical, technological (methods, materials, suppliers, etc.) and environmental requirements and developments within the industry. For these reasons, the majority of vessel automation, communication, navigation and electrical equipment are normally purchased from service providers and not the OEMs. These purchases include navigation, positioning and lifting equipment, electrical components, power supplies, generators and transformers. In these cases service provider combines its broad knowledge of the above areas and acts as the 'integrator', developing a solution containing a number of products. Moreover, according to Purchasing Manager of Shipyard 1, unlike OEMs, service providers are also more likely to provide access to 'intangible' or labour-related resources (expertise). See above and below for more details.

As mentioned earlier and in line with the opinion of Service Provider 1, feedback from the two shipyards suggests that due to the fact that knowledge and resources of service provider are different to the ones of OEM, there are differing contributions from service providers as opposed to OEMs in problem solving, risk management, learning, innovation, new product and knowledge development. As a result, service providers are more likely to satisfy the requirements of their customers in a manner different than that of OEMs. All these again concur with the extant literature and reveal its limitations.

Another area where, based on the interview data, service providers are considered more attractive than OEMs is where the availability of local support is required. For instance, Deputy Director of Service Provider 1 highlighted that warranty services are ordered from the local service providers in 99 percent of the cases due to the cost and time factors driven by the supplier location. For this reason, according to the interviewee, manufacturers of medium size, complexity and cost equipment are looking for local partners to sell their products in these markets. This lends support to the findings of Kotabe and Murray (2004) illuminating the importance of local representation for B2C service providers as opposed to manufacturers and its applicability to B2B context. The findings also show the importance of this factor for customer satisfaction and supplier flexibility, which service providers appear to be more likely to provide than OEMs.

Based on the reasons outlined above, the Purchasing Director of Shipyard 2 believes that service providers can make more attractive propositions than OEMs when it comes

to ‘non-equipment-related vessel services’, including fabrications, interior, fire safety, painting etc. Such a decision is driven by the core part of the purchased product (no equipment). Furthermore, service providers can be very competitive even when it comes to services associated with general low to medium value and complexity equipment, i.e. installation, logistical and rental (‘equipment-related vessel services’ product type). Their general knowledge and a low to medium level of equipment complexity allow shipyards to employ service providers in these cases. Based on feedback from the Purchasing Manager of Shipyard 1, in these instances, a customer often buys functional and general trade parts as well as small hydraulics and piping, supplied as part of ‘a larger supply package’ or ‘service’ from the supplier. These may include general offshore equipment, welding consumables, fasteners, filters, cylinder parts, valves, pipe fittings and flanges, hoses, tools, couplings and nozzles etc.

Interview data indicate that, when it comes to purchases required for shipyards’ manufacturing facilities, the same principles as outlined above apply. Although in the majority of cases shipyards have their own specialists (architects, mechanics, electrics etc.) to do certain medium-complexity facility and equipment-related jobs, more complex and specialised products are generally outsourced. In the cases, where a shipyard is looking for a solution linking a number of pieces of equipment all produced by different manufacturers, a service provider’s proposition is generally more attractive than that of OEMs. Some basic services are also normally outsourced from service providers. This suggests, that although requirements in products are based on the shipyard’s internal resources, ‘general technical services’ and ‘general low-skilled services’ are more likely to be purchased from service providers than OEMs.

Hence, due to the difference in knowledge and resources of service providers as opposed to OEMs, their contributions are likely to be different than those of OEMs in resource deployment, problem solving, risk management, learning, innovation, technological discoveries, new product and knowledge development and, therefore, overall customer satisfaction. However, this conclusion is not reflected in existing theory.

### 5.4 Discussion

Obtained findings allow to distinguish several subthemes, categories and codes (see Appendix I). These will be discussed in relation to the subject matter and relevant literature within this section.

Data gathered show a high level of consistency of the respondents' views across the two industries, countries as well as the interviewed companies. Perceptions of both the UK and Russian automobile manufacturers and shipbuilders and their suppliers on the subject matter indicate a high level of similarity. This suggests that neither industry nor country affects customer expectations of service providers and OEMs. This contradicts the view of Turunen and Finne (2014), who argued that 'servitization' or service infusion of the manufacturers varies depending on environmental requirements, which includes geographical area and industry.

Based on the data gathered, it is possible to establish general strengths, weaknesses (Table 5.1), relative attractiveness of OEMs and service providers (Table 5.2), their attractiveness with regards to the main purchase types (Table 5.3) as well as the advantages from cooperation with OEMs and service providers for the customer (Table 5.4).

*Table 5.1 Strengths and weaknesses of service providers and OEMs*

| Service provider | OEM |
|---|---|
| *Strengths* | |
| • Likely to keep the stocks of key spare parts and equipment even if not specified by customer;<br>• Stronger and quicker local support;<br>• Interested even in relatively low-value projects;<br>• Broader knowledge of OEMs products, materials, technologies, industry legislative requirements, suppliers, innovations, risks ('solution orientated). | • Deeper knowledge of their equipment and equipment-related technologies, legislation, innovations, risks, suppliers;<br>• Suitable as a global or regional partner. |
| *Weaknesses* | |
| • Less knowledge of all aspects related to equipment produced by individual manufacturers;<br>• Unlikely to be suitable as a global or regional partner. | • Unlikely to keep the stocks of key spare parts and equipment unless specified by customer;<br>• General absence of local representation, especially in developing countries;<br>• Expensive without local representation;<br>• Some manufacturers are not interested in low-value projects;<br>• Slower and more focused on new business;<br>• Narrower knowledge of other manufacturers' equipment and materials, technologies, industry legislative requirements, suppliers, risks. |

There is a general perception that OEMs have deeper but narrower knowledge of the equipment, mainly limited to their particular brand. On the other hand, service providers tend to have a broader understanding of different pieces of equipment produced by various manufacturers, but not as deep as the OEMs when it comes to their own products. Another strength of service providers comparing to OEMs is the presence of local support and the ability to respond quickly to the customers' needs. Some OEMs have also been criticized for being expensive due to the absence of local representation, lack of interest to low-value projects as well as a predominant focus on new business, rather than solving problems for the customer. However, unlike OEMs, service providers are unlikely to be suitable as global or regional partners.

Thus, service providers are likely to be perceived as more attractive suppliers than OEMs in several instances (see table 5.2). Such situations include when the core element of the product is service or solution; when strong local support is required; when the equipment involved in the project is not highly specialised or produced by a wide range of manufacturers; when the project requires several pieces of equipment produced by different OEMs; or when the project is labour-intensive. OEMs tend to be a preferred customer choice in the opposite situations. On the other hand, an OEM is likely to be seen as an attractive vendor when the customer is looking for a global or regional partner able to supply highly specialised equipment-intensive products where the competition is limited.

*Table 5.2 Relative attractiveness of service providers and OEMs*

| Service provider, if | OEM, if |
|---|---|
| • Core element of the product is service or solution;<br>• Local or regional;<br>• Lower level of equipment specialisation is required;<br>• The project or job is labour-intensive;<br>• If the required equipment can be supplied by a wide range of manufacturers (alternatives in the market);<br>• The project involves many pieces of equipment, produced by different manufacturers;<br>• In most cases, the supplier acts as 'systems integrator'. | • Core element of the product is equipment;<br>• Regional or global;<br>• High level of equipment specialisation is required;<br>• The project or job is not labour-intensive;<br>• If the required equipment can be supplied by a very limited number of manufacturers (alternatives in the market);<br>• The project involves a relatively small number of equipment, mainly produced by the chosen manufacturer;<br>• In most cases, the vendor supplies its equipment as well as equipment-related services and components potentially produced by other manufacturers. |

Based on service providers' and OEMs' strengths and weaknesses as well as their relative attractiveness, OEMs are generally perceived to be more appropriate suppliers of vehicle parts and materials, large and core vessel equipment and services, medium and small vessel equipment and services, basic vessel goods and materials, general equipment and services, unique equipment and services, unique software or technology and services as well as production consumables (see Table 5.3). On the other hand, service providers are more suitable when it comes to the procurement of equipment and non-equipment-related vessel services, general technical services as well as general low-skilled services. Sometimes service providers can also be chosen for the supply of general equipment and services.

*Table 5.3 OEMs and service providers' attractiveness in relation to the main product types*

| Product type | Preferred supplier |
|---|---|
| Vehicle parts and materials | OEM/ Manufacturer |
| Large and core vessel equipment and services | OEM |
| Equipment-related vessel services | Service provider/ OEM |
| Non-equipment-related vessel services | Service provider |
| Medium and small vessel equipment | OEM |
| Basic vessel goods and materials | OEM/ Manufacturer |
| General technical services | Service provider |
| General low-skilled services | Service provider |
| General equipment and services | OEM/ Service provider |
| Unique equipment and services | OEM |
| Unique software/ technology and services | OEM |
| Production consumables | OEM/ Manufacturer |

These findings confirm the applicability of the earlier literature to the contemporary B2B automotive and shipbuilding contexts. For instance, they lend support to existing theory stressing the intangible and labour-intensive nature of services as opposed to equipment-intensive manufacturing businesses (Bharadwaj, et al., 1993; Bowen and Ford, 2002, Kotabe and Murray, 2004; Matthyssens and Vandenbempt, 1998; Nayyar, 1992; Thomas, 1978). Furthermore, as per Matthyssens and Vandenbempt (1998), service providers appeared to be more problem-solving orientated in comparison with OEMs. Additionally, the data concur with assertions of Bharadwaj, et al. (1993), Bharadwaj (2004), Bowen and Ford (2002), Eggert, et al. (2011), Kotabe and Murray (2004), Lehmann and O'Shaughnessy (1974), Matthyssens and Vandenbempt (1998)

Salonen (2011), Spring and Araujo (2013) and Thomas (1978) that sources of competitive advantage differ for service businesses as opposed to the manufacturing. Also, the research findings confirm applicability of Kotabe and Murray's (2003) assertions to B2B context, emphasizing that unlike manufacturers, service providers are less integrated in global sourcing; and that a local presence is paramount for service providers due to the high level of customisation of their products.

However, it is important to highlight a number of limitations in the available theory based on the research results. For instance, contrary to Matthyssens and Vandenbempt (1998), project management skills appeared to be equally important for OEMs as well as service providers. Also, it was revealed during the research that it is important to differentiate between the nature of knowledge that makes OEMs more attractive than service providers and vice versa, i.e. required level of equipment specialisation, ability to work with various pieces of equipment produced by different manufacturers and problem-solving and integration skills (see tables 5.1 and 5.4). Unfortunately, the available theory on knowledge sharing in business relationships does not contrast these two sectors.

Thus, all these findings indicated the applicability of the literature on the advantages arising from supplier cooperation for the buyers to the research context (i.e. the UK and Russian automotive and shipbuilding industries). The factors include: access to resources (Ahlstrom, et al., 2008; Dyer and Singh, 1998; Hitt, et al., 2000; Yan and Luo, 2001), support in learning, innovation, new product and knowledge development (Dyer and Singh, 1998; Hitt, et al., 2000; Ho and Wang, 2015; Kotabe, et al., 2003), flexibility and problem solving (Brito and Mariotto, 2013), ecological and social performance enhancement (Hollos et al., 2012), facilitation in innovation and technological discoveries (Kafouros, 2008) as well as risk management, coping with uncertainties (Alvarez and Barney, 2001; Das and Teng, 1996, 2000) and improvement of customer satisfaction (Tsang, et al., 2004). However, since knowledge and the resources of OEMs are different to those of service providers (which became apparent during the study), contributions of these two types of suppliers in achieving the benefits concerning the above areas for their customers during their cooperation with each other is likely to be different (see Table 5.4). This highlights one significant limitation of this stream of literature - it does not differentiate services from the manufacturing sector, which appeared to be highly important for the interviewees.

*Table 5.4 Advantages from cooperation with OEMs and service providers*

| Advantage from cooperation for the customer | From OEMs | From service providers |
|---|---|---|
| **Access to resources** | Slower due to supplier/ stocks location. Global focus. Primarily tangible nature of supplied resources | Faster due to stock availability and supplier location. Local focus. Primarily intangible nature of supplied resources. |
| **Flexibility** | Less flexible due to stock availability and supplier location. | More flexible due to stock availability and supplier location |
| **Ecological and social performance enhancement** | Equipment-related: knowledge of current and upcoming legislation, technical requirements, technologies, health and safety | Idea/ solution-related, encompassing various pieces of equipment produced by different manufacturers. Includes knowledge of current and upcoming legislation, technical requirements, technologies, health and safety |
| **Support in learning, innovation, new product and knowledge development** | | |
| **Problem-solving** | Narrower focus (solution in terms of supplied equipment) | Broader focus (solution interconnecting various products made by different manufacturers) |
| **Risk management** | Equipment-related. Involves subcontracting when it comes to large/ complex equipment | Idea/ solution-related. Involves subcontracting |
| **Greater customer satisfaction** | When: (a) the core product part is equipment and not service, (b) the equipment is highly specialised and deep knowledge of this particular equipment is required, (c) there is limited competition with regards to supplied equipment, (d) equipment value supplied by a single manufacturer is significant or (e) the customer is looking for a regional or global partner | When: (a) the core part of the product is service; (b) the project involves a number of pieces of equipment, produced by a number of manufacturers; or (c) availability of prompt service and support are required |

### 5.5 Conclusions

The collected data indicate a high level of similarity between the opinions expressed by the customers and the suppliers as well as those between the two industries and countries when it comes to OEM and service provider attractiveness.

The strengths and weaknesses of service providers and OEMs make these two types of vendors more or less attractive in relation to particular product types purchased by automobile manufacturers and shipbuilders as well as overall from inter-firm cooperation perspective. This enabled the researcher to establish the relative attractiveness of these two types of suppliers as well as its relation to particular product types.

These research results indicated the relevance of those studies focusing on service businesses and competitive advantage in services for a better understanding of OEMs and service providers' attractiveness. The data gathered suggest that, contrary to Gronroos (2007) and Lovelock and Gummesson (2004), it is definitely worth differentiating services from the manufacturing sector. Moreover, the findings indicated that sources of competitive advantage indeed differ for these two types of vendors. This supports the assertions of Eggert, et al. (2011), Salonen (2011), Spring and Araujo (2013) and other authors and confirms their applicability to B2B context. Furthermore, these findings lend support to the literature emphasising services' attributes as opposed to manufacturing, i.e. intangibility or labour-intensive nature, 'one-stop shopping', problem-solving orientation and project management skills and the importance of having local supplier presence.

However, the findings also enabled the researcher to distinguish some limitations of this stream of literature. For instance, contrary to Matthyssens and Vandenbempt (1998), project management skills also appeared to be important for OEMs.

Findings obtained have also shown the relevance of the available theory on the benefits arising from supplier cooperation for the buyers to the context of the UK and Russian automotive and shipbuilding industries. On the other hand, there is one significant limitation of this theory, which became apparent during this study. Differentiating advantages from cooperation with OEMs' as opposed to those of service providers is crucial in understanding the attractiveness of these two types of vendor. However, the literature concerning inter-firm cooperation does not contrast these two sectors. This includes: access to resources, flexibility and problem-solving, ecological and social performance enhancement, customer satisfaction, risk management, support in learning, innovation, new product and knowledge development and the technological discoveries that these two business types provide.

The author believes that the findings obtained answer the research question posed in the introduction. Understanding OEMs' and service providers' relative attractiveness will

now enable an exploration as to whether these two types of suppliers need to be managed differently and, if so, how? (See Chapter 6.)

# CHAPTER 6 MANAGING ATTRACTIVE OEMS AND SERVICE PROVIDERS IN SERVICE BUSINESS NETWORKS

## 6.1 Introduction

This chapter examines how the relationships with attractive OEMs and service providers are managed in the main types of B2B supply networks seen in service-infused product settings, as evidence within high value-added manufacturing industries of automotive and shipbuilding. Through this examination the author explores the main processes and procedures utilized by organizational customers during each of the key stages of supplier management, and how they differ depending on the core part of the supplied product. Establishing what kind of organizational arrangements are required to create, maintain and terminate buyer-supplier relationships will help to address the theoretical gap highlighted by Ozcar and Eisenhardt (2009), Moller (2013), and other authors (see Discussion section).

Additionally, within this chapter the author investigates whether customers have direct ties with all the actors within the main identified types of B2B service networks, as argued by Morgan et al. (2007) and Morgan and Tax (2004), and later emphasized by Ramos et al. (2013), with regard to all B2B service networks.

Moreover, this chapter considers whether relational and contractual governance mechanisms complement (Caniels et al., 2012; Lumineau and Henderson, 2012; Melander and Lakemond, 2015; etc.) or substitute for each other (Corts and Singh, 2004; Kalnins and Mayer, 2004; etc.) as argued by two opposing groups of academics.

Reviewing these topics will contribute to existing theory on ‘managing relationships within business networks’ (Moller, 2013; Partanen and Moller 2012) and ‘B2B service networks’ (Henneberg et al., 2013; Natti et al., 2014; Ramos et al., 2013) as well as shed light on ‘supplier attractiveness as portfolio management’ (Mortensen, 2012) in terms of how to find, evaluate and motivate attractive suppliers to co-operate as well as exit these main types of relationships. The findings will also be compared with the literature on relationship portfolio management (Rezaei and Ortt, 2012; etc.), methods of supplier performance evaluation (Dey et al., 2014; Singh et al., 2014; etc.) and relationship governance mechanisms (Lumineau and Henderson, 2012; Melander and Lakemond, 2015; etc.). Although they are meant to facilitate vendor management, none of these three streams of literature actually differentiates between manufacturing and services

businesses. Current study explores whether it is important to differentiate between these two types of businesses to effectively manage the vendors.

The next two sections of the chapter take the reader through this topic within contemporary UK and Russian automotive and shipbuilding environments. Thereafter, the chapter presents a discussion and draws conclusions presenting the key points of the chapter.

## 6.2 Automotive

### 6.2.1 Stages of vendor relationship management

Due to the high value of purchases for use both directly and indirectly in vehicle manufacturing, the impact of those purchases on the final product (vehicle) and the manufacturer's reputation in the market, and the fact that changing vendors requires time and resources, it is extremely important for automobile manufacturers to effectively manage the relationships with their vendors. Consequently, vehicle manufacturers invest in having the dedicated teams that identify the most attractive business partners, and manage the various stages of these relationships. Unless they find a supplier to be attractive in terms of its current business proposition or having future potential, they will not be prepared to invest time in the development of a relationship with that supplier.

Data obtained from the UK and Russian respondents indicated no differences between these two countries in the way vendors are managed.

Suppliers can be chosen on a main contractor or sub-contractor basis depending on the project requirements, vendor capabilities, and supplied product portfolio. As mentioned earlier, vehicle manufacturers prefer to deal with the main contractors taking overall responsibility for managing and delivering the outsourced product. Exceptions are those instances where vehicle manufacturers see significant opportunities from co-operation with sub-contractors to maximize the value from commercial or technical including innovation perspectives or where they insist on using particular sub-contractors based on their experiences with these vendors. The products involved in these instances are mainly high-value products belonging to vehicle parts, unique equipment and services, and unique technology and services, and some expensive general technical services and general equipment and services product types.

Thus, contrary to Morgan et al. (2007), Morgan and Tax (2004), and Ramos et al. (2013), customers in service business networks tend not to have direct ties with all the network

members except in those cases where it is beneficial from the value maximization perspective. Appendix J shows the main automotive network types for the different product types, and the main parties involved in these networks. Although government provides guidelines and monitors vehicle manufacturers' activities to ensure legislative compliance, there is no direct government involvement in product manufacturing and supplier management, and therefore, this is not shown in the network drawings.

Since direct relationships with sub-contractors are generally uncommon, this section will focus on how customers (or vehicle manufacturers) manage the relationships with their main contractors.

Data gathered from both customers and suppliers suggests that the way automobile manufacturers manage their supplier relationships is relatively standard within the industry. OEM and service provider relationship management involves vendor search, evaluation and selection, and the maintenance of co-operation in respect of certain product types until the termination of that relationship. This observation is in line with those of Dwyer et al. (1987), Halinen (1997) and Harris et al. (2003), who distinguished several main stages in the buyer-supplier relationship.

From the interview data it appeared that vehicle manufacturers do not deploy any of the most-cited existing portfolio approaches (see Discussion section) within their business practices. This may be due to the fact that unlike these portfolio approaches, contemporary automobile manufacturers view their relationships with suppliers as continuously dynamic, with each stage of co-operation being influenced by the previous one. Thus, time factor appeared to be extremely important for the research participants.

According to the interviewees, a *search* for new suppliers entails vehicle manufacturers having to read industry-appropriate publications including magazines, company brochures, and promotion leaflets available at market-related exhibitions as well as the information available on companies' websites. Recommendations given by the members of appropriate supply networks also help customers during this process. The main objective of this stage of relationship management is to ensure that the company is aware of those suppliers possessing the required capabilities to supply relevant product types, and that all these potential suppliers have been informed of the possible business opportunity, and have been invited to participate in the process of supplier evaluation and selection.

The data shows that suppliers are *evaluated and selected* against the criteria specified for the particular product type identified. These criteria are based on the main dimensions of value as well as other factors important for vehicle manufacturers (See Chapter 4). Since the qualities that make vendors attractive have been outlined in Chapter 4, within this section the discussion will centre on how suppliers of the main product types are assessed, chosen and motivated to co-operate over the years until these relationships are terminated.

To support vendor evaluation and selection, vehicle manufacturers have a number of support teams focused on their respective areas. They normally include quality, risk management, vehicle cost analysis, and environmental divisions, among others. These teams work closely together with the procurement department to ensure value maximization of all the company purchases, an outcome achieved not only through selection of the most attractive supplier, but also by managing the performance of that supplier.

In this connection it is demonstrated by the data that all vendor evaluation and selection decisions are based on the set strategy, created specifically for a particular group of products. This strategy is driven by the value maximization objectives of the automobile manufacturer, devised on the basis of what is required to be successful in the marketplace for the next several years. Strategy influences the supplier selection criteria, performance expectations, and subsequent targets for the upcoming years.

Potential vendors are informed of the supplier selection criteria as well as the initial performance requirements and objectives for the next several years where appropriate. Vendor evaluation questionnaires varying by country and purchased product are utilized to evaluate supplier capabilities. Supplier audits and product trials are also likely to be conducted during supplier evaluation for some product types. To assess supplier compliance with all the technical requirements, various customer technical teams are involved, i.e. quality, environmental, risk management, engineering, etc. In parallel, the procurement department manages the commercial side of the supplier proposition, i.e., costs, pricing structures, stocks, delivery and payment terms, etc. Based on the feedback from the teams regarding the supplier's technical and commercial capabilities, and applicants' conformity to the selection criteria, the most attractive vendor is chosen.

During the *'steady stage'* (Purchasing and Logistics Director of Automobile Manufacturer 2), relationships with the vendors are maintained through the product group schemes. These schemes are also driven by the strategy specific to a particular product type, and

this is mainly expressed through joint technical and commercial objectives. Frequency of supplier interactions and targets, individual to each vendor, are determined as part of the process of relationship management.

All these collaborative activities are undertaken to enhance the main dimensions of value of the purchased products discussed in Chapter 4 as well as to facilitate improvement within other areas important for the customer. This buyer-supplier cooperation is supported by relevant governance and performance measurement mechanisms.

Vendor performance expectations as well as the actual performance are captured in balanced scorecards or their alternatives created for the required products. Both of the interviewed automobile manufacturers use the traffic lights system widely as a means of measuring supplier positions in respect of the selection criteria. This system classifies the vendors into 'approved' ('green'), 'approved but there is a problem/issue' ('amber'), and 'not approved/blacklisted' ('red'). Each supplier is measured against the balanced scorecard comprised of commercial, quality, environmental, financial, etc. scores, individual to each particular product. These vendor scores depict their performance against the required value dimensions.

