



*Citation for published version:*

Jawwad, R & Roehrich, KJ 2014, Risk Mitigation in Triadic Network Configurations within a servitized context. in *NOFOMA 2014: Competitiveness through Supply Chain Management and Global Logistics*.

*Publication date:*  
2014

*Document Version*  
Early version, also known as pre-print

[Link to publication](#)

## University of Bath

### General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

### Take down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

# RISK MITIGATION IN TRIADIC NETWORK CONFIGURATIONS WITHIN A SERVICIZED CONTEXT

## 1. INTRODUCTION

Manufacturers are argued to be moving towards providing additional services for their products (Wise and Baumgartner, 1999). This may range from simple after-sales support to fully fledged solution offering that provide organisations a competitive advantage (Baines et al., 2009). This trend is commonly referred to as the ‘servitization of business’ (Vandermerwe and Rada, 1988; Baines, 2009). Organisations are required to be ever more competitive to survive and servitization is one such means (Kastalli and Van Looy, 2013).

Whilst there is a growing body of literature on the merits of adopting a servitized business strategy, less is known about the operational complexities that may result from such a change (REF). Not surprisingly a servitization strategy is dependent on a greater number of actors within a manufacturer’s network such as ... . However, there is a paucity of studies on the network perspective within this context (REF). Most studies to date have tended to examine the dyadic form, that is, buyer-supplier relationships, neglecting the wider supply network –and moving beyond dyadic configurations (cf. Bastl et al., 2012). Moreover, limited research on understanding risks within supply networks in this context exists, specifically how risk may be mitigated (REF). Similarly, where risk is analysed, the literature often adopts a dyadic perspective (REF). In order to address the gaps identified above, there is a need to move beyond a dyadic perspective to capture the complexity of a network to attain greater insights. The literature on servitization to date has not addressed this issue either. Of particular relevance then is the issue of risk for manufacturers adopting a servitization strategy. This study therefore attempts to begin bridging this gap in the literature. Thus, the study aims to address the following overarching research question: *How may servitized organisations mitigate reputational risk within their triadic supply network configuration?*

In order to address this research question, an exploratory case study approach is adopted with a truck manufacturer, the dealership network and customers. The paper elaborates theory through empirical investigation of servitization in a triadic configuration and builds on rich primary and secondary datasets.

The research makes three distinct, but cumulative contributions. Firstly,

The remainder of the paper is structured as follows: the next section discusses the literature pertaining to servitization, triadic configurations, risk and agency theory. This is followed by an outline of the adopted method. Section 4 then presents the findings,

followed by the discussion, in Section 5. Finally, the conclusions, managerial implications and limitations are presented.

## **2. LITERATURE REVIEW**

### **2.1 Servitization: Importance of relationships**

Across a wide range of industries, firms are developing new organizational structures to support a move from selling either products or services to providing integrated bundles of products and services as long-term solutions to a business customers needs (Davies, 2004; Wise and Baumgartner, 1999; Davies et al., 2007). The last decades have witnessed a growing trend for companies to offer services related to their products (Vandermerwe and Rada, 1988; Jacob and Ulaga, 2008). Leading manufacturers are argued to be shifting downstream towards the provision of associated services for traditional product offerings (Wise and Baumgartner, 1999). This phenomenon is typically referred to as the ‘servitization of business’ (Vandermerwe and Rada, 1988). Servitization consists of bundling products and services in combinations that deliver value through use to the customer (Vandermerwe and Rada, 1988; Baines et al., 2009). Organizations following this strategy seek to: (i) increase customer demand and lock-in situations, (ii) realize further growth, increased profits and stability, and (iii) rationalize scarce resources (Wise and Baumgartner, 1999; Ploetner, 2008). A classic example illustrating servitization is the aero-engine manufacturer Rolls Royce that sells not just aircraft engines, but earns an increasing share of its revenues from providing ‘total care’ solutions through the ‘power by the hour’ concept. It is argued there is a need for organisations to understand the needs of customers in this context to deliver greater satisfaction by adopting a servitization strategy (cf. Hartmann et al., 2013; Raja et al., 2013). Such a strategy in support of servitization brings added complexity for manufacturers of products. There is a higher dependency on suppliers to deliver value to customers (Baines et al., 2009; Bastl et al., 2013).

An important element of this phenomenon is a shift from a sole focus on production and products to the provision of services, and combinations of goods and services in the form of product-service systems (Mont, 2000). Solutions embody the new ‘service-dominant logic’ (Vargo and Lusch, 2004) and ‘servitization’ (Vandermerwe and Rada, 1988) paradigm shift from the goods-centered to the service-centered logic. Product-service integration is described as providing ‘complete solutions to each customer’s needs’, creating exceptional value to clients and potentially end-customers (Cova and Salle, 2007). Value is created by improving operating efficiency, increasing asset effectiveness, enabling market expansion, and mitigating risk (Cornet et al., 2000). Extant literature offers a myriad of labels describing solutions as ‘customer-centric business solutions’ (Galbraith, 2002), ‘integrated solutions’ (Davies et al., 2006), ‘integrated solutions’ (Davies, 2004), and ‘customer solutions’ (Tuli et al., 2007). Prior research showed that high revenues are derived from an installed base of products with a long life-cycle (Potts, 1988), but services are considered as leading to higher and more

stable profit margins than products (Anderson et al., 1997). The transition to PSS provision is therefore well documented (Cova and Salle, 2008), outlining the main drivers contributing to this development (see Table 1). PSS providers aim to create sustainable competitive advantage for clients (Lindgreen and Wynstra, 2005) by addressing the challenges of life-cycle management, including maintenance, increasing reliability and inter-operability (Davies et al., 2001). The close connection between products and services offers the opportunity for generating new approaches to organizational structure with buyers, emphasizing long-term, collaborative relationships (Antonacopoulou and Konstantinou, 2008).

One common theme to emerge in the literature on servitization is that there is greater complexity in the actors involved in the delivery of product-service offerings. In particular, as mentioned, there is a greater dependency on the part of manufacturers on suppliers in the delivery of the offering to the customer. Previous research has investigated solution provision from the perspective of either the supplier (Galbraith, 2002; Davies, 2004; Foote et al., 2001) or buyer organizations (Kapletia and Probert, 2009). Little or no research has examined the evolving organizational relationship between key stakeholders in realizing integrated solutions. As such, it is argued that there is a need to move beyond dyadic relationships (cf. Choi and Wu, 2002; Rowley, 1997). This is also the case for servitization where there have been attempts to examine a triadic configuration or move to studying a network (cf. Finne and Holmstrom, 2013). The next section examines this in more detail.

## **2.2 Triadic configurations: Tacking stock**

Much of the extant literature adopts a dyadic perspective, examining buyer-supplier relationships. Increasingly, there are calls to move beyond such a simple configuration to understand the network perspective - or at least move to a triadic configuration (Choi and Kim, 2008; Choi and Wu, 2009). Research into triads, described as “subsets of three network actors and the possible ties among them” (Madhavan et al., 2004: p. 918), has initially focused on interpersonal networks (e.g. Heider, 1958) or the relationships between nations (e.g. Simmel, 1950). Triadic research occupies an intermediate level in network analysis (Wasserman and Faust, 1994; Choi and Wu, 2009b), between dyad and network levels and allows us to study the behaviour and complexities of a network. However, prior management research offers limited insights with regards to the inter-organisational level. Some prior triad management research studies have investigated alliances network with the unique dynamics of “co-opetition”, describing how firms engage in triadic ties for both competitive and co-operative reasons (e.g. Choi et al., 2002; Brandenburger and Nalebuff, 1996). Prior SCM studies on triads are mainly situated in a manufacturing context (e.g. Wu and Choi, 2005; Wu et al., 2010), deploying a network theory (Wasserman and Faust, 1994) or structural holes

perspective (Burt, 1992) perspective. However, these studies have largely neglected the triadic relationship that exist in service OM (Li and Choi, 2009). Please see table 1 for an overview of prior triad management studies with a focus on the inter-organisational level.

