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Implications of express delivery business modelling in the last mile industry

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Implications of Express Delivery Business Modelling in the Last Mile Industry

Tracey Elisabeth Worth

A thesis submitted in partial fulfilment of the requirements of
Sheffield Hallam University
for the degree of Doctor of Philosophy

December 2021

CANDIDATE DECLARATION

I hereby declare that:

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In Loving memory of a dear friend and educationalist

Lt Col Jane Hunter

Abstract

The more successfully the Last Mile Logistics (LML) industry delivers its service, the greater the chance of delivering the *Customer Promise* for retailers. The motivation for this research was, to better understand the expectations and demands of online customers and the effect thereof on the LML provision.

Previous research has sought to apply an understanding of business and operational models to the home delivery service, including vehicle route optimisation and delivery innovation (Perboli, et al., 2018). The LML industry is complicated, somewhat ill-structured, relying on multiple and cross-functional approaches that must often be changed with immediate effect, subsequently destabilising the delivery provision.

This research addresses the “*Implications of express delivery business modelling in the last mile industry*” arising from an initial study. This research critically examines key business models as well as the overall governance of the UK LML industry. It then goes onto develop an LML business model. This research addresses the complexity of the end customers’ experiences, recognising the impact of technology, that supports the online customer and its effects on the LML industry. The research identifies a solution for a more efficient LML Express industry business model based on Parmentier and Gandia’s (2017) multi-sided platform model.

In 2015, an industry roundtable discussion focus group raised issues affecting the LML industry. A five-year longitudinal last mile delivery survey followed, with an in-depth company study of one leading UK LML and one-to-one interviews with eight leading LML professionals. The results establish significant themes regarding delivery for the customer, and LML delivery service industry.

Throughout the research, the reliability of current LML business models and practices were identified. Analysis showed a lack of confidence implementing rigid business models in multi-channel and directional flow of demand, in a fluid marketplace. The research conclusion highlights need to engage with a multi-sided platform business model, incorporating technology, within the customer demand chain. This research provides a solution in the form of a business model platform, that might be used by an LML across the whole or part of the business.

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1 Research Outlines

1.1 Introduction

The Express Delivery sector emerged in the 80's as a must have service for the business of the day. Having a personal same-day courier delivery of a product or document from a business to a customer was the status symbol of a successful business (Lomas & Worth, 2006). Fast forward to 2020 and previously what was a status symbol has now become a key part of the UK national infrastructure, same-day courier has become home delivery, last mile logistics (LML) (Browne, et al., 2019; Dept for Transport, 2020; Fernie & Sparks, 2019; Lim, et al., 2018). During this period, the challenges to the sector have emerged from technology innovation that opened up the shopping mobility for the customer. The internet, mobile phones, and tablets brought online e-retail access to the public, 24/7 365 days a year. The same-day courier sector grew with this challenge to meet the customer demand of home delivery (Allen, et al., 2012; Browne, et al., 2019; CMR, 2018; Dablanc, et al., 2017; Fernie & Sparks, 2009).

Not all companies have been able to adapt to the rising demand for LML service, and like City Link, have fallen (Scottish Affairs Committee. Business Innovation and Skills, 2015). How can the express delivery company engage with this technological growth and meet the customers demand if the foundation of the business model is not efficient, agile or engaging enough with the stakeholders and those who use or supply the service (Teece, 2010). This thesis looks at the current operational and business models for the express delivery LML sector to understand and propose a theoretical business model suitable to meet the sectors future demands.

This research was inspired by the questions arising from a sector research project with the Leicester and Leicestershire Enterprise Partnership (LLEP). The initial research raised by LLEP was to understand the future needs of the logistic service providers (LSP) within the logistics golden triangle of Leicestershire, Nottinghamshire, and Northamptonshire. LLEP asked the question, "What business, transport infrastructure, staffing and digital support would the logisticians of the region require for the future?"

The outcome of this initial research answered their questions and enabled the development of their Sector Growth Action Plan report (Lomas, et al., 2015). As a result of the report the researcher found that other issues were raised that affected the Last Mile Logistics (LML) sector and that should be investigated further. The present research project builds on some of the unresolved issues of the LLEP report and seeks to address its outstanding challenges. These issues were coded into categories that led to this research asking the question of how can the LML sector address these challenges? Recent research by Allen, Piecyk & Pitrowska (2018, p. 154) looks at the same-day delivery market in the UK, this research suggests that the future provision of the LML business will be in three different areas. The growth of the next-day economy parcel carriers, new players or existing large and small same-day companies collaborating and finally, retailers increasing their own inhouse same-day deliver operations. These suggestions relate to change and growth and in view of the increase of online shopping and the expectations of sector growth, research has identified a gap in the knowledge of how does the LML achieve this metamorphosis (Fernie & Sparks, 2019; Hübner, et al., 2016; Lim & Shiode, 2011; Lim, et al., 2018).

Technology has played its part in changing the design of how customers want their delivery and the means by which the LML delivers on those customer demands (CMR, 2018; Dash, 2018; Lim, et al., 2018; Starkey, 2019). The rise of internet shopping technology pre-2000 brought mobility and open access to the consumer (Doherty & Ellis-Chadwick, 2010), which in turn created delivery challenges for the retailer and transport industry (Joerss, et al., 2016). Post millennium has seen a move towards a cashless society with virtual payment systems via online banking and mobile apps, and retailer websites offering shoppers open access to products, as well as payment and deliver services 24 hours a day 365 days a year (Kukar-Kinney, et al., 2009; Rezabakhsh, et al., 2006). The move towards a cashless society has allowed customers to purchase products remotely or virtually, causing some retailers to turn to multichannel selling (Scarlett, 2018; UPS, 2019). Subsequently, retail and end delivery service become interrelated to the overall outcome of customer satisfaction (Nguyen, et al., 2017).

