

**APPLYING THE THIRD-PARTY LOGISTICS CONCEPT TO  
IMPROVE BUSINESS PROFITABILITY: A STUDY OF THE  
MANUFACTURING INDUSTRY IN THE UK**

**By**  
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### Declaration

I, Mohamed Sorogy (Student Id Number @00569443), hereby declare that the work contained in this dissertation is my own and has not been submitted elsewhere for any academic award.

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### Abstract

This dissertation aimed to critically investigate how UK manufacturing companies can employ 3PL services to enhance business profitability. A simple, cross-sectional sequential mixed methods research methodology was implemented with the qualitative phase being used to explain the findings of the quantitative phase, which was performed first. Data for the quantitative period were collected using an online questionnaire that was designed and administered through a Google survey (N= 416). At the same time, semi-structured interviews were performed via Zoom calls with senior executives and managers of UK manufacturing firms (N= 5). Descriptive statistics, a one-sample t-test, and stepwise regression were used for quantitative data analysis using SPSS while manual analysis of interview data was performed in Microsoft Excel.

The results showed that transportation and fleet management were the services that UK manufacturing companies outsourced to the most significant extent while clearing and forward and inventory management were the services that were outsourced to the lowest degree. The reasons behind this trend included the level of risk involved in outsourcing a particular service, availability of 3PL providers offering the outsourcing service, and the cost involved. In terms of feasibility, all items were scored highly, although increased operational flexibility and significant reduction of operational costs ranked highest. Finally, the stepwise regression test revealed four statistically significant models with an overall prediction power of 20.1% on business profitability. The statistically significant predictor variables were a reduction of operational costs, increased operational flexibility, reduced fixed asset costs, and the gaining of external resources from 3PL service providers.

**Keywords:** Logistics outsourcing, 3PL outsourcing, Third-party logistics, UK manufacturing industry, Business profitability

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## 1. Chapter One: Introduction

### 1.1 Background

Business globalisation continues to impose increasingly complex systems of the flow of services and goods. This trend is continually causing challenges for the management of these logistical channels and systems in cost-effective ways that ensure sustained business performance and growth (Dhayanidhi et al., 2011). With the extensive developments in manufacturing and the emergence of new technologies, the logistics industry has witnessed a spike in the number of cargo storage and transportation companies worldwide. In order to ensure continuous logistical processes and available costs of transportation while concentrating on the core business activities, many businesses opt to outsource some of their logistic functions to a third-party (Kotlars et al., 2017).

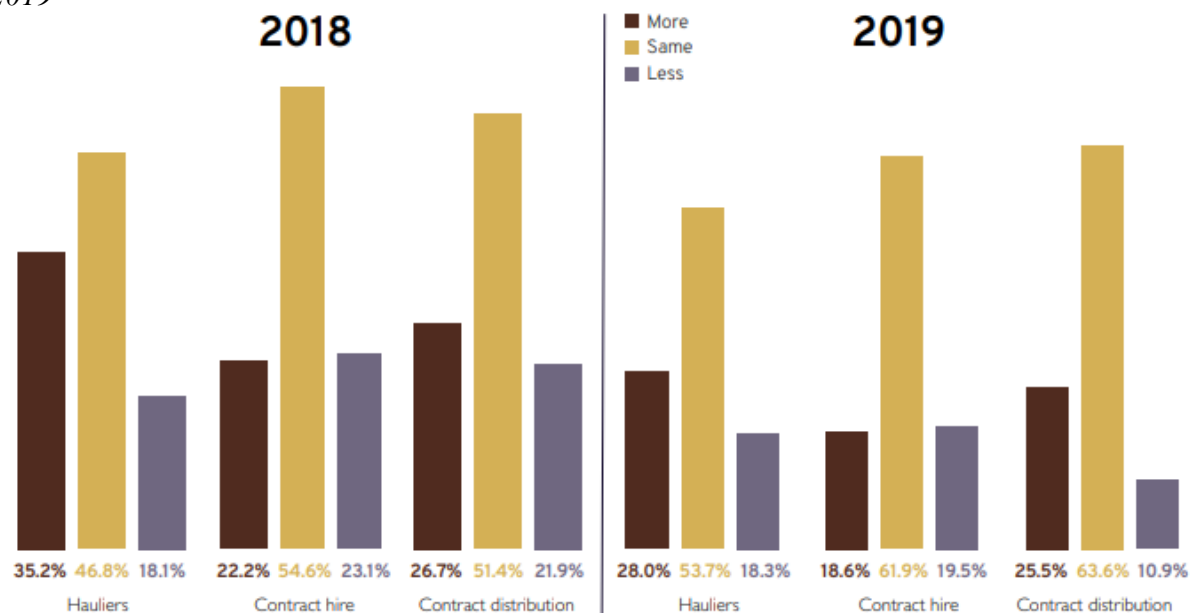
Third-party logistics (3PL) refers to “*the scenario where a contracted out warehouse and distribution operation is positioned between the supplier and the retailer operation*” (Shipley, 2012, p.172). Outsourcing logistics services to 3PL providers lower the costs of running logistics for a company (Coyle et al., 2013). Besides, it enables the company to dedicate their resources to their core functions, thereby ensuring sustained competitiveness (Porter, 1980). The competitiveness can also be enhanced through the formation of long-term relationships between the company and the 3PL providers (Yeung, 2008). Furthermore, 3PL providers increase value for users by improving the efficiency of operations and/or sharing information and resources (Berglund et al., 1999). There is also the benefit of helping users to navigate through government regulations and clear customs sooner, thereby avoiding unnecessary delays (Selnes and Sallis, 2003).

On the other hand, the UK manufacturing sector is vital in the UK economy. In 2013, the manufacturing industry contributed to a tithe of the UK economy, which translated to about £148 billion to the 2013 Gross Value Added (Her Majesty’s Government, 2015). Moreover, the UK manufacturing industry generated more than 50 percent of all export goods from the UK in 2012. In the same year, the sector was responsible for an estimated £12.8 billion in business research and development in the UK (UK Office for National Statistics (ONS), 2019b). The latest labour market overview released in December 2019 showed that the UK manufacturing industry is the second-highest employer providing jobs to an estimated 2.717 million individuals (UK Office for National Statistics (ONS), 2019a).

## 1.2 Problem Statement

The 23<sup>rd</sup> Annual Third-Party Logistics Study showed a sharp rise in the global 3PL revenues from US\$ 835.20 billion in 2014 to US\$ 869 billion in 2017 (Langley Jr. and Infosys, 2019). Although the same report shows an overall decline of the 3PL revenues in Europe from the US\$ 196.4 billion in 2014, there has been a steady increase between 2015 (US\$ 172.60 billion) and 2017 (US\$ 184.1 billion). In the UK, the demand for 3PL services has been on the rise. The FTA (Freight Transport Association) Logistics Industry Survey 2018/19 showed that 53.7 percent of the respondent companies increased their demand for 3PL hauliers in 2019 compared to 46.8 percent in 2018. About 61.9 percent increased their 3PL contract hires in 2019 compared to 54.6 percent in 2018. An estimated 63.6 percent increased their 3PL contract distribution in 2019 compared to about 51.4 percent of the survey respondents in 2018 (Freight Transport Association (FTA), 2019), as demonstrated in Figure 1.2 below. Despite these statistics, there exists no empirical evidence as to how manufacturing companies in the UK can take advantage of 3PL services to enhance their profitability.

Figure 1.2. *An illustration of the demand for 3PL services in the UK for the years 2018 and 2019*



Source: FTA (2019)

## 1.3 Aim, objectives, and research questions

This dissertation aims to critically investigate how UK manufacturing companies can employ 3PL services to enhance business profitability. The following are the research objectives of this dissertation:

- 1) To critically examine the extent to which UK manufacturing companies outsource 3PL services.

- 2) To critically appraise the feasibility of outsourcing 3PL services.
- 3) To critically evaluate the perceptions of UK manufacturing companies towards 3PL services.
- 4) To critically examine how outsourcing 3PL services impacts company profitability.

In line with the research aim and objectives, the following research questions were formulated to guide the research methodology process:

- 1) To what extent do UK manufacturing companies outsource 3PL services?
- 2) How feasible is outsourcing 3PL services to UK manufacturing companies?
- 3) What are the perceptions of UK manufacturing companies towards 3PL services?
- 4) To what extent does outsourcing 3PL services influence the profitability of a company in the UK manufacturing sector?

#### **1.4 Research significance**

This research has both scholarly and industrial significance. To the best of the researcher's knowledge, this is the first study to investigate the extent to which UK manufacturing companies outsource 3PL services and the impact that 3PL outsourcing has on business profitability. Scholars can refer to this research and the findings thereof to understand the role of 3PL services in the UK manufacturing sector and the extent to which manufacturing companies outsource 3PL services. Besides, future scholars can replicate the research methodology used in this study to investigate the area to which companies in other industry sectors outsource 3PL services and the extent to which 3PL services are feasible in the UK. The findings of this research are also crucial to both the manufacturing and 3PL companies in the UK. To managers and CEOs of UK manufacturing companies, the results of this study will help provide evidence about the feasibility of outsourcing 3PL and the impact it has on the profitability of a company. On the other hand, managers of 3PL companies can refer to the findings of this research to understand their impact on manufacturing companies in the UK and the role they play in promoting profitability. They can then make decisions on how to position themselves as worthy players in the industry.

#### **1.5 Research methodology**

The development and outlining of the research methodology are based on the Research Onion (Saunders et al., 2018). The assumptions of knowledge and its interpretation were based on the pragmatist research philosophy. An abductive approach to theory development was assumed to enable the interrogation of existing theory and developing new knowledge about the effect

of 3PLs on business profitability within the UK manufacturing industry while was adopted. In terms of methodological choice, sequential mixed methods research where the qualitative phase followed the quantitative period were taken. A survey research strategy and cross-sectional time horizon to provide snapshot information about the state of 3PL outsourcing by UK manufacturing firms were implemented. Quantitative data were collected using an online survey questionnaire while face-to-face semi-structured interviews were performed with managers of selected UK manufacturing firms. The Statistical Package for the Social Sciences (SPSS) was used to analyse quantitative data. In contrast, manual thematic coding and analyses were used in the study of the interview data in Microsoft Excel.

## **1.6 Dissertation structure**

This dissertation is organised in six chapters. The next chapter comprises the review of previous literature that is relevant to the research topic, aim, and objectives. The third chapter contains the presentation and justification of the research methodology. It is followed by the chapter where the analyses and results are presented. In the fifth chapter, the discussion of the results concerning the research objectives and in comparison to previous literature appear. The final chapter constitutes the conclusions and recommendations made from the findings of this research.

## **2. Chapter Two: Literature Review**

### **2.1 Introduction**

This chapter contains five major sections, which include a review of previous literature. The focus of the next section is on reviewing literature about logistics outsourcing. In the third section, literature about third-party logistics, including its definition, evolution, and the rationale for outsourcing 3PL is presented. The fourth section is dedicated to the review of the Resource-based View (RBV) theory. It is succeeded by a section that contains the chapter summary and the gaps identified in previous literature.

### **2.2 Logistics outsourcing**

Proponents from both RBV and transaction cost economics' schools of thought have attempted to explain the rationale behind outsourcing (Halldórsson et al., 2015; Liu et al., 2015; Mageto et al., 2018). Based on the RBV perspective, companies can procure resources outside to enhance their delivery of services and to gain competitiveness (Liu et al., 2015). Altogether, there are numerous definitions of logistics outsourcing both simple and complex definitions featuring across multiple disciplines and contexts. For example, Freidman and Malanina (2019) defined logistics outsourcing simply as “the transfer of non-production logistics functions to external service companies” (p.2). Logistics outsourcing has also been identified as a process in which organisations contract logistics providers so that they can undertake repetitive logistical activities that would, or had been previously performed internally for a long or short term (Waugh and Luke, 2011).

Acknowledging the synonymous use of terms such as third-party logistics (3PL) and contract to outsource to refer to it, Kalinzi (2016) defined logistics outsourcing as the entrustment of “all or part of the logistic chain, whose activities were previously performed in-house, to an external supplier on the long run, with a potential transfer of resources and with an objective of performance” (p.73). As for Zailani et al. (2017), logistics outsourcing is the partial or entire transfer of logistics services to logistics service providers (LSPs) or 3PLs. Such transfer comes with the expectation that the 3PL providers will undertake the logistics with higher effectiveness and efficiency than if the outsourcing firm were handling such activities themselves (Mageto et al., 2018). Despite the numerous definitions, there is notable consensus that logistics outsourcing entails the partial or full transfer of the outsourcing company's logistical activities that would otherwise be performed inhouse to a 3PL to enhance efficiency and effectiveness of the outsourcing company.

### 2.3 Third-party logistics

As pointed out by Khan et al. (2017), there is no universally accepted definition of 3PL. In some instances, authors define 3PL based on what they do or the services they offer. In some other cases, 3PL are defined as entities. For example, Marasco (2008) explained 3PL as the act of outsourcing logistical operations that were performed inhouse previously. Denisa et al. (2015) used the entity approach to describe 3PL as organisations that offer external logistic services, including warehousing, transportation, packaging, and distribution services, among others. According to Khan et al. (2017), 3PL refers to “an external company that provides logistics operations to the firms based on expertise which let the organizations focusing on their core businesses” (p.241). The Council of Supply Chain Management Professionals Council of Supply Chain Management Professionals (2016) also defines 3PL as a company that offers multiple services in logistics for consumer consumption.