Although none of the respondents mentioned using the TAC approach (Handfield et al., 1999) in their supplier assessment, utilization of the traffic lights system to measure supplier propositions and performance in percentages in respect of each of the main value dimensions shows vehicle manufacturers' consideration of all the costs associated with the purchase, including the expenses related to poor supplier performance. Hence, the applicability of this supplier assessment method is evident. However, whilst the principle tenets of this method have been adopted, they have also been modified by the automotive customers to suit the needs of their businesses – see below.

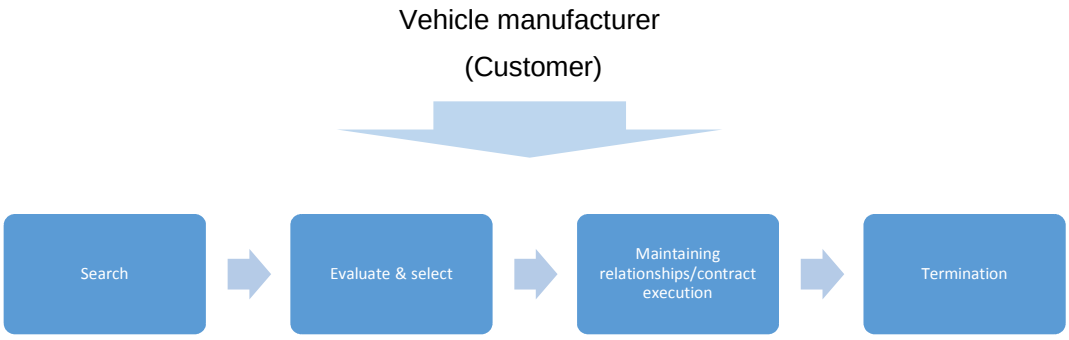
Similar to the supplier evaluation and selection stage of the buyer-supplier relationship, during 'the steady' (Purchasing and Logistics Director of Automobile Manufacturer 2) stage, there are very close interactions between vehicle manufacturers' supply chain, engineering, design and other relevant departments in order to maximize value. These collaborations are essential to ensure that their purchase-type related strategies and their execution are fully aligned. Amongst these strategies are those concerned with: the establishment and promotion of global communalities within particular product groups, cost reduction, limiting product variability, reengineering, etc. This co-operation among departments is also beneficial for sourcing visibility purposes.

According to the interviewees' feedback, *supplier relationships* are normally *terminated* either on successful completion of a project or at the end of a fixed term agreement, or as a result of unsatisfactory performance of the vendor. The first two instances apply when the job has been completed and the required result has been achieved within the agreed period of time if one was ever agreed. The last eventuality occurs only in rare cases when a supplier fails to meet its commitment to the customer, in which case it would be the main dimensions of value and other important issues for the customer that would trigger the termination, as discussed in Chapter 4.

It is also indicated in the interview data that as part of supplier relationship governance solidarity, information sharing, flexibility, relational norms and trust can be combined with contracts and authority. This supports the position of those academics arguing for the idea of relational and contractual governance mechanisms' complementarity (Caniels et al., 2012; Lumineau and Henderson, 2012; Melander and Lakemond, 2015; etc.) rather than substitution (Corts and Singh, 2004; Kalnins and Mayer, 2004; etc.).

Furthermore, the data reveals that vehicle manufacturers manage suppliers differently depending on the core element of the product supplied - material or equipment or service. While the quality of repeat orders of tangible products (material or equipment) is assessed during the trials, when services and bespoke equipment is involved, vehicle manufacturers rely on supplier experience, examples of how similar projects have been conducted in the past, recommendations, or the vendor's reputation within the industry. Additionally, as a check on how potential suppliers control the quality of their products, vehicle manufacturers audit OEMs or materials manufacturers' facilities. Clearly that opportunity is not possible with services' suppliers, in which case comprehensive vendor assurance questionnaires are used together with requests for relevant supporting documentation. Moreover, unlike the co-operation associated with tangible goods supply, in service business relationships the adoption of continuous improvement activities throughout the agreed timeframe is rare. All this will be discussed in more detail further within this section.

*Figure 6.1 Main stages of supplier relationship management in automotive industry*




This suggests that customers do indeed manage their suppliers differently depending on the type of product purchased. However, there is no mention of such differentiation in any of the available literature on purchasing portfolios management (Hallikas et al., 2005; Rezaei and Ortt, 2012; etc.), methods of supplier performance evaluation (Dey et al., 2014; Singh et al., 2014), and relationship governance mechanisms (Lumineau and Henderson, 2012; Melander and Lakemond, 2015; etc.).

### 6.2.2 Vendor management by product type

Although vendor management for all purchases mainly encompasses the same stages (search and pre-qualification, initial filtering, tender or RFQ, assessment, post-tender or post-RFQ query and negotiations, selection, performance measurement and termination) their scope, scale, level of formality, and number of involved internal stakeholders vary significantly depending on the purchased product type. The greater the value of the purchased product or the more impact it has on the produced vehicle, the more thorough the customer is and the more parties are involved in this process. The formality of procurement activities increases when the activity scale and the associated budget are higher. Therefore, as can be seen from the data presented below when it comes to vehicle parts and materials, some general technical services, unique equipment and services and unique technology and services product types, the process of vendor management is very formal, complex, and thorough and involves plant, regional and even global stakeholders. On the other hand, some already ‘approved’ interviewed suppliers (see below) of the products with relatively low-to-medium value indicated that they are managed by their customers purely at the plant level and in a way that they would call informal.

Additionally, as mentioned earlier, the data outlined below indicated that supplier management differs according to the core of the product – service or tangible goods. This indicates the limitations of the existing theory in respect of supplier relationship portfolio management, methods of supplier performance evaluation, and relationship governance mechanisms when explaining the respective situations in services and manufacturing.

*Vehicle parts and materials*

Vehicle parts and materials are ordered regularly for a fixed period of time. Since they are used in mass-production across a number of manufacturing plants they have a significant impact on the vehicle value. Therefore, there is a greater performance expectation from the suppliers, and more parties are involved in vendor management. The latter includes supplier evaluation and selection as well as the maintenance of the relationships through delivery of year-on-year improvements. For these products, vendor management is a very formal, staged process that is conducted on plant, regional and even global levels. While the product quality is accessed on the plant or regional levels, commercial terms and continuous improvements are normally managed on a regional or global scale with the participation of automobile manufacturer procurement, risk management, innovation, environmental, engineering, design etc. teams. Based on the feedback from these teams, it is seen that vehicle manufacturer senior management chooses the most attractive supplier.

According to Finance Director of OEM 1, supplier evaluation and selection for vehicle parts and materials is standardized and follows the same process across the entire industry, irrespective of the automobile manufacturer brand, location, vehicle part or material supplied. However, the number of potential and approved suppliers depends on the particular product involved. This process has been established for many years and continues on the upstream level (tier 2, tier 3, etc. suppliers), as confirmed in the quote below, and Figure 6.2. The tier supply system (tier 1, tier 2, tier 3, etc. suppliers) is widely recognized as driving the improvements across the entire supply network from value and risk management perspectives. See Appendix J for more details.

> *No matter whether the purchased vehicle part is a car accessory or an engine, the process of vendor evaluation and selection contains the following stages: supplier search and preliminary evaluation; supplier 'filtering'; request for quote (RFQ); quality assessment of supplier offers (trials); formal tender; supplier 'nomination' and final negotiations and creation of the plan of purchases. It is followed by the performance measurement and relationship termination as per contract expiry date … Tier 1 suppliers adopted the same*

*process and use the same criteria when choosing their own suppliers (tier 2).*
(Finance Director of OEM 1)

After supplier evaluation and selection (see Appendix K) the successful supplier accepts responsibility for any technical and commercial damages caused by his/her inability to supply parts on time or to deliver a product of the agreed quality. Thus, customers measure the performance of their vendors, as poor supplier performance normally leads to production line (conveyer) stoppages, which is associated with significant expenses for the automobile manufacturer, and consequently, fines for the supplier. If the worst case happens, the supplier normally reduces the prices of its products to compensate for the costs incurred by the customer, and to retain its preferred supply position. The relationship is terminated when the validity of the supply agreement expires.

During 'the steady' stage of the relationship (Purchasing and Logistics Director of Automobile Manufacturer 2) the chosen vendor works in collaboration with the customer to further enhance the value of the product. Such enhancement activity is driven by the main dimensions of value and other areas prioritized by the vehicle manufacturer based on its strategy. This is achieved via various continuous improvement activities. Balanced scorecards are utilized to monitor vendor performance in respect of the main objectives.

The descriptive data outlined above suggests that vehicle manufacturers are extremely thorough in their evaluation of potential suppliers, and the process is founded on continuous customer-supplier interaction. Throughout this process, the automobile manufacturers assess potential suppliers not only by the deployment of the actual performance measurement mechanisms (balanced scorecards, 'traffic lights' system or alternative in this case) but through meeting the relevant supplier personnel, and conducting audits and product trials. Unfortunately, the literature on techniques of supplier evaluation requires above-average mathematical skills, and is unable to offer its users any interaction with the supplier or its products. As a result, with the exception of the TCO approach taking into account all the costs associated with the purchase (Handfield et al., 1999; etc.), none of the other techniques of supplier evaluation, outlined in the academic literature are adopted by contemporary vehicle manufacturers in their business practices.

Moreover, the example given by OEM 1 indicates that vehicle manufacturers use trust, relational norms, information sharing and demonstrate a certain level of flexibility along with the deployment of contracts and authority. This again contradicts the view of those academics who believe that relational and contractual relationship governance mechanisms substitute for each other (Corts and Singh, 2004; Kalnins and Mayer, 2004;

etc), and lend support to those authors advocating their complementarity (Lumineau and Henderson, 2012; Melander and Lakemond, 2015; etc.).

The interview data with two vehicle manufacturers reveals that the procurement of vehicle materials is conducted in a similar way (from supplier search to relationship termination). Since steel is the core material used in vehicle manufacturing, supplier relationship management for this product is shown as an example in Appendix K.

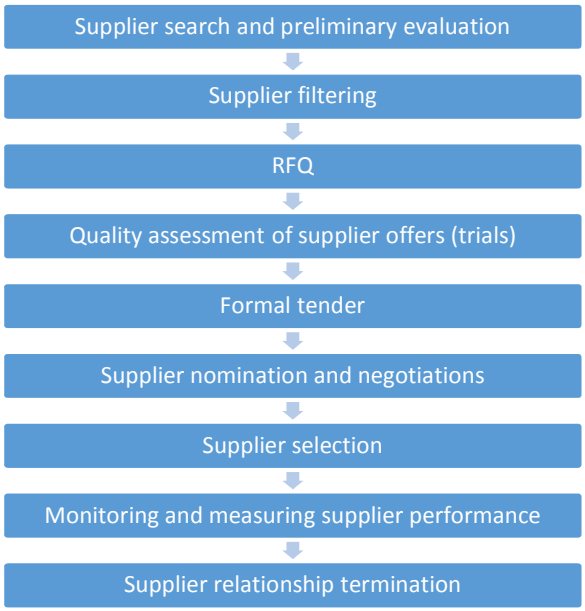
As described in Appendixes K according to both vehicle manufacturers and OEM1 interviewees, in the assessment of vehicle parts suppliers' performance, there is a significant amount of interaction with the suppliers (audits, meetings, reviews with relevant personnel) and their products (trials) along with the deployment of actual performance measurement mechanisms (traffic lights system, and balanced scorecards). TAC approach is deployed as part of this process, taking into account all the costs associated with the purchase (Handfield et al., 1999 and other authors). This highly interactive nature of the buyer-supplier relationship outlined in Appendix K, and the high costs and risks associated with this product type require a combination of the following relationship governance mechanisms: trust, solidarity, information-sharing, and agreement. This finding supports the idea advocated by the previously-mentioned authors concerning the complementarity of such mechanisms, rather than the views of those academics (listed above) who argue for their substitution.

*Facilities-related purchases*

Unlike the products used directly in building vehicles, maintaining the relationships with suppliers of the products required for plant manufacturing facilities, is generally uncommon. This arises from the project-based nature of these purchases, with the exception of general low-skilled services and production consumables; and it means that the relationship between the customer and the main contractor is terminated on completion of the project. Consequently, this section will focus primarily on supplier evaluation and selection.

Additionally, when it comes to facilities-related purchases, supplier development is unlikely with the exception of some equipment suppliers. Facilities-related services suppliers are normally employed where an element of problem-solving is required. These suppliers must, therefore, act as the experts in the required subject matter, and considering the prototype project-based nature of these kinds of purchases, vendor development in services is generally not apparent.

*Figure 6.2 Management of suppliers of vehicle parts and materials*




However, in some cases the relationships are maintained beyond a particular purchase or project through 'approved' or 'preferred choice' supplier status. This suggests that in line with the assertions of Rosenkopf et al. (2001) and other authors, business organizations prefer to form ties with those actors who they are already connected with.

'Approved' or 'preferred choice' supplier status helps suppliers to get through the pre-qualification stage of vendor relationship management but will not guarantee automatic supplier selection in future instances (see Figure 6.3). Supplier performance is measured based on delivery of project-related objectives or set key performance indicators. This shows the diversity of the supplier relationship governance mechanisms employed by contemporary vehicle manufacturers in their business practices and their combined (relational and contractual at the same time) nature, as expressed in the literature previously discussed.

The interview data suggests that with the exception of unique equipment and services and unique technology and services product types, supplier evaluation and selection are conducted at the plant level. Formality and stringency in respect of requirements vary greatly according to the purchased product type. To determine the supply source, procurement and plant technical teams work closely together. The plant engineering team plan the plant changes to facilitate the construction of the required models, and to define the technical requirements for the project in the *'specification'* (Senior Engineer of Automobile Manufacturer 1) or *'statement of requirements'* (Purchasing and Logistics

Director of Automobile Manufacturer 2). The technical specification is as descriptive as possible to secure the quality of the project and reduce the risk of supplier opportunism. Additionally, this specification contains an indication of all the relevant internal stakeholders who must be involved in the supplier selection process.

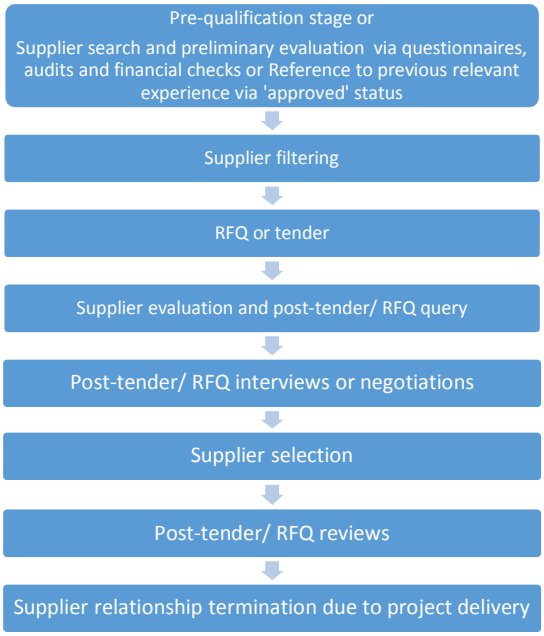
The list of internal stakeholders involved in a project varies depending on the project complexity, and may include engineering, production, maintenance, environmental, and health and safety departments. Each job or project has its 'project manager' taking overall responsibility for the project and ensuring that the requirements of all relevant internal stakeholders are met. The purchasing team then adds the commercial requirements, terms and conditions of purchase, and manages the tender or RFQ for the required product or project.

Since the majority of products required for plant manufacturing facilities, are unique (except general low-skilled services and production consumables), it is impossible to perform trials to determine the quality of supply beforehand. Hence, audits are generally conducted for unique equipment and services and unique software or technology and services product types. However, when equipment represents the core part of the purchase, OEMs can arrange for their potential customers to visit the facility of other customers who have purchased a similar product to that currently being considered by this potential buyer. Thus, supplier selection is based on the vendor's ability to demonstrate fulfillment of the customer requirements listed, and this can be done by referring to similar projects within the industry or relevant industries, to previous experience with the customer, and sometimes by making actual visits to see the equipment of OEMs in action. This once again indicates that service providers need to be managed differently to OEMs.

Technical reviews, involving the appropriate local stakeholders, are also conducted to assess potential supplier capabilities. With the exception of some low-value projects, the supplier selection decision is made jointly by all relevant stakeholders who are involved in the project execution. That decision is made according to how well the technical and commercial requirements are met, and secured in a formal contract between the parties. Supplier reviews can also be held to discuss progress on the project, and the process of its delivery.

The main stages of facilities-related suppliers' management are shown in Figure 6.3.

*Figure 6.3 Management of suppliers of facilities-related purchases*




The detailed descriptions presented above indicate that in line with Dwyer et al. (1987), Halinen (1997), and Harris et al. (2003), several stages can be distinguished in the buyer-supplier relationship in respect of facilities-related products. This confirms the dynamic nature of buyer-supplier relationships in respect of these product types, and thus, the importance of the time factor. It also underlines the omission of this important factor by the existing purchasing portfolio approaches to procurement mentioned earlier, and as a result, the absence of their deployment in contemporary vehicle manufacturers' business practices.

The interactive nature of supplier assessment and management outlined demonstrates the complimentary nature of the deployed relationship governance mechanisms (formal contract together with 'approved' or 'preferred choice' supplier status, information-sharing, flexibility and solidarity). This obvious complimentarity is in contradiction with the views of Corts and Singh (2004), Kalnins and Mayer (2004), and Malhorta and Murninghan (2002), and lends support to the opinions expressed by Caniels et al. (2012), Melander and Lakemond (2015) and other previously- mentioned authors.

The use of regular technical meetings with the relevant vendor representatives, and reviews of the experience and capabilities-related evidence, which all form part of the supplier evaluation process in respect of the products required for vehicle manufacturers' facilities, indicates the highly interactive nature of supplier assessment. This makes mathematical programming, artificial intelligence, and multi-criteria decision-making techniques unsuitable for these purposes, thereby leading to a situation in which customers use the TAC approach only (Handfield et al., 1999 and other authors).

Although this method has also been adopted in vehicle parts and materials procurement, when it comes to facilities-related purchases, the overall process of supplier assessment does not normally involve trials and supplier audits. Unfortunately, this difference in supplier assessment methods occasioned by the nature of the core part of the product is not currently addressed in the literature.

*General technical services – Construction projects*

Based on the interview data obtained from Service Providers 2 and 3, supplier assessment and selection for general technical services varies significantly in terms of the stringency of requirements, level of formality, and the internal stakeholders involved in the process. Due to the higher purchase value associated with the majority of construction projects, supplier selection and evaluation in these circumstances is generally significantly more formal than the process required for electrical and mechanical engineering services.

According to Chief Buyer of Service Provider 3, within the construction industry there are no contracts or partnerships with any of the customers, irrespective of their size. Since each customer wants to know each time that it gets the best value for money, framework agreements are not used, and project-based supply contracts are widely deployed instead. In these cases the focus is on winning the business each time, and as a consequence, no rebate schemes are offered.

To win the business, construction companies must pass the pre-qualification stage, tender, and post-tender enquiry. Work on the customer enquiry requires input from quality, health and safety, finance, procurement and corporate social responsibility perspectives. As a result, the process requires the involvement of personnel from relevant departments from both supplier and customer sides. Each assessed area must be supported by relevant documentation. The process of supplier evaluation and selection for this product type if outlined in Appendix K.

According to Chief Buyer of Service Provider 3, within the construction environment, the way vehicle manufacturers manage their supplier relationships is no different from what occurs in other high value-added manufacturing industries. This process is always project-based. Projects vary significantly in complexity and cost, the latter differing from £5 million to £500 million.

After the most attractive supplier is chosen, regular technical reviews occur throughout the various project stages to ensure the specification, budget and timing requirements are all being met. These continue until the project is complete.

The very detailed interview data outlined in Appendix K indicates the simultaneous use of information-sharing, relational norms, trust, level of flexibility and solidarity as well as the project-related contract; and these findings confirm those appearing in the literature concerning the idea of complementarity in relationship governance mechanisms. Furthermore, the data highlights the lack of supplier interaction in the available theory on techniques deployed in supplier selection, and consequently, with the exception of the TAC approach, the absence of its use in contemporary vehicle manufacturers' business practices.

*General technical services – Engineering projects*

Similar to the situation experienced with construction projects, when general electrical and mechanical products are purchased, unknown vendors are requested to complete a supplier evaluation questionnaire and to demonstrate healthy accounting prior to participation in the RFQ. Automobile manufacturers' personnel from relevant functional areas are involved in pre-RFQ supplier assessment. After releasing the RFQ all potential vendors are evaluated according to their ability to meet the selection criteria outlined in the product specification. According to the Director of Service Provider 2, some vehicle manufacturers use a scoring system to assess the propositions of these potential vendors, a strategy that again indicates the relevance of the TCO approach and the literature discussed earlier. The most attractive vendor is chosen on the grounds of the evaluation result, and is charged with delivering the project. Regular technical reviews are held to monitor the progress on the project until it is complete. A project-specific agreement is likely to be signed at the start of the relationship.

Director of Service Provider 2 highlighted that having experience with the customer, and recommendations from the engineers makes the process of managing low-to-medium value suppliers significantly less formal. It can save much time and effort during the pre-qualification stage and initial supplier filtering. The interviewee advised that normally, vehicle manufacturers have about three approved contractors for electrical and mechanical engineering solutions and contracting. This status helps suppliers to pass the pre-qualification stage often without having to complete the vendor evaluation questionnaire, as confirmed in the quote below.

> *Being 'approved contractor' proves that the company can do a good job in line with the market expectations and industry standards. Thus, if the company is in the list of 'approved contractors', it is likely to be awarded with the business on a regular basis. For instance, after being awarded with this status Service Provider 2 maintained its continuous co-operation with one of its main customers for over 20 years (Director of Service Provider 2).*

This concurs with the findings of Burt (1992), Gulati (1995, 1998), and Rosenkopf et al. (2001), who argued that companies prefer to form ties with those actors who they are already connected with. These findings also demonstrate complementarity of the relationship governance mechanisms in line with the earlier view expressed regarding this stream of literature.

*General equipment and services*

Two interviewed suppliers of general equipment and services advised that the vendor evaluation and selection process for general equipment and services varies considerably according to the value of the product supplied. The stringency and formality of this process as well as the internal stakeholders' involvement are also significantly influenced by the buyer-supplier relationship history, indicating the relevance of studies by Burt (1992), Gulati (1995, 1998), and Rosenkopf et al. (2001).

For instance, OEM 2 and OEM 3 described the way their existing customers manage their relationships as being 'relatively informal'. While the majority of vehicle manufacturers have a list of recommended suppliers for each component that goes into the vehicle, supplier recommendations for the equipment supplied by these companies rarely exist. Moreover, supplier evaluation questionnaires are only utilized for new vendors. Thus, if the company is already supplying its products, it will not be required to complete the questionnaire.

Additionally, having formal supply agreements for these products is relatively uncommon within the industry. The majority of orders are authorized by senior engineers or managers in charge of engineering and maintenance departments. However, there is agreed day-by-day pricing and project discounts depending on the project value and competition, thereby demonstrating trust, flexibility, solidarity and information-sharing along with commercial agreements in line with the assertions of Lumineau and Henderson (2012), Melander and Lakemond (2015), and other academics advocating complementarity of the relationship governance mechanisms.

According to Sales Engineer at OEM 2, automobile manufacturers prefer to have a supply contingency for low-to-medium value equipment. Hence, none of the suppliers expect having a single source or exclusive supply agreement. On the other hand 'preferred choice' agreements (Sales Engineer OEM 2) for specific projects or a shop, plant or region do exist. Such agreements enable vehicle manufacturers to pay less for the equipment and spares, yet do not prevent them from sourcing elsewhere in urgent cases. In return, the supplier gains more business.