The customer expects to buy something whenever and wherever they wish and for that product to be delivered at a time and place of their choosing, often requesting changes

to the delivery order (Nguyen, et al., 2017). This demand for customer control of the delivery process presents a significant challenge to retailers and LML (Starkey, 2019). In recognition of this new client demand process of delivery (Ye & Lou, 2017), previous research is identified the interrelationship between the retailer and the customer but fails to acknowledge the LML operational model challenges and interrelationship with the retailer and customer (Lim, et al., 2018).

1.2 Background to Express Delivery Sector

To provide further insight to the LML business model this research looks to identify key business models, the customer delivery demands and develop a new business model for the LML sector. The research seeks to understand what influences affect express last mile logistic (LML) delivery companies and explores the influences of the customer expectations for express LML delivery. Research into the benefit of utilising a business model to enhance and combat customer demand changes that will enable the LML business to relate to, evolve, and meet the customer demand chain (Christopher & Ryals, 2014). The research looks at the core delivery model of same-day or next-day delivery and the client chain involvement, as the foundation on which a new business model could be created.

Dunbar (1981) describes how the express courier, a third-party delivering goods on behalf of a manufacturer, evolved from the product grower or manufacturer who delivered their own goods personally. The example given is of a locksmith who walked from his home to Birmingham 11 miles away to sell his product. This locksmith was then asked by others to take their products to Birmingham to sell and by 1914 the locksmith had over 40 vehicles and became a carrier of parcels made possibly by the invention of the motor vehicle (Dunbar, 1981, p. 53). Historically, in particular with reference to the combustion engine and road surface material, the transport industry has been slow to develop with innovation (Barker & Gerhold, 1995; Dunbar, 1981) but after the First World War, individuals recognised the opportunities that a motorised vehicle could offer them. The greater availability, affordability, and accessibility of motorised vehicles meant that produce could be delivered further out from the cities in order to

supply retailers, who would otherwise travel to the manufacturer for their goods. Thus, the delivery service was born. The LML sector is the descendant of this development (Barker & Gerhold, 1995; Dunbar, 1981; Underwood, 1997). Today the express LML industry can be held to task in failing to recognise the impact of digital technology. With the creation of online shopping the LML business model has been slow to evolve (Anderson & Lee, 2017; Doherty & Ellis-Chadwick, 2010; Weltevreden, 2007).

In the late 1990s retail logistics went through a transformation (Fernie, et al., 2010, p. 895) and saw a 25% sales increase following the dot-com boom. Home delivery continued to grow and it was predicted that half of retail value sales to be delivered to home by 2020 (IMRG, 2017). This proved to be an underestimation, when in 2018 (Dash, 2018) John Lewis confirmed that over 52% of sales were made online and home delivered (Scarlett, 2018).

Take for example the position of customer ‘A’ who wants to make a purchase. ‘A’ only knows that they want a product in their hands tomorrow (this is the delivery point). ‘A’ then chooses a delivery service that the retailer has offered, satisfied that their purchase will arrive when they want it to arrive. The customer does not consider the process the purchase goes through to get to the service or indeed for the service to get it into their hands, the delivery point. The customer just wants the purchase to be delivered. The LML company having collected the purchase, then processes it by core delivery mode, and the choice of either same-day or next-day will determine how quickly the product is delivered. The LML company then makes the delivery. It is during this process that the express delivery business model supports the client demand for prompt delivery. This is the part of the process that this research will consider.

Due to the increased variable modes of online ordering, the customer’s ability to make purchase decisions at any time, increases access to greater number of purchases (Anderson & Lee, 2017). Express delivery is diverse by the nature of goods available to customers, who, without physically viewing the goods, can make a purchase for delivery within any given 24-hour time slot (Nguyen, et al., 2017; Woodhead, 2014; Yuan, et al., 2011). Factors such as the size, weight and timing of delivery all affect the express LML delivery company’s planning of routes (the order in which parcels are

delivered), service levels and profitability. The service was previously known as a carrier, smalls delivery, van delivery or courier, while today it is commonly referred to as last mile delivery, express delivery or home delivery (Barker & Gerhold, 1995; Underwood, 1997; Wilson, et al., 2018). Today, the delivery of goods is on-demand, irregular, subject to size and weight variation, and delivery time and place. A delivery today is one that is made as a result of multiple decisions by multiple influences, which together provide a smart delivery that meets the client demands.

Understanding the complexity of last mile deliveries, with its multitude of actors, means accounting for a multitude of perceptions of the right answer (Ogden, 1992; Parmentier & Gandia, 2017). The use of business models to successfully achieve the balance of service expectations and profitability by the LML business is linked to the core delivery choice of same-day or next-day delivery, of which the customer may not be aware. Both core deliveries are predominantly road-based as the delivery is to a person or place. Table 1 shows the variations of the terms that same-day and next day relate to.

Term	Effect	Customer demand
Same-day	Immediate	delivery after purchase
	Within 2-6 hours	delivery time agreed after purchase
	End to end	one person collection to delivery
Next day	Next day, two - five day	choice of delivery timescale agreed
	Locker	after purchase the customer collects from a collection point or locker location
Same-day & Next day	Click and Collect	after purchase customer collects in store

Table 1: Same-day & Next day delivery categories.

The delivery point is now a client demand multiple choice delivery point that can be specifically chosen or changed right up to the moment of delivery (Boyer, et al., 2009; Braithwaite & Christopher, 2015; Browne, et al., 2014; Chen, et al., 2011; Nuzzolo & Comi, 2014). One suggestion for the solution to last mile delivery is a receptacle being placed at the customer's home (Dell'Amico & Hadjidimitriou, 2012; Hübner, et al., 2016; Song, et al., 2009) that receptacle being a secure box to which the express delivery company is given the access code. Retailers are also using click and collect as a solution (IMIMobile, 2016; JDA Ltd, 2016) but that may change in the future as AI Robotics and drones gain greater flexibility (Servoz, 2019).