While business relationships are generally studied from a dyadic perspective (Holma, 2012), many purchasing situations involve three actors. For instance, a buyer and two competing suppliers (Choi and Wu, 2009; Dubois and Fredriksson, 2008; Peng et al., 2010; Wu and Choi, 2005), two buyers and a supplier (Choi and Kim, 2008), and a 'service triangle' of a customer, service organization, and individual service provider (e.g. Gutek et al., 2002). Further examples of triads are buyer-supplier-intermediary (Holma et al., 2009), and third party logistics provider-buyer-seller relationships (Bask, 2001). Li and Choi (2009) were among the first to describe service triads and contrast to manufacturing triads. The service triad emphasises the importance of aligning information, incentives, interests and actions of multiple participants in the service exchange (Holma, 2012). In service triads, buyers are for their business performance highly dependent on their subcontractor(s), who control the service delivery and directly interacts with and receives input from the end customer (Peng et al., 2010; Van der Valk and van Iwaarden, 2011). Roseira (2010) argues that triads are often formed due to the productivity benefits they provide. In using two empirical case studies of buyer – supplier –supplier relationships, she argues that knowledge and information can be combined in order to tackle issues for the buyer, providing a greater standard of product and/or service. However, this is a common theme in the literature, where there is a lack of analysis from a manufacturer – supplier – customer perspective. Bastl et al. (2011) also suggest that the transfer of information between parties enables a richer understanding of each other's actions and how it can play an effect towards the overall success of a business relationship.

Choi et al. (2002) describes supplier relationships by categorising them into three types: competitive, cooperative and co-opetition. First, competitive is whereby the buyer creates a margin between the different suppliers in order to control the knowledge passed between the parties in the triadic structure. Essentially this helps become a more lucrative structure for the buyer where they have options to buy similar items from different suppliers, selecting the cheapest price (Choi et al., 2002). Second, cooperative relationships require greater communication between suppliers in order ensure greater fluency in processes and capabilities. Third, co-opetition requires a formulation of both,

resulting in the sharing of ideas while maintaining a sense of competition between the parties. These types can vary from industry to industry depending on geographical location (Madhavan, 2004). Bengtsson and Kock (2000) looked at co-opetition and found that organisations performing activities different from one another requiring unique skills needed greater cooperation, as opposed to similar activities which they argued promoted competition. The main driver for this was found to be the possession of the right resources. Applied to manufacturer-supplier relationship, the manufacturer holds greater power, as they have the customers. Therefore, suppliers who provide after-sales services are more dependent upon the main party within the triad (Bengtsson and Kock, 2000).

These changes in relationships where the focal character, the buyer, no longer seems to be a heavily significant actor is a risk acknowledged in the literature. Li and Choi (2009) found in their conceptual study that “bridge decay and bridge transfer” often occurs where the connection between two members of the triad, usually starting with the buyer, often shift to another character, the supplier” (p. 30). Li and Choi (2009) emphasise the risks which may be exposed when there is unsupervised, or at least uncontrolled, interaction between two parties within the triad (i.e. the supplier and customer). Therefore, Li and Choi (2009) propose a greater emphasis on information control ensuring a “structural hole” is created. From a manufacturer – supplier – customer perspective, this is where the communication between a supplier and a customer is limited. The manufacturer would then be able have a close relationship with the customer, while receiving comments about the supplier’s actions, fundamentally, becoming a supervisor on the interactions between the two. Value is created by improving operating efficiency, increasing asset effectiveness, enabling market expansion, and mitigating risk (Cornet et al., 2000).

Source	Method/Sample	Triadic setting	Key findings
Larson and Gammelgaard (2001)	Multiple case studies (2)	Transportation sector; Buyer-supplier-logistics service provider	Triad benefits include greater flexibility, higher inventory availability, more on-time pickup and delivery and lower costs. Logistics triad formation is facilitated by just-in-time delivery objectives, IT and close relationships.
Havila et al. (2004)	Database analysis (98 triads)	Multiple sectors; Buyer-seller-intermediary	Our results, on the contrary, indicate that a higher trust, in the setting of international business-relationship triads, is driven by increasing commitment. Trust, trusting our observations might thus, rather than commitment, be the final outcome of the relationship building process.
Madhavan et al. (2004)	Secondary data analysis; 45 global steel producers	Steel industry; buyer-supplier-supplier	Develop construct of clusterin and coutering as potential drivers fo triadic structure. Firm's have the tendency to form transitive triads, in which three firms all have direct ties with each other, especially within blocks defined by geography or technology.
Wuyts et al. (2004)	Conjoint experiment and 14 interviews; 167 firms	Computer hardware/software industry; Buyer-vendor-supplier	Buyers take into accoutn they buyer-vendor-supplier triad and value sequences of selective strong ties and more numerous weak ties. Study finds mixed evidence that buyers value direct access to suppliers when strong ties exist between the vendor and suppliers.
Rosetti and Choi (2005)	Conceptual	Aerospace; Supplier-intermediary-end customer	There is a serious long-term risk associated with firms becoming strategically integrated with suppliers and then mistreating them for short-term gains. This paper demonstrates that misapplying the tenets of strategic sourcing can result in the disintegration of the existing supply chain and weaken the buying firm's long-term competitiveness.
Wu and Choi (2005)	Multiple case studies (8); 56 interviews	Multiple sectors; Buyer-supplier-supplier	Identifies five archetypes of supplier-supplier relationships in buyer-supplier triads. Each type of relationship is a unique configuration of the relational characteristics.
Choi and Kim (2008)		Buyer supplier-buyer	
Dubois and Fredriksson	Single case study; >200 interviews	Automobile; Buyer-	Identified a particular type of sourcing called "triadic sourcing" when a

(2008)		supplier-supplier	buyer works with two suppliers with overlapping capabilities. The distinctive feature of triadic sourcing is that the buyer actively creates interdependencies between two suppliers.
Rosetti and Choi (2008)		Buyer-service provider-buyer's customer	
Choi and Wu (2009a) - JPSM	Conceptual	Buyer-supplier-supplier	Identify several triadic SCM relationships: (i) one buyer interacting with two suppliers, (ii) a supplier interacting with an intermediary and an end user, and (iii) one supplier interacting with two buyers.
Choi and Wu (2009b)	Conceptual	Buyer-supplier-supplier	Identifies nice triadic archetypes of buyer-supplier-supplier relationships and state key propositions that aid in decision making in supply networks.
Li and Choi (2009)	Conceptual	Buyer service firm - supplier-customer	In services, the relationship structures among the three actors change before, during and after the outsourcing, leading to bridge decay. To mitigate this effect, the buyer should continue to actively interact with its customer and closely monitor the supplier in order to prevent the supplier from solidifying its bridge position.
Andersson-Cederholm and Gyimóthy (2010)	Multiple case studies (4); seven interviews and participant observation	Corporate travel; Buyer-service supplier-intermediary partner	Triadic constellations and more complex service networks involve dialectic tensions, simultaneously exhibiting loyalty and disloyalty, trust and distrust, empowerment and disempowerment.
Holma (2010)	Single case study; ten interviews	Corporate travel; Buyer-service supplier-intermediary partner	key findings indicate the triads' structure reinforcing long-term development, despite short-term degenerative development in the dyads
Peng et al. (2010)	Multiple case studies; 15 triads	Military aerospace; Buyer-supplier-supplier	Demonstrates that different triad structures and management mechanisms influence perceived cooperative performance.
Wu et al. (2010)	Survey (one company); 43 triads	Aerospace-related manufacturing; Buyer-supplier-supplier	Two suppliers oblige and comply better when they buyer facilitates cooperation between the two suppliers
Van der Valk and van Iwaarden (2011)	Single case study; two triads; eight interviews and secondary data	Exhibition; Buyer service firm-supplier-customer	Shows that outsourced service production can be properly governed by the right combination of contracts and monitoring activities. Alignment



	analysis		of all three parties seems to be more easily achieved through social contracts rather than legal arrangements.
Wilhelm (2011)	Multiple case studies (4); 54 interviews	Automobile industry; Buyer-supplier-supplier	The buyer is able to exert influence not only on the competition level, but that the competitive tension in the overall network can in fact be managed through the active establishment and maintenance of such relations.
Gunawardane (2012)	Single case study & secondary data analysis; 20 interviews	Healthcare sector; Buyer service firm-supplier-customer	Companies in the case study have proposed to repair the bridges and close structural holes. Firms consider the potential for including risk sharing and performance-based incentives.
Holma (2012)	Single case study; 10 interviews	Corporate travel; Buyer-service supplier-intermediary partner	Dedicated contacts and the social bonds between them provide important channels for both tacit and explicit information within and between the organizations, specifically at the operational level