Again, this indicates the simultaneous utilization of both relational (trust) and contractual (daily pricing and project discounts) governance mechanisms as well as a mixture of both ('preferred choice' agreements). In this respect the available literature can be seen as behind the business practices as hybrid governance mechanisms have not been discussed there. It also shows that vehicle manufacturers deploy the TAC approach during their supplier evaluation process. All these findings are consistent with the theoretical views expressed earlier.

*Unique equipment and services and unique software or technology and services*

Due to the large project scale and high expenditure levels, supplier management for unique equipment and services and unique software or technology and services is more formal, and in the majority of cases involves automobile manufacturers' personnel from the regional and corporate levels. The process is relatively standard across customers from various high value- added manufacturing industries, and involves vendor assurance questionnaires, financial checks, audits of the supplier manufacturing facilities, RFQs, offers evaluation, negotiation, and performance management via technical reviews until the successful completion of the projects. See Appendix for more details.

According to the Sales Director of OEM 4, with some customers OEMs supplying this product type have much deeper relationships that go beyond single or multiple RFQs. There may be multiple programmes between the parties involving a number of manufacturing facilities located in different countries. In these cases OEM 4 designs and delivers a solution with the intention to standardize processes across multiple plants. As a result of collective negotiation, the customer normally receives better value – a product of the market leader at a lower cost. This works well for both parties as despite smaller margins for OEM 4, clarity exists regarding additional business for the few years. In these cases framework contracts outlining *'collective bargain for collective agreements'* are signed (Sales Director of OEM 4). The popularity of these agreements varies from country to country. For instance, they are more common in Germany than in the UK.

Other customers have OEM 4 products as their standard and have a single-source open-book agreement with fixed margins for a certain period of time. However, this does not mean that the customer cannot continue benchmarking OEM 4 products in the market. Prices in this case are updated every few years taking into account the inflation level and competitors' offerings.

As part of their relationship management, customers have regular formal meetings with OEM 4 involving their representatives from both engineering and purchasing departments. These are normally arranged to review progress on the projects or to develop service excellence or identify areas for improvement. Key performance indicators driven by the customer objectives and requirements of the on-going projects are used to measure supplier performance.

These various forms of relationships that may exist between the manufacturers of unique equipment and services and unique technology and services and their customers (described above and in Appendix K), indicate trust, information-sharing, flexibility and solidarity in a contractual-based (i.e. supply agreements, pricing agreements, collective agreements, open-book agreements with fixed margins) context, and therefore, complementarity of the relationship governance mechanisms. The data also confirm that customers take the TAC approach towards these product types. These findings are consistent with the conclusions drawn earlier with regards to these two streams of theory.

*General low-skilled services and production consumables*

While supplier selection for the majority of purchases required for plant manufacturing facilities is conducted on a case-by-case basis, this does not apply when it comes to *general low-skilled services and production consumables.* According to Automobile Manufacturer 1, the supply source for these products is tendered on a regular basis. Similar to other facilities-related purchases, prior to the tender all potential suppliers are requested to fill out a vendor evaluation questionnaire and provide evidence of healthy accounting. Audits can also be performed as part of the preliminary vendor evaluation. After the tender, supplier propositions are assessed by the relevant members of the technical and procurement teams, and negotiations begin with the most competitive suppliers prior to selecting the most attractive one. Single source agreements and consignment stock are in place for the duration of the contract.

This indicates customer adoption of the TAC approach in respect of these two purchase types as well as complementary deployment of the relationship governance mechanisms in line with conclusions drawn earlier about the theory.

## 6.3 Shipbuilding

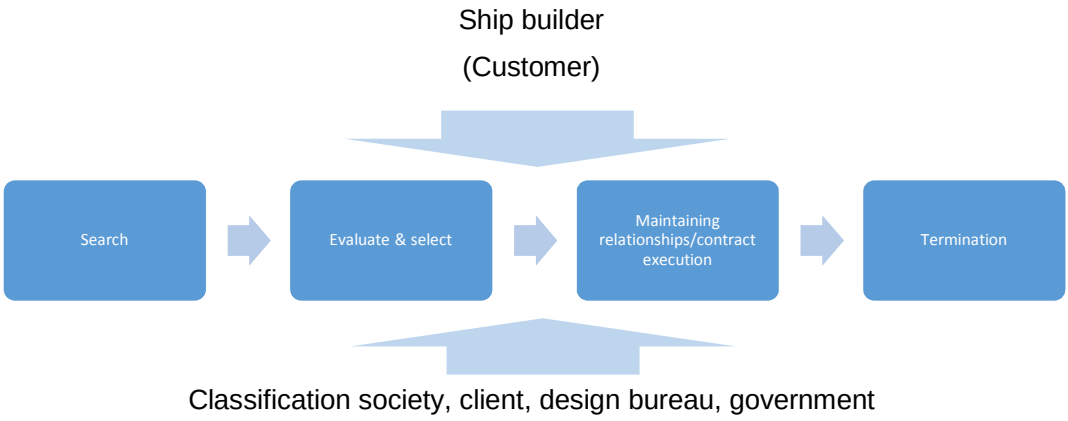
### 6.3.1 Stages of vendor relationship management

The interview data suggests that value-creating processes and regulations in the automotive and shipbuilding industries are very similar. As a result, supplier relationship management across the two markets also appears to be very much alike. However, there is greater involvement of external organizations in this process in shipbuilding than in the automotive environment, and this is reflected in the relationships existing between the customers and the main contractors within the main types of supply networks (see Appendix J).

The data also suggests that similar to the situation in the automotive market vendor relationships are managed during the following stages: supplier search, evaluation and selection, and maintaining the relationships normally until successful completion of the project. This supports the assertions of Dwyer et al. (1987), Halinen (1997), and Harris et al. (2003), who distinguished several stages of the buyer-supplier relationship. Additionally, in line with the data gathered within the automotive industry with the exception of Shipyard 1 utilizing the Kraljic (1983) product categorisation for vendor evaluation purposes, none of the other most cited portfolio approaches was in evidence. This again may be due to the fact that shipyards view their relationships with the vendors as progressive and not static, which is not the case in the existing supplier portfolios literature as noted by Dubois and Pedersen (2002), Ozcan and Eisenhardt (2009), and Wagner and Johnson (2004).

As in the automotive market, the purpose of the supplier search is to ensure that the shipyard is aware of the key market players, that these players have been informed of the potential business opportunity and all the requirements. Shipyards normally learn about the vendors and their capabilities from the members of their various supply networks, company websites, brochures and leaflets available at industry-related exhibitions and market-appropriate magazines.

*Figure 6.4 Main stages of supplier relationship management in shipbuilding industry*




Supplier evaluation and selection is driven by the selection criteria, discussed in Chapter 4. However, due to greater stringency of the legislative requirements and prototype demand orientation, there is also more involvement of external organizations in this process in shipbuilding than occurs in the automotive environment, as mentioned earlier. The number of parties involved in the process varies according to whether the purchased product goes directly into a vessel or not. While shipyards manage supplier relationships for their manufacturing facilities on their own, there are several parties involved in vendor assessment and selection when it comes to vessel-related purchases. As previously mentioned (see Appendix L), relevant classification society, the client (shipyards customer), design bureau, and at times government can also be involved in supplier evaluation and selection along with the shipyard.

Shipyards' consideration of the main dimensions of value as well as some additional factors shows that they focus not only on cost but on other important areas, i.e., product quality, level of innovation, warranties and after-sales support, etc., that affect overall cost associated with the purchase. This therefore, indicates the applicability of the theory on TCO approach (Handfield et al., 1999; etc.) in their procurement practices during vendor evaluation. Other techniques of supplier selection outlined in the available theory appeared not to be utilized.

Due to intermittent nature of the demand in the shipbuilding industry, the relationship is naturally terminated with the completion of the project. And since shipyards cannot make a demand commitment beyond particular projects, and depend on other parties when it comes to supplier management, they rarely have time-related as opposed to project-specific relationships with the vendors. Exceptions are general low-skilled services and production consumables purchased for the shipyards' manufacturing facilities. (Procurement of general low-skilled services and production consumables is conducted by the shipyards in the same way as in the automotive industry. See the previous section

of the Chapter for more details.) Hence, this and the next sections of the chapter will focus primarily on vendor evaluation and selection.

Due to the absence of demand commitment beyond a particular project, there are no performance objectives for the upcoming years based on the duration of the supply agreement, apart from meeting all the customer's requirements communicated during the benchmarking process. These requirements are captured in the supplier selection criteria discussed earlier, and the customer carries out regular technical reviews to monitor supplier progress until the project is completed.

As in the automotive market, customers prefer to deal directly with the main contractors and do not have direct ties with sub-suppliers within the main types of supply networks. (See Appendix J.) However, as outlined earlier, customers will have direct communications with the relevant classification society, client (shipyard's customer), design bureau, and sometimes government, mainly during supplier evaluation and selection. This contradicts the assertions of Morgan et al. (2007), Morgan and Tax (2004), and later Ramos et al. (2013), emphasizing the presence of direct ties between the customers and all the actors of service business networks.

According to the Purchasing Manager of Shipyard 1, supplier evaluation and selection in shipbuilding is like a *'jigsaw puzzle'*, since the shipyard needs to carefully evaluate each product and ensure that all the purchases will work together. For this reason, prior to placing orders, all the interviewed shipyards conduct the benchmarking activities to evaluate the supplier offerings. This applies to every type of purchased product irrespective of whether it is service or equipment, with the exception being when the client dictates the supplier. However, even in such cases, shipyards can recommend certain vendors based on their experience.

According to the interview data, the project-specific nature of the market prompts shipyards to manage their relationships with vendors similar to the way vehicle manufacturers manage purchases for their manufacturing facilities. Although all the interviewed shipyards utilize different techniques to help them choose the most attractive vendors (see below) they manage the relationships with their vendors in a similar way. Initially they all familiarize themselves with the new potential vendors by exploring their technical capabilities in the first instance, and during this stage vendor assurance questionnaires and audits that allow tangible products to be demonstrated, are likely to occur. Additionally, as part of this process it is not uncommon within the industry to request the CVs of particular employees, who will be leading or delivering the key tasks

of the project on behalf of the supplier. Suitable vendors are then invited to participate in benchmarking, after which the most attractive supplier is chosen.

Supplier selection criteria are specific to a particular project and purchased product type. They are based on the main dimensions of value discussed in Chapter 4, and as mentioned earlier, are significantly influenced by the client and at times, government, when it comes to purchases of products required in building vessels. To help suppliers to prioritize the important value dimensions, the vendor selection criteria are communicated to potential vendors as part of the benchmarking. According to the Purchasing Director of Shipyard 3, the selection criteria are sometimes even shown in percentage terms based on the importance of each of the included value dimensions, thereby once again denoting the relevance of the TAC approach in shipyards' business practices.

The data indicates that owing to the project-specific nature of the market, assessment and selection of the vendor are also project-based. Once the project is delivered, there is no guarantee that the same supplier will be selected next time. Even purchases required for the shipyard's manufacturing facilities are also based on the shipyard projects for the next two to five years. Thus, separate benchmarking processes will be conducted in these cases.

These various factors make it problematic to maintain the relationships with vendors beyond particular projects. All contracts with the exception of those for general low-skilled services and production consumables are project-based. Supply partnerships are not common within the industry, and a supplier must demonstrate its superiority to win the business on each occasion. Overall framework agreements at the supplier or business level are rare. Vendor choice is based on the supplier's ability to showcase its compliance with the communicated vendor selection criteria.

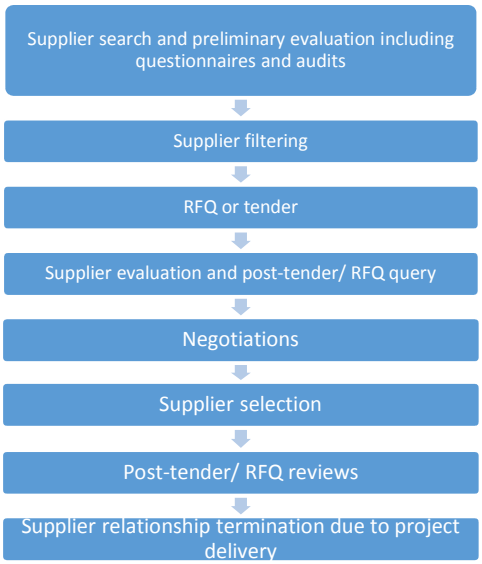
The data also indicates that shipyards and their suppliers share information, and behave flexibly and with solidarity throughout the vendor evaluation and selection, and also during the negotiation stage, within relationships with contract-based governance (see the next section for more details). This shows complementarity of relational and contractual governance mechanisms in line with the assertions of Caniels et al. (2012), and other academics and contrary to the views of Corts and Singh (2004), Kalnins and Mayer (2004), Malhorta and Murninghan (2002), and other authors.

Although with the exception of general low-skilled services and production consumables, all other shipyard purchases are bespoke, similar to the situation in the automotive industry supplier management varies according to the core part of the purchased product. While supplier audits are utilized as part of the equipment or materials' suppliers assessment, detailed questionnaires together with the supporting documentation are deployed in services procurement. These questionnaires require disclosure of some very confidential information outlined earlier. Also in some cases, visits to OEMs' customers may take place to see similar equipment in action. This suggests that suppliers must be managed differently according to the core part of their products, but that likelihood is not reflected in the earlier mentioned literature to date on supplier relationships portfolio management, methods of supplier performance evaluation, and relationship governance mechanisms.

*Vendor management by product type*

During the data collection process it appeared that with the exception of general low-skilled services and production consumables (see previous section of the Chapter for more details), the project-based nature of the demand makes differentiation of the supplier assessment and selection process based on the outsourced product, unnecessary. The interview data reveal that shipyards deploy the same process irrespective of the purchased product type, with just a few previously-mentioned exceptions based on the core part (service versus tangible goods) of the product supplied (see Figure 6.5). However, as mentioned previously the number of parties involved in the process varies depending on whether the purchased product goes directly into the vessel or not. On the one hand, shipyards manage supplier relationships for the purchases required for their manufacturing facilities on their own, but on the other, there are several parties involved in vendor assessment and selection for vessel-related purchases, i.e., client, design bureau, government.

*Figure 6.5 Managing suppliers in shipbuilding industry*




Although all the interviewed shipyards distinguished the same stages of vendor management, the stringency of the criteria (see Chapter 4), process formality and involvement of internal and external stakeholders vary by the purchased product type. Interviewed shipyards also use different techniques to help them to identify and choose the most attractive vendors. Some reflect the criteria through internal supplier classifications (Shipyard 1), some utilize *'product information cards'* (Purchasing Director of Shipyard 3). Except for the deployment of the TAC approach, which captures all the expenses associated with the purchases, no other techniques noted in the literature are adopted in supplier selection.

For instance, Shipyard 1 classifies all the vendors based on the risk and complexity of the purchase into four groups. The zero group has the highest level of requirements' stringency, while the third group has the lowest. This indicates the relevancy of the Kraljic (1978) portfolio approach to procurement in Shipyard 1 business practice, since that shipyard considers the risks and complexity of its purchases. However, the interviewed company has modified Kraljic's (1978) approach to suit its business needs in terms of the supplier requirements stringency and associated selection criteria to be used (see Chapter 4).

Another example was given by the Purchasing Director of Shipyard 3, who indicated that within her company each purchased product has an 'information card' containing the records of supplier performance as well as other important purchase-related information. Such information includes the main terms and conditions of the supply agreement, product technical requirements, either created by the internal technical team or external design bureau, list of potential and recommended suppliers, starting and maximum price,

and delivery terms. Thus, each purchase either has an existing information card if an identical or similar purchase has already been made, or a card will be developed if the product is one that has not been purchased before.

The data gathered from the interviewees indicates that both the UK and Russian interviewed shipyards perform supplier evaluation and selection in a similar way. See Appendix L for more details. They all utilize supplier evaluation questionnaires, audits of supplier manufacturing facilities (mainly applicable to OEMs) or arrange visits to see historic projects of potential service providers, pre-benchmarking RFQs and formal benchmarking. The latter includes a number of requirements in respect to the areas, discussed in Chapter 4 (supplier selection criteria). Stringency of requirements, number of audits or visits as well as the involvement of relevant stakeholders will depend on the product purchased and its characteristics (i.e. cost, risk, etc. – see Appendix L).

From the data gathered from both customers and supplier it became apparent that supplier evaluation and selection for services is different from those of OEMs due to intangibility of the service product, until the project execution. While audits of supplier manufacturing facilities is a good indicator of OEMs capabilities and management of their manufacturing processes, visits of service providers previous objects are carried out instead for the same purposes. Additionally, vendor evaluation questionnaires are more thorough for service providers as opposed to OEMs. Furthermore, in services it is not even uncommon to request curriculum vitas of the key personnel involved in the future project. Supplier relevant experience and positive references within the industry are also more important for service providers than for OEMs.

This indicates that service providers and OEMs need to be managed differently, but this argument does not appear in the literature on supplier relationships portfolio management, and methods of supplier performance evaluation and relationship governance mechanisms.

Although both UK and Russian shipyards manage their vendor relationships in a similar way, there is significantly greater government involvement in this process in Russia than in the UK. Over 80 percent of the Russian shipbuilding market is consolidated under the United Shipbuilding Corporation (USC) owned by the government. Thus, for each of its shipyards-members' supplier management process must comply with Russian Federal Law FZ 223. This means that during this process all the shipyards-members use the electronic sourcing portal Fabrikant and share feedback regarding vendor performance with other USC members.

Both Shipyards 2 and 3 use Fabrikant for all their purchases with the exception of some non-repeatable small value products required for their manufacturing facilities. Fabricant provides visibility of the shipyards' requirements and subsequent supplier offers, stores market data as well as facilitates market research. Also like most of the electronic sourcing portals, it has a facility to control the level of information disclosure to the participating suppliers through various activities settings, i.e., 'open' or 'closed' tenders.

According to the Purchasing Director of Shipyard 3, shipyards share feedback regarding supplier performance with other USC members in an effort to enhance that performance. Thus, each USC member shipyard can impact upon the supplier's position in the Russian market by positively recommending or 'blacklisting'. Although such blacklisting may be made by just one particular shipyard, this action affects the particular supplier's business relationships with all the USC members, and therefore, 80 per cent of the entire Russian market. And for those unsuccessful vendors who have been blacklisted, it will take years to be removed from the 'black list' before they can start trading with any USC member again.

The process of supplier evaluation and selection described by the interviewees within this Chapter and in Appendix L indicates the simultaneous use of trust, information-sharing between buyers and suppliers as well as between the USC members in Russia, and contractual agreements. Hence, complementarity of the relationship governance mechanisms is evident, in line with the conclusions drawn earlier relating to the theory.

### 6.4 Discussion

The findings outlined above enable to distinguish a number of sub-themes, categories and codes while studying management of OEM and service provider relationships in the main types of B2B service networks (see Appendix M). These sub-themes, categories, and codes, and their relationship to the current marketing literature are now discussed.

Data obtained from the two industries and countries indicate that with the exception of supplier development, common in vehicle parts and materials procurement, the automobile manufacturers and shipbuilders manage their vendor relationships in a very similar way. The vendor relationship management is underpinned by a supplier search, evaluation, and selection based on specified criteria, and the maintenance of that relationship through performance measurement methods and governance mechanisms until project completion (or agreement expiry). Organizational arrangements utilized by

the respondents to create, maintain and terminate the relationships with the suppliers of the main product types are shown in Table 6.1. The findings of Dwyer et al. (1987), Halinen (1997), and Harris et al. (2003), who distinguished several stages in the buyer-supplier relationship, are mirrored in these results.

The research findings were also very consistent irrespective of the interviewed company's country of origin – the UK or Russia. However, it did appear from the data that in the shipbuilding market there is significantly greater government ownership, involvement, and control in Russia than is evident in the UK. As a result, suppliers are under more pressure to perform well in the Russian market due to Russian shipyards' practice of supplier recommendation and 'blacklisting' (Purchasing Director of Shipyard 3) that affects vendors' positions in the entire national market. The findings were also consistent across the industries with the exception of the greater level of external stakeholder involvement in the management process in the shipbuilding environment compared to the automotive context.

The data also indicates that contrary to the assertions of Morgan et al. (2007), Morgan and Tax (2004), and lately Ramos et al. (2013), in both automotive and shipbuilding service business networks, customers tend not to have direct ties with all the network members except in those rare cases when it is beneficial from a value maximization perspective (see Appendix J).

Additionally, the data reveals that the vendor search is relatively standard irrespective of the industry, country of origin or product type. Companies normally rely on industry-specific publications and exhibitions, internal and external recommendations and the Internet, including information available on public and private organizations' websites. Other elements of supplier relationship management vary considerably based on the purchased product type.

The greater the importance and the value of the purchased product, the more thorough the process of supplier management is seen to be, and the greater the number of stakeholders involved. For example, there are significantly more professionals involved and a greater number of milestones associated with the process of managing suppliers of vehicle parts and materials, high- value general construction services projects, unique equipment and services as well as unique technology or software and services when compared with those supplying general equipment and services. This is reflected in the project scale (global, regional or local), number of interactions and parties involved (customer and supplier personnel, and even sub-suppliers in some cases), and the

vendor assessment methods used in the management process, i.e. introductory visits, audits, mid-tender, post-tender meetings, etc. Suppliers of more complex high-value products are also given more time to come back with a proposal.

It is also revealed in the data that several differences exists in terms of vendor relationship management, depending on whether the product is comprised of tangible goods or services (see Tables 6.1 and 6.2). These differences relate to: supplier development opportunity, ability to trial the products or see similar products in action prior to selecting a supply source, importance of supplier relevant experience, deployment of supplier audits and questionnaires and their granularity in vendor evaluation, supplier performance objectives, and participation in continuous improvement activities. Unlike the situation with service providers, customers may invest their time and resources in development of the manufacturers of frequently purchased equipment or materials if they think these suppliers have a potential for the future in terms of value or cost. Additionally, while it is possible to trial some of the purchased tangible goods, see similar equipment in action, and carry out vendor audits during equipment or materials supplier evaluation, services customers must rely primarily on the supplier's previous experience and the information provided in vendor evaluation questionnaires. Also service providers' performance objectives are normally project-related, and therefore, there is no expectation that the supplier will participate in continuous improvement activities. However, equipment or materials suppliers can have project-related or year-on-year objectives depending on the product type. Hence, some tangible goods suppliers do participate in continuous improvement activities. In the first instance, supplier performance is measured using the actual product delivery in respect of each required key performance indicator (KPI) communicated during the tender or RFQ requirements, while in the second instance the traffic lights, balanced scorecard or alternative systems are utilized.