A better understanding of the issues that are likely to impact LML business, in providing a cost-effective, flexible, on-demand, and reliable delivery service to online consumers via direct order or through a retailer (Braithwaite & Christopher, 2015; Browne, et al., 2019; CMR, 2018), is required to fulfil the speed and changes in customer demand (Allen, et al., 2018; Chillman, 2018; UPS, 2019).

1.3 Research Aims and Objectives

This research will address three main aims: understanding the current business modelling of a leading UK Express LML delivery sector; customer demands on the LML delivery service; leading to the key question, of which, if any, of the business models can become an innovative solution for challenges faced by new express LML delivery.

1.3.1 Research Aim

The aim is to develop a new business model concept for UK Express LML delivery industry, to help modernise and minimise inefficiencies.

This research aim will be considered through the evidence of current research from data analysis of survey and sector interviews, looking at the evolving trends and themes created by client expectations (Chapter Four). The results contributing to a business model that would assist the LML sector to tackle uncertainties of the customer demand

chain (Christopher & Ryals, 2014) and minimise business inefficiencies. The business model concept typically describes creating value based on the logic of value proposition (Laasch, 2018, p. 158), but this research will build upon that ideal to include other dimensions like the customer and innovation (Baden-Fuller & Mangematin, 2013).

Research involves critically identifying the key operational and business models that articulate the structure of the UK's last mile delivery industry. The LML delivery sector is recognised as a global as well as a national service, but this research is restricted to understand how the LML sector delivers within the UK only. Primary resources, data capture, and the LML delivery service reviewed are all located in the UK. The research will begin by identifying the most common operational and business models used by the LML sector in the UK and will be evaluated through critical process and systematic review.

The research aims to clarify which, if any, express LML delivery business models are in place and how the choice is influenced by a third party, i.e., the customer or retailer. The research will evaluate the customers perspectives on expectations of LML delivery service, as well as comparing and evaluating if LML delivery service meets customer expectations. Lim (2018, p. 327) suggests further research means 'consolidating the body of knowledge for the LML sector' to understand the effects of consumer driven ecommerce on the LML sector. This research also introduces the knowledge of the customer demand chain (Christopher & Ryals, 2014) and its influence on the LML sector, with the intention of understanding how to identify and adapt a modern business model to reflect multidimensional platform that the customer demand chain expects to engage when making a purchase (Funari, 2015; Parmentier & Gandia, 2017).

The objectives of this research will be determined by:

- Review Literature
- Conduct Interviews
- Survey data collection
- Analysis and critique findings
- Conclusion

1.4 Research Philosophy

The methodology chapter provides the rationale for the research methods and approach adopted in this study. Firstly, it explains the research philosophy in the context of LML delivery research, which to date is dominated by quantitative survey research that is conducted in the positivist paradigm (Holdorf & Haasis, 2014; Mangan, et al., 2004; Naslund, 2002; New & Payne, 1995; Yin, 2011). The advantages and disadvantages to this method and the reasoning of using the mixed method approach in a positivist paradigm are also discussed. A Research Flowchart (1) as part of the research design describes the information flow and order of the data process to a conclusion and later in the methodology chapter, the research process is linked to the aims of the research (Table 11).

Since the 1980's studies have shown logistics research predominantly in the positivist paradigm which has been led by the influences of the authors of USA publications like Harvard Review and Strategic Management (Morgan & Smircich, 1980; Teece, 2010; Trautrimas, et al., 2012). Naslund (2002, p. 328) suggests research carried out through a qualitative approach will identify differences through observing actual events leading to evaluation of the variable effects on a concept. Wall et al (2017 p.101) argues that whilst positivist research in the field of business is criticised for promoting 'novelty rather than truth' the same can be said for interpretative philosophy, which is 'ill-served due to constraints of comprehension, that may give the illusion that organisational research represents settled science'. A critique of positivism is that research/science cannot be value-free. This is a critique because positivism assumed to be value-free because it is 'scientific and mathematized', the argument against this is that they cannot provide value-free results. (Adams St. Pierre, 2012, p. 484). Therefore, this research utilises a mixed methodology to support the understanding that data collection and interpretation can be carried out in an objective way, using quantifiable observations, and data that leads to statistical analyses (Thompson, et al., 1989).