**Table 1** *Triad management research on an inter-organisational level: selective references over the last decade*

### **2.3 Reputational risk in triadic configurations: An Agency Theory perspective**

Risk is where the main member, the 'manufacturer', identifies issues and concerns which may affect their success as an organisation. For the manufacturer this may occur through a decline in sales and revenue, negative perception and/or damage to the reputation of the brand (Firestein, 2006). These issues may be attributed to actions of other members within the triad. For instance, Finne and Holmstrom (2013) suggest that it can often be a lack of understanding and integration between the different parties within a triad which can often cause poor performance. Their work focuses on a case study which identifies risk through a lack of connection between the customer and the manufacturer. This is due to third parties taking an integration role, which can possibly influence reputational risk, as the third parties can adapt the brand image commonly associated with the manufacturer. Lastly, Anderson–Cederholm and Gyimothy (2010) propose triads may have disadvantages, in that, a “triad is thus a specific form of social interaction that thrives on a dynamic tension – a dialectic – between proximity and distance, between inclusion and exclusion”. This reflects the dilemma a supplier can often face when aiming to reach a specific goal set by a buyer yet, at the same time, maintain a certain image of their organisation towards a customer or another supplier within the triad. In establishing two distinct forms of risk, agency theory can be used to explore them to obtain a greater understanding.

The change in relationship where the focal character, the buyer, no longer seems to be a heavily significant actor is a risk the literature often acknowledges. Li and Choi (2009, pp. 30) found in their conceptual study that “bridge decay and bridge transfer” often occurs whereby the connection between two members of the triad, usually starting with the buyer, often shift to another character, the supplier”. Li and Choi (2009) emphasise the risks which may be exposed when there is unsupervised or at least uncontrolled interaction between two parties within the triad (i.e. the supplier and customer). Therefore, Li and Choi (2009) propose a greater emphasis on information control ensuring a “structural hole” is created. From a manufacturer – supplier – customer perspective, this is where the communication between a supplier and a customer is distanced to a limit. The manufacturer would then be

able have a close relationship with the customer, while receiving comments about the supplier's actions, fundamentally, becoming a supervisor on the interactions between the two.

Reputational risk is where the manufacturer has weakened ability to control relations between the other parties than typically expected. This results in the damage of the brand image and a reduction in sales and can often be rooted back to incidents which occur causing a decline in faith of the product/service which is being offered (Rayner, 2003). The likelihood of occurrence is heightened when servitized manufacturers provide third parties with greater responsibility and issues with supervision exist. Tarnishing the brand image often occurs when third parties involved within a process act in a manner which the manufacturer would not approve. An example of this can be seen with Apple, where they have been scrutinised for conditions of workers in China manufacturing their products (Lemke and Petersen 2013). Thus, further insight into how reputational risk can occur is needed.

Asanuma (1988, pp. 30) identifies that relations are maintained not only through specific types of contracts which outlay precise details, but also the notion of "relationship specific skill", obtained by the supplier through years of collaboration with a manufacturer. It is argued that fundamentally this help mitigate the risk when organisations within a triad collaborate with one another (Asanuma, 1988). Reputational risk can be mitigated in this manner due to a greater understanding of requirements between each member within the triad. This can require long-term integration, which is not applicable to all organisations, especially those manufacturers considering the most reliable supplier to develop relations with. Ahuja (2000) argues that when holes in the triadic structure do exist, this can become very detrimental to the relations of those parties who rely on the sharing of resources. In applying this to a configuration involving a manufacturer-supplier-customer, the manufacturer must often communicate with its supplier of after-sales service in order to understand and gain knowledge in terms of issues with a product or service, for example. Ultimately, the sharing of information is vital to prevent a rift between different parties - a risk which can often lead to opportunism and therefore, may tarnish a manufacturer's reputation. Finne and Holmstrom (2013) suggest that it can often be a lack of understanding and integration between the different parties within a triad which can often cause poor performance. In their case study they identify risk through a lack of connection between the customer and the manufacturer. This is due to third parties taking an integration role, which may possibly influence reputational risk, as the third parties can adapt the brand image commonly associated with the manufacturer.

Lastly, Anderson-Cederholm and Gyimothy (2010) propose triads may have disadvantages, in that, a triad is "a specific form of social interaction that thrives on a dynamic tension – a dialectic – between proximity and distance, between inclusion and exclusion". This reflects the dilemma a supplier can often face when aiming to reach a specific goal set by a buyer yet, at the same time, maintain a certain image of their organisation towards a customer or another supplier within the triad. Agency theory can be used to explore this further and is discussed next.

Of relevance here, the, is agency theory to identify methods to mitigate risk. Ross (1973, pp. 134) provides his interpretation of the foundations of agency as one where: “...relationship has arisen between two (or more) parties when one, designated as the agent, acts for, on behalf of, or as a representative for the other, designated the principal, in a particular domain of decision problems”. This theory is a gateway to identifying the various motivations, issues and stakes of different parties within a business relationship. This helps understand the multiple dynamics between the different parties (Jensen, 1994). Furthermore, agency theory looks into the particular interests between principals, the manufacturer, and agents, the supplier, and the main motivations they may attempt to pursue given their position within a triadic relationship (Tate, 2010). Eisenhardt (1989) states that agency theory can be split into two specific categories: positivist agency theory and principal - agency research. These two perspectives explore two different approaches as to how relations and contracts should be managed between the principal and the agent.

First, positivist agency theory explores the conflicting aims of the various parties within a triadic configuration. Thus recommendations are based upon minimising the agent’s own goals which are conflicting with that of the principal’s (Eisenhardt, 1989). Information is considered a key factor in helping minimise the strength of the agent, thus solutions based on outcome-based contracts are suggested as mechanisms to address this issue (Eisenhardt, 1989). Outcome-based controls have the advantage of being easily observed (Ekanayake, 2004). This may not however be entirely applicable towards mitigating reputational risk as it is not as easily measurable itself.

Second, principal - agent research adapts a different perspective as it emphasises the usage of control-based on behaviour. Information is a vital factor towards ensuring the success of this method as there needs to be easily measured criteria towards understanding if reputational risk is being mitigated. This perspective can therefore, be considered to be a stronger match between the two as there is a greater chance of accuracy when measuring observable criteria.

Behaviour-based forms of control can help prevent moral hazards and adverse selection. Both of these are explained in turn.

**Moral hazards** - are defined within agency theory as the “lack of effort on part of the agent” whereby, the agent fails to perform to a certain standard which has been established between the principal and the agent (Eisenhardt, 1989, p. 61; Zsidisin and Ellram, 2003). Ekanayake (2004) argues that:

*“The more autonomy the agent enjoys and the greater the information the agent possesses, and the greater the specialised knowledge required to perform the task, the greater the chances for the occurrence of ‘moral hazards’”.*

In controlling the behaviour of an agent, reputational risk is reduced through controls which adapt the actions of a supplier viewed by a customer. Behaviour based controls ensure there is less likelihood of opportunism. There becomes a greater sense of communication due to requirements made by the agent. It is also suggested that greater access towards communication can facilitate motivation towards exchanging information between various parties within a triadic configuration. This is considered essential within servitized

relationships in order to prevent reputational risk. The exchange of information ties the various parties into a greater bond thus, preventing issues from occurring in the future (Bastl et al. 2012).

**Adverse selection** – is when “the agents may misrepresent their ability and that principal is unable to observe the ability of agents” (Ekanayeke, 2004, p. 51). Furthermore, Eisenhardt (1989, p. 61) states that it is “the misrepresentation of ability by the agent”, which occurs due to the lack of evaluation the principal is able to perform when agreeing to work with the agent. Adverse selection can enforce a greater level of reputational risk as a principal will select an agent with the view that they can fulfil their requirements. This however, can promote reputational risk when an agent can possibly exaggerate their capabilities in order to secure relations (Van Ackere, 1993). Behaviour-based controls in the form of contracts for example, ensure the requirements of what a principal needs prevents ‘adverse selection’. This reduces the scope of reputational risk as a contract-based on behaviour can provide specific detail in order to curtail opportunism. In summary, agency theory provides a means of understanding reputational risk mitigation. Within a servitized context, the interactions between the agent and principal (manufacturer and supplier of service) are of interest. Here, reputational risk is formed due to these interactions which have an effect upon the customer, the third member of the triad.