*Table 6.1. Main contractor relationship management: Automotive and shipbuilding*

| Relationship management | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Product type** | *Search* | *Evaluate and select* | | | | | | *Agreement or other commitment* | *Measure performance* | | |
| | | *Questionnaire* | *Audit* | *RFQ* | *Tender* | *Trials* | *Negotiation* | | *Traffic lights system or alternative* | *Balanced scorecards* | *Meeting RFQ/ tender requirements* |
| **Vehicle parts and materials** | | | | | | | | | | | |
| **Vehicle parts** | Internet, industrial publications, exhibitions, recommendations | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ (time specific) | ✓ | ✓ | ✓ |
| **Vehicle materials** | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ (time specific) | ✓ | ✓ | ✓ |
| **Vessel parts and materials** | | | | | | | | | | | |
| **Large and core equipment and services** | Internet, industrial publications, exhibitions, recommendations | ✓ | likely | ✓ | ✓ | × | ✓ | ✓ (project-specific) | × | × | ✓ |
| **Equipment-related services** | | ✓ | likely | ✓ | ✓ | × | ✓ | ✓ (project-specific) | × | × | ✓ |
| **Non-equipment** | | ✓ | likely | ✓ | ✓ | × | ✓ | ✓ (project-specific) | × | × | ✓ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **related services** | | | | | | | | | | | |
| **Medium and small equipment** | | ✓ | likely | ✓ | ✓ | × | ✓ | ✓ (project-specific) | × | × | ✓ |
| **Basic goods and materials** | | ✓ | likely | ✓ | ✓ | × | ✓ | ✓ (project-specific) | × | × | ✓ |
| **Manufacturing facilities purchases** | | | | | | | | | | | |
| **General technical services** | Internet, industrial publications, exhibitions, recommendations | ✓ | × | Either RFQ or tender | × | ✓ | Possible; approved contractor status | × | × | ✓ | |
| **General low-skilled services** | | ✓ | × | Either RFQ or tender | × | ✓ | ✓ (time specific) | × | × | ✓ | |
| **General equipment and services** | | ✓ | possible | Either RFQ or tender | × | ✓ | Unlikely; preferred supplier | × | × | ✓ | |
| **Unique equipment and services** | | ✓ | ✓ | Either RFQ or tender | × | ✓ | ✓ (project-specific) | × | × | ✓ | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Unique software/ technology and services** | | ✓ | ✓ | Either RFQ or tender | × | ✓ | ✓ (project-specific) | × | × | ✓ |
| **Production consumables** | | ✓ | × | Either RFQ or tender | × | ✓ | ✓ (time specific) | × | × | ✓ |

This suggests that suppliers do need to be managed differently depending on the core part of their supplied product (service or tangible goods). However, the existing theory on portfolio approaches to procurement (Bansaou, 1999; Gelerman and Van Weele, 2000; Hallikas et al., 2005; Kaufman et al., 2000; Kraljic, 1983; Nellore and Soderquist, 2000; Olsen and Ellram, 1997; Rezaei and Ortt, 2012; Svensson, 2004), methods of supplier performance evaluation (Dey et al., 2014; Ellram, 1993, 1995; Monckza and Trecha, 1988; Singh et al., 2014) and relationship governance mechanisms (Kalnins and Mayer, 2004; Lumineau and Henderson, 2012; Melander and Lakemond, 2015; Poppo and Zenger, 2002; Sobrero and Schrader, 1998; Yu et al., 2006; etc.) does not contrast services and manufacturing sectors.

Although the available literature on supplier relationship portfolios (Gelderman and Semeijn, 2006; Kraljic, 1983; Lambert and Schwieterman, 2012; Olsen and Ellram, 1997; Wagner and Johnson, 2004; etc.) provides some general guidance, it is very generic, fragmented, and fails to capture the time dimension, and hence, the relationship progression throughout the main stages of buyer-supplier co-operation. Furthermore, the literature does not explain how business organizations actually manage their suppliers. Recommendations like 'exploit power position through maximizing added value' (Gelderman and Semeijn, 2006) or 'develop a product and service agreement' (Lambert and Schwieterman, 2012) or 'strategy can be either to change the supplier or develop the existing one' (Olsen and Ellram, 1997) or 'company should explore a range of supply scenarios … for securing long-term supply and for exploiting short-term opportunities…' (Kraljic, 1983) are far too generic and lack the granularity that would make them easily understood by businesses and be adopted by their managers.

As a result, only one of the five interviewed customers from two high value- added manufacturing industries found one of the existing portfolio approaches to procurement useful in its business activity. The main ideas of Kraljc (1983) product categorisation were adopted by Shipyard 1 and modified to develop a list of requirements for four different types of vendor based on that shipyard's product needs. All the other participants appeared not to deploy any of the portfolio approaches in their daily businesses.

Despite the fact that the information received from the respondents was very consistent in terms of the elements of relationship management practices, the interviewed business organizations had different arrangements to manage supplier relationships. For instance, while Automobile Manufacturers 1 and 2 utilized balanced scorecards to categorize suppliers based on the selection criteria, performance expectations, and the actual

performance, Shipyard 1 divided all the suppliers into four groups based on the requirements stringency. Another example was the deployment of 'information cards' and 'supplier blacklisting' by Shipyards 2 and 3 as a way of recording, communicating, and enhancing supplier performance within those organizations or the USC. In the automotive industry both interviewed vehicle manufacturers utilized the traffic lights system for the same purpose.

*Table 6.2 Difference in supplier management based on core product part*

| ***Element of supplier management*** | *Core product part* | |
|---|---|---|
| | *OE or material* | *Service* |
| **Supplier development** | Yes | No |
| **Supplier evaluation: product trials or seeing product in action** | Yes for some products | No |
| **Supplier evaluation: importance of relevant experience** | Important | Crucial |
| **Supplier evaluation: reputation/ feedback within the market** | Important | Crucial |
| **Supplier evaluation: importance and granularity of questionnaires** | Important and granular | Extremely important and extremely granular |
| **Supplier evaluation: audits** | Yes generally | No generally |
| **Performance objectives** | Year-on-year or project-related | Project-related |
| **Supplier participation in continuous improvement activities** | Yes for vehicle parts and materials | No |

Information provided by the automobile manufacturers and shipbuilders suggests that the TAC approach (Ellram, 1993, 1995; Handfield et al., 1999; Monckza and Trecha, 1988) was the only supplier assessment method, deployed by the interviewed companies. There is no utilization of any of the other methods, described in the available academic literature, as follows: multiple attribute utility theory (Bard, 1992; Von and Weber, 1993); analytic hierarchy process (AHP) (Saaty, 1980); dynamic (Masella and Rangone, 2000), linear (Ghodsypour and O'Brien, 1998) and multi-objective programming (Weber and Ellram, 1993); data envelopment analysis (DEA) (Weber, 1996); artificial intelligence including neural network (Siying et al., 1997), fuzzy set theory (Ozkok and Tiryaki, 2011; Yusel and Guneri, 2011), etc.; hybrid (Ha and Krishna, 2008); etc. This may be due to their highly theoretical approach which lacks the opportunity for interaction. The process deployed by the contemporary vehicle manufacturers and shipbuilders involves several face-to-face meetings, product trials, audits of suppliers'

manufacturing facilities together with the actual supplier performance measurement ('traffic lights system', balanced scorecards) from the TAC perspective expressed in percentages, and none of the theoretical methods can offer these techniques. However, despite the adoption of the TAC approach for both product types, the actual process of supplier evaluation and selection was different for services as opposed to manufacturing businesses, as previously described.

The data suggests that customers from both industries prefer not to rely on highly mathematical methods of supplier evaluation. Instead, they like to be in control via the ability to influence supplier scores and the possession of a high level of understanding of how supplier rankings are calculated. Such understanding may be difficult to achieve when the above-average mathematical and programming skills required are not possessed by managers. The participants did, however, acknowledge that the process of interaction with the suppliers through trials, negotiations and meetings, does enable them to secure a better understanding of these vendors' capabilities.

Despite the fact that there is a clear distinction in the academic literature between the contractual-based and relational-based governance (Poppo and Zenger, 2002; Sobrero and Schrader, 1998), the research data suggests that in real business life they complement each other. This supports the position of those authors arguing for their complementarity (Caniels et al., 2012; Ferguson et al., 2005; Haugland and Reve, 1994; Lumineau and Henderson, 2012; Melander and Lakemond, 2015; Olsen et al., 2005; Poppo and Zenger, 2002; etc.) rather than substitution (Corts and Singh, 2004; Kalnins and Mayer, 2004; Malhorta and Murninghan, 2002, etc.). Norms of solidarity, flexibility, and information-sharing are normally in evidence, alongside various types of contractual agreement (pricing agreement, supply agreement, collective agreement). Additionally, the diversity of the relational governance mechanisms deployed in contemporary business practices highlights that academic theory is far less advanced in this area than business organizations. While academics are debating whether contractual and relational governance mechanisms complement or substitute each other, firms mix and match these mechanisms in many different ways, and deploy the hybrids between the two ('approved' or 'preferential' supplier status) to suit their needs. Furthermore, the findings indicated that contractual governance mechanisms used by customers from both the automotive and shipbuilding industries (with the exception of vessel parts and materials due to their prototype nature) vary depending on the core part of the supplied product. While services are likely to be governed by project-specific agreements or 'approved contractor status', tangible goods are normally purchased under time-specific supply contracts or preferred supplier status (see Tables 6.1 and 6.3).

*Table 6.3 Difference in supplier governance mechanism based on core product part*

| Supplier | Common governance mechanisms |
|---|---|
| **OEM** | Collective agreements, framework agreements, pricing agreements, time-specific agreements, preferential supplier status, balanced scorecards, 'traffic lights' system |
| **Service provider** | Approved contractor status, project-based supply contract, meeting RFQ/ tender requirements |

## 6.5 Conclusions

The exploration of the organizational arrangements in place across the two high value-added manufacturing industries to create, maintain, and terminate buyer-supplier relationships has revealed differences in supplier management based on the core part of supplied product – tangible goods or service. The research findings have indicated that this difference between the two sectors results in different process of supplier assessment and selection, development opportunities and performance objectives for services as opposed to manufacturing, and also in different contractual governance mechanisms. However, none of the available literature on portfolio approaches to procurement, methods of supplier performance evaluation, and relationship governance mechanisms that has been reviewed within this chapter, actually differentiates between the two.

It is shown in the study's findings that the existing theory on management within business networks is disconnected from the actual business practices evident in the two high value-added manufacturing industries, which can be seen primarily from five perspectives.

First: Significant limitations of the portfolio approaches to procurement literature were found, with the main ones being the omission of the time dimension in business relationships, and the absence of differentiation between services and manufacturing, which appeared to be important for the research participants. As a result, with the exception of the Kraljic (1983) model used in just one shipyard (with modification), none of the other participants appeared to use strategies contained in the literature.

Second: Due to the highly theoretical nature of the literature in which the opportunities for interaction do not feature, only one supplier assessment model was found to be

deployed in the daily operations of the participating organizations – the TAC approach. Although this approach has been deployed in both the services and manufacturing contexts, in this study the actual process of supplier evaluation and selection was revealed as being different according to the sector (services versus manufacturing), and this is not captured in any of techniques of supplier selection available in the literature.

Third: Discovering the co-existence of relational and contractual governance mechanisms lends support to those authors advocating their complementarity, and contradicts the views of those academics who argue for their substitution. Diversity and combinations of the governance mechanisms utilized by contemporary business organizations shows that they are far more advanced in practice than available theory. Moreover, it appeared that the contractual governance mechanisms in place in these companies varies based on the core part of the purchased product. However, that is also not reflected in the available theory.

And finally, contrary to what is espoused in the existing literature defining service business networks, customers do not normally have direct ties with all the actors within these networks.

By reviewing the above areas, the research question posed in the introduction has been answered.

# CHAPTER 7: CONCLUSIONS

## 7.1 Introduction

The objective of this thesis was to explore customers' and suppliers' perceptions of OEM and service provider attractiveness and management in high value-added manufacturing industries. By means of this exploration the author was aiming to answer two research questions: (1a) *How do customers and (1b) suppliers perceive the attractiveness of OEMs and service providers from the expected value perspective in service-infused business relationships? and (2a) How are the relationships with apparently attractive OEMs and (2b) service providers managed in service business networks?*

Based on the findings and analysis conducted in Chapters 4 to 6, the proceeding sections of the chapter discuss the theoretical and methodological contributions of the study and their relationship to the research questions where appropriate, managerial implications, limitations of the study, and recommendations for future research.

## 7.2 Theoretical contributions

Although the author intended to contrast and compare the opinions of the customers and suppliers themselves (OEMs and service providers) across the two industries (automotive and shipbuilding) and two countries (developing and one developed) with regards to the research questions, assuming several differences to emerge, with a few minor exceptions the responses were highly consistent across the research participants.

*RQ1: How do customers and suppliers perceive the attractiveness of OEMs and service providers from the expected value perspective in service-infused business relationships?*

The research findings indicate that OEM and service provider attractiveness was (i) perceived in its relation to value, and (ii) as the relative attractiveness of these two types of suppliers from inter-firm cooperation perspective.

(i) Supplier Attractiveness in Relation to Value

Both customers and suppliers perceived supplier attractiveness in relation to value as a combination of factors representing the main dimensions of value (quality, cost, delivery, and innovation) as well as other additional factors (suppliers' positions within networks

(position of incumbent supplier within network, positions of competitors, historic vendor performance and experience, number of sub-suppliers and relationships with customers and other supply network members), supplier size, location and capabilities level within the country and business ethics). This therefore, enables four conclusions to be drawn.

The first is that the findings confirmed the relevance of the available literature on relationship value drivers (or competitive priorities or main value drivers or dimensions of value) (Hald et al., 2009; Ulaga, 2003), supplier selection criteria (e.g. Krause et al., 2001; Maltz et al., 2011) and suppliers' ability to fit the 'ideal supplier profile' (e.g. Cui et al., 2014; Zaefarian et al., 2013; Zeriti et al., 2014) in understanding the concept of supplier attractiveness in relation to value and its determinants. Currently the literature on vendor attractiveness makes no reference to supplier selection criteria and strategic fit to the 'ideal supplier profile' theory.

The second conclusion is that other factors that are currently absent in the existing marketing literature also appeared to be relevant, such as the position of incumbent supplier within network, positions of competitors, historic vendor performance and experience, number of sub-suppliers, and relationships with customers and other supply network members. The identification of these factors confirms that supplier attractiveness cannot be considered in isolation from service business networks.

As a third conclusion, it is asserted that the high level of consistency within the empirical data secured from suppliers and customers in two different countries, and two different industries, is indicative of that knowledge of these identified factors facilitates the advancement of the prevailing theory on strategic fit to the 'ideal supplier profile' in terms of its consistency and granularity. Furthermore, the knowledge of these factors as established in this study represents the first step in understanding how to assess the phenomenon of strategic fit to the 'ideal supplier profile' (as indicated in the section addressing recommendations for future research). This, therefore, reduces the theoretical gap highlighted by Nielsen and Gudergan (2012), Peng et al. (2011), and Smith and Reece (1999).

And finally, it can be concluded that the findings suggest that although service providers and OEMs can have very similar and even the same competitive priorities (i.e., prioritizing the service level and support to their customers), customers within both automotive and shipbuilding industries viewed the main value dimensions as well as other additional factors differently for services as opposed to manufacturing businesses. For instance, participation in continuous improvement activities from cost, quality,

innovation and delivery perspectivesas, branding and innovation were found to be more important for OEMs than service providers. On the other hand, while historic vendor performance and experience as well as supplier location were perceived to be absolutely crucial for services vendors, these factors were found to be only desirable for OEMs. This different perspective consequently affected the supplier selection criteria imposed in respect of these two types of vendors, as well as their strategic fit to the 'ideal supplier profile'.

Also, the empirical results achieved show that contrary to the assertion of Henneberg et al. (2013), the tangible and intangible aspects of the purchase are equally important in respect of all the products representing amalgamations of tangible goods and services, irrespective of their core parts.

(ii) Relative Attractiveness of the OEM and Service Provider

The study findings indicated that customers from two contemporary high value-added manufacturing industries have different expectations from the co-operation with an OEM as opposed to a service provider. They identify certain strengths, weaknesses, and advantages arising from co-operation with these two types of suppliers, and thus their relative attractiveness in relation to the main purchased product types. This appreciation enables two conclusions to be drawn.

The first is that current study provides a direct empirical evidence of relevancy as well as some limitations of the available theory on competitive advantage (mainly conceptual or based on B2C context) that exists in B2B services and manufacturing businesses (e.g. Bowen and Ford, 2002; Brouthers and Brouthers, 2003; Giannakis, 2011; Krause and Scannell, 2002). On the one hand, certain characteristics of services and manufacturing businesses outlined mainly in the conceptual or B2C literature appeared to be relevant to B2B context within two contemporary high value-added manufacturing industries. For instance, the intangible and labour-intensive nature of services as opposed to equipment-intensive manufacturing businesses and problem-solving orientation (e.g. Bowen and Ford, 2002; Kotabe and Murray, 2004; Matthyssens and Vandenbempt, 1998). Additionally, in respect of service businesses' local presence and a high level of product customization appeared to be more important than in the manufacturing sector (Kotabe and Murray, 2004; Matthyssens and Vandenbempt, 1998). The empirical findings also concur with those obtained by Kotabe and Murray (2003) in B2C context, to the effect that services are less integrated in global sourcing than manufacturing organizations. On the other hand, contrary to existing theory (Matthyssens and

Vandenbempt, 1998), some of the attributes that are believed to be service-specific appeared to be relevant to the manufacturing sector. For instance, project management skills were found to be equally important for both services and manufacturing businesses. There is also a need to differentiate OEMs' knowledge from that of service providers.

The second conclusion is that the empirical evidence highlights the significant shortcoming of the existing literature on business co-operation and inter-firm alliances. Due to the emphasis on the context-related nature of the concept of cooperation (Brito et al., 2014; Ho and Wang, 2015), the majority of the recent studies have a very narrow focus. They either explore a particular benefit arising from inter-firm cooperation (i.e. Makkonen and Mervi (2014) investigated the role of information technology in buyer-supplier relationships) or cooperation from the perspective of only one partner (Kim et al., 2010) or within a particular context (i.e. Olalla et al. (2015) explored product innovation in Spanish manufacturing). Furthermore, none of the studies reviewed the concept in contrasting environments – both services and manufacturing.

Although the research findings indicated applicability of the main benefits arising from inter-firm co-operation that appear in the literature, the theory does not specify the benefits that customers expect to obtain from the relationships with each of these two types of supplier (service or manufacturing businesses), and this expectation of benefits appeared to be important for contemporary business organizations.

The following advantages from buyer-supplier co-operation were understood differently for these two types of businesses: access to resources; flexibility; ecological and social performance enhancement; support in learning, innovation, new product and knowledge development; risk management and problem-solving. Findings obtained indicated that unlike service providers, OEMs have global or regional focus and due to their footprint and stock management appeared to be slower and less flexible. Additionally, when it comes to problem-solving OEMs have narrower focus and are mainly specialized in developing solutions related to supplied equipment. OEM's equipment-related knowledge of current and upcoming legislation, technical requirements, technologies and health and safety matters as well as primarily tangible nature of supplied resources results in equipment-related ecological and social performance enhancement, support in learning, innovation, new product and knowledge development, and risk management. On the other hand, service providers are known for their ability to integrate various products produced by different manufacturers in one project due to their broader specialization. Hence, customers naturally choose this type of supplier when it comes to

challenging procurement scenarios with primarily intangible nature of supplied products. This includes those cases where idea/ solution-related expertise in terms of design, legislation, technologies, technical requirements and health and safety is required for ecological and social performance enhancement, support in learning, innovation, new product and knowledge development, and risk management.

These findings and the conclusions drawn serve as a response to Mortensen's (2012) call to improve the current understanding of the concept of supplier attractiveness from the expected value perspective. They also advance empirical knowledge of this phenomenon due to the primarily conceptual nature of the existing studies (Hald et al., 2009, Mortensen, 2012).

*RQ2: How are the relationships with apparently attractive OEMs and service providers managed in service business networks?*

Exploring the organizational arrangements and practices deployed to manage supplier (OEM and service provider) relationships in service business networks (based on two contemporary high value-added manufacturing industries), is helpful in two ways. First, it addresses the theoretical gap pointed out by Henneberg et al. (2013), Moller (2013), Natti et al. (2014), Partanen and Moller (2012), Ramos et al. (2013), and other authors, and second, it allows four conclusions to be drawn.

The first is that industrial customers view relationships with their suppliers as a dynamic process encompassing four stages: search, evaluation and selection, and maintenance of the relationship until their termination. This finding, firstly, concurs with the logic of Dwyer et al. (1987), Halinen (1997), and Harris et al. (2003), who all perceive the supplier relationship to be a progressive process encompassing several stages, and secondly, results in extremely limited applicability of the existing portfolio approaches to procurement literature in contemporary business practices due to their static nature. With the exception of the Kraljic (1983) model, utilized by one customer with modifications, none of the organizations in the two high value-added manufacturing industries used any of the solutions offered in the literature.

The second contribution relates to the empirical findings that contrary to Corts and Singh (2004), Kalnins and Mayer (2004) and other authors, relational and contractual governance mechanisms were seen to complement each other. The exploration of this issue responds to calls from Caniels et al. (2012), Lumineau and Henderson (2012) and Melander and Lakemond (2015) to validate the complementarity of these two

mechanisms, and the findings also lend support to the assertions of Caniels et al. (2012), Melander and Lakemond (2015), and Poppo and Zenger (2002).

A third contribution lies in the fact that the core part of the product supplied was shown as a significant influencer on the way suppliers (service providers or OEMs) were managed. It affected the supplier development opportunities, performance expectations, evaluation and selection techniques (questionnaires, audits, RFQs, tenders and trials), contractual governance mechanisms (preferential supplier status or time- or project-specific agreement), and fostered certain performance measurement mechanisms (traffic lights system or alternative, balanced scorecards, meeting RFQ or tender requirements). These findings reveal the severe limitations of the existing theory on portfolio approaches to procurement (e.g. Hallikas et al., 2005; Kaufman et al., 2000; Rezaei and Ortt, 2012; Svensson, 2004; etc.), techniques deployed in supplier evaluation (Chai et al., 2013; Levary, 2008; Lin et al., 2010; Faez et al., 2009; Xu and Yan, 2011; etc.), and relationship governance mechanisms (Caniels et al., 2012; Lumineau and Henderson, 2012; Melander and Lakemond, 2015; Olsen et al., 2005; Poppo and Zenger, 2002; etc.), since none of these streams of literature differentiate between the services and manufacturing businesses. This lack of differentiation results in very limited deployment of the available theory on the portfolio approaches to procurement, techniques of supplier evaluation and relationship governance mechanisms in contemporary business practices.

For instance, none of the existing portfolio approaches to procurement differentiates between the service and manufacturing businesses, which appeared to be crucial for all the research participants. This results in hardly any applicability of these models in contemporary B2B business practices. Moreover, from over 26 techniques used in supplier assessment, only TAC approach (Ellram, 1993, 1995) appeared to be deployed by the vehicle manufacturers and shipbuilders due to the highly theoretical nature of the other methods and their consequent inability to incorporate the necessary supplier or product related interactions required. Furthermore, the available literature on the relationship governance mechanisms also appeared to be disconnected from the business needs and practices, being found to be far too ‘black and white’, basic and generic (See ‘recommendations for future research’ section).

The fourth contribution comes from the revelation by the empirical findings of the inaccuracy of the core service business network theory - definition of service business network. Contrary to Morgan et al. (2007), Morgan and Tax (2004), and more recently Ramos et al. (2013), customers do not have direct ties with all the actors in service

business networks. These findings have not been anticipated from the start but have emerged during the research process showing the value of taking an in-depth qualitative case study approach.

### 7.3 Methodological contributions

To strengthen the research from a methodological perspective the author considered two important points when choosing the research methods. Firstly, to achieve practical relevance as well as scientific rigour, the abductive mode of enquiry was deployed, as seen in the recommendation by Nenonen et al. (2017). And secondly, since the majority of the marketing knowledge was developed from within the US or other Western countries' fast-moving goods consumer settings (Biggemann and Fam's, 2011; Easton's, 2002 and Puffer and McCarthy, 2011), this research studied the phenomenon in the B2B context in both the developed (the UK) and the developing (Russia) countries.

Furthermore, considering the phenomenon through a practitioner-oriented lens was facilitated by adopting the multiple case study methodology (Riege, 2003). Indeed, multiple case studies can offer new insights (Harrison and Easton, 2002), whilst also providing better explanations than single cases (Eisenhardt, 1989; Miles and Huberman, 1994; Yin, 1994). Additionally, this strategy of enquiry enables researchers to obtain a rich and comprehensive understanding of the phenomenon under study as well as to find some similar (common) and dissimilar (particular) characteristics across the cases. It was particularly beneficial to identify the similar and dissimilar characteristics since the author's intention was to study the phenomenon from multiple perspectives, and therefore, it was necessary to obtain the data to answer the research questions from both customers and suppliers, and to explore whether the views expressed varied across the two industries and two countries.