At the onset of the nineties, the 3PLs continued to broaden their services from the previously constrained scope. From necessary transportation, 3PLs started venturing into more strategic service delivery, including technology management and cross-docking (Zacharia et al., 2011). Consequently, increased complexity and in the number of services that businesses engage in resulted in an expanded services’ portfolio for 3PL providers (Balakrishnan et al., 2018). Transactional services usually constitute the first service level. They involve the outsourcing of necessary logistics without including any customised or specific services. At the second level, services begin to include customised and value-added functions, including cross-docking together with the transactional services. At the third level, 3PL providers work with the outsourcing companies through intensely coordinated approaches to deliver more sophisticated services and service levels (Shi and Arthanari, 2011).

There are numerous logistics activities that companies can outsource throughout their supply chain operations. For instance, one author (Yang, 2014) compiled 45 logistics activities that can be outsourced to 3PLs. Examples of such services included carrier selection, cross-docking, import operations, product modification, expedited delivery, warehousing, freight auditing and bill payments, internal telecommunications and shipment planning, among others. Of these 45, 19 also featured in the survey on 3PLs that was conducted by (Langley Jr. and Capgemini, 2015). Even then, a later study showed that warehousing, fleet management, transportation, clearing and forwarding, inventory management, and packaging tend to top the list of the most commonly outsourced services (Langley Jr. and Capgemini, 2017).

One of the enabling roles that 3PLs play in a supply chain is to connect the production point with the consumption. Thus, 3PLs have been described as the economic backbone that offers a cost-effective and efficient flow of services and goods upon which other sectors in the business world depend (Asthana and Dwivedi, 2020). It has also been noted that 3PL firms are an instrument in enhancing organisational competitiveness while generating value through the provision of the utility of place and time. This has been attributed to the primary, traditional concentration of 3PLs on high quality, low-cost, and reliable products with superior flexibility in terms of the design. For instance, the efficiency of the manufacturing sector improved worldwide following the introduction of the just-in-time model. Moreover, the just-in-time model led to a reduction in the supply chain cycle time globally (Christopher, 2016).

### **2.3.1 The evolving role of 3PL providers**

The concept of logistics outsourcing and 3PL first featured in literature towards the late eighties (Leuschner et al., 2014). The 3PL conceptualisation earlier on was quite broad, and they were considered broadly as the employment of a company outside the parent firm to undertake partial or entire management of materials and distribution functions of products (Simchi-Levi et al., 1999). However, 3PL began evolving after that towards significantly complex service provisions with multiple combinations (Ojala et al., 2006). The arrangements between 3PLs and customers began to reflect the sophisticated nature of the supply chain with a strong focus on longer-term commitments and formality instead of transactional agreements at a distance (Leuschner et al., 2014). Various organisations have since embraced this more comprehensive and sophisticated logistics outsourcing form to the extent of many considering 3PLs to be non-asset- and asset-based external parties worthy of consulting in every matter concerning the provision of logistics services. Accordingly, most companies now engage 3PLs in coordinating the activities in their customers' supply chains (Zacharia et al., 2011).

In terms of featuring in research, 3PLs were shown to function in only 11 scholarly and conference articles for the period 1989 through 1994. For the period 1991 through 2000, about 55 articles were found while 86 articles for the period 2001 through 2006 were reported in one comprehensive review (Marasco, 2008). A review of existing 3PL research yields three eras in general (Leuschner et al., 2014). The first one comprises descriptive works capturing the expanding logistics outsourcing phenomenon with the perspectives on the provider (Lieb and Bentz, 2005b) and shipper (Lieb and Bentz, 2005a) perspectives albeit in the North American context. The second 3PL research era was characterised by defining key concepts, establishing the testing of hypothesis, and steadier inclination towards normative prescription and

explanation. Majority of the work in this regard appeared in towards the end of the nineties and mainly focuses on outsourcing arrangements within the US. Finally, the third era includes more issues of internationalisation of the 3PL services in non-US contexts such as Australia, Asia, and Western Europe (Leuschner et al., 2014).

Today, at the fundamental level, 3PL are enablers of the connection between the production point (origin) and the consumption point (Bartolacci et al., 2012). 3PLs have been described as the economic backbone that provides a cost-effective, efficient flow of services and goods and other sectors depend on them (Asthana and Dwivedi, 2020). It has been noted that 3PLs are key role players in aiding firms to develop competitiveness while simultaneously creating value through the provision of place and time utility. Conventionally, 3PLs have been focusing on lowering costs while providing reliable and high-quality products with superior flexibility in terms of design. After developing an enhanced manufacturing efficiency with the Just-In-Time (JIT) model, the cycle time of most supply chains reduced significantly (Asthana and Dwivedi, 2020).

Previous research (Lummus and Vokurka, 1999) shows that manufacturing organisations primarily pursue mass production opportunities at reduced costs, as demonstrated in the rapid economic growth of emerging economies like the setting up of manufacturing hubs in developing countries by Western companies. This global trend in the globalisation of both services and products coupled with rapid growth and adoption of Information and Communications Technologies (ICT) have further become the impetus for numerous companies to outsource their logistics to 3PLs so that they can focus on honing their core competencies (Lewis and Talalayevsky, 2000). Within the 3PLs' context, global outsourcing has resulted in the founding of perpetual relationships between both manufacturers and suppliers. The trends of continuous growth in the retail and manufacturing sectors have led to partnerships with firms that could carry out their noncore functions. This increased significance of 3PL service providers has helped most companies in the manufacturing and retail sectors to focus "value-added capabilities, differentiating themselves from the competitors" (Asthana and Dwivedi, 2020, p.3).

### **2.3.2 Why companies outsource 3PL**

Among the reasons why companies outsource 3PL, cost reduction, ability to focus on core areas of business, and service improvement are the main reasons. Other business-related benefits include the transfer of a fraction of fixed costs to variable costs, increased operational flexibility, focusing on core activities, reduced capital investments and enhanced containment



of costs (Arias-Aranda et al., 2011). Some companies also outsource 3PL to free up the resources and time consumed in managing the logistical operations using expert and specialised capabilities and skills that 3PLs have (Solakivi et al., 2011). In one study, the authors suggested that outsourcing decisions are essential for satisfying the growth, financial, and cost objectives of a firm (Ghodeswar and Vaidyanathan, 2008). The findings of a study by Solakivi et al. (2013) revealed that outsourcing logistics has the potential to increase logistic costs' feasibility and efficiency in the company. Similar findings in terms of improved performance as a result of reduced costs of running logistics due to outsourcing 3PL services have also been reported (Kroes and Ghosh, 2010). Even though reduced logistical costs for the enhancement of company competitiveness is possible, this is only achievable when firms outsource experienced providers of logistical services (Abdul-Halim et al., 2012).

The other incentive of using 3PLs is that companies have found that it influences customer satisfaction and quality of service (Edvardsson and Teitsdóttir, 2015). This view about improved service levels due to 3PL outsourcing had also been expressed in a previous study (Mello et al., 2008). In another study, improved turnaround times for delivery and accuracy in delivery were included as reasons why companies outsource their logistics to 3PLs along with improved customer service (Goh and Pinaikul, 1998). These findings were complemented by Kroes and Ghosh (2010) who also cited optimised cycle times, responsiveness and innovation, and the improvement of overall firm operations.

Consistent with the view about getting expertise when a firm outsources 3PL services, Edvardsson and Teitsdóttir (2015) argued that outsourcing 3PLs also led to increased expert knowledge access and reduction of logistical management risks. Firms that outsource 3PLs have also been shown to utilise the services to restructure their logistical processes, thereby leading to higher operational flexibility (Solakivi et al., 2013). The findings of increased operational flexibility can also be linked to increased operational performance, which has been attributed to the benefits of reduced lead time and costs as well (Liu et al., 2015). This is how the aspect of the improved financial performance of a firm comes up as an outcome of 3PL outsourcing through enhanced Return on Assets (ROA) and user capabilities (Waugh and Luke, 2011).

Some other firms also outsource 3PL because of their internal inadequacies. In one study (Zailani et al., 2017), lack of in-house expertise and inadequate physical resources were found to drive companies into outsourcing 3PL services. The issue of lacking in-house expertise can also be linked to the lack of capacity to manage the complexities of the logistics functions internally, thereby limiting flexibility (Hsiao et al., 2010). In addition to the various other

reasons for 3PL outsourcing, Yang (2014) added other drivers such as conflict reduction and reciprocation of symbiotic goal-related issues and establishment of market legitimacy. This explains why the author associated 3PL outsourcing with the magnification of company benefits and strengths.

### **2.3.3 The extent of 3PL outsourcing**

Consistent with the first research question about the extent to which UK manufacturing firms outsource 3PL services, it is understood to mean the depth to which the firms use 3PLs to undertake logistics operations (Mageto et al., 2018). Accordingly, a manufacturing firm that has a 3PL running between 1 and 50 percent of its logistical operations is a partial outsourcer on the one hand. On the other hand, any manufacturing firms that have outsourced over 50 percent of their logistics operations to 3PLs are full outsourcers (Mageto et al., 2018). However, it can be contested that a company outsourcing its entire logistics function does full outsourcing and this cannot be considered to be said for a company that outsources 51 percent or 60 percent of its logistics functions. Perhaps a better classification would be that of low, moderate, and high extent of 3PL outsourcing based on a range of outsourcing percentages that can be determined empirically.

Zailani et al. (2017) concurred with Hsiao et al. (2010) that lack of logistics resources and competencies influences the extent to which a company outsources its logistics activities positively. There are also indications in the literature that the complexity of running logistics and the risks involved emerge from the global markets' dynamic nature as well as the behavioural and environmental factors (Tatham et al., 2017). According to Zailani et al. (2017), firms are more likely to outsource their logistic functions either partially or wholly when the perceived complexity and risk of running the logistics operations is high. A different perspective is that logistics outsourcing costs including contract management, bargaining, and searching for vendors could reduce the number of firms that are likely to outsource the services of 3PL providers (Pratap, 2014).

Additionally, companies may reduce their extent of outsourcing when there is an imminent likelihood of losing control and working directly with their customers (Kersten et al., 2007). Sometimes, organisations are also hesitant to outsource their logistics functions either fully or partially when competent 3PLs are not available (Assaf et al., 2011). In other instances, firms do not outsource 3PL services or reduce the extent to which they outsource them when they fail to recognise or identify the strategic significance that logistics play to their core businesses (Waugh and Luke, 2011). This explains why the extent to which a firm outsources its logistics functions to 3PLs differs depending on the activity. Notably, the least outsourced logistics functions tend to be value-added activities like inventory management. Conversely, operational activities like transportation tend to be outsourced the most (Mageto et al., 2018).

Various researchers have reported on the extent to which various logistics activities have been outsourced. For example, companies have been found to outsource their transportation services to the extent of more than 70 percent in some studies (Aktas et al., 2011; Solakivi et al., 2011). Other researchers have reported the outsourcing of fleet management at around 53 percent and warehousing at 47 percent (Lieb and Randall, 1996; Millen et al., 1997). In a different study, companies were found to outsource packaging activities to the tune of 40 percent (Wilding and Juriado, 2004). However, most companies were found to only outsource 3PL services for inventory management at 18 percent (Millen et al., 1997; Hsiao et al., 2010).

Using a survey-based approach, comprising 299 trading and manufacturing firms in Finland, Solakivi et al. (2013) investigated the connection between outsourcing, the motives behind outsourcing, and costs of running logistics. The findings showed that most companies outsource their transport activities to 3PLs and run their other operations inhouse. The results showed a positive relationship between the extent of logistics outsourcing and logistics costs. Specifically, firms that had higher outsourcing levels were experiencing lower logistics costs levels in comparison to those that had no outsourcing levels or had lower ones (Solakivi et al., 2013).

Gasowska (2015) surveyed 150 trading and manufacturing firms in North-Eastern Poland through direct interviewing to analyse their logistics outsourcing activities for the period 2011 through 2013. The results showed that procurement transportation and repairing own transportation means were the most outsourced activities to 3PLs by most of the companies at 32 and 26 percent respectively. Carrier selection (24 percent), finished product deliveries within the country (23.3 percent), ICT (22 percent), and finished product deliveries outside the country (18 percent) were also outsourced to a considerable extent to 3PLs. Inventory management and acquisition of logistics information were the least outsourced at 3.3 and 2 percent respectively.

In the Czech Republic, Denisa et al. (2015) analysed the logistics outsourcing services of manufacturing companies to show the intensity of usage and compared it to that of other regions of the world. They were using a mixed methods research design where survey data and interviews with four manufacturing companies that were using 3PLs, the researchers found that transportation was the most outsourced 3PL service. It was followed by warehousing, equipment maintenance and rental, fleet management, and the optimisation of complex supply chain respectively. The main reasons for outsourcing logistics have cost reduction, lack of capacity, and the need to specialise in that order (Denisa et al., 2015).

## **2.4 Firm performance and logistics outsourcing**

Firm performance has been described as a complex construct whose complexity has been attributed to the lack of universally accepted measures of determining performance among academics and industry practitioners (Quang et al., 2016). The introduction of additional measures of performance over the years has only made the conceptualisation and measurement of firm performance more complex. On its own, performance has been defined as a process that entails the quantification of action effectiveness and efficiency (Neely et al., 2005). On the other hand, firm performance has been described as the extent to which a firm accomplishes its overall, nonfinancial and financial goals (Quang et al., 2016). There have been suppositions for making firm performance less complex. For example, Kasie and Belay (2013) proposed criteria for reducing the selection of performance measures. The criteria involve ensuring that measures used are easily understandable, encompass both nonfinancial and financial components, are aligned to the firm's direction, and have the capacity to measure both long-term and short-term performance.