**2.4 Positioning an initial conceptual framework** To provide a context for the empirical research, Figure 1 illustrates

### **3. METHOD**

#### **3.1 Research approach**

Considering that there is a distinct lack of research examining triadic supply configurations within a servitization context in respect of risk, there is need for exploratory research. To this end, an in-depth qualitative case study was conducted (Yin, 2009) of a manufacturer – supplier – customer configuration. Our choice of a single, in-depth case study had a number of unique qualities that made it a logical candidate for theoretical sampling and it displayed characteristics of a revelatory case (Eisenhardt and Graebner, 2007; Siggelkow, 2007). First, we had the rare opportunity to be granted access to a rich dataset by .... Most of our fieldwork was conducted while the triadic structure was a “live development”, allowing us to capture real-time data on decisions, perceptions, expectations about the future course of events and retrospective interpretations of development outcomes. Second, secondary documents including company PowerPoint presentations, company reports, newspaper articles and trade press further helped to triangulate with primary data. Third, we had a rare opportunity to observe in fine detail the internal practices and organizational life of a triadic relationship and were allowed access to senior managers involved at different stages of the relationship.

In addition, we deploy the case study approach to “develop theory rather than test it” (Perri and Bellamy, 2012: 103). This reflects the suitability of this research method, as this study will attempt to develop an existing theory and go deeper into how agency theory can help mitigate risk within triadic network configurations; something to the best of my knowledge does not exist in the literature. Where other methods consider specific variables, a case study is of greater use where a wider network approach is necessary to look at their relations between each other (Perri and Bellamy, 2012).

### ***3.2 Data collection and analysis***

The data consists of X semi-structured interviews, site tours, email correspondence and workshops. The case study followed a semi-structured interview template allowing the researcher to ask questions based on certain themes in particular, yet at the same time, to receive depth in the answer and explore emerging themes. The semi-structured interviews were conducted at a strategic and operational level within the servitized organisation. An interview guide was structured around a set of detailed questions concerning areas such as ... Snowballing techniques guided the researchers as to who to interview next. Fundamentally, data from each of the three parties within the triad were analysed to fully understand how risk can be mitigated. An interview template was used in order to ensure consistency when interviewing various individuals. Detailed briefings were held with the team of researchers involved in the data collection. Table 1 details the interviews conducted. In order to address construct validity, this study deployed different remedies: using multiple sources of evidence, establishing a chain of events, and having key informants review individual case reports (Gibbert et al., 2008). Discrepancies between different informants were addressed by triangulating primary interview data with secondary data sources from company and government reports.

The interview transcripts were transcribed verbatim. In a first phase of data analysis, primary and secondary source material was coded by the authors. The findings were written up in a 45-page in-depth case study report, forming the basis for subsequent discussions with interviewees to verify the accuracy of our findings. A second phase of data analysis, which included the recoding of all source material by the second author was supported by the computer-aided program NVivo. Each interview was thoroughly reviewed, taking quotes and certain comments from the interview transcripts which were then sorted into various themes identified from literature and to emerge during the coding process. To increase inter-coder reliability the authors first coded interviews individually and then compared coding results and ensured a high degree of inter-coder reliability (Miles and Huberman, 1994). Our thinking constantly interplayed between data collection and analysis, based on how well the data fitted existing, modified or emerging understanding and its relevance to the observed phenomenon (Huberman and Miles, 1994). We used axial coding to focus on one category at a time in order to consider the relationships between core concepts (Strauss, 1987). Codes emerged from both the conceptual review and the interview process, and were subsequently revised during the coding process. The coding process included contextual codes such as firm

size, employees, and relationship-specific codes such as information sharing, risk sharing and risk mitigation. Our understanding of the relationships between our concepts emerged iteratively from an evolving review of the literature and our interviews. The repetition of information and consistent verification of our understanding during data collection and interviews was an indication that we had reached saturation. The coding process informed the structure of the findings and discussion sections.

**Table 1:** Interviews conducted

<b>Actors</b>	<b>List of interviewees</b>	<b>No. of interviews</b>
TruckCo	Board members	6
	Senior level	5
	Operational level	5
	Sales level	7
	Marketing level	4
Customers	Customer 1 (Fleet engineers)	3
	Customer 2 (Service Managers and CEO)	3
	Customer 3 (Business owner)	1
	Customer 4 (Business owner)	1
	Customer 5 (Business owner)	1
Dealer Network	Dealer 1 (Operations, development, general, managers and managing director)	4
	Dealer 2 (Development, marketing managers)	3
	Dealer 3 (Operations, service managers and Director)	3
	Dealer 4 (Fleet engineers, finance manager and CEO)	3

## **4. FINDINGS**

The findings of the study are presented resulting from the data analysis. First, a brief background of the servitizing organisation – TruckCo - is provided. This is followed by a detailed descriptive account of what emerged from the interviews with different actors within the triadic configuration.

### **4.1 Background to TruckCo**

TruckCo is a large manufacturer of commercial vehicles across Europe. This study focuses on its operations within the United Kingdom (UK). As part of its operations, TruckCo has dealership networks spread across the entire length of the UK market. These dealership

networks are either wholly-owned or franchises. Within the wholly-owned dealer networks, TruckCo have sales associates located that report centrally to the headquarters. The dealer network is responsible for ensuring repair and maintenance of vehicles.

*“The dealer network on the packaging side will be very important to that, because they are primarily a service network, so we rely very heavily on the service packages that we’re putting together with the truck for them to actually deliver”* (Board Member, TruckCo).

This service may be provided on an ad-hoc basis or through service packages sold with the sale of the vehicle. Regulations for motor vehicles in the UK require inspections to be conducted at least once every six weeks on the vehicles manufactured by TruckCo. This is to ensure safety of the heavy duty vehicles on the roads. Therefore, the services provided by dealer networks are very much required in order to comply with regulations and avoid financial penalties.

## **4.2 Servitization within TruckCo**

In effort to increase sales and lock-in customers, TruckCo has embarked on a servitization strategy. The reasons provided included competing in a small market where the margin on truck sales was decreasing. Servitization was claimed to allow TruckCo a means of generating revenue not only from the product (the truck) but also from servicing. There was a consensus amongst most that the revenues generated from service were greater than the sale of the truck. However, migrating customers towards service packages was deemed to be no simple task. This was reflected in the fact that over 50% of TruckCo’s business is still based on truck sales alone. TruckCo was aiming to take away the common conception of ‘buying a truck’, which is predominantly based on cost, to one where they are: *“Giving them more of a price per mile, or kilometre that they can run the vehicle from”* (Senior Management, TruckCo).

Convincing customers of the need to adopt a longer-term view was described as being “no simple task” when selling service packages (Sales, TruckCo). The value proposition offered in this respect was also said to appeal more to large customers who could control their costs. The leadership within TruckCo stated explicitly that the dealers are told to: *“Stop selling trucks and start selling lifetime solutions”* (Managing Director, TruckCo). It was stated that service contracts assured revenue streams for TruckCo and their dealership network: *“We know we have £300 million revenue that’s going to be available to our dealer network”* (Senior management, TruckCo). In an economic climate where there is great uncertainty, services provided an increasingly stable form of revenue. The Head of UK after-sales explained that service packages assured TruckCo, and more importantly, the dealer networks, continuity of work over a period of time: *“Now that gives you the assurance, you can go to the dealer network and you can say to the dealer network, ‘50% of your business is guaranteed for the next five years”* (Senior Management, TruckCo).

### **4.2.1 The dealership network**

The repair and maintenance of vehicles was conducted through the dealership network within TruckCo. This was considered a pivotal part of the business. However, the dealership



network spread across the UK is partly owned by TruckCo, whereas other parts are franchises (external). The performance of wholly-owned and franchises was described as varying drastically. The external dealer network it was claimed performed better. For example, it was stated: *“I think the main thing comes down to the fact that they want to do it because it’s protecting their business. Whereas the managers that work in our locations, they’re not under the same amount of pressure”*. (Operations Manager, TruckCo).