### 7.4 Managerial implications

Since managing services procurement is more challenging than managing the purchase of tangible goods (Giannakis, 2008), and there is a lack of guidance on managing relationships within service business networks (e.g. Henneberg et al., 2013; Moller, 2013; Natti et al., 2014; Partanen and Moller, 2012; Ramos et al., 2013), the current study has attempted to bring new insights and provide informed perspective for the managers. This applies to the managers from less advanced companies operating within automotive and shipbuilding sectors as well as those from less developed industries.

The study aimed to facilitate the effective management and discharge of the daily practices of these two groups of managers, mainly from two perspectives.

Firstly, the possession of a better understanding of the factors influencing supplier attractiveness, and the reasons for such influence, can be beneficial for both customers and suppliers. Examples of these factors as provided in the study, and the views of the participants concerning these factors can bring new insights for both customers and suppliers in terms of their own competitive priorities, and how to improve their ability to fit better the 'ideal supplier profile'. Since the available literature on strategic fit to the 'ideal supplier profile' is highly inconsistent and lacks granularity, knowledge of the factors to define strategic fit to the 'ideal supplier profile' as established in this research, can represent the initial step in helping business organizations to develop their own techniques to assess this phenomenon. Consequently, the theoretical shortcoming highlighted by Nielsen and Gudergan (2012), Peng et al. (2011), and Smith and Reece (1999) is partially addressed.

Additionally, both customers and suppliers may want to rethink their expectations of their own suppliers, and in respect of their intention to co-operate with the most attractive vendors, they may include some additional factors that make suppliers attractive in their own supplier selection criteria. This therefore, addresses the following managerial questions posed by Moller et al. (2005) and Moller (2013): what partners should be selected, and according to what criteria?

Moreover, the strengths, weaknesses, relative attractiveness of OEMs and service providers, and their fit with regard to the main identified product types established in the study can facilitate these two types of suppliers' efforts to market their products more effectively by emphasizing those attributes that their customers favour. Such attention to improve their marketing strategies may also help suppliers to rethink their business strategies and respective product portfolios with the intention of concentrating on those products that are more likely to be purchased from them. Additionally, the possession of this knowledge of customer expectations may help OEMs and service providers to improve their propositions and performance by trying to satisfy them better.

Secondly, knowledge of OEM and service provider management as deployed in business practices within those industries that are believed to be more advanced from operational and procurement perspectives, can be advantageous for both customers and suppliers. Both customers and suppliers can learn what contemporary automobile manufacturers and shipbuilders do to search, evaluate and select as well as maintain

their co-operation with the most attractive suppliers until these relationships are terminated. As part of this process, appropriateness and deployment of supplier selection techniques, portfolio approaches to procurement, and relationship governance mechanisms are discussed so that managers can make their choices concerning their utilization whilst also considering the needs of their businesses based on the examples from this thesis.

Both customers and suppliers can also learn how to manage these suppliers (OEM or service provider) more effectively by reference to the core part of product supplied (service or tangible goods), as OEMs and service providers appeared to be managed differently. This is particularly valuable when it comes to services as they are noted for being more difficult to manage (Giannakis, 2008). Additionally, knowledge of these vendor management practices may help those customers and suppliers who are B2B suppliers themselves to respond more effectively to their customers' expectations based on the examples given in this thesis.

Thus, the gap highlighted by Moller et al. (2005), and Moller (2013) regarding the lack of knowledge about the peculiarities of different business relationships, as well as the organizational arrangements and practices required to manage them (including their creation and maintenance) should be closed in order to provide managerial guidance. Furthermore, the current study facilitated the bridging of the gap between the conceptual problems and the utilization of portfolio models deployed in supplier relationship management, in practice as observed by Gelderman and Semeijn (2006), Sigfusson and Harris (2013), and Wagner and Johnson (2004).

### 7.5 Thesis limitations

The study has a number of limitations, the majority being related to its qualitative research methodology as has already been discussed in the methodology chapter. Each of these limitations has been considered carefully by the researcher, and the necessary measures to minimize their impact were taken. Although the adopted qualitative research methodology had its unique strengths that were identified in Chapter 3, qualitative studies in general are noted for their subjectivity and limited potential in terms of generalization.

Indeed, there is a general concern in qualitative studies regarding the researcher's biases that may affect his or her thinking, needs and logic behind the decisions made

during the research process (Bloomberg and Volpe, 2016). One particular limitation of this study is the support given by the researcher's previous employers in data collection, i.e., their participation in group interviews, provision of documentary data, feedback on the interview questions, ability to refer to these companies during any further data collection process, and the insights regarding the market and its main players shared by these companies. Also since the researcher knew the interviewees who participated in first phase of data collection there is a possibility of *participant reactivity* (Maxwell, 2013). The latter emphasizes the likelihood of the respondents being influenced by the researcher, and therefore, potentially providing less candid, but more guarded responses.

To address these potential limitations the interview guide with the research questions was developed and then supplied to all the interviewed companies prior to the interviews. The questions on the interview schedule were reviewed and discussed with the researcher's supervisors as well as with the interviewees from the two participating companies who took part in group interviews. Also, the provision of the questions prior to the actual interviews gave all the interviewees the opportunity to think about those questions and if felt necessary, to challenge the researcher's perspective. As previously mentioned, during the group and individual discussions the author took the 'outsider' view and treated each of the interviewees as experts in their field. This meant retaining an open mind in terms of the interview outcomes. Additionally, to avoid researcher subjectivity, summaries were developed after each of the interviews and supplied to the research participants for validation.

To address the problem of participant reactivity, the author strived to create an open and honest environment. The researcher gained the impression that participants were very relaxed during the conversations and that state of mind enabled them to be more open and explicit, and to provide more direct answers to the interview questions. The author found her previous experience as an interviewer invaluable in this process.

During the data analysis, the researcher removed the names of the companies and the research participants. This was to ensure that associations could not be made between particular individuals and companies in the transcripts. The process of coding was then conducted blindly. Furthermore, the transcripts, coding schemes, and coded documents were scrutinized by the researcher's supervisors.

Due to the limited sample size and the way it was chosen (snowballing sampling) the study is restricted in the extent to which it can be generalized (Bloomberg and Volpe,

2016; Bryman and Bell, 2011; Lincoln and Guba, 2000). That said, there was no intention to generalize with the study, but nevertheless, the researcher has addressed the issue of transferability. The author believes that providing thick and detailed descriptions on the main categories, themes/concepts and of the phenomenon under study, as well as the granular information regarding the research context, will enable the applicability of the study and its relevance to other contexts to be properly evaluated (Bloomberg and Volpe, 2016)

### 7.6 Recommendations for future research

From the findings obtained during the current study, the research questions have been addressed and this has thrown up certain suggestions for future research, which come from two perspectives.

*In relation to the first research question*

Firstly, the omission of the network-related factors, which appeared to be important in current research, signaled limitations in the existing literature on supplier selection criteria. Hence, it would be advantageous to revisit supplier selection criteria within contemporary business organizations to check whether these network-related factors are perceived important within supplier selection criteria in other industries and countries.

By establishing the factors affecting supplier attractiveness and the effort to achieve the strategic fit to the 'ideal supplier profile', the current study has made a first step towards understanding how to evaluate strategic fit to the 'ideal supplier profile'. The next step is to fully address this theoretical gap (Nielsen and Gudergan, 2012; Peng et al., 2011; Smith and Reece, 1990) by using the factors identified within this research and exploring how best to assess them based on the feedback from the managers operating within more advanced from procurement and operational perspectives' industries. This could be achieved via qualitative studies that could secure a comprehensive understanding of the evaluation techniques in use.

Although the current study has confirmed that the main advantages arising from inter-firm co-operation apply both to OEMs and service providers, these two types of supplier are also associated with certain strengths, and weaknesses, and indeed exude differing relative attractiveness and thus suitability in relation to the main purchase types. This results in differing contributions of these two types of suppliers in achieving the main

advantages from buyer-supplier co-operation known in the literature for the customers. Hence, it would be beneficial to review the phenomenon of buyer-supplier co-operation from the positions of these two groups of vendors.

*In relation to the second research question*

Firstly, although the research findings revealed that service providers are managed differently to OEMs, none of the existing portfolio approaches to procurement, techniques of supplier selection and relationship governance mechanisms take this important factor into account. As a result, very little applicability of these streams of theory in daily business practices within service business networks was found in this study. Hence, it would be beneficial for future research to focus on these respective streams of literature but in contrasting environments (services as opposed to manufacturing) with the deployment of a qualitative approach in order to understand the needs of these businesses and offer appropriate solutions.

Secondly, although contemporary business organizations view supplier relationships as dynamic, none of the existing portfolio approaches to procurement takes the time factor into account. Hence, it would be beneficial to consider this factor in developing the theory associated with purchasing portfolio approaches.

Third, the current study revealed that instead of using highly theoretical supplier selection methods, contemporary customers deployed very interactive methods of supplier evaluation and selection, i.e. questionnaires, audits, trials, RFQs, tenders, and negotiations. Thus, to advance knowledge it would be advantageous to explore more interactive ways of supplier assessment and selection.

And fourth, during the research it appeared that contemporary business organizations are significantly more advanced in the relationship governance mechanisms and their deployment than suggested in the available literature. While from a theory perspective it is still undecided whether relational and contractual governance mechanisms complement or substitute for each other, companies do mix and match them any way that suits their needs. Consequently, they have several types of supply agreement, various kinds of commitments, preferential supplier statuses, etc. Hence, for future theory development it would be advantageous to conduct more empirical research in this area in those industries that are more advanced from operational and procurement perspectives.

## Appendix A: Letter of introduction

**Durham University Business School – Department of Marketing**

PREPARING FOR DATA COLLECTION

12 December 2014

To Whom It May Concern

The purpose of the project is to explore how automobile manufacturers and shipbuilders perceive the attractiveness and management of services providers (SPs) and original equipment manufacturers (OEMs) when purchasing products representing a mixture of tangible goods (or original equipment (OE)) and services. Via conducting multiple case studies covering a number of countries and industries the research aims to explore:

(1) *Who is involved in the process of value definition, assessment and creation and what are the main roles of these parties?*

*(2) How do customers and suppliers perceive the attractiveness of OEMs and service providers from expected value perspective in service-infused business relationships? and*

*(3) How the relationships with apparently attractive OEMs and service providers are managed in service business networks?*

This letter is directed to automobile manufacturers and shipbuilders as well as services providers and original equipment manufacturers, operating within these industries. Semi-structured interviews lasting within 30 minutes to one hour will be carried out with the employees having the required knowledge and expertise to answer the above research questions. Questions used during the interview as well as suggested potential functional areas of the respondents are provided in 'Interview questions and respondents' document. If interviewees can provide some additional information (e.g. market specific regulations, legislation, information regarding common trends and challenges within the industry, the most frequently purchased items, procurement management, etc.), facilitating the researcher's understanding of the topic, it will be greatly appreciated.

Thank you very much for your cooperation.

Sincerely yours,
Natalia Tekucheva
PhD student
n.a.tekucheva@durham.ac.uk
+44 743 462 0219

**Appendix B: Letter of introduction email**

Hello …

My name is Natalia Tekucheva and I am a 3rd year PhD student studying Marketing at Durham University.

I am approaching companies to request information to support my research.

The purpose of the project is to explore how automobile manufacturers and shipbuilders perceive the attractiveness and management of service providers and original equipment manufacturers (OEMs) when purchasing products representing a mixture of tangible goods (or original equipment) and services. Particularly I am interested in:

(1) *Who is involved in the process of value definition, assessment and creation and what are the main roles of these parties?*

*(2) How do customers and suppliers perceive the attractiveness of OEMs and service providers from expected value perspective in service-infused business relationships? and*

*(3) How the relationships with apparently attractive OEMs and service providers are managed in service business networks?*

I would be very grateful if you or a suitable person within your company could spare 30 minutes to 1 hour to answer some questions on the above topics, either face to face or by telephone.

A non-disclosure agreement can be provided if required. Any information supplied will be treated confidentially and names of participating companies will not be disclosed.

Please let me know if your company is able to support and I will make arrangements for the discussion. If you require any further information please do not hesitate to contact me.

Sincerely yours,

**Natalia Tekucheva**
PhD Student
Email: n.a.tekucheva@durham.ac.uk
Mobile: +44 (0) 743 462 0219
**Durham University Business School – Department of Marketing**

**Appendix C: Consent form**

## CONSENT FORM

Title of Project: Original equipment manufacturer (OEM) and services provider attractiveness and management in high value-added manufacturing industries

Name of Researcher: Natalia Tekucheva

Please initial box

**I confirm that I have read and understood the interview questions displayed on supporting information sheet provided for the above project**

**I have had the opportunity to consider the information and ask any questions**

**I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason**

*I understand that the interview/ focus group will be recorded and that the recordings will be stored securely and destroyed on completion*

*I understand that my data will only be accessed by the researcher and her supervisors*

*I understand that my data will be anonymised (name of the participant and the company will not be disclosed)*

*I agree to the publication of verbatim quotes/ photographs*

*I agree that the data will be used not only in Russia/ the UK but outside the country too*

*I am willing to be contacted with some additional questions relevant to current project*

**I agree to take part in the above project**

| Name of Participant | Signature | Date |
|---|---|---|
| Name of Researcher | Signature | Date |

## Appendix D: Research topic and interview questions

**Durham University Business School – Department of Marketing**
*PhD Student: Natalia Tekucheva*
*Supervised by: Professor Nick Ellis, BSc, MSc, PhD, CIM Dip Marketing*
*Professor Carlos M.P. Sousa, BA, BA(Hons), MA, MComm, PhD*

**Research topic: original equipment manufacturer (OEM) and services provider (SP) attractiveness and management in high value added manufacturing industries.**
Scope: Europe incl. Russia
Industries: shipbuilding and automobile manufacturing
Interview questions:

(1) What is are the main milestones in the process of value definition, assessment and creation in automotive and shipbuilding industries and what is the involvement of other parties in it?

*Objectives: 1a. To identify the peculiarities and main stages of value definition, assessment and creation in automotive and shipbuilding environments.*

*1b. To explore the roles of other organizations (not only the customer itself) in this process.*

(2) What do customers (shipbuilders (SB)/ automobile manufacturers (AM)) buy? (Main product types representing a mixture of tangible goods (OE)/services)

*Objective: To identify the main types of products that represent a mixture of tangible goods and services purchased by AM and SB and their distinct characteristics, e.g. proportion of service within the offer, relation to direct business activity, level of spend, risk, complexity etc.*

(3) How do customers (SB, AM) buy and who is involved in supplier selection? (Main purchasing scenarios & decision-makers)

*Objective: To identify the main purchasing scenarios (level of uniqueness/ repeatability, order frequency, buying process, supply agreement peculiarities etc.) and decision-makers for the main types of products that represent a mixture of tangible goods and services purchased by AM and SB.*

(4) What are the customers' (SB, AM) perceptions of value? (Customer perceptions of value/ supplier assessment criteria for each product type and supplier evaluation process)

*Objectives: 4a. To identify key factors and supplier evaluation process that impact customer (AM and SB) decision-making for the main types of products that represent a mixture of tangible goods and services.*
*4b. To explore whether the impact of these factors vary based on functional area of the individuals involved in decision-making process (procurement, quality, operations, health & safety, engineering etc.).*
*4c. To examine whether the impact of these factors vary based on the product type and internal procedures required to be followed when buying the main types of products representing a mixture of tangible goods and services.*

(5) What are the main market peculiarities and their influence on sourcing decisions and supply relationships/ networks management? (Market peculiarities)

*Objective: Identify market peculiarities/ intricacies.*

(6) How do respondents estimate environmental volatility/ risk and its influence on sourcing decisions and supply relationships/ networks management. How to minimise it?

*Objective: Identify environmental peculiarities*

(7) Who is preferred customer choice for each of the product types and why? (Customers' perceptions regarding OEM & SP attractiveness and their supply networks capabilities when buying particular product types)

*Objectives: 7a. To identify types of products that represent a mixture of tangible goods and services where OEM will be more preferable supplier than SP and why.*
*7b. To identify types of products that represent a mixture of tangible goods and services where SP will be more preferable supplier than OEM and why.*
*7c. To identify types of products that represent a mixture of tangible goods and services where both SPs and OEMs could leverage their attractiveness via cooperation with each other and why.*

(8) How do respondents see potential improvements of OEM and SP relative attractiveness and their supply networks characteristics and capabilities for the main types of products? Where would it be beneficial for OEM and SP to cooperate? (OEM & SP attractiveness improvement)

*Objectives: 8a. To examine how AM and SB view the ways of maximizing the value (including but not limited to supply network optimization/ change) for the benefit of OEM and SP relative positioning (or fit) for main types of products representing a mixture of tangible goods and services.*
*8b. To examine how OEM and SP view the ways of maximizing the value (including but not limited to supply network optimization/ change) for the benefits of their relative positioning (or fit) for main types of products representing a mixture of tangible goods and services.*
Respondents (shipbuilders (SB) and auto manufacturers (AM))– individuals involved in supplier selection process when buying products, representing a mixture of tangible goods (OE)/services. Can be from procurement/ engineering/ quality/ operations departments depending on the company organizational structure.
Respondents (OEM, SP) – individuals involved in creating/ selling products representing a mixture of tangible goods (OE)/services to customers from selected high value added manufacturing industries. Can be from sales/ marketing/ engineering/ purchasing departments depending on the company organizational structure.

## Appendix E: Raw data to themes

### Examples

| Raw data | Subcodes | Codes | Subcategories | Categories | Subthemes | Themes |
|---|---|---|---|---|---|---|
| *If you have never done similar projects, you have no experience in potential challenges, e.g. over-budgeting, meeting the deadlines, compliance with the required standards that go 'hand in hand' with it… Work on the project involves a lot of thinking it through, anticipation of potential challenges, visualising and, of course, the delivery based on the customer expectations… (Chief Buyer of Service Provider 3).* | Historic vendor performance and experience | Suppliers' positions within networks | - | Other factors affecting supplier attractiveness | - | Supplier attractiveness in relation to value |
| *The automotive market is a 'closed market' or a 'small community', where everybody knows each other. Regularly doing a good job is the best way of demonstrating your strengths and capabilities (Director of Service Provider 4).* | Relationships with supply network members | Suppliers' positions within networks | - | Other factors affecting supplier attractiveness | - | Supplier attractiveness in relation to value |
| *Shipyards are choosing service providers mainly in three areas: First, where supplied equipment is a part of a 'larger supply', containing a number of pieces of equipment plus where customers need an engineering or technical solution or support in logistics. Second, where technically complex, perceived as 'difficult' equipment, i.e. heating and ventilation, navigation etc., as well as technical or engineering ideas, is required. Finally, where the proportion of service within the offer is high and the availability of local* | - | - | - | Service provider attractiveness from inter-firm cooperation perspective | Relative attractiveness of service provider | Relative attractiveness of OEMs and service providers |

| | | | | | | |
|---|---|---|---|---|---|---|
| *service is extremely important. (Deputy Director of Service Provider 1)* | | | | | | |
| ***Being 'approved contractor' proves that the company can do a good job in line with the market expectations and industry standards. Thus, if the company is in the list of 'approved contractors', it is likely to be awarded with the business on a regular basis. For instance, after being awarded with this status Service Provider 2 maintained its continuous co-operation with one of its main customers for over 20 years (Director of Service Provider 2).*** | - | Contractual or other commitments | - | Supplier objectives and performance measurement | - | Managing relationships with attractive OEMs and service providers in the main types of B2B service networks |

# Appendix F: Purchase types

To define and manage the most attractive vendors contemporary automobile manufacturers and shipbuilders categorize their purchases. In this product categorisation with the exception of the purchases required directly in building vehicles and vessels (due to mass-production in automotive and prototype nature of the demand in shipbuilding), findings were highly consistent across the respondents from the two industries and countries – the UK and Russia.

Although the companies interviewed classified their outsourced products differently, the main characteristics of these products appeared to be the same and applicable to all the purchases. The proportion of service within the supplier offering (service or OE/ material), levels of spend, risk and complexity, uniqueness/ repeatability and order frequency have been used to describe the main purchase types, representing amalgamations of tangible goods and services in both industries. Also all the respondents in the UK and Russia highlighted the necessity to differentiate those products that go directly into the final product (vehicle or vessel), from the purchases, required for the manufacturing plant facilities and infrastructure.

The proportion of service within the supplier offering was seen as one of the most important differentiating factor for all of the UK and Russian interviewees across the two industries. However, this occurred for different reasons. The automobile manufacturers acknowledged that it is more difficult to drive standardization with services. It has also been mentioned by the respondents that managing services is more challenging than managing tangible goods (OE or materials), and this requires differing relationship strategies. In shipbuilding, however, knowing the core part of the product helps the shipyards to search, choose and manage the right vendor – either a service provider (if the core part of the product is service) or an original equipment manufacturer (if the core part of the product is equipment). Unfortunately, none of the existing portfolio approaches to procurement capture this important factor.

Although differentiating products based on their core part (service or original equipment/ materials) was important for all of the interviewees, it was not found necessary to distinguish the importance of tangible (products) or intangible (services) aspects of purchase. Both of the latter were equally important within the two industries even when the companies were buying ‘third order services’.

For better understanding of supplier attractiveness and management it is also important to note the differences between the two industries. Based on the main product group descriptions and their characteristics as distinguished by the interviewees, while in the automotive industry all vehicle parts and materials belong to one product type, in shipbuilding several types are required (see Tables F.1 and F.2).

In vehicle manufacturing, the only services associated with vehicle parts (i.e. seats, carpets, cockpit, module, electronic equipment, wheels, tires, exhaust, etc.) and materials (i.e. steel, glass, aluminum, plastic, paints, etc.) are assembly and sequencing or warehousing. Due to high volume mass-production orientation of the market, all the orders will be frequent and repeatable. The level of spend is generally high due to the production scale but depends on the purchased product. Levels of risk and complexity are based on the product as well as the location of the supplier. The customer has the opportunity to trial the products beforehand to determine the most suitable supply source.

*Table F.1. Vehicle materials, equipment and services: Main purchased product types*

| Product Type | Characteristics of Product Types | | | | |
|---|---|---|---|---|---|
| | Core product part | Level of spend | Order frequency | Level of order uniqueness/ repeatability | Level of risk/ complexity |
| Vehicle parts and materials | OE/ material | Generally high | High | Repeatable | Depends on the product |

Unlike cars, every ship is unique, and therefore, it requires customized materials, equipment and services. Repeatable orders and the ability to test purchased products prior to placing orders are unlikely. Combining the information received from all the interviewees on their product categorisation and main product characteristics, it is possible to distinguish five groups of products representing amalgamations of goods and services (see Table F.2).

*Table F.2: Vessel materials, equipment and services: Main purchased product types*

| Product Type | Characteristics of Product Types | | | | |
|---|---|---|---|---|---|
| | Core product part | Level of spend | Order frequency | Level of order uniqueness/ repeatability | Level of risk/ complexity |
| Large and core equipment and services | OE | High | Project-based | Unique | Generally medium |

| | | | | | |
|---|---|---|---|---|---|
| Equipment-related services | Generally equal | Medium | Project-based | Unique | High |
| Non-equipment related services | Mainly services | Low to High | Project-based | Unique | Low to High |
| Medium and small equipment | OE | Low to Medium | Project-based | Unique | Low to Medium |
| Basic goods and materials | Goods and materials | Low to High | Project-based | Repeatability may occur | Low |

All vessel equipment, materials and services are purchased specifically for particular projects and, therefore, with the exception of basic goods and materials, are unique. Large and core equipment (i.e. engines, diesel-generators) is associated with a high level of expenditure, medium risks and complexity. Equipment-related services, including complex electro-automatic service packages, are characterized by a high level of risk, medium level of spend and generally consist of comparable service and equipment or other goods elements. Non-equipment related services have an above average proportion of service with varying levels of spend, risks and complexity and include: fabrications, interior, fire safety, and painting works, etc. Medium and small equipment (i.e. hydraulics) is rarely purchased with services and represent relatively low to medium levels of spend, risks, and complexity. Basic goods and materials have varying value and are generally associated with low levels of risks and complexity. They include metal, inks, varnishes, etc., which may be ordered more than once. Table F.3 shows an example of purchase categorisation of one of the interviewed shipyards.