The aim of the research is to develop a business model for the LML delivery industry. Therefore, it draws on the most accessible and complete source of knowledge thereof, which are the people in the industry. The industry is modern, young in comparison to age-old professions like accountancy or medicine and was in its infancy circa 1970. The
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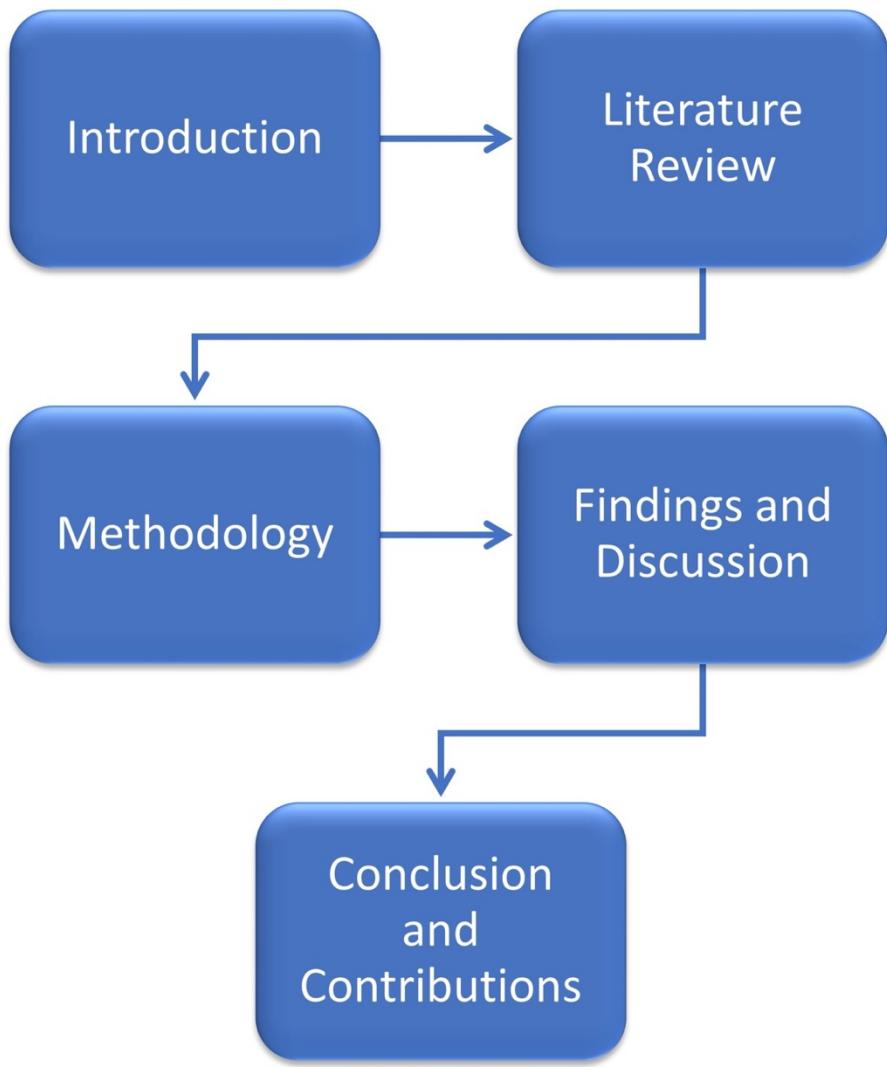
industry was built up through a network of individuals without qualification or structure until 1990's when professional qualifications were brought in. It was well into the millennium before both the industry itself and its customers came to accept this professionalism (Premium Rush, 2012; Lomas & Worth, 2006; Smith, 2019).

Before conducting this research, the researcher understood the importance of a positivism paradigm and the potential benefits (Naslund, 2002). Recognising that the sector is rich in people and knowledge and that little research had been done on the subject (Lim, et al., 2018) lead to this study based on concepts, theories and established rules (Trautrimas, et al., 2012). The positivist paradigm utilises the skills available by the researcher and the researched through a design of mixed methodology.

1.5 Research Design

Mixed methods have been used in this research, including quantitative surveying, qualitative interviews through longitudinal immersion and a literature review. The above has been broken into five stages (Flowchart 1).

- 1) Introduction
- 2) Literature review
- 3) Methodology
- 4) Findings and Discussion
- 5) Conclusion and future research



Research Flowchart 1: Research Design

1.5.1 Stage 1. Introduction

The LML sector has gained momentum since the millennium due to the technological changes that have engaged the public by giving them access to mobile, direct shopping via the internet (Greenlight, 2018). This technology allows customers to access retailers anywhere, anytime, so long as they have access to the internet, be they at home or on the beach (IMRG, 2019). The customer has choices, ability to control how and when they buy and when or how they want their delivery. This thesis will look at the LML delivery process to understand if there is a new business model that the sector could operate with to meet these new customer demand challenges.

The choice to use a mixed methodology research was based on the nature of the LML sector, a wealth of knowledge, and the researcher's ability to conduct the survey and

interviews. When accepting that within logistics, humans play a very active and engaging part of the process, the suggestion by Morgan & Smircich (1980, p. 498) that both quantitative and qualitative methods have a part to play in research, is illustrative. In the methodology chapter, the five stages of research are explained from preparation for data collection, literature review of current operational and business models, data collection processes, the eclectic coding methods (Saldaña, 2013), the interview selection and structuring to examine relationships (Saunders, et al., 2016) to the evaluation of the findings, and it concludes with the researchers goal of a new LML business model.

1.5.2 Stage 2. Literature Review

The literature review moves through the history of transport to the modern express LML delivery sector, the importance of the relationship with the customer and how they became the influencer, transforming what was previously was a supply chain process into a customer demand process (Christopher & Ryals, 2014). By comparing business model concepts, the literature review demonstrates whether the current model is fit for purpose (Baden-Fuller & Mangematin, 2015; Braithwaite & Christopher, 2015; Demil & Lecoq, 2015; Teece, 2010). The evidence of modelling will be evaluated against the needs of the customer and how the relationship affects the model (Accenture, 2016; Christopher & Ryals, 2014; Farahani & Rezapour, 2011; Fernie & Sparks, 2019).

The increased accessibility of online shopping for the customer can be related to the digital and technology innovation that now challenges the LML operational and business models (Accenture, 2016; Barclays Bank, 2014; IMIMobile, 2016; Stewart & Zhao, 2000; Weltevreden, 2007). Therefore, this research looks to develop the use of a technological platform as a concept for the LML operational or business model supporting the argument that technologies should be embedded in the service, as part of the process to creating a value-based relationship (Teece, 2010, p. 173).

Understanding the business models currently used and how to evolve these models for future implementation by LML is key to this research. The literature review has established that a qualitative and quantitative research method, using longitudinal immersion of sector research, will ensure a robust process to analyse the

implementations of express delivery strategy within the LML industry (Buchanan & Bryman, 2015; Cresswell, 2013; Marsland, et al., 2005; Teece, 2010).

The traditional business models which are still in use today are challenged by the evolution of digital mobile technology and it is the digital innovation that provides possible solutions, as well as challenges, to achieve a new business model. Being innovative with the LML process the research identifies the benefit that value-added concepts can have on a business model.

The act of delivering goods has, since the Napoleonic era, been about supply but since the millennium and the arrival of digital technology been reversed to be about demand (Christopher & Ryals, 2014; Lim, et al., 2018). The express LML delivery sector has been at the core of this change and is the agile provider to this demand. Identification, recognition, and a common understanding of the LML express sector will allow the sector to identify with the business model that fits its agility.