Within the context of manufacturing firms, Tseng and Liao (2015) contested that manufacturing firms have depended on measuring firm performance using cost measures. Yet, Quang et al. (2016) argued that relying on cost-based measures to measure firm performance may be inadequate in gauging performance. As an alternative, these authors advocated for the use of organisation- and economic-based measures. This approach had also been endorsed by Tseng and Liao (2015). They perceived firm performance as a multidimensional construct that incorporates dimensions of competitive excellence, management measurement, and operational measurement (Tseng and Liao, 2015). Even with this understanding, firms still use generic measuring elements like flexibility, quality, cost, speed, and reliability (Neely et al., 2005; Quang et al., 2016). This means that the generic nature of such measures could carry varied meanings across different industry sectors and organisations. Attempting to remedy this potential risk, Neely et al. (2005) provided an account of the dimensions of all four generic firm performance measures and grouped them into quality, time, flexibility, and cost measures. Quality involves the dimensions of serviceability, conformance, reliability, and performance. Time covers the dimensions of consistency of delivery and lead time. Flexibility includes measurement dimensions of flexibility of delivery, resource mix and volume, and product modification. Finally, the cost measure encompasses the activities of the firm from the production point through to when the final consumer gets the services and/or goods (Neely et al., 2005).

On their part, Tseng and Liao (2015) classified firm performance measures into financial (economic) factors and organisational (nonfinancial) factors. These authors argued that financial/economic measures are objective since they utilise actual figures. On the other hand, nonfinancial/organisational factors usually are subjective because they are based on perception. In an earlier study (Yang et al., 2009), the financial measures of measuring firm performance were extrapolated to include Return on Investment (ROI), sales growth, decreased costs of operation, and profitability. In Solakivi et al. (2011), the financial performance measures used included Return on Capital Employed (ROCE), ROA, and Earnings Before Interest and Tax (EBIT) percentage. In another study, Valmohammadi (2011) measured performance using the metrics of market share, profitability, revenue growth, customer satisfaction, and employee morale.

Yang et al. (2009) identified customer loyalty, customer flexibility, and service quality as nonfinancial performance measures. However, the authors noted that financial measures exhibit higher sensitivity to firm sizes compared to nonfinancial ones. Even with the complexity of determining the appropriate measures for firm performance, there are indications in the literature that it is easier to compare the firm performance of firms within the same industry sector thereby implying the industry-specific nature of firm performance (Quang et al., 2016). In the manufacturing industry, measuring firm performance typically entails metrics such as net profit, ROA, and turnover (Kim Jean Lee and Yu, 2004; Garelli, 2009). Altogether, perceived performance can be used when proper financial recordkeeping does not exist (Antony and Bhattacharyya, 2010).

Evidently, measuring firm performance remains complex and requires an industry-specific approach where the comparison is needed. While it may entail financial and nonfinancial metrics, the literature reviewed hitherto shows that financial indicators and metrics are more objective. However, their effectiveness depends on the availability of proper financial records. As such, some parameters such as ROA, EBIT percentage, and ROCE are more challenging to quantify and use for measuring firm performance when the appropriate recordkeeping is a problem. For this study, firm performance is conceptualised in terms of firm profitability, as the indicator is likely universal to all manufacturing firms in the UK.

Several studies have been conducted on the role played by 3PLs in the performance of various businesses across the world. For example, Yeung et al. (2012) studied the mediating role that logistics outsourcing in the development of company capabilities in the relationship between strategy and firm performance. Their study sample comprised 150 exporters drawn from China's Pearl River Delta region and Hong Kong. The firm export performance was measured

using the perceptions of senior executives captured through a survey about the elements of export growth and sales of the firms, export profitability, and relative shares within the markets compared to their competitors. Their findings showed positive relationships among the strategic orientation of exporters towards 3PL providers and the augmented and necessary capabilities of 3PL providers on the one hand and their competitive advantage and performance of exporters' performance (Yeung et al., 2012).

In a North American survey design study (Gligor and Holcomb, 2014), 151 survey responses were analysed to examine the way companies can come up with integrated logistics capabilities and how such capability influenced firm performance. Firm performance was measured in terms of relational and operational performance. The results showed that logistics' integration had a positive impact on both relational and operational performance. It was also found that integrating logistics capabilities reduces the fixed costs on the overall (Gligor and Holcomb, 2014).

In a study involving companies in the Greater China region, Liu et al. (2015) tested the way the integrative mechanisms of process coordination and information sharing affect logistics outsourcing and the way the latter affects performance. Data collection was achieved through a survey questionnaire that was administered to 361 companies. The findings revealed that advanced, essential, and customised logistics outsourcing affected the performance of 3PL users differently. For instance, necessary logistics outsourcing led to statistically significant, positive operational performance, although it did not affect financial performance significantly. Similarly, advanced logistics outsourcing had a statistically significant positive effect on operational performance, but not on financial performance. Finally, customised logistics outsourcing had a statistically significant, positive impact on financial performance, but not on operational performance (Liu et al., 2015). The findings of this study help demonstrate the effect of different levels of outsourcing on financial performance. However, the findings are not specific to any industry context, thereby making it hard to determine their relevance to the manufacturing industry.

In the Nigerian oil and gas industry sector, Onyebueke and Wordu (2017) investigated the magnitude of the effect of logistics outsourcing on organisational performance. The organisational performance was measured in terms of productivity and efficiency in terms of achieving organisational goals. Using a questionnaire and secondary data, the researchers reported that logistics outsourcing has a positive relationship with organisational performance. Such organisational performance was found to be through increased internal efficiency, knowledge transfer, enhanced core competency, and reduced operation and labour costs

(Onyebueke and Wordu, 2017). Although the findings of the study are helpful in demonstrating that logistics outsourcing influences firm performance positively, the researchers did not demonstrate the extent to which this effect happens on profitability.



## 2.5 Theory and conceptual framework

As mentioned previously, the RBV and the TCE are the two top schools of thought that are employed in the understanding of the significance and impact of logistics outsourcing (Halldórsson et al., 2015; Liu et al., 2015; Mageto et al., 2018). As such, the RBV and TCE are reviewed in the two subsections below.

### 2.5.1 RBV

The RBV portrays the company as a bundle of both intangible and tangible resources for exploitation to profit the stakeholders (Wernerfelt, 1984). Utilised resources then transform into the capabilities of the firm that contribute to the outputs of the firms directly (Wong and Karia, 2010). Further, the RBV theory posits that the motivation behind the acquisition of higher firm capabilities is the pursuit of continuous performance improvement. Such continuous improvement comes from having distinctive capabilities (Karia and Wong, 2013). Under the RBV, a firm is only able to deliver higher returns consistently with the appropriate resources from the market that enable the improvement of operational performance (Halldórsson et al., 2015). However, heterogeneity of acquired resources is necessary because it translates into the firm's competitive advantage leading to superior performance (Bolumole et al., 2007). Necessarily, the said resources can be physical assets, reputation, technological advancements, human resources, and financial assets (Halldórsson et al., 2015).

However, it is noteworthy that not all capabilities and resources leverage competitive advantage because it is possible to manage these advantages with unique resources or control of scarce resources (De Oliveira Neto et al., 2018). Typically, firms accumulate the intangible and tangible resources from external environments to build their desired capabilities to perform superiorly. Yet, acquisition of such resources does not always translate to titled ownership. Instead, it entails operational ownership. Accordingly, a company can get logistics capabilities from external coalitions or the marketplace (Wong and Karia, 2010). These logistics capabilities could entail superior management of activities and internal resources that satisfy customer expectations consistently and better than the way competitors do (Bolumole et al., 2007). In the context of this study, 3PL outsourcing constitutes the external resources that help the UK manufacturing firms to create capabilities improve, thereby allowing them to deliver superior performance in terms of business profitability. Thus;

**H<sub>1</sub>:** External resources obtained from 3PL outsourcing are statistically significant predictors of business profitability of UK manufacturing companies

### 2.5.2 TCE

The TCE theory posits that the motivators behind a firm's decision to outsource are the minimisation of the total production and transaction costs (Williamson, 2008). Transaction costs within the TCE are resources that a firm consumes or expends while undertaking business. The TCE theory further posits that a firm's profitability is pegged on its ability to reduce the transaction costs as much as possible (Tate et al., 2014). The economisation on transaction costs as the aim of the firm is because transactions are the fundamental unit of an organisation. Altogether, companies can organise transactions externally with the market when this results in reduced costs (Williamson, 2008).

One of the significant cost reduction sources originates from service provider specialisation (Sanchís-Pedregosa et al., 2014). This is mainly attributed to the ability of specialised service providers to offer a service to many companies, which makes it easy for them to accomplish economies of scale. They can then transfer such economies of scale to the company that outsources them (Roodhooft and Warlop, 1999). On the one hand, transferring services to an external provider means that personnel requirements reduce and this translates to reduced personnel costs for the outsourcing firm (Tate et al., 2014). Personnel costs are part of operational costs, and this means, On the other hand, this could mean reduced asset investments and this translates into reduced fixed costs (Gilley and Rasheed, 2000).

Given this understanding, it would be expected that outsourcing 3PL services by UK manufacturing companies significantly impacts their business profitability through the reduction of both personnel and fixed asset costs. Thus, the following hypotheses were formulated:

**H<sub>2</sub>:** Reduced operational costs as a result of 3PL outsourcing has a statistically significant effect on the profitability of UK manufacturing firms

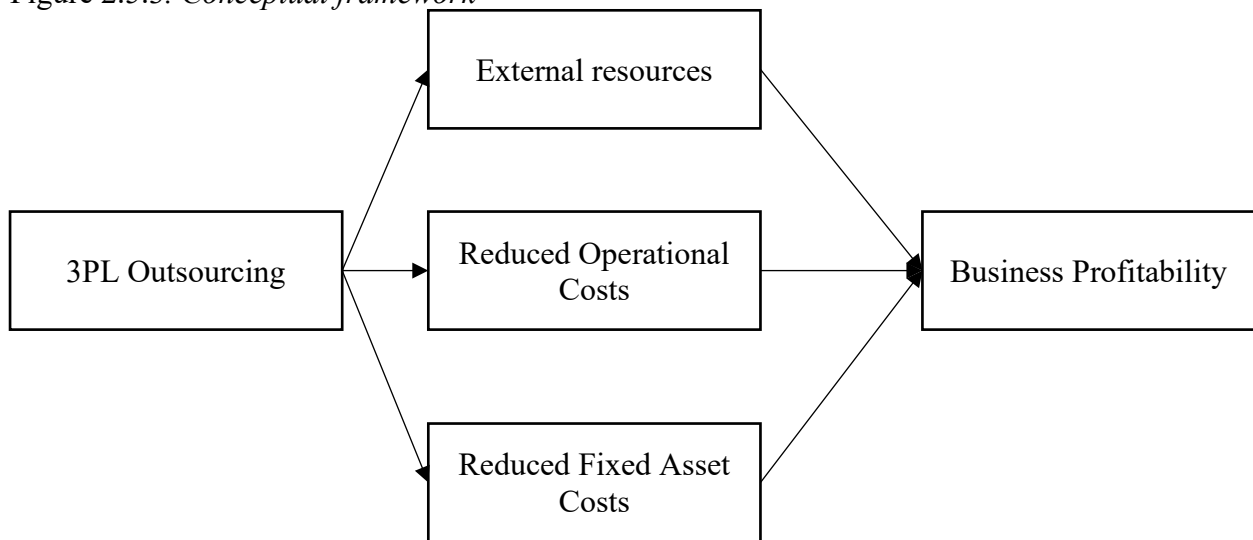
**H<sub>3</sub>:** Reduced fixed asset costs as a result of 3PL outsourcing has a statistically significant effect on the profitability of UK manufacturing firms

### 2.5.3 Conceptual framework

Based on the literature reviewed in this section, it is evident that 3PL outsourcing provides firms with external resources that may be either tangible or intangible from the RBV perspective. In turn, the said external resources increase the performance of the business in terms of profitability and, hence, H1. From the TCE perspective, cost reduction as a result of 3PL outsourcing is the primary driver of business profitability. However, such cost reduction is achieved through reduced personnel, and fixed assets cost, thereby leading to the formulation

of H2 and H3, respectively. In line with these hypotheses, the conceptual framework for the current study is illustrated in Figure 2.5.3.

Figure 2.5.3. *Conceptual framework*



## 2.6 Summary and gaps

In this chapter, the review of previous literature aided in the adoption of an operational definition of logistics outsourcing as involving the partial or full transfer of the outsourcing company's logistical activities that would otherwise be performed inhouse to a 3PL to enhance efficiency and effectiveness of the outsourcing company. Previous literature was also used in demonstrating the evolution of the roles played by 3PL providers in the supply chain and the rationale behind outsourcing their services. Concerning the extent to which companies outsource 3PL, literature demonstrated that this differs by industry and context. Altogether, it was established that partial 3PL outsourcing happens when a firm outsources between 1 and 50 percent of its logistics functions while anything higher than that is full outsourcing.

However, it can be contested that a company outsourcing its entire logistics function does full outsourcing and this cannot be considered to be said for a company that outsources 51 percent or 60 percent of its logistics functions. Thus, low, moderate, and high levels of 3PL outsourcing based on percentage of outsourcing will be established and used in this study. Altogether, transportation services ranked as the most highly outsourced logistics service. Logistics outsourcing was also found to be a significant influencer of firm performance. However, the looming debates over how to conceptualised and measure firm performance was noted as a big challenge. To bridge this gap, firm profitability is used as an indicator of firm performance.