All products representing a combination of tangible goods or original equipment and services, purchased for plant (both in automotive and shipbuilding industries) facilities, belong to the indirect procurement category, which is mainly construction, process engineering and services. All these products can be divided into five groups based on their distinct characteristics. They are: general technical services, general low-skilled services, general equipment and services, unique equipment and services, unique software or technology and services and production consumables.

*Table F.3: Shipyard 1 categorisation of all the purchases (Note: table is unfinished as interviewee left the company)*

| Product category | Product subcategory | Level of spend | Risk/ complexity | % of service/ OE |
|---|---|---|---|---|
| **Automation, Communication, Navigation & Electrical** | Automation, regulation, measurement & control (ex. Services) | High | High | 50/50 |
| | Electrical components (ex. Services) | high | low | 95/5 |
| | Lighting (ex. Services) | medium | low | 100/0 |
| | Navigation equipment (ex. Services) | medium | medium | 100/0 |
| | Positioning equipment (ex. Services) | medium | medium | 100/0 |
| | Power supplies, generators, transformers (ex. Services) | medium | low | 100/0 |
| **Base materials** | Castings and forging (ex. Machining) | medium | medium | 100/0 |
| | Ferro materials (ex. Machining) | High | medium | 95/5 |
| | Non-ferro materials (ex. Machining) | High | medium | 95/5 |
| **Constructions and Assembly** | Construction works (ex. Base materials) | High | High | 70/30 |
| | Machining services (ex. Base materials) | High | High | 50/50 |
| **Contracting** | Conservation services | | | |
| | Engineering services | High | medium | 90/10 |
| | Logistical services | medium | medium | 100/0 |
| | Rental equipment and services | low | low | 100/0 |
| | Technical services | medium | medium | 90/10 |
| | Installation services (ex. Components and Base materials) | low | medium | 80/20 |
| **Functional trade parts** | Cranes | medium | High | 100/0 |
| | Diving installation | | | |
| | Diving tooling and accessories | | | |
| | General offshore equipment | medium | medium | 80/20 |
| | Pipe laying Equipment | high | high | 100/0 |
| | Winches | medium | high | 70/30 |
| **General trade parts** | Bearings & bushes | low | low | 100/0 |
| | Cables, chains and belts | low | low | 100/0 |
| | Chemicals | low | low | 100/0 |
| | Cranes lifting equipment | high | medium | 100/0 |
| | Fasteners | low | low | 100/0 |
| | Filters | low | low | 100/0 |
| | Fuel & lubrication products | low | low | 100/0 |
| | Industrial gasses | low | low | 100/0 |
| | Seals & gaskets | low | low | 100/0 |
| | Tanks, holds, compartments, boilers | low | low | 100/0 |
| | Tools | low | low | 100/0 |
| | Welding consumables | low | low | 100/0 |
| **Hydraulics and Piping** | Cylinder parts | medium | High | 100/0 |
| | Cylinders | high | high | 50/50 |
| | Hoses, couplings & nozzles | low | low | 80/20 |
| | Pipe fittings & flanges | low | low | 100/0 |
| | Valves | low | low | 100/0 |
| | Piping (ex. Services) | medium | medium | 70/30 |
| | Hydraulics & pneumatics (ex. Services) | low | low | 50/50 |
| **Non-Product Related** | Assets & utilities | high | low | 100/0 |
| | Business organizational services | low | low | 100/0 |
| | Computing, software & communications | medium | medium | 100/0 |
| | Contracting services (non-production) | low | low | 100/0 |
| | Facility management | medium | low | 100/0 |
| | Marketing & sales | low | low | 100/0 |
| | Office suppliers | low | low | 100/0 |
| | Personal Protective Equipment (PPE) | low | low | 100/0 |
| **Propulsion** | Exhaust gas | | | |
| | Motors | | | |
| | Steering & propulsion | | | |
| | Transmission | | | |
| **Ship equipment and systems** | Accomodation doors | | | |
| | Accomodation floors, walls and ceilings | | | |
| | Accomodation furniture | | | |
| | Accomodation galley | | | |
| | Accomodation galley and laundry | | | |
| | Accomodation general | | | |
| | Accomodation sanitary | | | |
| | Accomodation windows | | | |
| | Anchors, mooring chains & fenders | | | |
| | Ballast & bilge systems | | | |
| | Compressed air | | | |
| | Cooling systems | | | |
| | Deck equipment | | | |
| | Drinking water systems | | | |
| | Fuel oil | | | |
| | Hull protection systems | | | |
| | Life saving equipment | | | |
| | Pumps | | | |
| | Rigging equipment | | | |
| | Waste processing systems | | | |
| | HVAC (ex. Services) | | | |

*Table F.4: Main purchased product types for the manufacturing facilities in both automotive and shipbuilding industries*

| Product Type | Characteristics of Product Types | | | | |
|---|---|---|---|---|---|
| | Core product part | Level of spend | Order frequency | Level of order uniqueness/ repeatability | Level of risk/ complexity |
| General technical services | Service | Medium to High | Often | Unique, only elements of the project can be replicated | Medium to High. Cannot be assessed during the trials |
| General low-skilled services | Service | Small | Very often and regular | Repeatable | Small. Cannot be assessed during the trials |
| General equipment and services | OE | Medium | Often | Unique, only elements of the project can be replicated | Medium. Cannot be assessed during the trials |
| Unique equipment and services | OE | Medium to High | Seldom | Always unique excluding maintenance services | High to Very High excluding maintenance services. Cannot be assessed during the trials |
| Unique software/ technology and services | OE | Medium to High | Seldom | Always unique excluding maintenance services | High to Very High excluding maintenance services. Cannot be assessed during the trials |
| Production consumables | Goods and rarely OE | Relatively low | Often | Repeatable | Low |

General technical services include installation, construction and certain elements of process engineering. Risks and complexity of works vary depending on the project. The latter is normally unique with service proportion above average and a very limited level of repeatability. Only some elements of the project can be replicated, never the entire project. This group of products is purchased relatively often with a medium to high level of expenditure on average.

General low-skilled services represent frequent and low value purchases with high level of repeatability and low risk level, e.g. cleaning, cabling works, etc. Here the service proportion is above average, close to 80-90%.

In general equipment and services, the proportion of original equipment is above average. These products *"do not have a direct impact on the car, but any mistakes with this group of products can appear in different forms" (Senior Engineer 2 of Automobile Manufacturer 1)*. General equipment and services are, on average, purchased at medium cost, risk and complexity levels. These three characteristics, however, vary based on the project.

Unique equipment or software/ technology and services include expensive equipment or software, purchased once in 5-20 years (capital expenditure) with training manuals and maintenance, i.e. robots, painting cameras, presses, etc. Both of these two product subcategories represent high risk and are required for complex projects. Every job is unique and tailor-made for a particular manufacturing facility. The proportion of service in purchased products is always project-specific.

Maintenance of the unique equipment and services can be done internally, with the spare parts being purchased at times through the second source and without the original supplier involvement for commercial reasons. When it comes to software or technology and services, however, *"it is impossible to do anything internally or purchase the spare parts through the second source due to high-end technology"* (Senior Engineer 2 of Automobile Manufacturer 1). The original supplier must be involved in these cases.

Production consumables mainly represent relatively low value frequently ordered goods and rarely include equipment with low levels of risk and complexity.

# Appendix G: Thematic chart A (Supplier attractiveness in relation to value)

Theme A
Supplier attractiveness in relation to value

*Key words*: motivation for a relationship between the parties, benefits from the business relationship, partner selection, supplier evaluation, competitive priorities, key competitive success factors, relationship value drivers, main value drivers, main dimensions of value, supplier selection criteria and strategic fit to the 'ideal supplier profile'

*Overview*

According to the available theory, supplier attractiveness is understood as an extent to which relational partners perceive their past, current and potential partners as appealing, in terms of their ability to provide economic, social and resource related benefits (Hald et al., 2009; Harris et al., 2003). Although Ulaga (2003) and Hald et al. (2009) tried to capture value creation in business relationships from a customer perspective, by establishing certain relationship value drivers, there is still a lack of understanding of the determinants of the attractive supplier (Wilkinson et al., 2005; Mortensen, 2012).

On the other hand, the relationship value drivers established by Ulaga (2003) and Hald et al. (2009) coincide with two other streams of marketing literature, focusing on business relationships from customer and supplier perspectives. The customer perspective is expressed through competitive priorities, main value drivers or dimensions of value and supplier selection criteria (Abratt, 1986; Krause et al., 2001; Maltz et al., 2011; Weber et al., 1991), while the supplier perspective can be seen as the supplier's ability to fit the 'ideal supplier profile' (Cui et al., 2014; Hill and Brown, 2007; Murray et al., 2009; Nielsen and Gudergan, 2012; Peng et al., 2011; Venkatraman, 1989; Zaefarian et al., 2013; Zeriti et al., 2014). However, the available literature on vendor attractiveness does not make any reference to these studies, and therefore, does not recognise their relevancy for understanding the vendor attractiveness concept.

Furthermore, the available literature on supplier attractiveness is mainly conceptual in nature and empirical knowledge of this phenomenon is in its infancy (Hald et al., 2009; Mortensen, 2012). On the other hand, the majority of the literature on competitive priorities, the main value drivers or dimensions of value, supplier selection criteria and the fit to the 'ideal supplier profile' are mainly quantitative or conceptual, and have hardly studied the phenomenon in a service context. Moreover, some of these studies were carried out more than one or two decades ago. Furthermore, the literature does not capture the network perspective on business relationships and have not explored if the competitive priorities, main value drivers (or dimensions of value), supplier selection criteria and the fit to the 'ideal supplier profile' differ for vendors depending on the core part of their products. Additionally, the available literature on the fit to the 'ideal supplier profile' is inconsistent from theoretical and empirical perspectives, lacks granularity, and therefore, struggles to assess the phenomenon (Nielsen and Gudergan, 2012; Peng et al., 2011; Smith and Reece, 1999).

| |
|---|
| Theme A captures both customers' and suppliers' views on this phenomenon, which is then discussed in relation to the above literature in the current 'Discussion' section, based on the thematic analysis conducted. |
| *Main literature*<br>*From supplier attractiveness as an 'expected value' or a motivational aspect of the relationship between the parties and its development perspective:* Dwyer et al. (1987), Ellegaard & Ritter (2007), Hald et al. (2009), Halinen (1997), Harris et al. (2003), Komulainen et al. (2005), Mortensen et al. (2008), Mortensen (2012) and Ulaga (2003).<br><br>*From the perspective of competitive priorities, the main value drivers or main dimensions of value and supplier selection criteria:* Abratt (1986), Krause et al. (2001), Maltz et al. (2011), Weber et al. (1991), etc.<br><br>*From the strategic fit to the 'ideal supplier profile' perspective:* Cui et al. (2014), Hill and Brown (2007), Murray et al. (2009), Nielsen and Gudergan (2012), Peng et al. (2011), Smith and Reece (1999), Venkatraman (1989), Zaefarian et al. (2013), Zeriti et al. (2014) |
| *Categories*<br>(1) Vendor attractiveness expressed via main dimensions of value or competitive priorities or supplier selection criteria and (2) other factors affecting supplier attractiveness. |
| *Codes*<br>(1) Quality, (2) delivery, (3) cost, (4) innovation, (5) position of incumbent supplier and other competitors, (6) relationships with customers and other supply network members, (7) historic vendor performance and experience, (8) supplier size, (9) supplier location and (10) supplier business ethics. |
| *Sub-codes*<br>(1) Compliance to technical, including engineering and production requirements, (2) compliance to market regulations, legislation and standards, (3) style, (4) reliability, (5) health and safety aspects, (6) world-class standards, (7) strong technical and service support, (8) up-to-date technology, (9) knowledge of globally available equipment, (10) participation in continuous improvement activities from a quality perspective, (11) customer orientation, (12) technical excellence, (13) investment in personnel, (14) corporate social responsibility (CSR), (15) project related documentation, (16) supplier warranty, (17) engineering thinking, design skills and ability to read drawings, (18) leading edge products, (19) strong brand, (20) ability to supply a broad product portfolio, (21) intimate understanding of the customer's business, (22) commercial proposition including product prices, (23) commercial transparency, (24) participation in continuous improvement activities from a cost perspective, (25) commercial differentials with competitors, (26) supplier financial stability, (27) meeting requirements within agreed deadlines (i.e. compliance with terms and conditions of purchase), (28) supplier performance, (29) ability to meet shipping requirements, including container choice and labelling, (30) supplier specialisation, knowledge and past experience, (31) risk management (financial, capacity, quality and time related), (32) lead times, (33) footprint, (34) timely product delivery, (35) participation in continuous improvement activities from a delivery perspective, (36) global presence, (37) consistently good service and support, (38) good local representation, (39) innovation in respect to cost, (40) safety, efficiency and environmental aspects, (41) research and development capability, (41) speed, (42) conducting business in non-traditional ways, (43) knowledge of the latest |

developments, (44) participation in continuous improvement activities from an innovation perspective, (45) outstanding technical value, (46) investment in innovation, (47) best technology, (48) best standards, (49) long-term vision, (50) position of the incumbent supplier and other competitors, (51) relationships with (a) customers and (b) other supply network members, (52) historic vendor performance and experience, (53) supplier size due to ability to survive in a volatile business environment, (54) supplier size as an indication of capabilities, (55) supplier size from a negotiation perspective, (56) supplier location due to product size, (57) supplier location due to service level expectations, (58) supplier location due to high import duties, (59) supplier location due to stereotypes on quality and innovation levels, as well as customer service and business ethics, (60) supplier location due to required knowledge of local legislation and other regulatory requirements, (61) supplier location due to interest rates, (61) supplier location due to logistics costs, (62) supplier location due to different standards and methods, (63) supplier location from a negotiation perspective, (64) supplier location due to ease of communications, (65) supplier location due to speed of product delivery, (66) supplier location in relation to supporting a national economy, (67) supplier location due to geographical coverage area for after-sales service and spare parts supply, (68) supplier location due to good local representation, (69) supplier location due to capabilities' level within the country, (70) supplier business ethics, (71) brand and (72) product transportation.

*Findings*

The data obtained showed that both customers and suppliers viewed vendor attractiveness in relation to value as a combination of factors representing the main dimensions of value (quality, cost, delivery and innovation), based on the companies' competitive priorities, as well as other additional factors. This hence, indicated the relevancy of earlier studies on competitive priorities, main value drivers or dimensions of value, supplier selection criteria and suppliers' abilities to fit the 'ideal supplier profile' for better understanding of the concept supplier attractiveness in relation to value. Also, research findings showed the importance of other factors that are currently missing in the existing marketing literature, including the position of the incumbent supplier and other competitors and the relationships with customers and other supply network members. This therefore, indicates that supplier attractiveness cannot be considered in isolation from business networks. Additionally, the findings suggest that service providers and OEMs can have very similar competitive priorities, such as prioritising service levels and support to their customers. On the other hand, in mass-production manufacturing based on the example of the automotive industry, customers' and suppliers' views on the main dimensions of value are different when it comes to services suppliers, as opposed to the manufacturers, and vice versa.

*Participant perspectives*

> *If you have never done similar projects, you have no experience in potential challenges, e.g. over-budgeting, meeting the deadlines, compliance with the required standards that go 'hand in hand' with it… Work on the project involves a lot of thinking it through, anticipation of potential challenges, visualising and, of course, the delivery based on the customer expectations… (Chief Buyer of Service Provider 3).*
>
> *Medium and small businesses in Russia have a rather short-term focus, with very little interest in long-term relationships. Firms that exist today might not exist in one years' time or even tomorrow. Accounting (financial stability) information is made to suit the taxation purposes. Companies*

*are interested in making money, gaining the business as a first priority and only then considering the ability to fulfil customer requirements properly… Suppliers on many occasions do not fully understand customers' needs and show low interest in knowing them (Senior Engineer 2 of Automobile Manufacturer 1).*

*The automotive market is a 'closed market' or a 'small community', where everybody knows each other. Regularly doing a good job is the best way of demonstrating your strengths and capabilities (Director of Service Provider 4).*

*…Many service providers in Russia do warranties free of charge in order to make their propositions look more attractive... They know that these warrantees are highly desired in the Russian shipbuilding industry (Purchasing Director Shipyard 3).*

*Product delivery terms in Russian shipbuilding are not only important for the continuation of vessel manufacturing, but for commercial reasons too. Late product delivery causes significant fines as a result of breaking Russian currency legislation (Purchasing Director of Shipyard 3).*

*Moving from findings to action*

How do customers and suppliers perceive the relative attractiveness of OEMs and service providers based on the understanding of the concept in relation to value in service-infused business relationships? (See Chapter 5.)

# Appendix H: Shipyard 1 supplier preference

(Note: table is unfinished as interviewee left the company)

| Product category | Product subcategory | Preferred supplier |
|---|---|---|
| **Automation, Communication, Navigation & Electrical** | Automation, regulation, measurement & control (ex. Services) | OEM |
| | Electrical components (ex. Services) | service provider |
| | Lighting (ex. Services) | service provider |
| | Navigation equipment (ex. Services) | service provider |
| | Positioning equipment (ex. Services) | service provider |
| | Power supplies, generators, transformers (ex. Services) | service provider |
| **Base materials** | Castings and forging (ex. Machining) | service provider |
| | Ferro materials (ex. Machining) | service provider |
| | Non-ferro materials (ex. Machining) | service provider |
| **Constructions and Assembly** | Construction works (ex. Base materials) | OEM |
| | Machining services (ex. Base materials) | OEM |
| **Contracting** | Conservation services | |
| | Engineering services | OEM |
| | Logistical services | service provider |
| | Rental equipment and services | service provider |
| | Technical services | service provider |
| | Installation services (ex. Components and Base materials) | service provider |
| **Functional trade parts** | Cranes | service provider |
| | Diving installation | |
| | Diving tooling and accessories | |
| | General offshore equipment | service provider |
| | Pipe laying Equipment | OEM |
| | Winches | OEM |
| **General trade parts** | Bearings & bushes | service provider |
| | Cables, chains and belts | service provider |
| | Chemicals | service provider |
| | Cranes lifting equipment | service provider |
| | Fasteners | service provider |
| | Filters | service provider |
| | Fuel & lubrication products | service provider |
| | Industrial gasses | service provider |
| | Seals & gaskets | service provider |
| | Tanks, holds, compartments, boilers | service provider |
| | Tools | service provider |
| | Welding consumables | service provider |
| **Hydraulics and Piping** | Cylinder parts | service provider |
| | Cylinders | OEM |
| | Hoses, couplings & nozzles | service provider |
| | Pipe fittings & flanges | service provider |
| | Valves | service provider |
| | Piping (ex. Services) | OEM |
| | Hydraulics & pneumatics (ex. Services) | OEM |
| **Non-Product Related** | Assets & utilities | service provider |
| | Business organizational services | service provider |
| | Computing, software & communications | service provider |
| | Contracting services (non-production) | service provider |
| | Facility management | service provider |
| | Marketing & sales | service provider |
| | Office suppliers | service provider |
| | Personal Protective Equipment (PPE) | service provider |
| **Propulsion** | Exhaust gas | |
| | Motors | |
| | Steering & propulsion | |
| | Transmission | |
| **Ship equipment and systems** | Accomodation doors | |
| | Accomodation floors, walls and ceilings | |
| | Accomodation furniture | |
| | Accomodation galley | |
| | Accomodation galley and laundry | |
| | Accomodation general | |
| | Accomodation sanitary | |
| | Accomodation windows | |
| | Anchors, mooring chains & fenders | |
| | Ballast & bilge systems | |
| | Compressed air | |
| | Cooling systems | |
| | Deck equipment | |
| | Drinking water systems | |
| | Fuel oil | |
| | Hull protection systems | |
| | Life saving equipment | |
| | Pumps | |
| | Rigging equipment | |
| | Waste processing systems | |
| | HVAC (ex. Services) | |

# Appendix I: Thematic chart B

**Theme B**
**Relative attractiveness of OEMs and service providers**

*Key words*: buyer-supplier cooperation, inter-firm alliances, inter-firm cooperation, buyer-supplier relationships, business partnerships, relationship value, inter-organizational cooperation, business partnerships, supply chain collaboration, relationships in business networks, competitive advantage in service industries, industrial services, service businesses

*Overview*

As previously mentioned, there is a lack of understanding of the determinants of the attractive supplier (Wilkinson, et al., 2005; Mortensen, 2012). On the other hand, the main benefits arising from buyer-supplier cooperation and inter-firm alliances have been extensively discussed within the marketing literature over the last three decades (see below). However, the literature has not contrasted services businesses with manufacturing companies.

Furthermore, despite the importance of services within the global economies and considerable attention from the academic community to service transition strategies (see Chapter 2 Literature review) as well as the fact that several authors have pointed out that sources of competitive advantage are different for service businesses as opposed to manufacturing (see below), our knowledge as to when service providers are preferred suppliers to OEMs and vice versa is still scarce. As a result, the existing theory lacks an understanding of the main drivers for cooperation with OEMs as opposed to service providers and vice versa and, therefore, their attractiveness for the customers.

Theme B attempts to shed light on this subject matter based on the gathered data.

*Main literature*

*From buyer-supplier cooperation and inter-firm alliances perspective:* Ahlstrom, et al., 2008; Alvarez and Barney, 2001; Brito and Mariotto, 2013; Dyer and Singh, 1998; Hitt, et al., 2000; Ho and Wahg, 2015; Tsang, et al., 2004, etc

*From competitive advantages in services perspective:* Bharadwaj, et al., 1993; Bowen and Ford, 2002; Brouthers and Brouthers, 2003; Giannakis, 2011; Krause and Scannell, 2002; Matthyssens and Vandenbempt, 1998; Thomas, 1978.

*Subthemes*
(1) OEM relative attractiveness and (2) service provider relative attractiveness

*Categories*
(1) Strengths and weaknesses of OEM, (2) OEM attractiveness in relation to the main purchase types, (3) strengths and weaknesses of service provider, (4) service provider attractiveness in relation to the main purchase types

*Codes*
(1) Core product part, (2) competition with regards to equipment supply, (3) supplier footprint, (4) level of equipment specificity, (5) proportion of the product value that can be supplied by single manufacturer, (6) problem-solving ability with regards to equipment produced by multiple suppliers, (7) vehicle parts and materials, (8) large

and core vessel equipment and services, (9) equipment-related vessel services, (10) non-equipment-related vessel services, (11) medium and small vessel equipment, (12) basic vessel goods and materials, (13) general technical services, (14) general low-skilled services, (15) general equipment and services, (16) unique equipment and services, (17) unique software/ technology and services, (18) production consumables

*Findings*

Obtained findings indicated the relevance of the available literature on the benefits for the buyers arising from supplier cooperation. However, this theory does not contrast manufacturing and services businesses, which appears to be important for the research participants. Moreover, research findings also indicate the relevance of those studies focusing on services businesses and their competitive advantage. In line with some of the studies, it appeared that a competitive advantage in services differ from the manufacturing sector. Furthermore, some services and manufacturing business characteristics available in academic theory appear to be applicable to contemporary automotive and shipbuilding industries. On the other hand, data gathered reveal some theoretical limitations, i.e. applicability of service-related attributes to the manufacturing sector as well as the need to differentiate between OEMs' knowledge in comparison with those of service providers and vice versa, and, thus, differing contributions of these two types of vendors in the relationships with their buyers.