This was attributed to there being greater demand within those dealerships which are external to TruckCo, to perform to a certain level in order to gain greater profit. Some respondents suggested that dealerships owned by TruckCo that do not perform as well as they were able to fall back on TruckCo. Whereas in the external dealer network, the individual financial investment was a motivating factor for better performance. One senior manager claimed that when it comes to external dealerships: *“You tend to find they are the owners of the businesses, they are more of a sort of an entrepreneurial approach”* (Senior Management, TruckCo). Therefore, this can be considered to be a key part of why they perform better. However, there were issues of control with external dealership network in implementing a consistent service offering across the network. Whilst there is a lengthy process which TruckCo owned dealerships go through when considering investments, external dealerships have greater freedom in investing with their own money.

For franchise holders delivering services, such as repair and maintenance, can become their main focus and thus performance is likely to be better. In contrast, wholly-owned dealerships possessed longer processes to go through when implementing change. They also tended to be larger in size. Control over the dealership network was considered important, as explained in the following:

*“I think probably their size. The smaller dealers, let’s say, don’t have as much influence on us because they perhaps don’t look after such a large customer base. If they were to lose their doors and take the TruckCo flags down then it would be a problem, but not maybe such a big problem. But the very big dealers, especially the ones where they have multiple locations in an area... we would have a huge problem in terms of supporting our commitments in warranty, and more importantly R&M, in the area”*. (Operations Managers, TruckCo).

This is because larger dealers tend to occupy more sights and deal with a greater number of customers. As a result, these dealers are able to exercise their power in negotiating terms with TruckCo. The risk of larger dealerships ‘going alone’ can prove very detrimental to TruckCo. This is as opposed to a smaller dealership, where a break in the relationship can be recuperated by having a larger network take over the smaller dealership’s customers.

One major competitor was described as having fewer dealer networks but still being able to exercise power over them:

*“[competitor] have a very similar type of operation to ours. They have wholly owned and they have private capital. But they have big partners. They have fewer dealers, bigger... And as a result, they’re able to dictate to the dealers more than we can dictate to our dealers. They have a higher standing. They tell their dealers what to do, and the dealers do it”*. (Sales Manager, TruckCo).

In doing this, the power is shifted greatly towards the manufacturer as a large dealer is not able to dictate terms when equally larger firms can easily handle their customers. Furthermore, having fewer external dealerships means that there can be greater time and effort in focusing on the external party, ensuring standards are maintained.

The head of UK sales discussed how a mixture of wholly-owned and externally owned dealerships prevents collusion within the dealership network. Again, having completely external dealer networks could promote collusion, as well as over reliance upon services. By limiting what is conducted in-house and that out-of-house, TruckCo was able to have a safety barrier when issues arose with the external parties. Furthermore, this prevented dealerships from refusing to work unless rates were increased.

### **4.3 Risk mitigation within the triadic network configuration**

When considering the complex structure TruckCo has in performing business with external parties, it is likely that it is exposed to a greater degree and types of risks. These are described below.

#### **4.3.1 Supervision**

Within this triadic network configuration (TruckCo, Dealers and Customer), reputational risk was most often considered to be mitigated through the various checks and supervision. Respondents mentioned penalties for failure to adhere to the set criteria by TruckCo for the dealership network.

*“There are strict criteria like, if a guy turns up to repair an TruckCo truck, he will be in an TruckCo branded van, he will have TruckCo overalls and everything will be TruckCo. If we hear of instances where they’ve blatantly broken the rules, then the dealers get policed accordingly and penalised accordingly”.* (Board Member, TruckCo)

Similarly:

*“The site has to be a certain size, we have to have the right colour sign. We have to fly their flags [TruckCo]”* (Service Operations Manager, Dealer 3).

This illustrates the how image and brand was kept consistent across the dealership network by ensuring areas such as visual perception were controlled by the manufacturer - TruckCo. Furthermore, this form of supervision reinforces the positions of the members within the network configuration to prevent opportunism on the part of the dealers.

A ‘mystery shopper’ system was also implemented, within which expectations and performance measures were analysed by TruckCo in order to determine if the correct message and brand image was conveyed by the dealer network.

*“We use mystery shopping now quite a bit to ensure that our dealers are delivering the right level of service, the right level of customer communication. We use mystery shopping to see if our people are good at up-selling. The one part will lead to another part, which will lead to another part, are we selling all three parts or selling one part”* (Operations Manager, TruckCo).

The dealer network seems to understand the motivation behind this as one interviewee described:

*“Good service is told only to three people and bad service is told to the whole world”* (Service Operations manager, Dealer 3)

The dealer network however, emphasise that they understand the need for a good service and therefore, it can be considered to reduce the chances of reputational risk. Perhaps a greater understanding into how they understand these needs are required which may be due to factors such as contractual mechanisms.

The pay structure TruckCo has with third parties for their services can therefore, allow opportunism through misleading information. This structure is based upon the hours of service provided which can vary from the different services customers may require. In doing this, TruckCo require details for certain activities which need to take place in order to carry out repair and maintenance for a customer’s vehicle.

*“We have a team downstairs that monitor... So they will then be looking to see progress on the job... So the dealer tells us, “This vehicle’s come in, it’s got clutch repair.” And we know a clutch repairs about six or seven hours labour. If the dealer’s telling us that they’re estimated time of completion for that job is three days’ time, the team will be asking the question why”* (Operations Manager, TruckCo).

TruckCo then use their expected completion time for the work and compare that to what has been declared by the dealer. If times are significantly different to what is predicted, TruckCo require justification by the dealer concerned. This system is implemented to prevent opportunism as well as determining the performance of the dealer network. Communication is required, and more importantly, a tool which allows information to be observed and analysed to evaluate the actions of the dealer network.

Supervision is also conducted by TruckCo through customer feedback as to how they interact with the dealer network. TruckCo takes this as an opportunity to evaluate the relationship between the customer and the external service provider.

### **4.3.2 Communication**

Communication can be described here as those mechanisms promoting access to the different members within the triadic network. Firstly, in looking more specifically at TruckCo and the dealer network, the structure of communication is very much centralised in order to ensure a consistency of message across the dealer network. As is illustrated in the following:

*“As long as we maintain robust communication systems that we have, so that whatever is on offer is a universal offering”* (Marketing Manager, TruckCo).

TruckCo respondents described an influential dealers association that helped build communication lines between the different parties. The association raised issues of concern to the dealer networks. A process agreed between the manufacturer and supplier existed to address these concerns.

The sharing of information can be considered the most reliable way in order to prevent reputational risk. The Head of Network Development mentioned that relations between the three parties are held successfully due to the availability of tools used in order to exchange data about vehicles that customers are using. For example, expenses and overheads were monitored in order to help identify costs. Moreover, a system using advanced technology is used to gather information regarding specific vehicles (the telematics system). TruckCo provide this technology in conjunction with another partner organisation to improve customer performance. The telematics technology is provided at an additional cost as part of the most comprehensive service package. This offering allows a greater level of customer satisfaction and opportunities for improving customer performance may be identified. In addition, driver behaviour may be monitored for the customer by TruckCo and appropriate training devised to improve, for example, fuel consumption. Ensuring drivers take legally required breaks, comply with speed limits, check whereabouts of vehicles and so on, may be monitored though the use of the technology. In turn, this helps reduce the risk to the customer organisation.

Information was also shared through other means:

*“Now that we have a smaller network, we have a number of forums, service panel, parts panels, that meet quarterly and we share an awful lot of information”*, (TruckCo, Head of After Sales and Business Development).

*“He [a member of the dealer council] does make sure everyone’s aware of what’s happening in the network because I think the staff should know really whereas I think maybe a lot of other dealers wouldn’t know a lot of the information”*(Services Marketing and Business Development Manager, Dealer 1)

That said, concerns were expressed that despite communication, issues regarding TruckCo parts being used to resolve issues were being breached. This was described as a “constant tug of war”. This is between the two parties where regulations are not being adhered to by the dealer network, in order to save on costs. Despite contractual terms and communication being made regarding this matter. Nevertheless, the overall conclusion and the stronger argument to be made is that communication is a significant factor towards mitigating risk for the manufacturer. Having tools in order to express concerns can be vital in order to prevent the reputation of the manufacturer being adapted. It allows suppliers of services to re-think opportunistic behaviour as they now have access to methods to resolve issues. The data suggests it is implemented through the telematics system.