Whereas the various studies were useful in providing direction for the current research, there are several notable gaps. For instance, there are numerous studies about logistics outsourcing

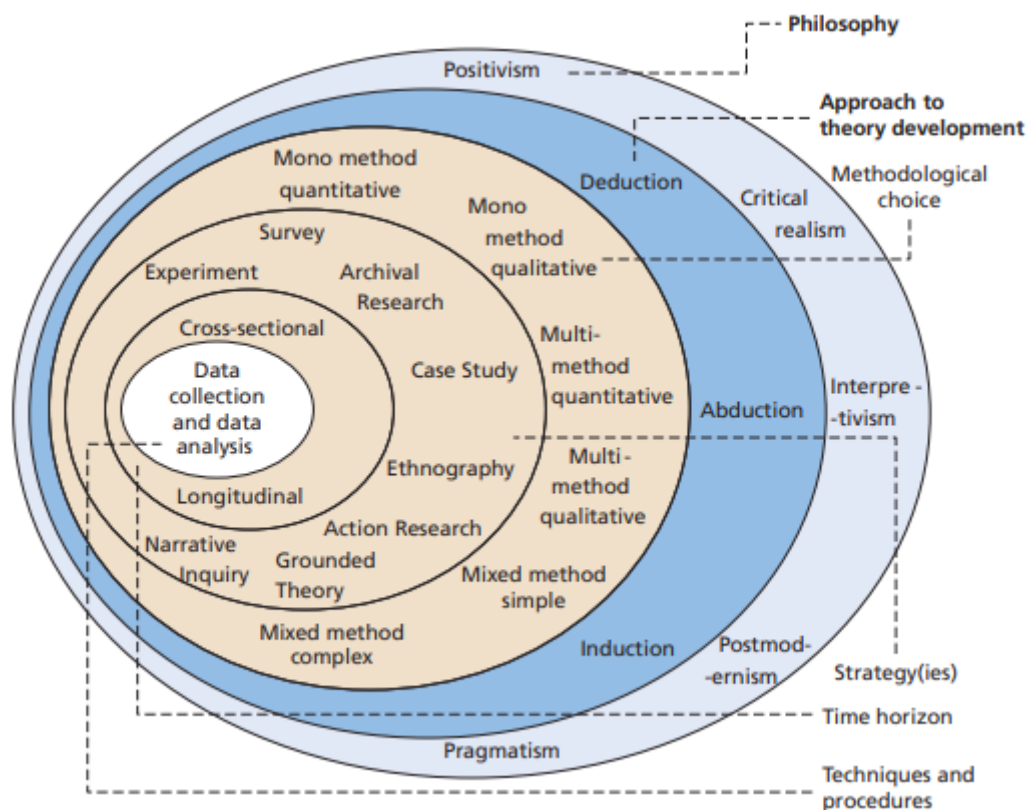
and the impact it has on firm performance, including in the manufacturing sector. However, there no empirical studies about the effects of 3PL on the performance of UK manufacturing companies were found. In line with this, the current study will be the first to use business profitability exclusively as a measure of firm performance in the context of 3PL services and the UK manufacturing industry. Besides, to the best of the researcher's knowledge, this is the first study to investigate the extent to which UK manufacturing companies outsource 3PL services.

### 3. Chapter Three: Research Methodology

#### 3.1 Introduction

The research methodology and process of undertaking this research are detailed and justified in this chapter. To aid in the systematic presentation of the research methodology, the researcher adopted the Research Onion (Saunders et al., 2018). The Research Onion (Figure 3.1) contains six layers that researchers normally “peel” from the outside to elaborate their research methodology and related choices. The six segments of the Research Onion constitute the next six sections of this chapter respectively and are followed by the highlight of ethical considerations and the chapter summary.

Figure 3.1. *Research onion*



Source: Saunders et al. (2018)

#### 3.2 Research philosophy

The research philosophy is a “system of beliefs and assumptions about the development of knowledge” (Saunders et al., 2018, p.130). The definition of the research philosophy is based on the understanding the ontology (nature of reality), epistemology (the sources of facts or knowledge and the quality of expertise), and axiology (the research values, beliefs, and ethics) (Melnikovas, 2018). Researchers may assume interpretivist, positivist, or pragmatist epistemological stances. The assumption of a purely interpretivist epistemology was following

the view that multiple realities exist concerning the extent to which UK manufacturing companies outsource 3PL services and the extent to which this influences their performance. However, the subjectivist nature of interpretivism would have hindered the ability to obtain objective and generalizable findings (Wilson, 2014). This is because the axiology and ontology associated with interpretivism are often subjectivist and value-laden (Saunders et al., 2018). On the other hand, assuming an exclusively post-positivist/positivist epistemology would have been beneficial in ensuring the generation of highly objective, generalizable findings obtained concerning the adoption of 3PL services by UK manufacturing firms and its impact on business profitability. This is because positivism involves “working with an observable social reality to produce law-like generalisations” where scientific methods are employed to obtain data that aids in measuring observable facts (Saunders, Lewis, & Thornhill, 2018, p.144). The detached nature of a positivist from the research process enhances the objectivity in the research process and findings thereby rendering the axiological and ontological inclination of positivism to be value-free and objectivist (Bryman, 2016; Melnikovas, 2018). However, choosing an exclusively positivist epistemology would have meant that it would have been difficult for the researcher to provide in-depth findings and only stick to the assumption that the extent and effect of outsourcing 3PL services by UK manufacturing firms on their business profitability only comprised a single reality. Yet, the literature reviewed in the previous chapter shows that 3PL outsourcing takes numerous forms and degrees depending on the firm and the impact it has on business profitability could vary from one company, industry, or country to another. Thus, a purely positivist epistemology would have made it difficult for the researcher to explain some of the findings such as the reasons behind the extent of 3PL outsourcing, the feasibility of outsourcing 3PL services, and the perceptions of UK manufacturing companies towards 3PL services.

Therefore, pragmatism was the most appropriate epistemological stance for the current study. This is because pragmatism allowed the researcher the flexibility of assuming both interpretivist and positivist epistemological stances depending on the one that was best suited for the respective research questions (Melnikovas, 2018). The current research began with the problem of lack of empirical evidence about the extent of 3PL adoption in the UK manufacturing companies and its impact on business profitability with the aim of contributing “practical solutions that inform future practice” (Saunders et al., 2018, p.151). The researcher also recognised that a single reality about 3PL outsourcing by UK manufacturing companies would be inadequate and misleading. However, there was still need to observe and measure the data using method(s) that would guarantee the collection of reliable, credible, relevant and

well-founded measurable data to establish the requisite facts and obtain generalizable findings from a large sample of UK manufacturing companies (Kelemen and Rumens, 2008).

### **3.3 Approach to theory development**

Researchers may approach theory development deductively, inductively, or abductively (Saunders et al., 2018). Adopting a purely deductive approach in the current study would have been in line with the rigorous testing of existing theory using the three hypotheses that were formulated in the previous chapter (Melnikovas, 2018). However, this would mostly render the research process to be one of the controlling functions and directing knowledge through the involvement of solid argumentation in order to derive conclusions logically (Kuosa, 2011). This would have also been inconsistent with the adoption of a pragmatist epistemology (Saunders et al., 2018).

On the other hand, restricting the research process to an inductive approach would have incorrectly implied the inexistence of theory concerning 3PL thereby necessitating the formulation or building of a new one (Saunders et al., 2018). Yet, the review of literature in the previous chapter evidences the existence of numerous theoretical suppositions for understanding the application of 3PL outsourcing for the improvement of firm performance in general. However, they are not generalizable to the UK manufacturing industry without empirical testing. Thus, this implies the need to contextualise the extant theory to the context of the UK manufacturing industry thereby necessitating the development of a theory thereof especially on the feasibility of 3PL outsourcing and the perceptions towards it.

Thus, both deductive and inductive reasoning approaches to the theory were necessary for the current study and, hence, the adoption of an abductive approach. The abductive approach enabled the researcher to move back and forth in terms of induction (data to theory) and deduction (theory to data) (Roy, 2006). The application of an abductive approach to theory in the current study meant collecting data that were adequately rich and detailed about 3PL outsourcing by UK manufacturing firms to enable the exploration of its feasibility, extent, and impact on business profitability through identification and explanation of relevant, emergent patterns and themes. This was then followed by the integration of the said explanations into the conceptual framework of this study, which would culminate in the development of a 3PL outsourcing theory that is specific to the UK manufacturing industry (Saunders et al., 2018).

### 3.4 Methodological choice

The methodological choices outlined in the third Research Onion layer are based on the use of qualitative and/or quantitative methods in the research. Typically, researchers use mono methods when focusing on either gathering qualitative or quantitative data, but not both (Melnikovas, 2018). On the other hand, mixed-methods entail the use of both qualitative and quantitative methods in the same study with a view to accomplish various aims and offsetting the limitations associated with the use of either technique exclusively (Johnson and Christensen, 2020). Finally, multi-method research entails using either method repeatedly within the same study and generically so to achieve the set research objectives while the other process is only supplementary (Melnikovas, 2018).

In the current study, the use of either quantitative or qualitative methods exclusively whether repeatedly or otherwise would have been inadequate in the realisation of some of the objectives such as the explanation of the feasibility of 3PL outsourcing. This is because the nature of the research questions about the possibility and perceptions of 3PL services required in-depth investigation, which was best suited to qualitative methods. This is because qualitative research methods involve the garnering of rich textual data that are interrogated in-depth to enable the generation of equally rich and deep findings (Creswell and Plano Clark, 2017). On the other hand, the research question about the extent to which outsourcing 3PL services impacts business profitability required measurable factual data and scientific methods. This could only be achieved through the use of quantitative/quantifiable data and its statistical manipulation to enable the testing of the three hypotheses (Saunders et al., 2018). However, the researcher was aware of the drawbacks of implementing mixed methods research such as the comparatively higher financial and time resources required to implement (Creswell and Plano Clark, 2017). As noted by Johnson and Christensen (2020), researchers can implement up to nine different mixed-method simple designs. The QUAN/QUAL notation provided by Morse (1991) and (Morse and Niehaus, 2009) provides a clear outline of how this can be achieved and has been reviewed extensively by (Schoonenboom and Johnson, 2017). For the purposes of this research, quantitative-driven sequential mixed methods research design (QUAN → qual) was deemed most suitable. With this design, it was possible to collect explanations about the findings obtained through the quantitative phase thereby enriching the generalizable and objective results obtained from the quantitative data analysis (Schoonenboom and Johnson, 2017; Johnson and Christensen, 2020). The implementation of the quantitative-driven mixed sequential research design is expounded further at section 3.5.2.



### **3.5 Research strategy**

Melnikovas (2018) defined the research strategy as the general way that assists researchers in choosing the principal data collection method or a combination of plans for the purposes of answering the research questions and achieving the research objectives. The Research Onion outlines eight research strategies. Of the eight, the survey research strategy was the most suited for this study mainly because the data that was required to resolve the research questions and achieve the research objectives especially on various perceptions could only be sourced from participants directly in a nonexperimental manner.

Since this research was not about the lived experiences of people or a phenomenon, a narrative inquiry research strategy was not suitable for this research (Clandinin and Connelly, 2000). Also, this study was not about cultural or social interactions that are best suited for the ethnography search strategy (Reeves et al., 2013). The nature of the research questions and especially the one about perceptions towards 3PL outsourcing required the collection of primary data, thereby rendering the archival research strategy unsuitable for the current study. A case study research strategy would have been useful in providing insights about a few UK manufacturing companies, but it would have been inadequate to achieve generalizable findings (Saunders et al., 2018). Finally, the fact that this research was not about constructing or discovering theory from data that has been acquired and analysed based on comparative analysis (Chun Tie et al., 2019), grounded theory research strategy was not suitable.

### **3.6 Time horizon**

Between the cross-sectional and longitudinal time horizons, the former was most suitable for the current study. This is because this study was about investigating the application of the 3PL concept in the UK manufacturing industry at a specific point. Therefore, the data required was a snapshot kind (Saunders et al., 2018). The longitudinal time horizon was not suitable because it entails tracking changes such as progress over a long period (Saunders et al., 2018), and such was not required for the current study. Besides, the research questions in the present study only needed cross-sectional data.

### **3.7 Techniques and procedures**

In terms of the techniques and procedures, the two subsections below expound on the research processes involved in the implementation of either phase of the quantitative-driven sequential mixed methods research design.

### 3.7.1 Quantitative research

The purpose of the quantitative research phase was to obtain measurable, factual findings of the extent of 3PL outsourcing, its feasibility, perceptions of UK manufacturing companies, and the effect on business profitability. The data collected in the quantitative phase was also intended to resolve the hypotheses. This is because quantitative research methods entail the collection of measurable numerical or quantifiable/quantitative data that can then be manipulated statistically (Bryman, 2016).

#### 3.7.1.1 Population and sampling

The target population for the current study was all the manufacturing companies registered in the UK. According to the latest statistics released by the UK ONS (2020), there were about 137,000 manufacturing companies by the end of 2019. Considering the impracticability of involving all the companies, the researcher used the non-random convenience sampling technique to recruit the sample population. To determine the representative number of manufacturing companies, Yamane's (1967) formula was used:

$$n = \frac{N}{1 + N(e)^2}$$

In the formula,  $N$  denotes the 137,000 manufacturing companies in the UK while  $n$  is the computed sample and  $e$  refers to the confidence interval. In this study, a 95% confidence interval was used. Thus, the value of  $e$  in this study was 0.05. As shown in the equation below, the computed representative sample was at least 399 upon rounding off:

$$398.83 = \frac{137,000}{1 + 137,000(0.05)^2}$$

#### 3.7.1.2 Data collection and analyses

Quantitative data were collected using an online questionnaire that was designed and administered using Google Forms. The choice of an online questionnaire was informed by the need to reach a huge number of respondents representing as many UK manufacturing companies as possible despite their geographical dispersion (Saunders et al., 2018). Before administering the questionnaire, two lecturers who are specialised in quantitative methodology and three UK managers working in the manufacturing sector were consulted independently to assist in test-running the questionnaire. The initial questionnaire had 27 items out of which six were dropped as they were deemed redundant. One prompt was split into two questions as it was compounded and could cause response errors while demographic prompts were moved to

the beginning of the questionnaire on the recommendation that this would help the respondents to warm up. Also, the methodologists recommended that the scoring of the responses be numerical such as using the number “5” instead of using “strongly agree” as a response.