1.5.3 Stage 3. Methodology - Customer Longitudinal Survey

It is widely accepted that external influencers, both positive and negative effects, are shaping the UK LML delivery service (Allen, et al., 2012; Christopher & Ryals, 2014; FTA: Freight Transport Association, 2014; Joerss, et al., 2016). The creation of national and local regulation is influencing which vehicles the LML can use, when, and in what capacity (Birmingham City Council, 2014; Dept for Transport, 2019; Greater Manchester Combined Authority, 2016). Public opinion influences government policies informing environmental and urban aims to improve communal health and the environment, which in turn challenges the current LML operational and business models (Air Quality News, 2018).

As global technology has catapulted the expectations of the customer's requirement for flexibility and control of the final delivery destination so this research looks to understand the various customer demands imposed on a single delivery and how the LML sector can rise to meet those challenges (Chen, et al., 2011; JDA Ltd, 2016; Nguyen, et al., 2018; Rezabakhsh, et al., 2006; I3, 2018; Starkey, 2015; Weltevreden, 2007). The customer longitudinal survey was carried out over a five-year period (2015-

2019) using the survey monkey online platform. Surveys were collected face to face with participants within a logistics environment: collection points at trade shows where attendees were likely to be connected to the transport industry but were considered as an individual and customers using the delivery service (Cresswell, 2013; Denzin, 1995). This longitudinal survey collected over 4,000 participants completing the research survey questions asked. The survey was carried out to understand the relationship between the customer and the delivery service which has become the customer demand chain (Christopher & Ryals, 2014).

Previous public perception of market trends suggested that the speed of delivery was important, that the customer is not interested in paying for the delivery and they want the ability to return goods free of charge (Barclays Bank, 2014; Capgemini Research Institute, 2019; IMIMobile, 2016; UPS, 2015). Collected data was formatted using ordinal data formatting and numerical values (Saunders, et al., 2019). The analysis and presentation of the results used bar chart tables clearly showing the value of each answer.

The results from this research showed considerable changes to the customer satisfaction and customer perception of a successful delivery.

1.5.4 Stage 3a. Methodology - LML Sector Interviews

Earlier in the introduction the history of this sector was explained as a young, modern industry that derived from the transport logistics industry but has now become a key part of the critical infrastructure to the UK economy (Dept for Transport, 2019). This newly acquired acceptance should be developed. Further research in all areas of this sector which will benefit those who work within and support this sector (Allen, et al., 2018; Lim, et al., 2018; Naslund, 2002; Perboli, et al., 2017; Zetes Transport and Logistics, 2019).

The common customer understanding of the express home delivery is: ‘a delivery to their door, delivered to their hands or to a safe delivery place, like a neighbour’ (Capgemini Reserch Institute, 2019). Whatever the definition the LML sector chooses (Allen, et al., 2018; Lim, et al., 2018) it must accept that with the rise of mobile access

to online purchasing, the customer is demanding more and more communication and control over their delivery (Accenture, 2016; IMIMobile, 2016; JDA Ltd, 2016; Next PLC, 2016; Snow Valley Report, 2011; Starkey, 2015; UPS, 2015; Woodhead, 2014). Customer expectations, like communication, are highlighted in the survey results. If customer expectations are not met the LML company will need to be innovative in their ability to meet customer demand (Hsiung & Gunning, 2002). The survey results go a long way to revealing the actual customer demand chain and how a business model can rise to meet those challenges.

The interim analysis of the customer longitudinal survey, in 2016 and 2018, provided the basis for questioning in one-to-one, semi-structured interviews with directors of CitySprint Ltd and other LML companies discussing external and internal effects on the organisational business model. Understanding that a business model relates to the human activity (Casadesus-Masanell & Heilbron, 2015) and the operations model to the process (Braithwaite & Christopher, 2015) in which the business model is implemented, helps explain why businesses and operational models are integrated. CitySprint Group is a UK same-day express delivery company, and their business model focus is on innovation, creation, and delivery, which represents both human activity and process (CitySprint Group, 2018).

The interviews were carried out in two sections. First, the purposeful sampling of CitySprint, which enabled full access, time and information from four board members. Second, convenience sampling from the wider sector and industry relating to LML, enabling the researcher to validate or challenge the data from CitySprint (Etikan, et al., 2015). This method of longitudinal, immersive research facilitates a deep and practical as well as theoretical understanding, which can transform the LML business model as a concept and transform the way it operates in the world as material reality (Wall, et al., 2017). This research looks at how the LML sector can integrate business and operational models with the customer demand chain, which needs to be done on multiple levels.

The primary company selected for this research is CitySprint UK Ltd, a small-medium enterprise (SME), same-day express delivery company. The company is young,

emerging in 2001 from a management buyout of three other courier companies (Delta, Security Dispatch and West One) and its central ethos, remerging from its core values, is customer experience. These values include but are not limited to: delivering value when it matters, real time tracking, and choice of priority courier or contract service.

CitySprint was chosen for the primary interviews due to being an LML company that operates UK wide, competitors in the same sector vary from international, regional and locally owner-managed companies.

Senior boar (CitySprint Group, 2018, p. 7) believes ‘change in our industry is a constant, we’re yet to see the complete transformation of the traditional logistics sector to one that is fully shaped by consumer demand and underpinned by bespoke technology.’ These views represent a clear vision of a business model that focuses on relationships, market position and technology. This company believes that they will lead through technology, providing a Fast Flexible Final Mile (delivery) that delivers their service, and the added value of which they believe will be perceived by customers (CitySprint Group, 2018, p. 13). The concept of the business model is related to the operational model of Innovate (input), Create (what they do) and Deliver (outcomes).