*Participant perspectives*

> *Shipyards are choosing service providers mainly in three areas: First, where supplied equipment is a part of a 'larger supply', containing a number of pieces of equipment plus where customers need an engineering or technical solution or support in logistics. Second, where technically complex, perceived as 'difficult' equipment, i.e. heating and ventilation, navigation etc., as well as technical or engineering ideas, is required. Finally, where the proportion of service within the offer is high and the availability of local service is extremely important. (Deputy Director of Service Provider 1)*
>
> *…If the project requires 3 to 5 different kinds of pumps, for the shipyard, it will be more beneficial to sign one contract with the service provider instead of 5 contracts with each of the OEMs.... Expenses associated with dealing with one service provider are comparable with the expenses when you work with a number of OEMs but one supplier is easier to manage than five. (Purchasing Director of Shipyard 2)*

*Moving from findings to action*

How do customers manage attractive suppliers? (See Chapter 6.)

# Appendix J: Main types of supply networks

**(i) Automotive**

***Vehicle materials, equipment and services***

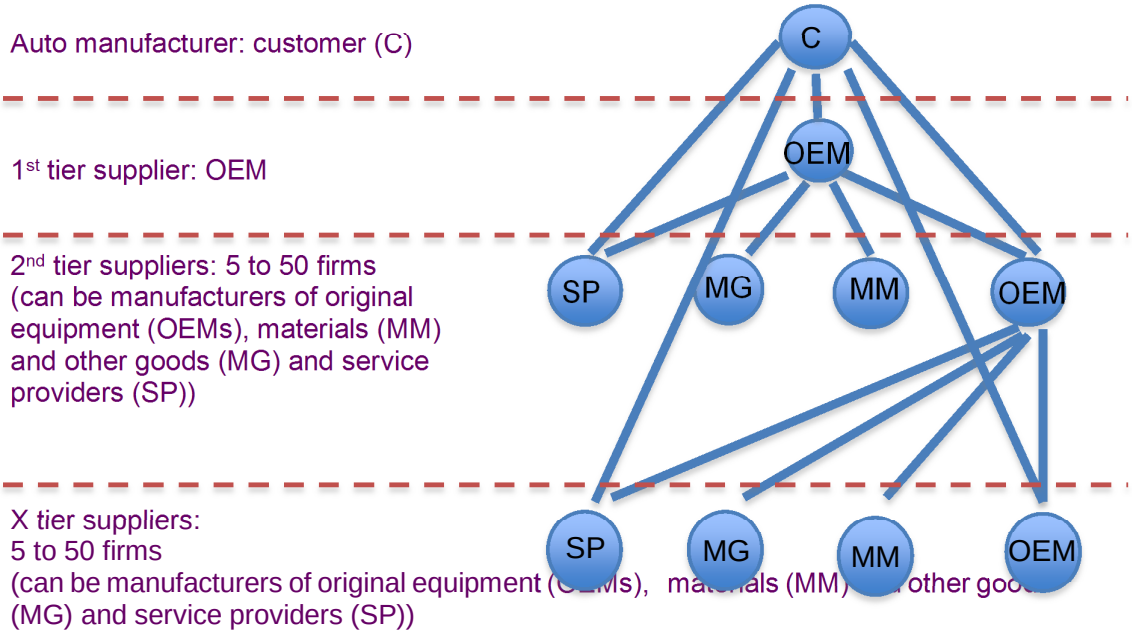
Although vehicle parts and materials were viewed by the respondents as a single product type, their supply networks appeared not to be entirely the same. Despite having a number of similarities, discussed below, they differ when it comes to automobile manufacturer direct collaboration with the upstream (tier 2, tier 3, etc.) suppliers. This is reflected in the network complexity and hierarchy as well as the number of actors (see figure J.1 and J.2).

Due to high volumes mass production of the automotive market and the fact that the demand is initiated by the automobile manufacturer, B2B supply networks for vehicle parts and materials have high levels of stability and standardization. Hence, activities and actors are well-known and clearly defined. This results in more frequent and intense interactions and the ability to fix the relationship between the automobile manufacturer and the tier 1 supplier for a particular period of time in a form of supply contract.

*Vehicle equipment and services*

Since the majority of the costs of vehicle manufacturing lie within the procurement of car components and the significant direct impact of the latter on the look and performance of the car, automobile manufacturers prioritize supply networks for vehicle parts (figure J.1) and try to deal not only with their direct first tier suppliers but tier 2, tier 3, etc. suppliers as well. Among the latter can be manufacturers of original equipment, materials and other goods as well as service providers, depending on the supplied product. These collaborations facilitate technical, in terms of both R&D and standardization, and commercial cooperation, supported by the 'open-book' commercial approach and high level of transparency. Since the scope of the market is global or regional for any of the suppliers within this type of network automobile manufacturer is seen as a large powerful customer. Vehicle manufacturers are driving the trend within the industry as well as willing to invest in small market players if beneficial from the value maximization perspective.

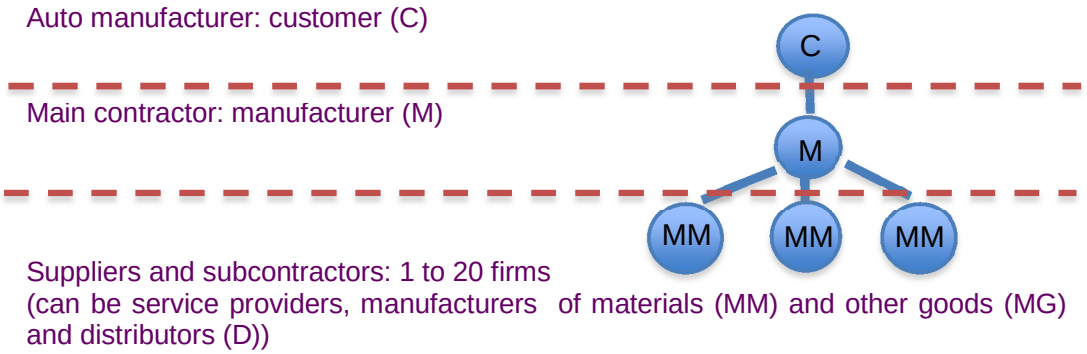
***Figure J.1 B2B supply net for vehicle equipment and services***




*Vehicle materials and services*

Supply network configuration for vehicle materials will be less complex (figure J.2). Number of sub-suppliers and subcontractors for this supply network will be lower comparing to the previous net type. Based on the information available on the materials' manufacturers websites this supply net will mainly consist of the manufacturers of other materials. For example, in steel manufacturing there will be a requirement in alloys, refractories, rolls, metals and bulk gases. First tier suppliers tend to be large regional or global market players, serving a number of industries. For instance, steel manufacturers work with the customers from aerospace, automotive, shipbuilding, lifting and excavating, rail and other industries. Automobile manufacturers tend to work directly with the tier 1 suppliers to achieve their technical and commercial objectives and generally are not interested in cooperating with the sub-suppliers or sub-contractors.

***Figure J.2***
***B2B supply net for materials and services***




***Purchases for manufacturing facilities***

The majority of supply networks for the purchases required for the manufacturing facilities is created specifically to deliver a particular job or project (except those required for general low skilled services and production consumables), and therefore, is characterized by project-based nature of interactions. This generally results in the absence of customer business commitment beyond a particular project. The greater the scale, level of expenses and innovation of the latter, the more actors are involved in supply network.

Frequency of exchange depends on the peculiarities of the project, number of subcontractors and their roles. With the exception of the networks for general low skilled services and production consumables, due to the unique nature of every job, levels of determination of value creating activities and the network members are low. This results in extremely low level of standardization.

*General technical services*

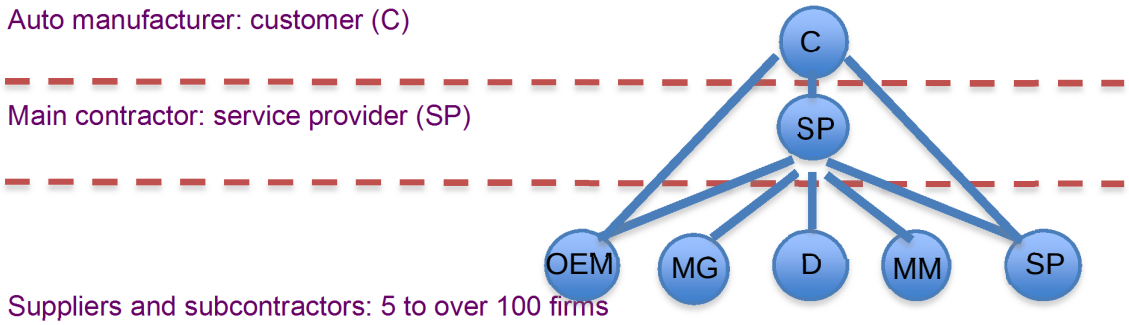
Since complexity and risk levels of general technical services, containing civil construction as well as mechanical and electrical engineering services, are medium to high, its supply network (figure J.3) has above average level of complexity. This results in relatively high number of members from the diverse functional areas. Depending on the degree of customer influence towards the selection or the pricing of the suppliers of its chosen vendor (main contractor), this network type can have vertical or multidimensional structure. Due to more frequent needs in electrical and mechanical services comparing to construction, vehicle manufacturers tend to work not only with the main contractors within these networks but their tie 2 suppliers too for technical and commercial reasons. As a result automobile manufacturers are more involved in

mechanical and electrical engineering networks than its construction equivalents (see quote below).

> *Automobile manufacturers tend to have their preferred vendors for medium to high value equipment and parts and in return have set discount levels with them across all their equipment and parts. During service works, carried out by the service providers, some of their equipment will be purchased. OEMs will supply the equipment with the agreed discounts, as their products finally go to a particular vehicle manufacturer where the discount level is already established… Service providers also have discounts' arrangements with certain OEMs not necessarily supported by the contractual agreements. In some cases the vehicle manufacturer has a better discount than the service provider and in some cases it is the other way round... In the majority of the cases automobile manufacturer specifies the equipment required during the service works. But service provider can also make the recommendations before the equipment will be confirmed by the customer. (Director of Service Provider 2)*

According to Managing Director of Service Provider 2, normally projects belonging to this type vary significantly and may involve 5 to 100 suppliers. To deliver one project service provider can use up to a hundred of different pieces of equipment from different manufacturers.

***Figure J.3***
***B2B supply net for general technical services***



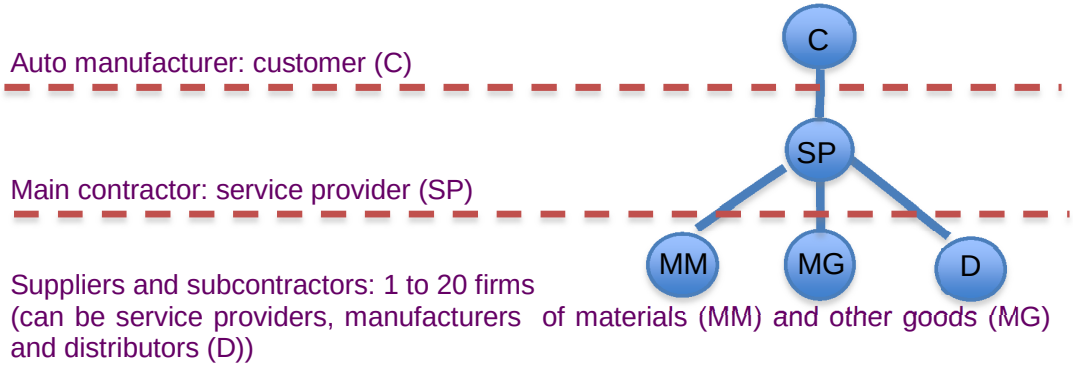

Based on the information, provided by Chief Buyer of Service Provider 3, the demand within the construction industry is highly unpredictable, which makes each project

being unique. This does not allow companies like Service Provider 3 to employ a permanent labour for certain kinds of jobs e.g. bricklayers. However if there will be a need in these relatively standard skilled jobs, it will be no problem to find the providers who can do it. Due to the high level of repeatability across these jobs, it is easy to check whether the price for these services is fair. This makes suppliers of these services being very cost competitive. For this reason the majority of large construction companies tend to outsource concrete, steel cladding, roof, digging, foundation works, gas, electrical and computer services, doors, electrics, wiring, painting, etc. while concentrating on core value-adding activities that are believed to be more critical to the project success, e.g. design.

*General low-skilled services*

B2B supply networks for general low skilled services (i.e. cleaning, cabling, etc.) have simple structure containing relatively small number of actors from just a few functional areas with frequent regular interactions (figure J.4). Since jobs are performed frequently with high level of repeatability, value creating activities, and therefore, the network members are well known and defined. Unlike the previous network, business is awarded and fixed for a particular term by a contract. Vehicle manufacturers are normally not involved in interactions with the suppliers of the chosen service provider due to relatively simple nature of services and their low cost and therefore relatively small commercial optimization opportunity comparing with other purchased product types. R&D requirements within this networks are minimal, level of standardization is high.

***Figure J.4***
***B2B supply net for general low-skilled services***

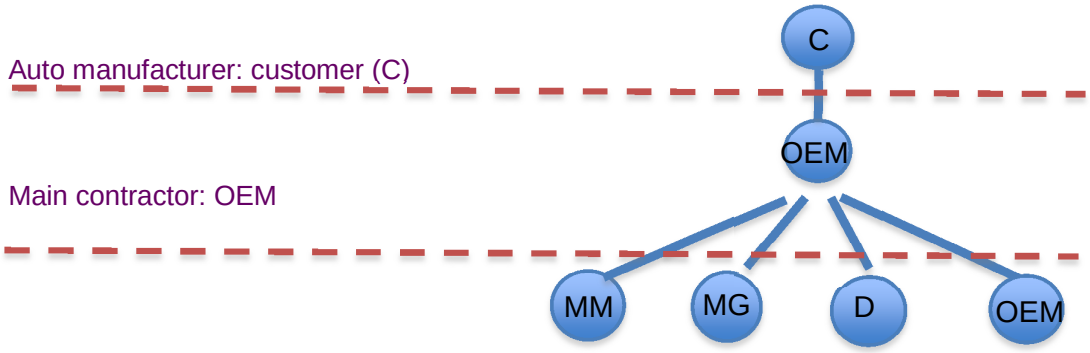



*General equipment and services*

B2B supply network for general equipment and services is similar to the general technical services one (figure N.5). But unlike the latter it is less complex and the core part of the offering is equipment, not service. As a result these networks normally involve 5 to 50 firms, who act as suppliers of the main contractor.

OEM 2 and OEM 3 work with automobile manufacturers directly as well as supply tier 1 and tier 2 suppliers of the auto manufacturers, who produce parts that go into the vehicle, such as steering wheels, dashboards, carpet interiors, wiring harnesses etc. Vehicle manufacturers come to these suppliers when they need their facilities upgraded and modified for quality, safety or environmental reasons. If a relatively standard product is required, OEMs just supply it from stock. If, however, automobile manufacturer is looking for a solution, the OEMs can design the system, manufacture all the required parts, deliver, assemble them and finally work with the system installer in an advisory capacity to provide final commissioning and, in the case of safety systems, validation and compliance checks.

***Figure J.5***
***B2B supply net for general equipment and services***




Suppliers and subcontractors: 5 to 50 firms (can be manufacturers of original equipment (OEMs), materials (MM) and other goods (MG) and distributors (D))

> *Manufacturers of large high value equipment produce 'machines to build vehicles' using OEM 2 equipment. OEM 2 equipment is also purchased by various automobile manufacturers for their shops: body, trim and chassis, etc. Equipment requirements are driven by the specifications, developed by the vehicle manufacturer's engineering and maintenance departments. OEM 2's job is to maintain and re-sell its products either to automobile manufacturers or to the manufacturers of large high value equipment. (Sales Engineer of OEM 2)*

According to Sales Engineer of OEM 2 global automobile manufacturers and manufacturers of large high value equipment are particularly important for the interviewee's company as they set the trend for the world automotive industry and drive future developments and innovations. Cooperation with these two parties enables to be up-to-date with the technology and support the required future OEM 2 product modifications. Understanding of the demand and its dynamics from automobile manufacturers' first and second tier suppliers as well as which companies they supply is also beneficial for determining the dynamics within the industry.

OEM 2 and OEM 3 products are also supplied to the customers via the distributors or informal partners, being mainly electrical service companies. However, in the majority of the cases both of the OEMs deal directly with automobile manufacturers due to their considerable size and associated significant business opportunity.

Based on sales engineers of OEM 2 and OEM3 experience project-based nature of the demand makes partnerships or company-level preferential supply agreements with automobile manufacturers as well as, their facilities (service providers and OEMs) and first to fifth tier vehicle parts suppliers generally very uncommon within the industry. Also there is no standing out from the demand perspective from these groups of customers. Thus, pricing level across these clients is comparable.

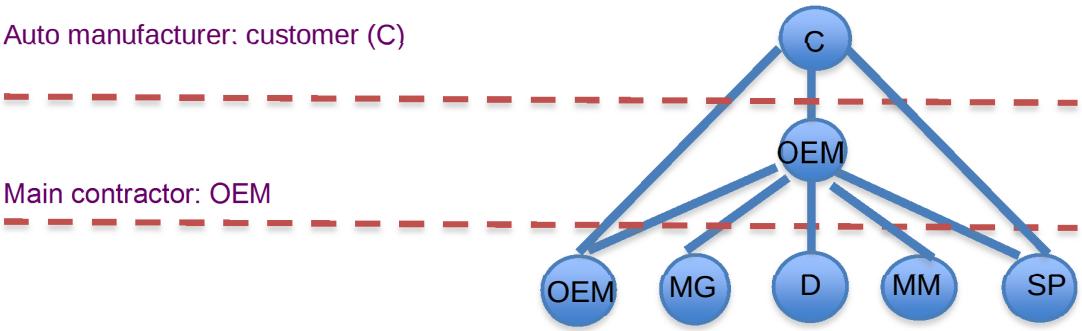
According to Sales Engineer of OEM 3 on average direct turnover with vehicle manufacturers in the UK varies between £100k to £1m, formed mainly by 6 to 8 major contractual projects as well as other relatively small but regular purchases. There is agreed day-by-day pricing level plus project discounts depending on the project value and competition. Since automobile manufacturers are strategic customers for OEM 3, when another supplier is awarded a project on a main contractor basis (supply networks for general technical services and unique equipment or software/ technology and services), the vehicle manufacturer requests OEM 3 to supply equipment at the pricing level existing between them.

*Unique equipment or software or technology and services*

Although unique equipment and services and unique software or technology and services were distinguished as two separate product types they have identical B2B supply networks (figure J.6). Based on the information obtained from the automobile manufacturers as well as their suppliers, these networks have high level of complexity

and involve greater number of vendors or subcontractors from various functional areas comparing to the previous network type. Due to high value associated with these purchase types level of customer involvement in these networks is high. It is not uncommon for the latter to use its buying power to negotiate better prices with some subcontractors who can be both OEMs and service providers as well as enforcing participation of certain vendors.

***Figure J.6***
***B2B supply net for unique equipment/ software/ technology and services***




Suppliers and subcontractors: 30 to over 100 firms
(can be service providers, manufacturers of original equipment (OEMs), materials (MM) and other goods (MG) and distributors (D))

According to Sales Director of OEM 4, normally each project requires design, manufacture of the required equipment, its fabrication and installation. OEM 4 does not have its own fabrication facilities and in some cases to be either commercially competitive or to speed up the progress on the project OEM 4 employs subcontractors. These subcontractors are either OEM 4 quality assurance approved companies or may be recommended by the customer to perform certain jobs.

OEM 4 protects its technical expertise and intellectual property and would never delegate performing business critical activities especially those related to robots and automation systems to external parties. It prefers to keep a number of sub-suppliers to the minimum and except outsourced sub-designs involves subcontractors only to conduct relatively low skilled jobs, such as fabrications or equipment installation. They are employed *'when OEM 4 needs the manpower to do the job' (Sales Director of OEM 4)*. To build its own machinery materials and equipment from other companies will be required, including steel, programmable logic controllers, tools, sensors, pumps, gear motors, etc. Collective involving a number of OEM 4 manufacturing facilities purchasing agreements are in place to buy these products.

*Production consumables*

Supply network for production consumables is a hybrid between the vehicle parts and general equipment and services networks. Different to vehicle parts, products belonging to this product type have relatively low value, limited innovation and their levels of risk and complexity are normally below average. For these reasons automobile manufacturers are generally not interested in pursuing further optimization in terms of quality, innovation or cost with any of the sub-suppliers and let the preferred supplier solely manage upstream supply chain. Thus, network configuration for production consumables will be less complex and hierarchical. However, schematically it is exactly the same as the one shown on figure J.4.

On the other hand, unlike general equipment and services, this type of network has high level of order repeatability. As a result automobile manufacturers tend to tender this business on a regular basis and have contracts and consignment stock in place for a certain period of time. High order frequency facilitates regular interactions and high level of activities and actors determination.

**(ii) Shipbuilding**

Due to lower level of automation and significantly lower volumes of production (units of manufactured products) in shipbuilding industry, demand is not as regular as in automotive. Demand in vessel materials, equipment and services is project-based. Even facilities-related purchases are driven by the shipyards projects for the next couple of years.

***Vessel materials, equipment and services***

Shipbuilding environment is characterized by high level of involvement of external organizations in the process of value creation, i.e. client, design centre, coordinating interactions with the relevant classification society, and at times government. However, this influence applies only to the products that go directly into the vessel. Thus, supply network configurations for the purchased vessel materials, equipment and services will have greater hierarchy, more interactions on the downstream level and collective decision-making.

Due to prototype manufacturing orientation and low production volumes shipyards as well as other interested parties will not be striving to pursue technical and commercial

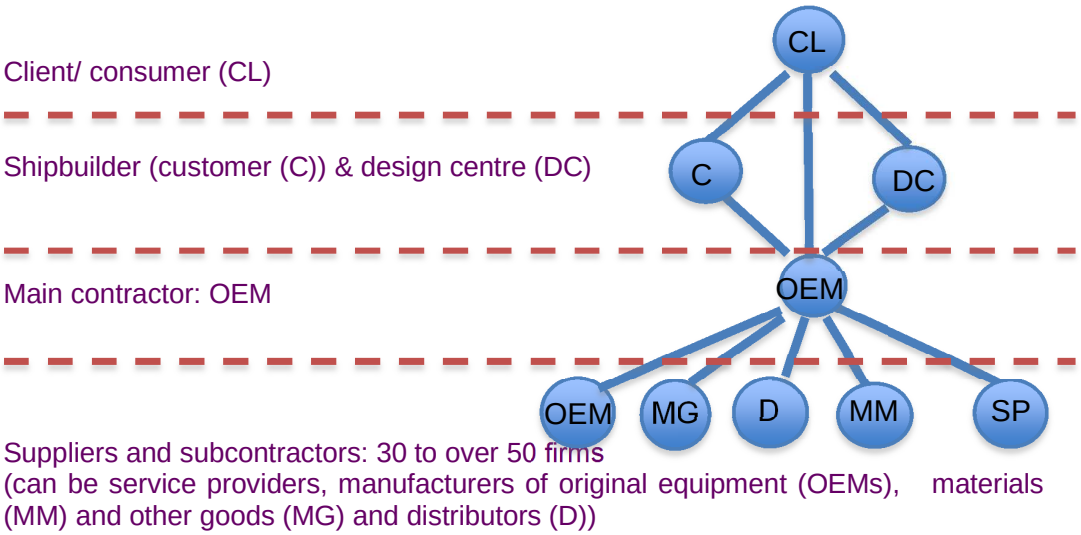
optimization through interactions with sub-suppliers or sub-contractors. Thus, unlike the situation in automotive industry, supply networks for products that are utilized directly in vessel manufacturing will be less hierarchical on the upstream level. This will be reflected in the associated interactions between the actors.

Although five main product types used directly in vehicle manufacturing have been distinguished, due to their network similarities that will be discussed below only three types of supply networks will be shown (figures J.7 to J.8).