The Questionnaire comprised six sections, as shown in Appendix 1. Since it was impractical to have the respondents sign an informed consent form first and then complete the questionnaire later, the first section contained research and participant information and doubled as the aware consent section. The second section prompted for demographic information. The third section had seven prompts relating to the extent of 3PL outsourcing of various logistics services that were extracted from several studies (Aktas et al., 2011; Solakivi et al., 2011); Gasowska, 2015; (Denisa et al., 2015). The respondents scored the extent of outsourcing against a 5-point percentage range.

From the fourth to the sixth sections, all prompts had five-point Likert-type prompts (Where 1 = “Strongly Disagree”, 3 = “Not Sure”, And 5 = “Strongly Disagree”) relating to the feasibility, perceptions, and business profitability of 3PL outsourcing in UK manufacturing companies. Due to the absence of a validated survey to measure 3PL outsourcing feasibility five prompts that were extracted from studies reviewed in section 2.3.2 (Arias-Aranda et al., 2011; Solakivi et al., 2011; Abdul-Halim et al., 2012; Edvardsson and Teitsdóttir, 2015) to measure it. Six items were designed to prompt for the perceptions of the respondents towards 3PL outsourcing. Two of those items (20 and 21) were negated and therefore, reverse-coded during data coding. Finally, the impact of 3PL outsourcing on business profitability was measured using one prompt.

Upon completion of the quantitative data collection process, all survey data that had been collected on a Google Spreadsheet were downloaded and cleaned in Microsoft Excel. Variable coding was performed in Statistical Package for the Social Sciences (SPSS). Reliability tests were performed to determine the suitability of the data for further analyses for each section of the sections of the questionnaire on feasibility, perceptions, and business profitability. Descriptive statistics were generated to develop the respondents’ profile and to determine the extent and usefulness of 3PL outsourcing. Linear regression tests were performed to test the three hypotheses.

### **3.7.2 Qualitative research**

The qualitative research phase was crucial in exploring some of the quantitative findings and providing rich and in-depth explanations thereof about the extent and feasibility of outsourcing 3PL outsourcing and its impact on business profitability. This is because qualitative research

entails the collection of rich (often textual) data that is analysed to identify patterns, themes, and trends (Bryman, 2016).

#### *3.7.2.1 Population and sampling*

Since there was a need to ensure that the participants of the qualitative phase were knowledgeable and experienced about 3PL outsourcing in the UK manufacturing industry, accordingly, the researcher targeted senior executives and managers in UK manufacturing companies using the purposive/judgmental sampling technique. As explained by Patton (2015), purposive sampling involves the selection of individuals who are most likely to have the wealthiest information to aid in resolving the research questions. The researcher began by contacting senior executives and managers that were known to him and used their referrals to reach some more.

#### *3.7.2.2 Data collection and analyses*

Semi-structured interviews were used to collect qualitative data. As is the norm with semi-structured interviews (Bryman, 2016), an interview guide (Appendix 2) was designed based on the findings of the quantitative research phase. Unlike structured interviews that tend to be rigid thereby inhibiting the possibility of probing for more information or digressing from the script based on an interviewee's response, semi-structured interviews allowed the researcher the flexibility of asking questions outside the interview guide and seeking clarifications (Magnusson and Marecek, 2015). Semi-structured interviews were also preferred to unstructured interviews because they allowed the researcher to retain the ability to interject and steer the interview sessions towards providing the most pertinent information towards addressing the research questions (Saunders et al., 2018).

Given the difficulties of meeting with the interviewees due to the prevailing safety regulations of social distancing and stay-at-home orders following the COVID-19 pandemic, the researcher conducted either electronic interviews on Zoom® or telephone interviews online using either WhatsApp calls or direct phone calls. Since the interviewees were not comfortable with having the interview sessions recorded, the researcher took notes on his laptop during the sessions against each interview guide for every interviewee. Data were then coded into Microsoft Excel, where analyses were performed manually.

### **3.8 Ethical considerations**

Since this research involved human subjects, several ethical considerations were made. For instance, all participants were provided with information about the study and were required to

give their informed consent for voluntary participation without incentive. Equally, the participants could withdraw from the study at any point without penalty. Several measures were employed to safeguard the anonymity, confidentiality, and privacy of the participants. For instance, no personal information that was traceable to the questionnaire respondents was sourced while that of interviewees was not shared with anyone else apart from the researcher. During data analysis, all data were kept under password protection, and all data were also destroyed upon completion of the data analysis and reporting of findings.

### **3.9 Chapter summary**

In this chapter, the rationale behind the assumption of pragmatic research philosophy, an abductive approach to theory, and the quantitative-driven sequential mixed methods research. Similarly, the justification was provided for the use of a survey research strategy and a cross-sectional time horizon. The reasons for using an online questionnaire and semi-structured interviews to collect quantitative and qualitative data, respectively, have been provided. The statistical and manual thematic analyses of quantitative and qualitative data have been explained in this chapter before the ethical considerations made. In the next chapter, the results of this research are outlined.

## 4. Chapter Four: Results

### 4.1 Introduction

The quantitative and qualitative results are presented in this study under different sections. The next section contains the participants' profile for both the quantitative and qualitative phase of the research. The four sections that come after the participants' profile are related to the research questions on the extent of outsourcing 3PL services, the feasibility of outsourcing 3PL services, perceptions towards 3PL services, and the impact of 3PL outsourcing on company profitability respectively. The final section is the chapter summary.

### 4.2 Participants' profile

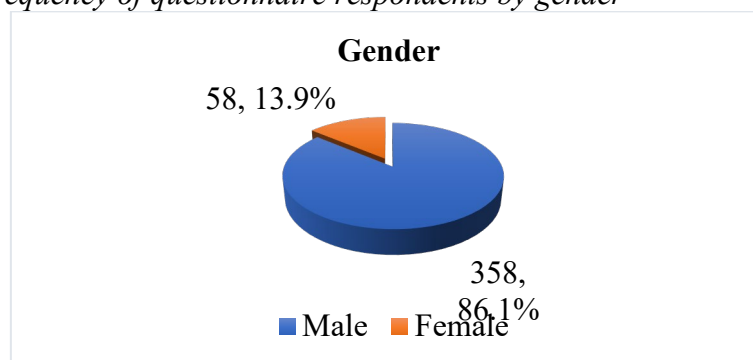
#### 4.2.1 Questionnaire respondents

At the end of the data collection period, 423 questionnaires were obtained. However, seven of these were excluded from further analysis because they were incomplete. Subsequently, the total research sample was 416 (N= 416). For all the questionnaire items relating to an extent, feasibility, and perceptions of 3PL outsourcing, the Cronbach's alpha coefficients of 0.835, 0.866, and 0.892 respectively were an indication of reliability. Majority of the questionnaire respondents were male (n= 358, 86.1%), as shown in Table 4.2.1a and Figure 4.2.1a.

Table 4.2.1a. *Frequency of questionnaire respondents by gender*

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Male	358	86.1	86.1	86.1
Female	58	13.9	13.9	100.0
Total	416	100.0	100.0	

Figure 4.2.1a. *Frequency of questionnaire respondents by gender*



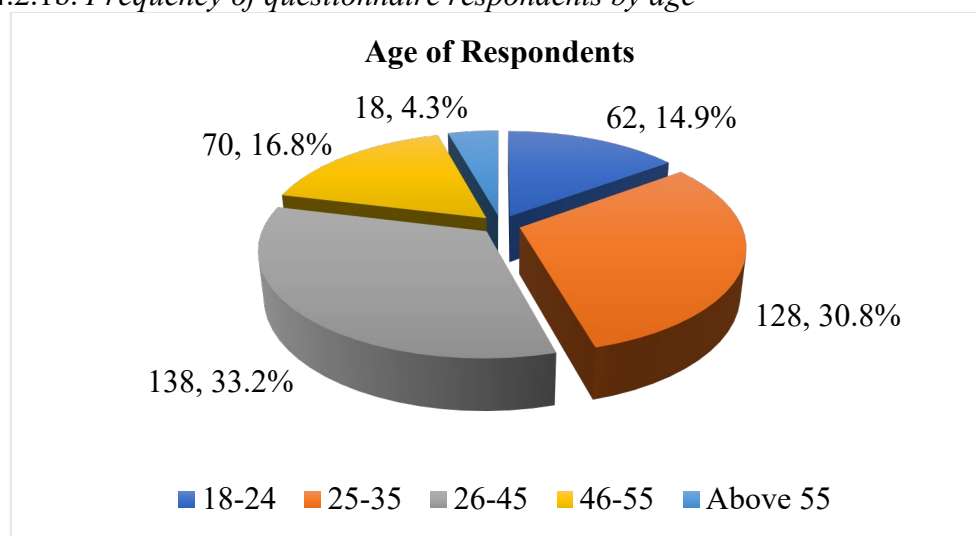
Most of the participants were in the 26-45 years' age bracket (n= 138, 33.2%). They were followed in frequency by their counterparts who were aged between 25 and 35 years (n= 128, 30.8%). There were more respondents aged between 46 and 55 years (n= 70, 16.8%) than there

were those aged between 18 and 24 years (n= 62, 14.9%). Respondents aged above 55 years were the fewest (n= 18, 4.3%). Table 4.2.1b and Figure 4.2.1b illustrate these results.

Table 4.2.1b. *Frequency of questionnaire respondents by age*

Age	Frequency	Percent	Valid Percent	Cumulative Percent
18-24	62	14.9	14.9	14.9
25-35	128	30.8	30.8	45.7
26-45	138	33.2	33.2	78.8
46-55	70	16.8	16.8	95.7
Above 55	18	4.3	4.3	100.0
Total	416	100.0	100.0	

Figure 4.2.1b. *Frequency of questionnaire respondents by age*

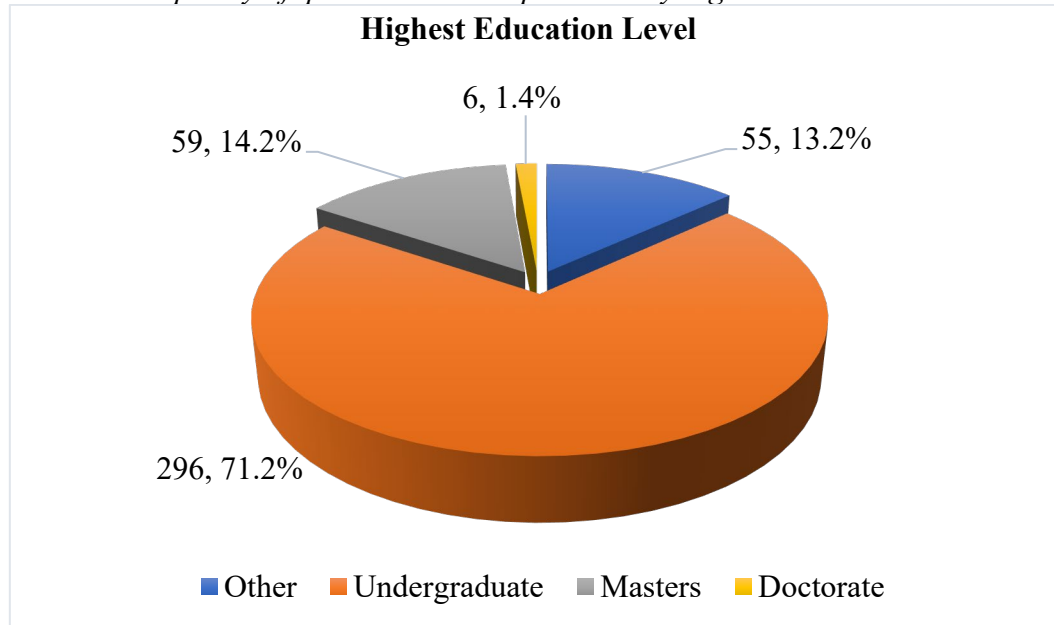


Majority of the questionnaire respondents held undergraduate degrees as the highest education level (n= 296, 71.2%). There were more Master degree holders (n= 59, 14.2%) than holders of other educational qualifications (n= 55, 13.2%) than doctorate graduates (n= 6, 1.4%). Table 4.2.1c and Figure 4.2.1c illustrate these results.

Table 4.2.1c. *Frequency of questionnaire respondents by highest education level*

Highest Education Level	Frequency	Percent	Valid Percent	Cumulative Percent
Other	55	13.2	13.2	13.2
Undergraduate	296	71.2	71.2	84.4
Masters	59	14.2	14.2	98.6
Doctorate	6	1.4	1.4	100.0
Total	416	100.0	100.0	

Figure 4.2.1c. *Frequency of questionnaire respondents by highest education level*



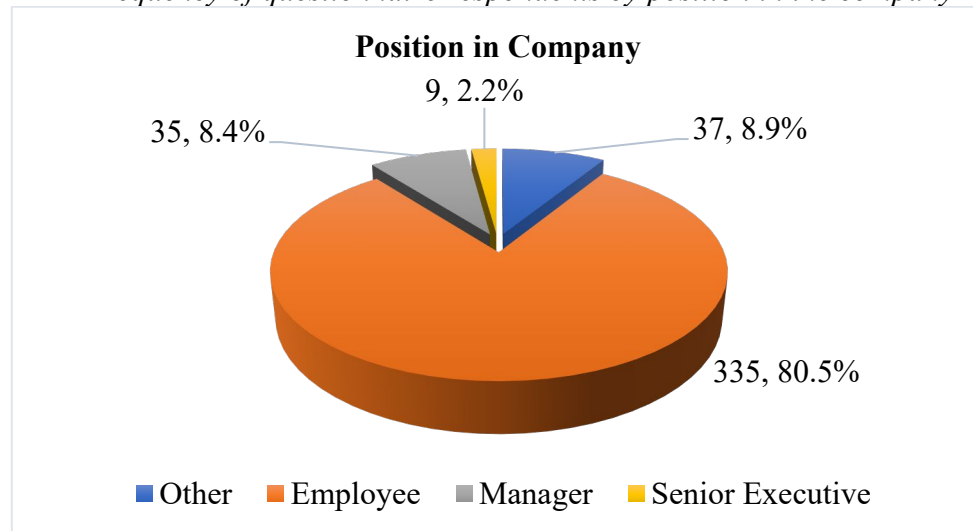
When asked to indicate their positions in the company, the majority of the respondents to the questionnaire were employees ( $n = 335$ , 80.5%). Respondents holding other positions apart from employee, manager or senior executive recorded the second-highest frequency ( $n = 37$ , 8.9%). Managers had the third-highest frequency ( $n = 35$ , 8.4%) and senior executives were the fewest ( $n = 9$ , 2.2%), as shown in Table 4.2.1d and Figure 4.2.1d.