One interviewee, CitySprint Marketing Director (I1, 2017) suggests that today, ‘the customer who is looking to buy a product online view the website and wants to know how the purchase is going to be delivered.’ The customer longitudinal survey results suggest that LML companies are not consistently meeting these demands. Moving forward, however, CitySprint believe they can adapt, evolve their services to match that of the client demand chain.

1.5.5 Stage 4. Findings and Discussion

Two key influences are identified in this research as affecting both the customer, someone ordering or agreeing to a service provision, and the end user, someone who is in receipt of the delivery. The new customer demands, which the express last mile delivery model need to address, are ‘customer control’ and ‘technology’ (UPS, 2019) – customers expect to have control and the ability to use mobile technology for their delivery. These issues challenge the current LML business model to match the

customer's expectations and are described as both physical and virtual issues (Anderson & Lee, 2017). Identifying that customer expectations are linked to accessibility through technology, the LML business model must adapt or create the process to meet the physical delivery and technology capabilities that require multi-platform technical and management skills.

Understanding that e-commerce is intrinsically linked to the effectiveness of their logistics processes (Daugherty & Others, 2019, p. 23), the findings highlighted that the retailer who uses the LML service must match customer expectations also. The survey findings suggests that the customer wants more information, commitment and adherence to agreed delivery times. The 2018 survey results showed 87% agreed or strongly agreed that the customer wanted a timed delivery, meaning that the customer wants to know when the parcel will be delivered.

Customer perceptions and expectations have changed as new technology emerged (Accenture, 2016; Capgemini Research Institute, 2019; Chillman, 2018; Kukar-Kinney, et al., 2009) and therefore LML business model concepts must equally adapt (Dablanc, et al., 2017).

The findings of this research identify that value-added and value-capture concepts are the catalyst for challenging change in a business model. The connection of the brand product, retailer, supplier, customer and end user reinforces the aspects of ambivalent value (Baden-Fuller & Mangematin, 2015, p. 5) and the necessity for the LML to reevaluate the business model implementation (BMI) process. Furthermore, data findings and literature research highlight that customer communication and interfacing are important to the new age, millennial customer (Daugherty & Others, 2019; IMRG, 2019), which suggests that the LML business need to achieve greater mobile and agile technology integration (Ask, 2016).

Whilst these two issues of customer demand and technology are critical for the customer, other issues to consider for the LML are legislative and government regulations that constrain company freedom (Birmingham City Council, 2014; Greater Manchester Combined Authority, 2016; Transport for London, 2019). Legislative and

regulatory enforcements are important to the LML sector but are not reviewed in depth in this research.

The findings of the survey and LML interviews describe how communication and the ability of the customer to control information flow and delivery requirements are met by the implementation of technology (Douglas, 2017; I4, 2015; I1, 2017; Starkey, 2015). LML companies agree that there is a need to increase technology integration of the business model (I1, 2017; I3, 2018). The current operational and business models of the primary and supplementary LML sector identified in this research reveals a lack of consistency for the integration of customer and technology in the processes of providing value to the customer. Baden-Fuller (2015, p. 420) identifies value chain linkages as one of the four key characters to a business model yet we do not see the customer or technology linked in the business models of Braithwaite and Christopher (2015) or Demil and Lecoq (2015) but we do in Teece (2010, p. 173) where the description includes ‘create value for the customer’. CitySprint’s ethos and key concept to their business model is the customer (I4, 2015; I1, 2017; I2, 2018; I3, 2018), the ability to identify and adapt to the customer demand chain is not only when the LML business is capable of creating value for the customer but when the LML is capable of giving the customer an interface with the process (Baden-Fuller & Mangematin, 2015).

Research suggests that a business model is neither owned nor created by a company, but it is a concept (Rumble & Mangematin, 2015). This research suggests that as an emergent sector, a new LML business model concept, which could meet the nuance demands of a new era customer, should be sought (Accenture, 2016; Lim, et al., 2018; Perboli, et al., 2017).

1.6 Stage 5. Conclusion and Contributions

Initial research highlighted that the industry was not well defined, publicly mis-aligned with common understanding of what the LML sector is responsible for. This lack of definition has been an obstacle to academic research but has recently received greater attention (Lim, et al., 2018). Research interviews confirmed the definition of LML as

'the delivery of a purchased product or service to the customer's chosen delivery point' (I1, 2017).

The research aims, to clarify, understand, and develop a business model concept, was achieved using mixed methodology of qualitative and quantitative elements. This method is a proven means of research within the social sciences, including disciplines such as logistics (Allen, et al., 2018; Berg, 2007; Bryman, 2016; Cassell, et al., 2018; Cresswell, 2013; Da Mota Pedrosa, et al., 2012; Fernie, et al., 2010; Frankel, et al., 2005; Naslund, 2002; Teece, 2010), and was the most viable method for the researcher to undertake, having direct access to the sector. Quantitative survey results were used to inform the qualitative, semi-structured interviews carried out on the needs and uses of business modelling for the LML. Open questions were used more in the convenience sample interviews to achieve a wider understanding of the LML business model. These confirmed that a business model alone was not dominant at board level but a combination of the business and operational model was the driver of the company business strategy (I4, 2015; I6, 2017; I1, 2017; I3, 2018; I7, 2019).

Previous research in the wider sector of logistics has concluded that the traditional transportation role has transcended to a role serving customers strategic needs through technology (Chapman, et al., 2003; Wagner & Sutter, 2012), using a triangulation of technology, knowledge, and relationship networks to offer added value to the customer. The primary interview company CitySprint, uses a three-way model similarly to simulate innovation, focusing on three elements of innovate (input), create (what they do) and deliver (outcomes). This example of a LML company business model supports the hypothesis that the LML industry would benefit from a business model that more closely meets the customer demand by using integrated technological processes.

The aims and objectives in this research have been addressed through the research of customer demand and the LML service for delivery of online purchases. The outcome of understanding and developing a business model concept for the UK LML industry is achieved.