### **4.3.3 Contracts**

Contracts are used to regulate and maintain obligations between the different parties within the triadic configuration. Between TruckCo and the dealer network covered areas of responsibility and performance measurement systems.

*“There is a contract drawn up and managed by a small team of people and they’re audited to have things like signage, tooling; they have to commit to training their staff, as well as the UTP KPIs, i.e. MOT first time pass rate, which is the more measurable target”* (Senior Manager, TruckCo)

The contract allows a binding agreement of measurability used in order to ensure reputational risk is being mitigated; through adjusting the dealers' behaviour. In doing this, reputational risk is mitigated by creating a measurable guide of requirements to a universal standard. Thus, when these targets are not met, they are easily identified, helping find the root cause as to why these targets have not been met according to the performance measurement system.

TruckCo use a 'telematics' system in order to measure the different parties within the network configuration. This essentially allows them to monitor the way in which vehicles are being driven, allowing customers to be able to:

*"Controlling and advising on how to control fuel costs"* (Managing Director, TruckCo)

This can help anticipate the type of demand repair and maintenance will be required by the dealer network. To their benefit, TruckCo are able to assess the dealer network in their efficiency in detecting and solving the problems, as well as advising the customer in ways to prevent repairs. It has been stated by one interview with a customer that:

*"...they've [TruckCo] gone from providing us a truck fully financed to providing us a managed service, which is what the telematics gives us"* (CEO, Customer 2)

This ultimately reduces the likelihood of repairs being needed by the dealer network and more importantly, ensures the reliable measurability of the dealer network. The telematics system provides actual data which TruckCo can use to identify issues and patterns, preventing reputational risk.

#### **4.3.4 Incentives**

Incentives were discussed as a means which will help mitigate risk within TruckCo and their dealer network. Incentives enabled TruckCo to reward the dealer network for targets set and met. For example, selling was not initially a main priority to the dealer network as TruckCo would sell the Truck and leave the after-sales work for the dealerships. However, knowing that relations between a customer and the dealer network were often strong over the years, there was an opportunity for them to sell more vehicles on behalf of TruckCo. Therefore, dealerships were incentivised in the form of commissions to boost sales from existing customers. Again, this reduced the scope of reputational risk as it enabled the dealer network to play a greater role in TruckCo as an organisation, creating less divide. Furthermore, it required the dealer network to take responsibility to uphold the message and image TruckCo were trying to convey.

#### **4.3.5 Other mechanisms**

The study reveals that there are control mechanisms which are present allowing TruckCo to manage relations in the early stages with the dealer network. In so doing, TruckCo is able to obtain a dominant role. In one particular interview, it was revealed that boundaries are created by TruckCo where each dealer can operate. Although a customer is able to use any dealer network which is closest to them, dealers cannot 'poach' regular customers of other dealers by offerings them cheaper prices, for example. In doing this, territory is created where each dealer must maintain standards as well as having assurance that their customers will not

be taken by possible competitors under the TruckCo banner. In this respect, dealer networks are not fighting for business while representing the same organisation. Furthermore, it prevents opportunism with the dealer networks as they will build to maintain their existing customers and extend current contracts.

It was suggested that reputation can be tarnished thorough inconsistencies. This however, is mitigated as shown through maintenance pricing regulations. Within this, the dealer network must not undercut prices in order to take away businesses from nearby dealerships. Therefore, TruckCo will take away business if inconsistencies are later found through the dealer network, enabling greater control over the way in which TruckCo as an organisation operate. Ultimately, this reduces the chance of reputational risk as the level of inconsistencies are reduced and the customer is more likely to have a balanced experienced similar to that of previous visits and other customers around them.

Continuing on the theme of consistencies, one interviewee emphasised that:

*“We will provide the tools, the material for the dealer to use locally, so that there’s a consistent message or theme running through the whole thing”* (Marketing Manager, TruckCo).

The above illustrates the active role taken by TruckCo’s in order to avoid reputational risk by providing the means to convey a consistent message to both dealers and customers.

This is not to say that there are not inconsistencies. An interview with the Head of UK Services and Support revealed that there some things were beyond the control of TruckCo. The varying rates across the United Kingdom can prove to be a significant challenge. This is where one dealership can charge a high price for their services due to their location, another can charge less as it operates in a more industrialised area. Therefore, it is economic variances across the UK which prevents consistencies, which was resulted in contestation among dealers.

#### **4.4 Summary**

In summary, TruckCo has implemented many measures in order to mitigate risk. As discussed, these include: supervision, communication, contracts, incentives, as well as other tactics. Whilst these mitigate risk to an extent, they also reveal particular concerns within TruckCo. Table 2 summarises the key findings, showing how information, in this case the telematics system, is used to benefit the triadic configuration. Next, the discussion of the findings is presented.

	<b>Issues Identified</b>		<b>How information is used to benefit TruckCo</b>
<b>Servitization</b>	<ul style="list-style-type: none"> <li>▪ Enables TruckCo to put a price per mile for the customer</li> </ul>		Information helps TruckCo understand their customer's fuel consumption using the telematics system
	<ul style="list-style-type: none"> <li>▪ TruckCo can predict future revenue</li> </ul>		Telematics systems allow a greater understanding on how much costs and revenue will arise in the future
	<ul style="list-style-type: none"> <li>▪ Gradual migration from dealer network repairs to third parties can occur</li> </ul>		Telematics services prevent customers from using third parties in order to obtain information on their vehicles others cannot provide
	<ul style="list-style-type: none"> <li>▪ Engineers are responsible for specific contracts</li> </ul>		Information can be used in order to understand the previous history of customers when managing a contract
	<ul style="list-style-type: none"> <li>▪ Value for money is a motivation for customers</li> </ul>		Using the telematics system can prevent customers from using cheaper options as they can understand the long-term benefits of this feature
	<ul style="list-style-type: none"> <li>▪ External dealers perform better than TruckCo wholly-owned</li> </ul>		Information systems such as the telematics system is more likely to be used in order to increase sales
<b>Triadic configurations</b>	<ul style="list-style-type: none"> <li>▪ Heavy reliance upon dealer network success</li> </ul>		Information systems help ensure that services are delivered as they help create a greater understanding of why certain issues arise
	<ul style="list-style-type: none"> <li>▪ Various sizes of dealer networks</li> </ul>		Having a system like the telematics system creates an equal standing between the various sizes of dealer networks where all have a key product to use (the telematics system)
	<ul style="list-style-type: none"> <li>▪ Geographical locations will vary for customers</li> </ul>		Customers will use multiple dealers for maintenance depending on their location. The telematics system allows information to be available to all dealer networks no matter which location
	<ul style="list-style-type: none"> <li>▪ External dealer networks are more reactive to issues</li> </ul>		The telematics system allows all dealer networks to be more reactive to issues regardless if they are wholly owned or externally owned
	<ul style="list-style-type: none"> <li>▪ Consistency is ensured within TruckCo</li> </ul>		Information systems allow TruckCo to review dealer networks to see if they are following the correct procedures
<b>Reputational risk mitigation</b>	Supervision	<ul style="list-style-type: none"> <li>▪ Mystery shopper to</li> </ul>	They can ensure correct diagnosis is made using their telematics system Teams which monitor dealers ensure they spend the correct amount of time

		<p>review</p> <ul style="list-style-type: none"> <li>▪ Supervision teams</li> </ul>	fixing issues which are raised by the telematics system
	Communication	<ul style="list-style-type: none"> <li>▪ Forums used to communicate</li> <li>▪ Tools provided universally</li> </ul>	<p>Panels and meeting allow issues to be raised and information to be transferred</p> <p>In giving tools such as the telematics system, it opens communication between the various parties, as well as preventing unfairness being felt between the networks</p>
	Contract	<ul style="list-style-type: none"> <li>▪ Contracts specifying measured criteria to be met</li> </ul>	The telematics system ensures a method in which results can be measured accurately
	Incentives	<ul style="list-style-type: none"> <li>▪ Incentives for sales</li> </ul>	TruckCo require information in order to know if targets have been met and to create a reward strategy
	Other	<ul style="list-style-type: none"> <li>▪ Build upon existing clients</li> </ul>	The telematics systems allow a dealer network to review clients to understand their needs. This can help them suggest products to be purchased using existing information.