Table 4.2.1d. *Frequency of questionnaire respondents by position in the company*

Position in company	Frequency	Percent	Valid Percent	Cumulative Percent
Other	37	8.9	8.9	8.9
Employee	335	80.5	80.5	89.4
Manager	35	8.4	8.4	97.8
Senior Executive	9	2.2	2.2	100.0
Total	416	100.0	100.0	

Figure 4.2.1d. *Frequency of questionnaire respondents by position in the company*



### 4.3 Interviewees

After analysing the quantitative data, the researcher conducted five interviews (N= 5). This comprised two senior executives (n= 2), two logistics managers (n= 2) and one general manager; all of whom were working with UK manufacturing companies. Only one of the interviewees was female, and she was a logistics manager. The experience of the interviewees in years ranged from 7 to 24 years, as illustrated in more details in Table 4.3 below. To protect the anonymity of the interviewees, they were assigned codes based on their roles. For example, the first and second senior executive interviewees were assigned the interviewee codes, SE1 and SE2.

Table 4.3. *Interviewee profile*

Interviewee	Gender	Position	Experience (years)
SE1	Male	Senior Executive	13
SE2	Male	Senior Executive	24
LM1	Male	Logistics Manager	7
LM2	Female	Logistics Manager	9
GM	Male	General Manager	19

#### 4.4 The extent of outsourcing 3PL services

Descriptive statistics were generated for the questionnaire prompts pertaining to the extent to which the ULK manufacturing companies outsourced 3PL services. The results showed that the largest percentage of service to be outsourced to 3PL services was transportation ( $M= 4.44$ ,  $SD= 0.712$ ). Fleet management ( $M= 3.37$ ,  $SD= 1.276$ ) and distribution services ( $M= 3.37$ ,  $SD= 1.287$ ) recorded the second-highest percentage outsourced 3PL services on average. On average, the percentage of packaging services outsourced to 3PL service providers ( $M= 3.09$ ,  $SD= 1.328$ ) was higher than that of warehousing ( $M= 3.04$ ,  $SD= 1.314$ ), clearing and forwarding ( $M= 3.00$ ,  $SD= 1.316$ ), and inventory management ( $M= 2.88$ ,  $SD= 1.347$ ). Table 4.4a. Illustrates these descriptive statistics.

Table 4.4a. *Descriptive statistics for the extent of outsourcing of various services to 3PL*

3PL Service	Mean	Mode	Std. Deviation
Transportation	4.44	5	0.712
Fleet management	3.37	4	1.276
Distribution services	3.37	4	1.287
Packaging	3.09	2	1.328
Warehousing	3.04	4	1.314
Clearing and forwarding	3.00	2	1.316
Inventory management	2.88	4	1.347

To further elaborate on the extent to which each of the services above was outsourced, frequency tables were generated for each item (see Table 4.4b). Majority of the companies outsourced either more than 80% ( $n= 228$ , 54.8%) or between 61 and 80% ( $n= 154$ , 37%) of their transportation to 3PL services. For fleet management, majority of companies outsourced either 61-80% ( $n= 131$ , 31.5%) or above 80% ( $n= 93$ , 22.4%). However, more than 30% of the respondents indicated that their companies outsourced either 21-40% ( $n= 94$ , 22.6%) or below 20% ( $n= 34$ , 8.2%). For most respondents, their companies outsourced 61-80% of their distribution services ( $n= 129$ , 31%). Respondents whose companies outsourced above 80% of their distribution services were the second-highest ( $n= 94$ , 22.6%). Nearly 30% of the respondents indicated that their companies outsourced either 21-40% ( $n= 84$ , 20.2%) or below 20% ( $n= 39$ , 9.4%) of distribution services to 3PL providers.

Table 4.4b. *Frequency distribution of the extent of outsourcing various 3PL services*

Percentage outsourced	<i>f</i>	%	Percentage outsourced	<i>f</i>	%
Transportation			21-40%	116	27.9
Above 80%	228	54.8	Below 20%	52	12.5
61-80%	154	37.0	Total	416	100.0
41-60%	24	5.8	Warehousing		
21-40%	10	2.4	Above 80%	54	13.0
Total	416	100.0	61-80%	137	32.9
Fleet management			41-60%	62	14.9
Above 80%	93	22.4	21-40%	96	23.1
61-80%	131	31.5	Below 20%	67	16.1
41-60%	64	15.4	Total	416	100.0
21-40%	94	22.6	Clearing and forwarding		
Below 20%	34	8.2	Above 80%	62	14.9
Total	416	100.0	61-80%	111	26.7
Distribution services			41-60%	69	16.6
Above 80%	94	22.6	21-40%	112	26.9
61-80%	129	31.0	Below 20%	62	14.9
41-60%	70	16.8	Total	416	100.0
21-40%	84	20.2	Inventory management		
Below 20%	39	9.4	Above 80%	51	12.3
Total	416	100.0	61-80%	116	27.9
Packaging			41-60%	65	15.6
Above 80%	77	18.5	21-40%	99	23.8
61-80%	103	24.8	Below 20%	85	20.4
41-60%	68	16.3	Total	416	100.0

The highest number of respondents indicated that their companies outsourced between 21 and 40% of their packaging services to 3PL (n= 116, 27.9%). Combined with those whose companies outsourced packaging services at below 20% (n= 52, 12.5%), this means that around 40% of the respondents indicated that their companies packaging services to 3PL. On the other hand, over 40% of the respondents combined noted that their companies outsourced their packaging services at between 61-80% (n= 103, 24.8%) or above 80% (n= 77, 18.5%). Respondents whose companies outsourced between 41 and 60% of their packaging services to 3PL were third-highest in frequency as a standalone category (n= 68, 16.3%).

For warehousing, most respondents indicated their companies outsourced between 61 and 80% of the service to 3PL (n= 137, 32.9%). They were followed by those whose companies outsourced between 21 and 40% (n= 96, 23.1%). The lowest frequency was from respondents who indicated that their companies outsourced above 80% of their warehousing to 3PL (n= 54, 13%). For clearing and forwarding, there was nearly an equal number of respondents who

indicated that their companies outsourced 21-40% (n= 112, 26.9%) or 61-80% (n= 111, 26.7%) of this service to 3PL. Respondents whose companies outsourced 41-60% of their clearing and forwarding recorded the third-highest frequency (n= 69, 16.6%). There was an equal number of respondents whose companies outsourced below 20% (n= 62, 14.9%) and above 80% (n= 62, 14.9%) of their clearing and forwarding.

For most respondents, their companies outsourced between 61 and 80% of their inventory management (n= 116, 27.9%). The second-highest frequency was registered by respondents whose companies outsourced between 21 and 40% (n= 99, 23.8%). They were followed by those whose companies outsourced below 20% (n= 85, 20.4%), 41-60% (n= 65, 15.6%), and above 80% (n= 51, 12.3%) respectively.

The five interviewees were briefed about the results on the extent of outsourcing and asked to give their opinions about the possible reasons as to why most companies outsourced the transportation and fleet management to the largest extent and why they thought that clearing and forwarding and inventory were outsourced to the smallest extent. All the interviewees (n= 5) stated that this is because transportation and fleet management carried the least risk if outsourced while outsourcing inventory management carried significantly higher risks. The response below by SE2 summarises these results:

*“...of course, transportation and fleet management do not really give away a lot of business secrets and are therefore low-risk. A 3PL company remains quite an external agent when they are just handling transportation or fleet... When it comes to inventory management, now that is where risks like customer satisfaction, sales data access, and effect on quality come into play...no one wants to risk that...”*

However, three (n= 3) interviewees attributed the variation in the extent of outsourcing the different 3PL services to the availability of 3PL providers who are dedicated to handling such. For example, some stated that it was easier to find 3PL providers for transportation and fleet management than it was to find one for inventory management. GM stated the following:

*“It also depends on which providers you can find... there are very many 3PL providers for transportation and fleet management because this is basic to almost all [3PL] providers, but there are not as many for inventory management.”*

The issue of cost also came up during the interviews and was mentioned by three interviewees as well (n= 3). It was highlighted that transportation, fleet management, warehousing, and distribution services were less costly to outsource to 3PL providers than inventory management. SE1 explained this as follows:

*“Services like transportation, warehousing, distribution, warehousing... these are not very expensive partly because there are also numerous service providers and they are less complex and risky for a 3PL provider to handle... inventory management, however! That’s a bit too expensive and risky so most manufacturing companies and 3PL services would rather not deal with it.”*

#### 4.5 Feasibility of outsourcing 3PL services

Means and standard deviation scores were generated for all the five feasibility items. In general, it emerged that outsourcing 3PL services were feasible the means of all items were above 4, which corresponded to the “agree” point of the 5-point Likert scale item against which the respondents scored the feasibility items. The results showed that increased operational flexibility ( $M= 4.15$ ,  $SD= 0.810$ ) was the highest scored item, followed by a significant reduction of operational costs ( $M= 4.11$ ,  $SD= 0.815$ ). Feasibility in terms of enabling companies to focus on their core activities ( $M= 4.10$ ,  $SD= 0.824$ ), gaining external resources ( $M= 4.06$ ,  $SD= 0.825$ ), and reduced fixed asset costs ( $M= 4.05$ ,  $SD= 0.917$ ) ranked third, fourth, and fifth respectively. Table 4.5 below shows the descriptive statistics of the feasibility of outsourcing 3PL services.

Table 4.5. *Descriptive statistics of the feasibility of outsourcing 3PL services*

Item	M	SD
3PL outsourcing has led to increased operational flexibility in our company	4.15	0.810
3PL outsourcing has led to a significant reduction of operational costs in our company	4.11	0.815
3PL outsourcing has helped our company to focus on our core activities	4.10	0.824
Our company has gained external resources (e.g. expert skills and capabilities) from 3PL service providers	4.06	0.825
3PL outsourcing has led to reduced fixed asset costs	4.05	0.917

When asked whether they agreed with these ranking, most interviewees ( $n= 4$ ) indicated that they would rank enabling companies to focus on their core activities highest followed by the increased operational flexibility and reduction of operational costs. The main reason given by three interviewees ( $n= 3$ ) was that all the other benefits originated from the ability to focus on core activities. For example, LM2 stated the following:

*“I would rank focusing on core activities highest... mainly, this is why manufacturing companies outsource 3PL services – so that they can do what they are really meant to do and that is to manufacture and design and produce... when companies are able to focus on manufacturing, then everything else, operational flexibility, reduction of operational costs and the need to purchase fixed assets and other benefits spiral out of it...”*

#### 4.6 Perceptions towards 3PL services

Mean ranking of the five questionnaire items addressing perceptions towards outsourcing 3PL services was performed. While none of the items had means corresponding to the Likert point of 4, they all had means that were higher than the “not sure” point of 3. This was ascertained using a one-sample t-test with 3 as the test value (see Table 4.6 below).

Table 4.6. *Descriptive statistics and one-sample test for perceptions towards 3PL services*

Item	M	SD	t	df	Sig. (2-tailed)
I feel that outsourcing 3PLs exposes the company to unforeseen risks (reversed)	3.88	1.048	17.195	414	.000
It is impossible to run a successful manufacturing company without 3PL services	3.75	1.164	13.097	415	.000
I feel that 3PL services enhance company performance	3.60	1.169	10.523	415	.000
I feel that the importance of outsourcing 3PLs in the manufacturing industry is overrated (reversed)	3.57	1.171	9.979	414	.000
3PL outsourcing is necessary for UK manufacturing companies	3.49	1.176	8.505	415	.000

From the results presented in Table 4.6, the mean of the reversed item on 3PL outsourcing, exposing the company to unforeseen risks ranked the highest ( $M= 3.88$ ,  $SD= 1.048$ ). On average, the respondents felt that it was impossible to run a successful manufacturing company without 3PL services ( $M= 3.75$ ,  $SD= 1.164$ ). Respondents also perceived the outsourcing of 3PL services to be an enhancer of company performance ( $M= 3.60$ ,  $SD= 1.169$ ). Notably, all the standard deviation scores were higher than 1 thereby indicating the likelihood that the responses for each item were dispersed with some respondents scoring the item higher and lower by more than 1 point from the mean.