1.6.1 Research Evaluation

One known external influence on the current operational and business model is the effect on the environment. The use of combustion engine vehicles contributes to traffic congestion, CO₂ gases and negative environmental and humankind impacts (Browne, et al., 2019). With an increase in this dominant mode of LML delivery, the government and local authorities will be required to minimise the impact in towns and cities to accommodate the population's preference of home delivery. London and other major cities have already created Low Emission Zone, Ultra Low Emission Zone and Clean Air Zone's, as well as scheduled freight delivery within high population areas (Birmingham City Council, 2014; Greater Manchester Combined Authority, 2016; Transport for London, 2019). Although this reflects briefly on the effect of these policies, they are considered beyond the remit of the present discussion. Further research on the specialist subject is advised (Nilsson, 2019; Transport for London, 2019).

The analysis of longitudinal survey data in this study reveals whether, and to what extent, customer demands of the LML sector are currently being met. Over 4,000 participants over a five-year period provided comparative data for robust analysis (Marsland, et al., 2005; Nardi, 2018). The argument against the robustness of these findings include concerns over the demographic and geographic diversity and participants, limited by the survey collection points. This evidence challenges the argument of demographic and geographic diversity as there is no requirement to verify a participant's position since the service being studied, LML in the internet age, is accessible anywhere by anyone.

The primary LML company chosen was CitySprint because this company met the considerations of this research. The choice was related to access and availability but also based on the relevance that CitySprint, as an independent UK owned LML business, had for the research aim to understand UK LML business modelling. Yin (2011, p. 48) suggests that 'the case study may represent a "typical project"', meaning that if CitySprint represents a typical LML UK delivery company then what is established can 'assumed to be informative' about the average LML business. Myers (2013, p. 78) expands that a 'case study in business' is synonymous with the study of a

particular aspect within the business and does not have to include field study or observation. This research intends on understanding external effects and influences on the LML express delivery sector and which business model, whether current or new, would be best suited to combat those effects. The research is not looking to ‘compare’ across case studies (Gustafsson, 2017; Yin, 2011).

This research accessed a single UK organisation that offered a deeper understanding to the issues discussed through the evaluation of different sources from within the company (Yin, 2011). The customer longitudinal survey provided robust data for analysis that identified areas of customer demand that affects the decisions of a LML business. For a business to avoid making the wrong decision, the business model concept creates a process for evaluation. The aim of this research is to offer a UK LML business model.

Baden-Fuller and Mangematin (Baden-Fuller & Mangematin, 2013, p. 418) argue that causal links between the elements outside and inside the organisation are the drivers of a successful business model. The organisation needs to harness the power of the internal elements, those elements, for instance, that CitySprint have direct control over. Innovation of the business model concept by those internal elements people, technology, costs and profit margins, will deliver or create more value for the customer therefore, the need to innovate is to harness connectivity (Bask, et al., 2010; Lim, et al., 2018; Teece, 2010). No one business model can be successful, as it is argued that a business model must make progressive refinements over time to become efficient (Demil & Lecoq, 2015). The service innovation emerges through the progression of a company thinking like the customer and thus being able to ‘produce an outcome that surpasses customers present expectation of superior value’ (Chapman, et al., 2003, p. 646). The Parmentier and Gandia (2017, p. 54) multi-sided platform architecture provides a model which, with refinement, will harness connectivity between all parties of the LML express delivery customer demand chain and thereby create innovation that surpasses customer expectation.

The researcher acknowledges that ‘no research method is perfect’ (Myers, 2013, p. 250) and this research may fall short, but the process, reliability and validity of the data offers the reader a basis of which they can decide if the research is valuable to them.

1.6.2 Covid-19 Pandemic

At the end of this research an unprecedented world pandemic erupted and had an astonishing effect on the LML industry. Whilst the medical effects of this pandemic are a different story, the effect on the LML was positive. When the prime minister of the UK, at the coronavirus press conference from Downing Street, 22 March 2020 said these words: “STAY AT HOME AND SAVE LIVES”. The population of the UK were suddenly unable to go out to purchase everyday items or supplies; unable to go to the office; to provide aid to their elderly relatives; to meet friends; or go out for entertainment. In terms of the LML, more people required a larger number of items to be home delivered. Within three-months of Covid-19, the industry grew in one year to the levels it was expected to reach in three (Royal Mail, 2020). The immediate effect was the increased awareness and acknowledgment of the importance of this sector to government and the public, which has and will increase the interest for further research.

This research does not cover the reach of the pandemic, but the re-thinking of the LML future is discussed in this chapter. The urgency of medical, office, and personal needs to be delivered home provoked the government think tank, Cabinet Office Briefing Room (COBR) to ask the industry to help solve the life and death issues that were quickly emerging. The researcher created the mapping of the LML industry (Figure 33) to better understand, what resources were available within the industry at this time and how it may be possible to achieve a co-ordinated and cohesive delivery for the nation’s medical needs. The result became the co-ordinated delivery of Covid-19 mass testing (The Delivery Group, 2020).