*Large and core equipment and services*

Despite low production volumes and project-based manufacturing orientation of shipbuilding market, supply network for large and core equipment and services is believed to have medium to high level of determination of value-creating activities and actors (figure J.7). This is due to the fact that manufacturers of the equipment of this type are generally familiar with the requirements within the industry for particular vessel types even though they vary from project to project. Since equipment of this type has above average level of complexity it will be reflected in the network structure. The latter involve relatively high number of actors from various functional areas, including manufacturers of smaller equipment, goods and materials, service providers and even distributors.

***Figure J.7***
***B2B supply net for large and core equipment and services***

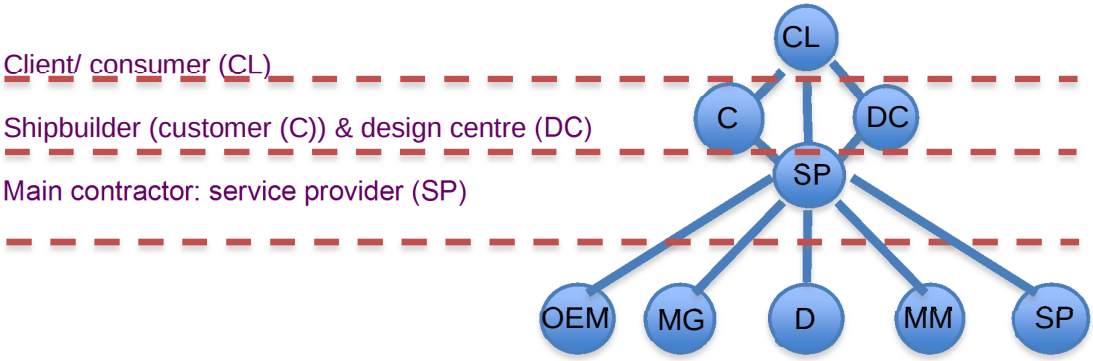


*Equipment and non-equipment related services*

Although equipment-related and non-equipment related services will have different core part of the product (equipment versus other goods), they will have identical supply network configuration. This configuration is very similar to the one that has just been described with the exception of the main contractor (figure J.7). Although these two types of services have alike network configurations, the network structure for non-equipment related services is likely to be less complex. This is because the levels of risk and complexity of non-equipment related products are generally lower than the equipment-related ones. It leads to fewer number of actors representing various functional areas.

Level of determination of activities and actors for both product types will depend on the project. However, based on the feedback from the interviewed shipyards it is believed to be higher for low to medium complexity and risk levels non-equipment related services.

***Figure J.8***
***B2B supply net for equipment and non-equipment related services***




Suppliers and subcontractors: 5 to over 100 firms
(can be service providers, manufacturers of original equipment (OEMs), materials (MM) and other goods (MG) and distributors (D))

According to Sales Engineer of OEM 3, shipyards are not seen as strategic customers as the demand is equally spread between shipyards, their OEMs and service providers. Therefore the pricing level across these three groups of clients is comparable and none of them have any advantages. Unlike automotive, where direct partnerships with the automobile manufacturers as well as service providers are common, partnerships with these two parties in shipbuilding market are generally rare. Preferential commercial terms are only offered to those customers who generate outstanding amount of orders.

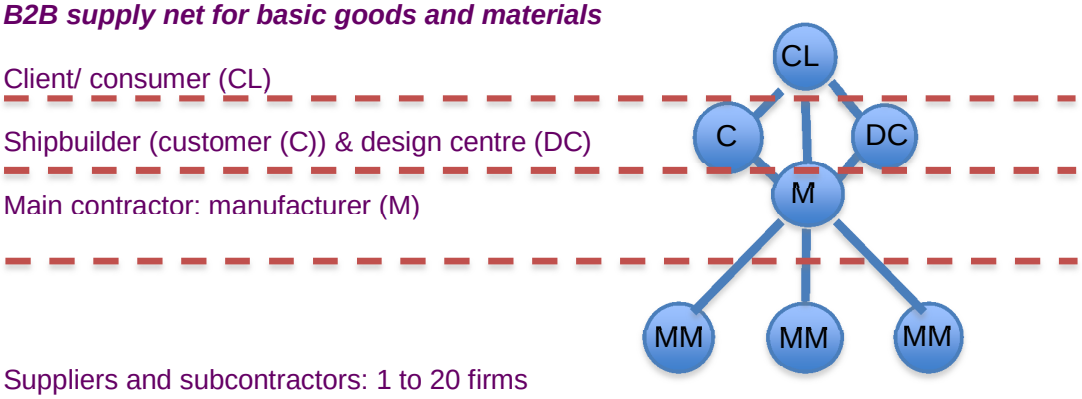
*Medium and small equipment*

Based on the interview data, while complex 'small to medium' value equipment is likely to be purchased from the service provider, similar or higher value equipment with low to medium level of complexity is likely to be purchased from the OEM. Although the latter is significantly cheaper and technically less challenging, supply network configuration for this product type will be exactly the same as the one for large and core equipment, shown on figure J.7. However, despite having alike configurations, network for medium and small equipment generally has lower number of actors.

*Basic goods and materials*

Configuration and the main features of supply network for basic goods and materials with the exception of involvement of design centre and the client, will be identical to its equivalent from the automotive market (figure J.9). However, due to low production volumes and project-based manufacturing orientation in shipbuilding environment there will be lower level of standardization and demand commitment beyond a particular job. This results in lower levels of determination of value-creating activities and network members, comparing with automotive industry.

***Figure J.9***
***B2B supply net for basic goods and materials***




***Purchases for manufacturing facilities***

Since main product types required for shipyards' manufacturing facilities are the same as the ones in the automotive industry, and external organizations are not normally involved in sourcing for these products, network configurations affecting the

relationships between the customers and the main contractors, established within the automotive industry, will apply to shipbuilding.

However, there is generally an absence of direct ties between the shipbuilders and their sub-suppliers comparing with the situation in automotive environment. Also unlike automobile manufacturers, shipyards normally do not have multiple plants within particular regions. Thus, regional supply agreements in shipbuilding are highly unlikely and contracts are signed on ‘case by case’ basis. Exceptions are production consumables and low skilled services where supply agreements are valid for a particular period of time after preliminary vendor benchmarking.

# Appendix K: Supplier evaluation and selection in automotive industry

*Direct parts*

The process of vendor evaluation and selection contains the following stages: supplier search and preliminary evaluation; supplier 'filtering'; request for quote (RFQ); quality assessment of supplier offers (trials); formal tender; supplier 'nomination' and final negotiations as well as creation of the plan of purchases.

During the first stage, the automobile manufacturer normally chooses five to ten companies as potential suppliers, and checks whether they possess the required certificates and other important industry documentation. Those companies that are able to demonstrate the required level of competencies and capabilities may be visited by the vehicle manufacturer commission. The commission certainly intends to meet with the main supplier contacts, and audit the manufacturing facility. Based on the outcome of these visits (second stage) the automobile manufacturer will reduce the number of potential suppliers.

The next step (third stage) is to send the RFQ to all potential suppliers on a global scale. This can be either for an existing project or business or a new one. Non-disclosure agreements are signed between the automobile manufacturer and each of the potential suppliers as 'prices must be broken down into components' ('open book'). At the end of this stage, the supplier offers containing both the required commercial and technical information, are submitted.

After receiving all the offers (fourth stage), the automobile manufacturer quality commission reviews each of them, and requests the required certificates (ISO9001, etc.) and other industry-related documentation. It is not uncommon for the trials to be arranged at this stage.

Depending on the feedback of the quality department and the commercial offers submitted, each supplier is given a score based on the 'traffic lights' system. 'Red' means that it is not recommended to work with the supplier, 'yellow' indicates that the supplier is not ready yet to be given the business but has a potential and therefore, requires to be developed, and 'green' means that it is safe to begin trading with the supplier. Apart from the 'traffic lights' system, each supplier is given a complex score

in percentage terms that captures all the required aspects of technical and commercial areas. Only ‘green’ and sometimes ‘yellow’ suppliers can progress to the next stage.

Taking into account the status of each of the potential suppliers, formal tendering then occurs (fifth stage) during which the most attractive supplier is selected. At this point each candidate is thoroughly assessed, and the opportunity is available for suppliers to further improve their commercial offers if necessary.

Thereafter, ‘nomination’ (sixth stage) begins, and final negotiations take place between the supplier and the automobile manufacturer. This represents another chance for a potential vendor to make the commercial offer even more appealing, confirm all the areas that are important for the deal to be made, and agree on the terms and conditions of purchase. If parties are able to reach an agreement, a plan of the purchases is created (seventh stage).

*Direct materials (steel)*

Once the vehicle manufacturer’s technical team specifies the steel grade, and the procurement team suggests the potential supply sources based on the vendor search conducted, the manufacturing plant begins to explore the technical suitability of the product offered, and the optimization opportunities for commercial reasons. Such opportunities are assessed by reviewing the product’s technical characteristics and trialling alternative products from all the different vendors identified. Normally, these suppliers are global or regional companies, supplying a number of automobile manufacturing plants. Best options in terms of technical performance and cost are then shortlisted by the regional or global procurement team, for tender. During this process the vehicle manufacturer uses its global or regional buying power to maximize the commercial benefits for the company. When an agreement is reached between the buyer and the most attractive supplier, a contract is signed for a particular period of time. As part of the agreement, the successful supplier is given certain performance objectives, some pertaining to the achievement of continuous improvement activities, as discussed earlier. Similar to the situation with the vehicle parts, balanced scorecards are used to capture vendor performance.

*General technical services – construction projects*

The process of vendor evaluation and selection starts at the pre-qualification stage where around 10 to 20 candidates are requested to complete a pre-qualification questionnaire. Potential vendors are chosen based on the information available on their websites. The questionnaire covers several areas: examples of past projects and experience within the relevant industry or sector, processes and procedures to control the quality of the products, health and safety management, financial indicators, environmental and sustainability management (including growing popularity of benefits for local community), disclosure of suppliers and sub-contractors, and value-engineering, which is concerned with innovation in terms of materials and technologies that are available in construction industry and that can potentially maximize the value of the project. This can be achieved by either *'outside of the box'* (Chief Buyer of Service Provider 3) solutions, cheaper ways of delivering the project or better ways of handling environmental and health and safety areas.

As part of the pre-qualification stage it is important for Service Provider 3 to demonstrate its position with respect to each section of the questionnaire. For example, to demonstrate control over its product quality, supporting information must be provided, i.e., company management structure, documentation illustrating supply-base management practices, and even CVs of the personnel who can potentially be involved in the project. In a similar way, in order to demonstrate organizational ability to handle health and safety issues, potential suppliers must provide information about how health and safety is managed, and their accident records. In the finance section there must be evidence of no risks of bankruptcy, and healthy accounting. Service Provider 3 has a bid management team within the estimation department that works on customer inquiries and pulls all the relevant information together from colleagues in relevant departments (quality, health and safety, finance, procurement, etc.).

When each of the potential vendors returns the pre-qualification questionnaire, the vehicle manufacturer begins to evaluate the suppliers' suitability using a scoring system. The selection criteria are known to each of the potential vendors such that they have the opportunity to complete the task in the best possible way. The questionnaire is weighted based on the customer priorities. As an example, the cost section may have 0 to 20% of the total score, while environmental may attract only 0 to 5%. Customer personnel from the relevant departments (normally engineering, purchasing, and finance) are involved in evaluating the response concerning each of the respective areas. Ultimately, a scoring matrix is produced to reflect the position of each of the potential vendors. This indicates the presence of the TAC approach in

vehicle manufacturers' business practices, as they work to capture all the areas related to the purchase in the scoring system (Ellram, 1993, 1995; Handfield et al., 1999; Monckza and Trecha, 1988).

The customer then makes a decision in a collective way by involving representatives from the relevant departments on which companies to invite to participate in the tender enquiry. Some companies may choose not to proceed to the next stage based on the information requested during pre-qualification stage.

The tender enquiry consists of the following information: which services are required and within what timeframe, what is required to build, drawings, specifications, and terms and conditions. Participants in the tender process are normally given approximately six weeks to price the project. Based on this tender enquiry, Service Provider 3 sends enquiries to its relevant suppliers before formulating its response to the customer.

Mid-tender meetings may occur during the progression of the tender enquiry. These normally happen three weeks after the start of the tender. Service Provider 3 has meetings with both the customer and its suppliers to ensure that the customer requirements have been correctly understood, and that its suppliers are doing their best to maximize the chances of winning the business.

Once the supplier offers are submitted, a post-tender query stage begins, during which the customer reviews the supplier offers and clarifies any nuances. When the customer receives the suppliers' responses, they are normally *'not on the same line'* (Chief Buyer of Service Provider 3). One company may offer a better project specification, another may be more focused on the cost side. The customer may have to go backwards and forwards to each supplier who is close to the specified requirements until all the propositions are on the same level. At this point, the customer makes the decision.

*Unique equipment and services and unique software or technology and services*

According to the Sales Director of OEM 4 (supplier of both unique equipment and services and unique software/ technology and services product types), questionnaires are used when the supplier is new to the customer, and can be hundreds of pages long and normally cover supplier health and safety records, corporate social responsibility, delivery performance, innovation, financial and market data, etc. Audits are then carried out by the customers' engineering and procurement departments to

assess quality standards, available customer support, internal control processes and procedures, and identify areas for improvement. Thereafter, some suppliers may not be invited to participate in the RFQ, which is normally project specific. Prior to the generation and release of this RFQ, engineering personnel identify the demand in future projects and develop technical requirements for the job or project. Based on these requirements, a number of vendors are invited to quote and submit supporting technical documentation for their offerings. Supplier offers are then checked by the customer's engineering department for compliance with all the technical requirements including health and safety, quality, regulations, original specification, etc. If the feedback is positive, the procurement department becomes involved to check the trading history, financial strengths of the vendors, and the supplier's commercial propositions. Based on the collective decision of the engineering and purchasing departments, the most attractive supplier is awarded with the business, and thereafter, the vehicle manufacturers carry out regular technical reviews with the selected supplier to monitor the progress on the project until its successful completion.

# Appendix L: Supplier evaluation and selection in shipbuilding industry

Purchasing Manager of Shipyard 1 suggested that after the vendor search, his company requests new suppliers to complete the vendor evaluation questionnaire which gains information on multiple issues, i.e., health and safety, corporate social responsibility (CSR), financial stability, compliance with the required market regulations, etc. Specialists from the supply chain, finance, quality, and other relevant departments assess the suppliers' positions according to their areas of expertise. If the feedback is positive, Shipyard 1 inspectors then conduct a supplier audit which is undertaken to assess supplier capabilities and to be assured that their internal processes and procedures are sufficient to ensure they can control product quality. This mainly applies to equipment or materials suppliers. With services suppliers, questionnaires require different information to provide the customer with reassurance about their capabilities, which are impossible to evaluate based on the audit due to their intangible nature. Only after a positive audit (or questionnaire for services businesses) outcome RFQ is sent to remaining candidates.

Similar to their competitor, two interviewed Russian shipyards also preferred to have an understanding of new supplier capabilities prior to the actual benchmarking. To find new vendors and gain an understanding of their capabilities, shipyards use much of the information acquired from industry exhibitions and supplier catalogues, together with recommendations from within the market. Once the internal technical department, in collaboration with the design bureau, finalize the vessel documentation, new vendors are invited to submit their proposals together with the required product technical data.

Audits of (mainly) new suppliers of medium to high-value equipment and materials are also conducted to assess their potential capabilities. Service providers' audits are carried out in rare cases due to the intangibility of the supplier offer. While it is possible to see how the manufacturers control the quality of their products during their production process, with services, shipyards rely mainly on the providers' relevant past experience. Thus, Shipyards 2 and 3 see more value in securing supporting evidence of the past projects delivered by potential service providers and relevant recommendations from within the industry instead.

If the products offered and the data provided fulfil all the requirements stipulated by the shipyard's technical personnel, and the audit results are satisfactory, the supplier will be invited to participate in the formal benchmarking process. During this process, new as well as known vendors are invited to familiarize themselves with the requirements and submit their offers. According to the Purchasing Director of Shipyard 3, each purchased product normally has two to seven potential suppliers.

The interview data suggest that to demonstrate their compliance with the required criteria, suppliers submit their technical and commercial propositions including: specification for the project, supplier certificates and other important industry documentation, company financial documentation to demonstrate 'healthy' accounting ('profit and loss', balance sheet, etc.), prices, delivery terms, and offer validity. With services this list of required information is more comprehensive than with tangible goods. Offers are then submitted electronically as well as by hard copy. According to the Purchasing Director of Shipyard 3, it is often the case in Russia that commercial information is sent separately so that technical and commercial specialists make the judgement regarding their respective areas (technical, commercial) independently.

As can be seen from the data provided by all three interviewed shipyards, the assessment of equipment or materials suppliers is slightly different than it is with service providers due to the intangibility of the service product, until the project execution. This indicates that service providers and OEMs need to be managed differently, but this argument does not appear in the literature on supplier relationships portfolio management, and methods of supplier performance evaluation and relationship governance mechanisms.

While relevant members of the shipyard technical team are reviewing 'the technical side' of each of the participants' offers, a member of the purchasing department draws up *'a list of competitors'* (Purchasing Director of Shipyard 3), which includes all the purchased equipment, installation, commissioning and other services as well as the spare parts with their prices, delivery terms and offer validity. The participating members of the technical team taking part in supplier evaluation and selection vary depending on the project complexity and purchased product. They may include mechanical and electrical engineers, painting specialists, designers, etc.

Once the technical and commercial feedback is available, the supplier selection commission meets to review each of the suppliers' offers and make a collective

decision. The commission consists of the shipyard divisional directors, legal and financial specialists, and client representatives. It may also include experts from the external design bureau and in some cases, government members.

The interview data confirms that after reviewing supplier propositions and trading history if available, negotiations take place, and according to the Purchasing Director of Shipyard 3, during this stage suppliers normally reduce their prices by 5 to 30%. At the end of the negotiation the key discussion points are summarized and circulated to all the involved parties (or post-tender protocol in Russia), and if parties manage to reach a consensus, an official project-specific supply agreement is then signed, outlining the object of supply agreement, payment terms, warranty, fines, etc.

# Appendix M: Thematic chart C

**Theme C**
Managing relationships with attractive OEMs and service providers in the main types of B2B service networks

***Key words*:** service relationships, managing relationship portfolios, buyer-supplier relationships, purchasing portfolio approach, alliance portfolios, relationship governance mechanisms, methods of supplier performance evaluation, supplier assessment methods

***Overview***

As mentioned earlier there is a strong association between supplier attractiveness and portfolio management (Mortensen, 2012; Olsen and Ellram, 1997). However, despite the pivotal role of the portfolio building and management in understanding of business tie formation (Ozcan and Eisenhardt, 2009) existing supplier portfolio management literature has some limitations. Amongst the main ones are: isolated, simplified and fragmented nature ('isolated dyads') and omission of the time dimension and hence viewing business relationships as static. Indeed, despite recognition of several stages in business relationship development (Dwyer et al., 1987; Halinen, 1997 and Harris et al., 2003), none of the portfolio approaches outline how the supplier relationships are formed, developed and terminated, and therefore, provide managerial guidance for each of these relationship stages. Additionally, existing portfolio models do not differentiate purchased products based on the proportion of service or tangible goods and therefore do not indicate if the supplier relationships need to be managed differently based on the service element of purchase. For instance, Morgan et al. (2007), Morgan and Tax (2004) and lately Ramos et al. (2013) argued that unlike manufacturing in service business networks customers have direct ties with all the network actors. Nor available literature on methods of supplier performance evaluation (Dey et al., 2014; Ellram, 1993, 1995; Monckza and Trecha, 1988; Singh et al., 2014) and relationship governance mechanisms (Kalnins and Mayer, 2004; Lumineau and Henderson, 2012; Melander and Lakemond, 2015; Poppo and Zenger, 2002; Sobrero and Schrader, 1998; Yu et al., 2006; etc.) contrasts services and manufacturing businesses. Moreover, there are opposing views with regards to whether relational and contractual governance mechanisms complement (Caniels et al., 2012; Ferguson et al., 2005; Haugland and Reve, 1994; Lumineau and Henderson, 2012; Melander and Lakemond, 2015; Olsen et al., 2005; Poppo and Zenger, 2002; etc.) or substitute (Corts and Singh, 2004; Kalnins and Mayer, 2004; Malhorta and Murninghan, 2002, etc.) each other.

Furthermore, as pointed out by Moller (2013) and Partanen and Moller (2012) present knowledge of business relationship management and overall service business networks including supplier evaluation (Henneberg et al., 2013; Ramos et al., 2013) is scarce. These gaps in the existing literature suggest that there is lack of understanding concerning how B2B service relationships need to be managed at each of the stages as they progress over the time.

Thematic analysis of the obtained data enables a comprehensive discussion of theme C and its relation to this literature.

***Main literature***

*From managing relationships within business networks perspective*: Moller (2013), Partanen and Moller (2012) etc.

*From B2B service networks perspective:* Henneberg et al. (2013), Natti et al. (2014), Ramos et al. (2013), etc.

*From relationship portfolios management perspective*: Bansaou (1999), Gelerman and Van Weele (2000), Hallikas et al. (2005), Kaufman et al. (2000), Kraljic (1983), Nellore and Soderquist (2000), Olsen and Ellram (1997), Rezaei and Ortt (2012), Svensson (2004), etc.

*From methods of supplier performance evaluation perspective*: Dey et al. (2014), Ellram (1993; 1995), Monckza and Trecha (1988), etc.

*From relationship governance mechanisms perspective*: Kalnins and Mayer, 2004; Lumineau and Henderson, 2012; Melander and Lakemond, 2015; Poppo and Zenger, 2002; Sobrero and Schrader, 1998; Yu et al., 2006; etc.

***Categories***

(1) Supplier search, (2) Supplier evaluation and selection, (3) Supplier objectives and performance measurement and (4) Relationship termination

***Codes***

(1) Internet, (2) industrial publications, (3) exhibitions, (4) recommendations, (5) questionnaire, (6) audit, (7) RFQ, (8) tender, (9) trials, (10) negotiation, (11) contractual or other commitments, (12) traffic lights system, (13) balanced scorecards, (14) meeting RFQ/ tender requirements, (15) agreement expiry, (16) misconduct and (17) project delivery

***Findings***

Data gathered suggests that existing service business networks as well as business networks theory is disconnected from automotive and shipbuilding environment. Some of the core theoretical assumptions in service business networks' definitions (Morgan et al., 2007; Morgan and Tax, 2004 and lately Ramos et al., 2013) appeared not to be applicable to the research context. Also with the exception of Kraljic (1983), none of the existing portfolio approaches to procurement appeared to be utilized in vehicle manufacturers and shipbuilders' business practices. Nor were the majority of the methods of supplier performance evaluation with the exception of total cost approach due to their highly theoretical, lacking interaction nature.

Moreover, research findings indicated complementarity of relational and contractual governance mechanisms. This supports Caniels et al. (2012), Ferguson et al. (2005), Haugland and Reve (1994), Lumineau and Henderson (2012), Melander and Lakemond (2015), Olsen et al. (2005) and Poppo and Zenger (2002) contradicts the views of Corts and Singh (2004), Kalnins and Mayer (2004), Malhorta and Murninghan (2002) and other authors.

Furthermore, research results shown that suppliers must be managed differently based on the core part of their products. However, this is not reflected in available theory on relationship portfolio approaches to procurement, techniques deployed in supplier selection and relationship governance mechanisms.

***Participant perspectives***

*No matter whether the purchased vehicle part is a car accessory or an engine, the process of vendor evaluation and selection contains the following stages: supplier search and preliminary evaluation; supplier 'filtering'; request for quote (RFQ); quality assessment of supplier offers (trials); formal tender; supplier 'nomination' and final negotiations and creation of the plan of purchases… Tier 1 suppliers adopted the same process and use the same criteria, when choose their own suppliers (tier 2).* (Finance Director of OEM 1)

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