When asked to comment on the results of the perceptions, most interviewees ( $n= 4$ ) felt that the necessity of 3PL outsourcing for UK manufacturing companies could have ranked higher than it did. The main reason behind this argument was that it has now become critical for UK manufacturing companies to outsource some services to 3PL, especially on transportation, warehousing, and distribution. GM stated that:

*“I am not sure I agree that 3PL outsourcing is not as necessary as the [quantitative] results show. I mean, this has become like the main thing for your distribution, warehousing, transport... it [3PL outsourcing] is indispensable even when you have a lot of capital...”*

Three interviewees felt that the indication that 3PL outsourcing does not expose the company to unforeseen risks was not the highest ranking. To them, every inclusion of an external party in company affairs increases the possibility of unforeseen risks. When probed about why they thought the respondents might have scored the item this way, SE1 argued as follows:

*“It is likely that the respondents did not understand that this item was asked in the negative form... they may have scored it just like the others. There are risks involved, and that is why companies outsource the most external of their services like transportation and warehousing...”*

#### 4.7 Impact of 3PL outsourcing on company profitability

The initial for the investigation of the impact of 3PL outsourcing on company profitability entailed the generation of frequency and descriptive statistics for the profitability item of the questionnaire. The results showed a high mean ( $M= 4.20$ ,  $SD= 0.542$ ) with most of the respondents agreeing with the prompt (mode= 4). The frequencies showed that majority of the respondents ( $n= 292$ , 70.2%) agreed with the prompt and were followed those who strongly agreed with it ( $n= 105$ , 25.2%). Respondents who were not sure ( $n= 16$ , 3.8%), disagreed ( $n= 2$ , 0.5%), or strongly disagreed ( $n= 1$ , 0.2%) were comparatively fewer. These results are shown in Table 4.7a below.

Table 4.7a. *Descriptive statistics 3PL outsourcing leading to increased business profitability*

	f	%
Strongly Agree	105	25.2
Agree	292	70.2
Not Sure	16	3.8
Disagree	2	0.5
Strongly Disagree	1	0.2
Total	416	100
<i>M</i>		4.20
<i>SD</i>		0.542

A stepwise regression test was then performed to determine the impact of 3PL outsourcing on company profitability. In accordance with the conceptual framework (Figure 2.5.3), all the questionnaire items pertaining to feasibility were loaded into the regression model as the independent variables. In contrast, the one item addressing profitability was included as the dependent variable. The model summary results (Table 4.7b) revealed four models, which were all statistically significant based on the ANOVA results (Table 4.7c).

The first model comprised the reduction of operational costs as the only predictor variable with an adjusted  $R^2$  of 0.133,  $F(1, 414)= 64.679$ ,  $p<.001$ . The second model comprised the reduction of operational costs and increased operational flexibility with an adjusted  $R^2$  of 0.175,  $F(2,$

413)= 44.962,  $p < .001$ . The third model included reduction of operational costs, increased operational flexibility, and reduced fixed asset costs with an adjusted  $R^2$  of .195,  $F(3, 412) = 34.532$ ,  $p < .001$ . Finally, the fourth model comprised the three variables in the third model and gaining of external resources from 3PL service providers with an adjusted  $R^2$  of .201,  $F(4, 411) = 27.071$ ,  $p < .001$ . The Durbin-Watson score of 1.729 was close to 2, thereby indicating acceptable positive autocorrelation between the variables (Crown, 1998).

Table 4.7b. *Model summary results for the stepwise regression of the impact of 3PL outsourcing on business profitability*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.368 <sup>a</sup>	.135	.133	.505	1.729
2	.423 <sup>b</sup>	.179	.175	.492	
3	.448 <sup>c</sup>	.201	.195	.486	
4	.457 <sup>d</sup>	.209	.201	.484	

a. Predictors: (Constant), 3PL outsourcing has led to a significant reduction in operational costs in our company

b. Predictors: (Constant), 3PL outsourcing has led to a significant reduction in operational costs in our company, 3PL outsourcing has led to increased operational flexibility in our company

c. Predictors: (Constant), 3PL outsourcing has led to the significant reduction of operational costs in our company, 3PL outsourcing has led to increased operational flexibility in our company, 3PL outsourcing has led to reduced fixed asset costs

d. Predictors: (Constant), 3PL outsourcing has led to the significant reduction of operational costs in our company, 3PL outsourcing has led to increased operational flexibility in our company, 3PL outsourcing has led to reduced fixed asset costs, Our company has gained external resources (e.g. expert skills and capabilities) from 3PL service providers

e. Dependent Variable: 3PL outsourcing has led to increased business profitability for our company

Table 4.7c. *ANOVA table for the stepwise regression test of the impact of 3PL outsourcing on business profitability*

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	16.463	1	16.463	64.679	.000 <sup>b</sup>
	Residual	105.374	414	.255		
	Total	121.837	415			
2	Regression	21.785	2	10.892	44.962	.000 <sup>c</sup>
	Residual	100.052	413	.242		
	Total	121.837	415			
3	Regression	24.480	3	8.160	34.532	.000 <sup>d</sup>
	Residual	97.357	412	.236		
	Total	121.837	415			
4	Regression	25.406	4	6.352	27.071	.000 <sup>e</sup>
	Residual	96.430	411	.235		
	Total	121.837	415			



- a. Dependent Variable: 3PL outsourcing has led to increased business profitability for our company
  - b. Predictors: (Constant), 3PL outsourcing has led to a significant reduction in operational costs in our company
  - c. Predictors: (Constant), 3PL outsourcing has led to a considerable reduction in operational expenses in our company, 3PL outsourcing has led to increased operational flexibility in our company
  - d. Predictors: (Constant), 3PL outsourcing has led to the significant reduction of operational costs in our company, 3PL outsourcing has led to increased operational flexibility in our company, 3PL outsourcing has led to reduced fixed asset costs
  - e. Predictors: (Constant), 3PL outsourcing has led to the significant reduction of operational costs in our company, 3PL outsourcing has led to increased operational flexibility in our company, 3PL outsourcing has led to reduced fixed asset costs, Our company has gained external resources (e.g. expert skills and capabilities) from 3PL service providers
- 

When asked whether they felt that the regression results were an accurate representation of the reality, all the interviewees (n= 5) agreed that outsourcing 3PL services leads to increased business profitability. They also unanimously agreed that business profitability increases due to reduction of operational costs, increased operational flexibility, reduced fixed asset costs, and gaining of external resources from 3PL service providers such as expertise. However, all the interviewees (n= 5) disagreed that these four variables only accounted for about 20 percent variance in increased business profitability. To them, the four variables had the potential to influence business profitability by over 80 percent. The following sample response from SE2 illustrates this:

*“Yes, it is true that these are the main outcomes of 3PL outsourcing that lead to increased profitability, but at 20 percent only? No, these four – and especially reduced operational costs and fixed asset costs – have the potential of causing up to 60 percent increase in business profitability... Now, if you add operational flexibility and external expertise from 3PL providers, you are looking at over 80 percent impact on profit!”*

#### **4.8 Chapter summary**

In this chapter, the results of the quantitative and qualitative data analyses have been presented. The results show that transportation and fleet management were the services that UK manufacturing companies outsourced to the largest extent while clearing and forward and inventory management were the services that were outsourced to the least extent. The reasons behind this trend included the level of risk involved in outsourcing a certain service, availability of 3PL providers offering the outsourcing service and the cost involved. In terms of feasibility, all items were scored highly although increased operational flexibility significant reduction of operational costs ranked highest. However, most interviewees indicated that they would rank the ability to focus on core business activities the highest because all the other benefits of 3PL

outsourcing were linked to that. Finally, the results showed that 3PL outsourcing led to increased business profitability through reduction of operational costs, increased operational flexibility, reduced fixed asset costs, and gaining of external resources from 3PL service providers. The next chapter contains the discussion of results in light of previous literature.

## **5. Chapter Five: Discussion of Results**

The findings of this research showed that transportation, fleet management and distribution services were the services outsourced to the most significant extent by UK manufacturing companies. With most UK manufacturing companies outsourcing more than 60 percent of their transportation services, the findings of this research are consistent with the findings of previous studies (Aktas et al., 2011; Solakivi et al., 2011; Gasowska, 2015; Denisa et al., 2015) where it was reported that companies outsourced over 70 percent of their transportation services to 3PL providers. With respect to fleet management, the results of this study showed that the companies of 53.9 percent of the respondents outsourced over 60 percent to 3PL services providers. These findings complement those reported in previous studies where the extent of outsourcing fleet management was reported at around 53 percent (Lieb and Randall, 1996; Millen et al., 1997). Like in previous studies (Millen et al., 1997; Hsiao et al., 2010), the findings of this study showed that most companies outsource inventory management to the lowest extent.

The main reasons behind the variation in the extent of outsourcing as revealed in the interview analysis included the risk involved, availability of 3PL providers offering the outsourcing service and the cost involved. The results about the influence of risk on the extent to which a company outsources were combined in literature with the aspect of how complex it was (Zailani et al., 2017). The findings are also consistent with the study by Assaf et al. (2011) where the availability of 3PL service providers was a determinant of the extent to which companies outsourced services. Given the influence of these factors, it is possible that there are few 3PL providers for services such as inventory management for UK manufacturing companies. Altogether, it is noteworthy that services such as packaging, warehousing, and clearing and forwarding may be outsourced to a lower extent because they are considered internal and part of the manufacturing process more than they are considered risky to outsource. All five feasibility factors included in the questionnaire were found to be applicable to the UK manufacturing industry, given the high mean scores (Table 4.5). The feasibility factors concerning the enhancement of operations that are attributable to the outsourcing of 3PL services ranked the most senior. Increased operational flexibility was ranked as the most crucial aspect of the feasibility of outsourcing 3PL services in the UK manufacturing industry. This finding extends the results of studies that showed operational flexibility as one of the reasons as to why companies outsource (Arias-Aranda et al., 2011; Solakivi et al., 2013; Liu et al.,

2015) by showing that it is one of the essential feasibility factors of outsourcing 3PL services for UK manufacturing companies.

Despite the mean of the feasibility factor of allowing UK manufacturing companies to focus on their core activities ranking third, the findings of the qualitative research showed that it is the epicentre from which all the other feasibility factors stem. The reduction of any costs that are attributable to outsourcing 3PL services rooted in the TCE theory, which underscores that minimisation of production and transaction costs is the main driver for outsourcing (Williamson, 2008; Tate et al., 2014). Thus, in this case, the findings of this research demonstrate that 3PL outsourcing enables UK manufacturing companies to focus on their core activities and this results in increased operational flexibility, reduced operational costs, and minimal fixed asset investments. Such focus on core activities can further be linked to the gaining of external resources, which is in line with the gaining of intangible and tangible resources as explained by the RBV theory (Bolumole et al., 2007; Wong and Karia, 2010).

The findings concerning the perceptions towards 3PL showed that the respondents had favourable perceptions on the overall with the view that 3PL outsourcing does not expose the company to unforeseen risks in the quantitative phase. However, the interviewees somewhat disagreed that this was the top-ranking perception and attributed it to the phrasing of the question in the negative. Altogether, linking this finding to the view that companies outsource services that they feel are less risky in accordance with the first research question, it can be argued that the questionnaire respondents never got to experience situations where they felt that 3PL outsourcing exposed the companies that they worked with to unforeseen risks. This is also possible because the majority of the questionnaire respondents were employees (80.5%) who may not really get to know every risk that a company is exposed to and what the exposure is attributed to. Altogether, the findings underscored the indispensability of outsourcing 3PL services for UK manufacturing firms, considering that this factor ranked second-highest and was authenticated by the qualitative results.

The perception that 3PL services enhance company performance was aligned with the descriptive statistics pertaining to the impact of 3PL outsourcing on company profitability, where 95.4 percent of the respondents either agreed or strongly disagreed with the prompt. The results of the stepwise regression model revealed an adjusted  $R^2$  of .133 for the model with a significant reduction of operational costs alone. This means that significant reduction of operational costs due to 3PL outsourcing could explain 13.3 percent variance in business profitability, and this was statistically significant,  $F(1, 414) = 64.679$ ,  $p < .001$ . Accordingly, this led to the confirmation of  $H_2$ :

The second model of the stepwise regression test included both reductions of operational costs and increased operational flexibility with an adjusted  $R^2$  of .175,  $F(2, 413)= 44.962$ ,  $p<.001$ . The interpretation of this result is that combining reduction of operational costs and increased operational flexibility increased the prediction power to 17.5 percent up from 13.3 percent. This means that increased operational flexibility due to 3PL outsourcing is a statistically significant predictor of business profitability. The adjusted  $R^2$  of .195,  $F(3, 412)= 34.532$ ,  $p<.001$  for the third regression model implied that the three variables combined explained up to 19.5 percent variance of business profitability with reduction of fixed asset costs being a statistically significant predictor of business profitability. Finally, the fourth model's adjusted  $R^2$  of .201,  $F(4, 411)= 27.071$ ,  $p<.001$  meant that the four variables combined explained 20.1 percent variance in business profitability with gaining external resources from 3PL outsourcing being a statistically significant predictor. However, it is noteworthy that these findings mean that other factors that were not included in the current study influence 79.9 percent variance in business profitability of UK manufacturing companies,

Given the results of the stepwise regression test, it is evident that reduction of operation costs, increased operational flexibility, reduced asset costs, and gaining of external resources from 3PL outsourcing are all statistically significant predictors of business profitability of UK manufacturing companies. Accordingly, the three hypotheses that were formulated in chapter two were all confirmed. Thus;

**H<sub>1</sub>:** External resources obtained from 3PL outsourcing are statistically significant predictors of business profitability of UK manufacturing companies

**H<sub>2</sub>:** Reduced operational costs as a result of 3PL outsourcing has a statistically significant effect on the profitability of UK manufacturing firms

**H<sub>3</sub>:** Reduced fixed asset costs as a result of 3PL outsourcing has a statistically significant effect on the profitability of UK manufacturing firms

## **6. Chapter Six: Conclusions and recommendations**

### **6.1 Introduction**

In this chapter, the conclusions drawn from the findings obtained in this research are presented in the next section after a brief recap of the entire study. The third section contains practical recommendations and is followed by a section on the limitations of the study. The final section includes suggestions for further research.