*Table 2: Summary of issues identified*



## 5. DISCUSSION AND CONCLUSION

The aim of this study was to examine how risk may be mitigated within a triadic configuration for a servitizing organisation. To this end, the study has described various ways reputational risk to TruckCo may be mitigated. The telematics system used by TruckCo was found to provide greater detail in how the dealer network manages issues raised by customers. In doing this, TruckCo is able to compare what their telematics systems predicts the issue with vehicles, and what the issue that is diagnosed by the dealer network. As a result, this significantly prevents opportunism on the part of the dealer network when vehicles arrive for servicing through falsely providing unnecessary work. The telematics system aids correct diagnosis and accuracy, ensuring consistency of service that is provided to its customers. In exploring the significance of information, this study will now draw upon two different parts of agency theory: ‘positivist agency theory’ and ‘principal agency research’. These are discussed in turn.

The positivist agency theory shares a significant similarity to the principal agency theory in that they both stress the significance of information when controlling the relations between a principal and agent (Eisenhardt, 1989). The positivist agency theory believes that it is ‘outcome-based contracts’ that are required in order to prevent the various forms of risk often arising due to the actions of the agent. Eisenhardt (1989, pp. 60) explains, this is due to the fact that: *“Contracts coalign the preferences of agents with those of the principal because the rewards for both depend on the same actions and, therefore, the conflicts of self-interest between principal and agent are reduced”*.

Zsidisin and Ellram (2003) argue that contracts based on outcomes are for those organisations who wish to focus on pure results. Therefore, the manner in which results are obtained play less significance against that of which is the end result. When comparing this perspective in the case of TruckCo and its dealer network, there are clear differences as TruckCo focus on results. However, TruckCo aims to limit reputational damage that may be caused by the agent (i.e. dealer). An outcome based contract can ultimately, be seen as an inappropriate method to use within this situation, as using a solution based on results, may hide the damage it causes i.e. reputational damage.

Nevertheless, information can be of significance with outcome-based contracts as when applying a positivist agency theory lens, TruckCo are able to obtain data regarding dealer network performance. Consequently, the agent (i.e. dealer) is less likely to manipulate outcome-based contracts (cf. Eisenhardt, 1989). The telematics system used by TruckCo is an example of an informational system which provides control over the dealer network. TruckCo are able to review the dealer networks by comparing their expectations on repair and maintenance times and other functions; to what is actually being done. Although information and outcome-based contracts possesses importance towards reducing reputational risk, outcome-based contracts are not suitable towards achieving the end goal.

An alternative would be to examine the principal-agent research. This paradigm is very much existing in thought as opposed to the positivist agency theory whereby, it aims to resolve which type of contract is suitable for the task which needs to be achieved (Eisenhardt, 1989).

Therefore, behaviour can be considered a significant factor in determining details within a contract in order to align the requirements of a manufacturer and the supplier of a service (Zsidisin and Ellram, 2003). In using a telematics system, the case study shows the manufacturer is able to create criteria in order to lay foundations upon the type of behaviours required by the dealer network – be that wholly-owned or external. Ultimately, a behaviour-based contract is most suitable towards mitigating reputational risk. This is evident in the way TruckCo have used this type of contract in monitoring and controlling the behaviour of the external network dealers.

Behaviour-based controls may therefore, be seen to be a more appropriate tool towards mitigating reputational risk within a supply network. Eisenhardt (1989) stresses that information is needed in order to use behaviour-based controls as shown through the telematics system used by TruckCo. When information is available Eisenhardt (1989, pp. 61) argues: *“Given that the principal is buying the agent’s behaviour, than a contract that is based on behaviour is most efficient. An outcome-based contract would needlessly transfer risk to the agent, who is assumed to be more risk averse than the principal”*. This represents the way in which TruckCo have tackled ‘moral hazards’ and ‘adverse selection’. Moral hazards have been averted within TruckCo’s triadic configuration. In using behaviour based controls, such as that in the form of contracts and information, TruckCo ensure criteria is being met as agreed in the initial stages of the relationship and the dealer network gives the level of effort into their role as agreed. Adverse selection is also prevented as TruckCo are able to measure the activities of the dealer network in order to ensure they fulfil their contractual promises. The use of information through the telematics system, again allows TruckCo to compare their desired criteria from what was agreed and what is occurring reality. This prevents reputational risk within the triadic network configuration by allowing the principal to assess the other parties to ensure agreements are fulfilled.

In establishing TruckCo’s use of a telematics system in order to monitor the dealer networks, it is essential to explain how behaviour-based controls can therefore, help mitigate reputational risk in using information TruckCo possess. Tate et al. (2010, pp. 808) claim that this form of contract is most efficient and successful *“when the agent’s behaviour can be readily monitored and measured”*. There is clear evidence to support this within the case study. Furthermore, it may be argued that greater communication links are vital in order to prevent reputational risk within supply networks. Once again, it is the telematics systems which can help contribute towards ensuring this. Communication between TruckCo and the dealer network on issues which may be outlined by the telematics system is increased. This allows the dealer network to raise any issues which they may feel and ultimately, ensures core competencies are maintained as required by the manufacturer (Zsidisin and Ellram, 2003). This essentially may prevent reputational risk as there is a basis upon which the different parties—be they TruckCo, the dealer network (wholly-owned or external) or customers—may have dialogue to resolve issues.

In summary, it is evident that the agency theory can be a relevant when seeking how reputational risk can be mitigated within a triadic network configuration. Within this, the positivist agency theory reflects one school of thought whereby, outcome-based contracts are essential towards mitigating risk. On the other hand, principal – agent research shows that it is behaviour based controls which actually help mitigate risk. Although having information is

crucial to both schools of thought, principal – agent research shows that this can also prevent ‘moral hazards’ and ‘adverse selection’. Although the study shows that TruckCo may not use all of these methods, what is evident is that information is crucial towards implementing these recommendations from the beginning. TruckCo use of telematics system (a form of information), provides the vital key in enabling them to provide servitized offerings.

Lastly, as this is an exploratory case study wider generalisation is not possible. However, analytical generalisations are. Other researchers may make similar comparisons with other studies and contexts to see how widely the ideas presented here are applicable. Another limitation of this study is that it was based on a truck manufacturer and its network. Future research needs to broaden out and examine other sectors than the one explored here. Multiple case studies may be undertaken on a larger scale to glean greater insights. Furthermore, there is scope for operationalizing the key constructs to emerge in a survey based study to be able to generalise to a large population. Lastly, a longitudinal approach would allow for insights into how network configurations changes over time and how risks may be managed.

## 6. REFERENCES

- Ahuja, G. (2000), Collaboration networks, structural holes and innovation: a longitudinal study, *Administrative Science Quarterly*, Vol. 45, pp. 425-55.
- Andersson-Cederholm, E., Gyimothy, S., (2010), The service triad: modelling dialectic tensions in service encounters, *The Service Industries Journal*, Vol. 30, (2), pp. 265 - 280
- Baines, T., Lightfoot, H., Peppard, J., Johnson, M., Tiwari, A., Shehab, E. and Swink, M., (2009), Towards and operations strategy for product-centric servitization, *International Journal of Operations and Production Management*, Vol. 29 (5), pp. 494-519.
- Baines, T., Lightfoot, H., Smart, P., (2011), Servitization within manufacturing: Exploring the provision of advanced services and their impact on vertical integration, *Journal of Manufacturing Technology Management*, Vol. 22, (7), pp. 947-954
- Bastl, M., Johnson, M., Lightfoot, H., Evans, S., (2012), Buyer – supplier relationships in a servitized environment: An examination with cannon and Pereault’s framework, *International Journal of Operations & Production Management*, Vol. 32, (6), pp. 650 - 675
- Bastl, M., Johnson, M. and Choi, T. (2013), Who’s seeking whom? Coalition behaviour of a weaker player in buyer-supplier relationships, *Journal of Supply Chain Management*, Vol. 49 (1), pp. 8- 28
- Bengtsson, M. and Kock, S. (2000), Coopetition in business networks – to cooperate and compete simultaneously, *Industrial Marketing Management*, Vol. 29, pp. 411-26.
- Choi, T., Wu, Z., Ellram, L., Koka, B., (2002), Supplier-Supplier relationships and their implications for buyer-supplier relationships, *IEEE Transactions On Engineering Management*, Vol. 49, (2), pp. 119 – 130
- Cousin, G., (2005), Case study research, *Journal of Geography in Higher Education*, Vol. 29, (3), pp. 421 - 427
- Das, T.K. and Teng, B. (2000), “Instabilities of strategic alliances: an internal tensions perspective”, *Organisation Science*, Vol. 11 (1), pp. 77-101