### **6.2 Conclusions**

The aim of this dissertation was to critically investigate how UK manufacturing companies can employ 3PL services to enhance business profitability. The following research objectives were pursued:

- 1) To critically examine the extent to which UK manufacturing companies outsource 3PL services.
- 2) To critically appraise the feasibility of outsourcing 3PL services.
- 3) To critically evaluate the perceptions of UK manufacturing companies towards 3PL services.
- 4) To critically examine how outsourcing 3PL services impacts company profitability.

The research methodology and process were based on the following four research questions:

- 1) To what extent do UK manufacturing companies outsource 3PL services?
- 2) How feasible is outsourcing 3PL services to UK manufacturing companies?
- 3) What are the perceptions of UK manufacturing companies towards 3PL services?
- 4) To what extent does outsourcing 3PL services influence the profitability of a company in the UK manufacturing sector?

A simple, cross-sectional sequential mixed methods research methodology was implemented with the qualitative phase being used to explain the findings of the quantitative phase, which was implemented first. Data for the quantitative phase were collected using an online questionnaire that was designed and administered through a Google survey while semi-structured interviews were performed via Zoom calls with senior executives and managers of UK manufacturing firms. For the quantitative phase, convenience and snowballing sampling techniques were combined to garner 416 (N= 416) valid responses from individuals who had worked in the UK manufacturing industry for at least three years. For the qualitative phase, purposive/judgmental sampling technique was employed to select a sample of five interviewees

(N= 5) comprising two senior executives, two logistics managers, and one general manager. Quantitative data were analysed using SPSS, while qualitative data were analysed manually. The findings showed that UK manufacturing companies outsource transportation, fleet management, and distribution services to the largest extent of 3PL services. On the other hand, clearing and forwarding and inventory management were outsourced to the lowest extent. It was also found that the level of risk associated with outsourcing a given service, availability of 3PL providers for the respective service, and the cost associated with outsourcing the service influenced the extent to which UK manufacturing companies outsource the service. Given these findings, it is concluded that UK manufacturing companies outsource transportation and fleet management to the largest extent and clearing and forwarding and inventory project to the smallest extent.

The findings showed that UK manufacturing companies considered outsourcing of 3PL services feasible in terms of increasing operational flexibility, reducing operational costs, helping the company to focus on our core activities, gaining external resources, and reducing fixed asset costs. Altogether, it was revealed that all these feasibility factors could be attributed to aiding the UK manufacturing companies to focus on their core activities. Thus, it was concluded that outsourcing 3PL services is feasible for UK manufacturing companies and the benefits gained thereof stem from the ability that companies gain to focus on their core activities.

The findings showed that the perceptions towards 3PL outsourcing were positive in general. There was a notable emphasis on the indispensability and necessity of 3PL outsourcing in the UK manufacturing industry. Thus, it is concluded that UK manufacturing companies perceive 3PL outsourcing positively and consider it to be indispensable and necessary to run their businesses successfully.

Finally, it was found that four factors that are associated with 3PL outsourcing were significant predictors of business profitability of UK manufacturing companies. The four factors included reduction of operational costs, increased operational flexibility, reduction of fixed asset costs, and gaining of external resources from 3PL outsourcing. Of the four, reduction of operational costs explained the biggest proportion of variance in business profitability at 13.3 percent. However, 79.9 percent of the variance in business profitability could not be explained by the factors involved in this study. These findings informed the conclusion that 3PL outsourcing influences business profitability of UK manufacturing companies by reducing their operational cost, increasing their operational flexibility, reducing their fixed asset costs, and offering them external resources such as expertise.

### **6.3 Practical Recommendations**

The following practical recommendations were made in accordance with the findings of this study:

- 1) There is need for 3PL service providers in the UK to come up with service packages that are suited for the UK manufacturing industry. This includes developing dedicated services that go beyond basic 3PL to advanced 3PL where services such as inventory management. On the other hand, UK manufacturing companies need to redesign their 'high-risk' services, such as inventory management to understand the proportion that can be outsourced without putting the business at risk. This would help create better, the mutually-beneficial synergy between manufacturing companies and 3PL service providers.
- 2) The findings of this study showed that the feasibility of 3PL outsourcing mainly rests in its ability to help UK manufacturing companies to focus on their core activities. In order to ensure enhanced feasibility of applying 3PL outsourcing, the managers of UK manufacturing companies need to ensure that they clearly identify their core activities. Similarly, 3PL service providers need to complementarily work with managers of UK manufacturing companies to understand how best they can target noncore activities for outsourcing.
- 3) The findings revealed that the reduction of operational costs due to 3PL outsourcing explained the biggest proportion of the impact of 3PL outsourcing on profitability amongst the four statistically significant factors. Thus, it is recommended that managers of UK manufacturing companies focus on choosing 3PL service providers whose services will likely result in an optimal reduction of operational costs while enhancing operational flexibility, reduction of fixed asset costs, and focus on core competencies.

### **6.4 Limitations of the Study**

The main limitation of this study was in terms of the sampling techniques used and the data collection approaches. The use of convenience sampling and online questionnaire administration for the quantitative phase, which ended up with the inclusion of a considerably higher number of employees than other professionals from the UK manufacturing industry. This could explain the differences in views expressed by the interviewees and the findings of the quantitative phase. In addition, the use of an online questionnaire meant that the researcher could not control who completed the questionnaire and whether they met the condition of



having worked in the UK manufacturing industry for at least three years and whether they were whom they claimed to be. However, it was not possible to collect the data face-to-face due to the safety guidelines to reduce contact as much as possible as occasioned by the COVID-19 pandemic.

## **6.5 Recommendations for Further Research**

The findings of this study revealed contentions between the quantitative and qualitative samples on some findings. For instance, the ranking of the negated item pertaining to 3PL outsourcing exposing UK manufacturing companies to unforeseen risks by questionnaire respondents was challenged by the interviewees. Similarly, the interviewees argued that the focus on core activities was the primary feasibility outcome for outsourcing 3PL services, whereas the questionnaire respondents ranked it after reduction of operational costs and increment of organisational flexibility. This disparity was largely attributable to the fact that questionnaire respondents were largely employees while the qualitative interviewees held senior management positions. Further research is necessary to determine whether there are differences in terms of the experiences of employees and those of managers and executives of UK manufacturing companies with respect to 3PL outsourcing.

In future, researchers may replicate the current study in nonmanufacturing industry sectors and beyond the UK. This would aid in the extension of the findings of this study and their validation or otherwise. In such studies, researchers can overcome the limitations of this study by using more diversified samples in terms of their positions in the companies. For instance, researchers could consider using stratified sampling and physical questionnaire administration and interviewing. In addition, such future studies can be larger in terms of coverage and involve actual, longitudinal, profitability data before and after a company outsources 3PL services.

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## Appendix

### Appendix 1: Questionnaire

#### **APPLYING THE THIRD-PARTY LOGISTICS CONCEPT TO IMPROVE BUSINESS PROFITABILITY**

##### **Section 1: Participant Information**

Dear Sir/Madam,

My name is **Mohamed Sorogy**, a Master Student at the **University of Manchester Salford – Robert Kennedy College**.

As part of the requirements for the award of my Master degree in Procurement, Logistics and Supply Chain Management, I am undertaking a study to critically investigate how UK manufacturing companies can employ 3PL services to enhance business profitability. Using this online questionnaire, I am collecting data from **employees/supervisors/managers/senior executives of UK manufacturing companies WHO HAVE WORKED IN THE INDUSTRY WITHIN THE UK FOR AT LEAST 3 YEARS**.

Kindly take 15-20 minutes of your time to complete this questionnaire. As you do so, please note that your identity remains anonymous, and no questions about the information that is directly traceable have been included in the questionnaire. Participation is voluntary and attracts no incentives. Equally, withdrawing from this study at any point does not carry any penalty and can be achieved by closing the survey before submitting the data. All data collected using this questionnaire shall remain in the custody of the researcher and destroyed permanently upon successful completion of this study. Kindly share the link to the questionnaire with your colleagues in the UK manufacturing industry only. If you have any questions, please feel free to email me via **mohamed.sorogy@hotmail.com**.

To confirm that you understand what the research about, your rights and are willing to participate in this study, **kindly click on the checkbox** below to proceed.

☐ **I confirm that I have been working in the UK manufacturing industry for 3 YEARS OR MORE and give my consent to participate in the study.**

##### **Section 2: Demographic Data**

1. Gender: ☐ Male ☐ Female
2. Age (Years): ☐ 18-24 ☐ 25-35 ☐ 36-45 ☐ 46-55 ☐ Above 55
3. Highest Education Level: ☐ Doctorate ☐ Masters ☐ Undergraduate ☐ Other
4. Position in company: ☐ Employee ☐ Manager ☐ Senior Executive ☐ Other

##### **Section 3: Extent of 3PL Outsourcing**

Kindly indicate the percentage of logistics functions that your company outsources the following services to third-party logistics (3PL) service providers:

##### **5. Transportation**

- ☐ Below 20% ☐ 21-40% ☐ 41-60% ☐ 61-80% ☐ More than 80%

##### **6. Warehousing**



- ☐ 0-20%   ☐ 21-40%   ☐ 41-60%   ☐ 61-80%   ☐ More than 80%
- 7. Fleet Management**  
☐ 0-20%   ☐ 21-40%   ☐ 41-60%   ☐ 61-80%   ☐ More than 80%
- 8. Packaging**  
☐ 0-20%   ☐ 21-40%   ☐ 41-60%   ☐ 61-80%   ☐ More than 80%
- 9. Distribution services**  
☐ 0-20%   ☐ 21-40%   ☐ 41-60%   ☐ 61-80%   ☐ More than 80%
- 10. Clearing and forwarding**  
☐ 0-20%   ☐ 21-40%   ☐ 41-60%   ☐ 61-80%   ☐ More than 80%
- 11. Inventory management**  
☐ 0-20%   ☐ 21-40%   ☐ 41-60%   ☐ 61-80%   ☐ More than 80%

#### **Section 4: 3PL Outsourcing Feasibility**

On a scale of 1-5 (WHERE 1 = “STRONGLY DISAGREE”, 3 = “NOT SURE”, and 5 = “STRONGLY DISAGREE”) kindly indicate the extent to which you agree/disagree with the following statements:

- 12. 3PL outsourcing has led to the significant reduction of operational costs in our company**  
☐ 5   ☐ 4   ☐ 3   ☐ 2   ☐ 1
- 13. 3PL outsourcing has led to increased operational flexibility in our company**  
☐ 5   ☐ 4   ☐ 3   ☐ 2   ☐ 1
- 14. 3PL outsourcing has helped our company to focus on our core activities**  
☐ 5   ☐ 4   ☐ 3   ☐ 2   ☐ 1
- 15. Our company has gained external resources (e.g. expert skills and capabilities) from 3PL service providers**  
☐ 5   ☐ 4   ☐ 3   ☐ 2   ☐ 1
- 16. 3PL outsourcing has led to reduced fixed asset costs**  
☐ 5   ☐ 4   ☐ 3   ☐ 2   ☐ 1

#### **Section 5: Perceptions towards 3PL**

On a scale of 1-5 (WHERE 1 = “STRONGLY DISAGREE”, 3 = “NOT SURE”, and 5 = “STRONGLY DISAGREE”) kindly indicate the extent to which you agree/disagree with the following statements:

- 17. 3PL outsourcing is necessary for UK manufacturing companies**  
☐ 5   ☐ 4   ☐ 3   ☐ 2   ☐ 1
- 18. I feel that 3PL services enhance company performance**  
☐ 5   ☐ 4   ☐ 3   ☐ 2   ☐ 1
- 19. It is impossible to run a successful manufacturing company without 3PL services**  
☐ 5   ☐ 4   ☐ 3   ☐ 2   ☐ 1
- 20. I feel that the importance of outsourcing 3PLs in the manufacturing industry is overrated**  
☐ 5   ☐ 4   ☐ 3   ☐ 2   ☐ 1

**21. I feel that outsourcing 3PLs exposes the company to unforeseen risks**

☐ 5      ☐ 4      ☐ 3      ☐ 2      ☐ 1

**Section 6: Profitability**

On a scale of 1-5 (WHERE 1 = “STRONGLY DISAGREE”, 3 = “NOT SURE”, and 5 = “STRONGLY DISAGREE”) kindly indicate the extent to which you agree/disagree with the following statements:

**22. 3PL outsourcing has led to increased business profitability for our company**

☐ 5      ☐ 4      ☐ 3      ☐ 2      ☐ 1

Thank you very much for your honest insights and responses. KINDLY SHARE THE SURVEY LINK WITH YOUR COLLEAGUES IN THE UK MANUFACTURING INDUSTRY.

## Appendix 2: Interview Guide

- 1) Kindly introduce yourself and mention your role in your company.
- 2) For how long have you been working in the UK manufacturing industry?
- 3) As mentioned to you earlier on, a study has been conducted with some respondents from various companies in the UK manufacturing industry about different aspects of 3PL services. The results showed that most UK manufacturing companies outsource the largest proportion of their transportation and fleet management to 3PL services and clearing and forwarding and inventory management the least. Would you have an explanation as to why this is the case based on your experience?
- 4) The findings of the quantitative phase also showed that outsourcing 3PL services is feasible for UK manufacturing companies because it led to increased operational flexibility, significant reduction of operational costs, gaining external resources, and reduced fixed asset costs. Would you rank this the same way or not? Why?
- 5) The quantitative results showed the following outcomes. Do you agree with the ranking? Why or why not?
- 6) The quantitative results showed that 3PL outsourcing leads to increased profitability through a reduction of operational costs, increased operational flexibility, reduced fixed asset costs, and gaining of external resources from 3PL service providers. Do you think that these results are a good representation of the reality from your experience? Why or why not?
- 7) However, these four aspects above could only explain about 20 percent of increased business profitability. Do you agree with this finding? Why or why not?
- 8) Kindly share any additional comments you may have.