- Dubois, A., Frederiksson, P., (2008), Cooperating and competing in supply networks: Making sense of a triadic sourcing strategy, *Journal of Purchasing and Supply Management*, Vol. 14, pp. 170 – 179
- Eisenhardt, K., (1989), Agency theory: An assessment and review, *The Academy of Management Review*, Vol. 14, (1), pp. 57 – 74
- Eisenhardt, K., (1989), Building theories from case study research, *Academy of Management Review*, Vol. 32, (4), pp. 1155 – 1179
- Ekanayake, S., (2004), Agency theory, national culture and management control systems, *Journal of American Academy of Business*, Vol. 4, (1/2), pp. 49 - 54
- Finne, M., Holmstrom, J., (2013), A manufacturing moving upstream: triadic collaboration for service delivery, *Supply Chain Management: An International Journal*, Vol. 18, pp. 21 – 33
- Firestein, P., (2006), Building and protecting corporate reputation, *Strategy & Leadership*, Vol. 34, (4), pp. 25 – 31
- Gibbert, M., Ruigrok, W., Wicki, B., (2008), What passes as a rigorous case study?, *Strategic Management Journal*, Vol. 29, pp. 1465 - 1474
- Gomm, R., Hammersley, M., Foster, P., *Case Study Method*, London: Sage
- Gulati, R., Nohria, N. and Zaheer, A. (2000), Strategic network, *Strategic Management Journal*, Vol. 21, pp. 203-15.
- Hartmann, A., Roehrich, J.K., Davies, A. and Frederiksen, L., (2013), Procuring complex performance: The transition process in public infrastructure, *International Journal of Operations and Production Management*, In Press
- Heide, J., (2003), Plural governance in industrial purchasing, *Journal of Marketing*, Vol. 67, (4), pp. 18 - 29
- Jensen, M., (1994), Self-interest, altruism, incentives, and agency theory, *Journal of applied corporate finance*, Vol. 7, (2), pp. 1 - 17
- Jiang, B., Hansen, J., (2003), Matsushita realigns its supply chain in China, *Supply Chain Management: An International Journal*, Vol. 8, (3), pp. 185-189
- Kastalli, I. V. and Van Looy, B. (2013), Servitization: disentangling the impact of service business model innovation on manufacturing firm performance, *Journal of Operations Management*, Vol. 31 (2), pp. 169-180
- Larson, P. And Kulchitsky, J., Single Source and Supplier Certification: Performance and relationship Implications, *Industrial Marketing Management*, Vol. 27, (1), pp. 73 – 81
- Lee, T., (1999), *Using Qualitative Methods in Organisational Research*, CA: Sage
- Li, M., Choi, T., (2009), Triads in services outsourcing: Bridge, bridge decay and bridge transfer, *Journal of Supply Chain Management*, Vol. 45, (3), pp. 27 – 39
- Lincoln, Y., Guba, E., (2003), “Paradigmatic controversies, contradictions, and emerging confluences”, Thousand Oaks, CA: SAGE
- Madhavan, R., Gynawali, D., He, J., (2004), Two’s company, Three’s a crowd? Triads in cooperative-competitive Networks, *Academy of Management Journal*, Vol. 47, (6): 918 – 927
- Marshall, C., Rossman, G., (2006), *Designing Qualitative Research*, CA: Sage

- Mathieu, V. (2001), Service strategies within the manufacturing sector: benefits, costs and partnership, *International Journal of Service Industry Management*, Vol. 12, (5), pp. 451-75.
- Maxwell, J., A., (1996), *Qualitative Research Design: An Interactive Approach*, Thousand Oaks, CA:Sage
- McQueen, R., Knussen, C., (2002), *Research Methods for Social Sciences: An Introduction*, Harlow: Pearson
- Neely, A., (2008), Exploring the financial consequences of the servitization of manufacturing, *Operations Management Research*, Vol. 1, (2), pp. 1-50
- Patton, Q., (1987), *How to Use Qualitative Methods in Evaluation*, CA: Sage
- Peng, T., Lin, N., Martinez, V., Yu, C., (2010), Managing triads in a military avionics service maintenance network in Taiwan, *International Journal of Operations and Production Management*, Vol. 30, (4), pp. 398-422
- Perri, G., and Bellamy, C., (2012), *Principles of Methodology: Research Design in Social Sciences*, CA: Los Angeles
- Raja, J.Z., Bourne, D., Goffin, K., Cakkol, M. and Martinez, V. (2013), Achieving customer satisfaction through the integration of products and services: an exploratory study, *Journal of Product Innovation Management* (forthcoming).
- Rayner, J. (2003), "Managing reputational risk: Curbing threats, leveraging opportunities, Wiley & Sons:
- Roseira, C., Brito, C., Henneberg, S., (2010), Managing Interdependencies in supplier networks, *Industrial Marketing Management*, Vol. 39, pp. 925 – 935
- Ross, S., (1973), The economic theory of agency: the principal's problem, *The American economic review*, Vol. 63, (2), pp. 134 – 139
- Rowley, T., (1997), Moving beyond dyadic ties: a network theory of stakeholder influences, *Academy of Management Review*, Vol. 22, (4), pp. 887 – 910
- Silverman, D., (1993), *Beginning research: Interpreting qualitative data, methods for analysing talk, text and interaction*, London: Sage
- Tate, W., Ellram, L., Bals, L., Hartmann, E., Valk, W., (2010), An agency theory perspective on the purchase of marketing services, *Industrial Marketing Management*, Vol. 39, pp. 806 - 819
- Valk, W. van der and Weele, A.J. van, (2011a), Business service triads: a new area for service research. In F. Rozemeijer (Ed.), *Proceedings of the 20th Annual IPSERA Conference*, Vision 20/20: Preparing Today for Tomorrow's Challenges, pp. 1405-1418
- Valk, W. Van der, Iwaarden, J. van, (2011b), Monitoring in service triads consisting of buyers, subcontractors and end customers, *Journal of Purchasing and Supply Management*, Vol. 17, pp. 198 – 206
- Van Ackere, A., (1993), The principal/agent paradigm: Its relevance to various functional fields, *European Journal of Operational Research*, pp. 83 - 103
- Vandermerwe, S. and Rada, J. (1988), Servitization of business: adding value by adding services, *European Management Journal*, Vol. 6, (4), pp. 314 – 324

- Vereecke, A. and Muylle, S., (2006), Performance improvement through supply chain collaboration in Europe, *International Journal of Operations and Production Management*, Vol. 26, (11), pp. 1176-98
- Wise, R., Baumgartner, P., (1999): Go downstream: The new profit imperative in manufacturing, *In Harvard Business Review*, Sep – Oct, pp. 113 - 141
- Wu, Z., Choi, T., (2005), Supplier-supplier relationships in the buyer-supplier triad: building theories from eight case studies, *Journal of Operations Management*, Vol. 24, pp. 27 – 52
- Yin, R., (1984), Case study research, London: SAGE
- Zaheer, A. and Bell, G.G. (2005), Benefiting from network position: firm capabilities, structural holes, and performance, *Strategic Management Journal*, Vol. 26, (9), pp. 809-25.
- Zivkovic, J., (2012), Strengths and weaknesses of business research methodologies: two disparate case studies, *Business Studies Journal*, Vol. 4, (2), pp. 91 - 99
- Zsidisin, G., Ellram, L., (2003), An agency theory investigation of supply chain risk management, *The Journal of Supply Chain Management*, Vol. 39, (3), pp. 15 – 27