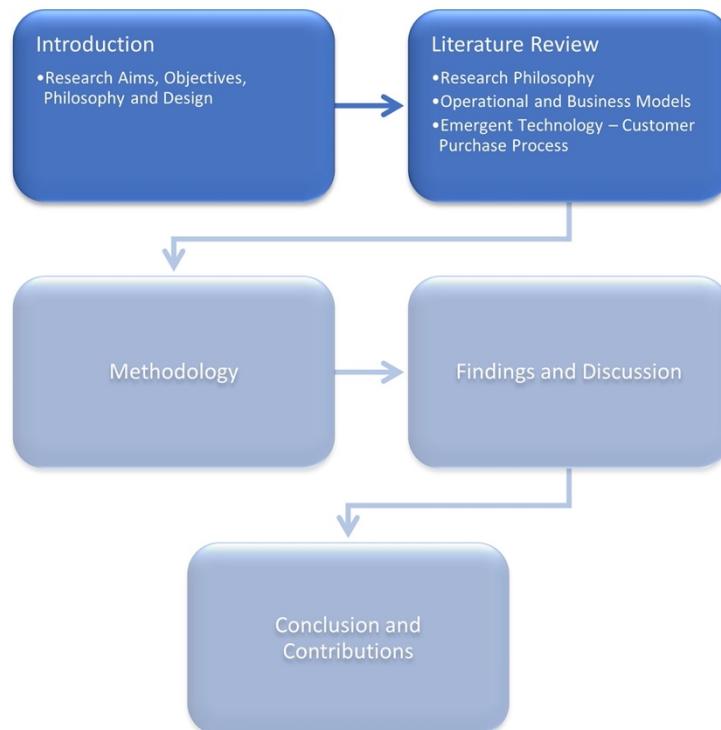
Through the collaboration of multiple LML companies an otherwise unattainable goal was achieved. This process of collaboration and co-resource working is part of the multi-platform LML business model suggested by the researcher, which a LML company can use to provide solutions to current and future challenges.

In conclusion, this research is validated by the review of leading LML professionals. Having provided a five-year longitudinal customer survey for the LML sector, never previously carried out, utilising supporting data collected from those who lead the UK LML same-day express delivery market, this research provides a UK LML business model concept that will meet the needs of customer demands whilst offering innovation processes to the LML company. I1 (2017) suggests that in order to understand the customer and meet their demands, a business model must provide guidance and inspiration for board members to focus on. “Utilising a business tool that focuses the aims of a company to reach out and create new relationships to deliver the service product means that the business can be creative, innovative and can measure the added value benefit to the business.”

2 Literature Review

The chapter opens with a short history of the Express Delivery industry, explaining where the industry evolved from. Barker & Gerhold (1995) tells us that the individual who can innovate to meet a yet unknown demand, will prevail. “A rich prize awaited anyone who could mechanise the shorter-distance road transport as steam railways had mechanised that over longer distances” (Barker & Gerhold, 1995, p. 52). When the horse and cart still provided the short distance transport delivery, a new shorter-distance customer demand not yet known at the time was met by the innovation of the combustion engine. A lack of definition of this industry, has this meant attributing or understanding the characteristics of industry was difficult to assess, Lim et al (2018) brings clarity to this and the current industry is explained further.

Research flowchart 2 outlines this literature review and provides a summary of the introduction, setting the stage for subsequent chapters.



Research Flowchart 2: Literature Review

Manners Bell (2014) believes that the express industry provides a fulfilment for a faster more reliable service, as opposed to overnight, two or three-day service. Operational and business models are explored to explain the current different modes of express delivery on offer. Elements of these models provide an understanding of what is currently available and how they support the LML operational model. Braithwaite and Christopher (2015) supporting ‘five parts’ for a business model, alongside other models (Baden-Fuller & Mangematin, 2015; Demil & Lecoq, 2015; Teece, 2010). Each model describes different elements that are needed to create the added value for the customer. The value and gaps of these models are explored further and a new model, based on Parmentier and Gandia (2017) is created for the LML industry.

2.1 Introduction

Barker and Gerhold (1995) reflected on the rise of the steam engine which gave reliability and economy of use to long distance freight delivery. The same could be achieved for the mechanising of the shorter distance on the road; for example, a motor car would revolutionise the ability to transport goods over a short distance for last mile delivery, and so it happened with the mass production of motor vehicles to meet this demand. Similarly, Stewart and Zhoa (2000, p. 287) claim, ‘the web is a revolutionary new medium that has far reaching scope and potential; the customer is becoming the centre of the entire business universe’. The evolution of customer demands, the choices of when, where and directions for delivery, and fluid ongoing changes to these instructions place as much influence on a company’s business model as the innovation of the technology that both the customer and Last Mile Logistic companies (LML) use. The availability for internet connection, mobile devices and applications, and data or money transfer gives the public the ability to connect to retail without going to a physical shop (Daugherty, et al., 2019). This innovation is the same revolutionary process as mechanised cars were to short distance delivery. The technological growth and mass market access to the mobility of information has enabled the delivery process, which was the supply of goods to the customer through a retailer to the current process of virtual purchase to a chosen point of delivery.

2.1.1 History of the Express Delivery Industry

The earliest mention of express delivery or same-day courier, or even the use of small vehicles, comes in 1934 with the co-ordination of Hutchinson's transport service, Red Arrow Deliveries (Dunbar, 1981). The concept of express delivery was known then as a delivery and distribution service, but not in an instant way as delivery times were counted in days not hours. Prior to this era, canals and railways had been the focus for the delivery of large or heavy goods, with smaller items going by road. Organised local deliveries were carried out as early as the 1700s, described as journeys of 30-mile radius being drawn by three little horses (Dunbar, 1981). The growth of road transport came with the population and urban growth of cities like Manchester, Liverpool, Birmingham, and Glasgow. In 1700 the average population in each of these cities was around 10,000 but by 1841 it was closer to 250,000 people. The transport of smaller items took to the road, as this gave the customer the choice of greater speed and reliability, even though it cost more than traditional water or railway transport methods (Barker & Gerhold, 1995).

It is difficult to assess the growth of urban transport as the subject has historically been neglected (Allen, et al., 2013; Barker & Gerhold, 1995), with the rise of the combustion engine in 1876 the road vehicle gave the customer a wider choice of transport mode (Dunbar, 1981; Lawson, 1998). However, three influences were evident that provided the customer with a model on which to make their delivery decision: 'The first was to establish if there was a suitable water transport option for the delivery. Second was the relationship between weight and value of goods. Thirdly was the urgency of the delivery required', noting that today, three influences on a customer's choice are still at the core of the LML industry (Barker & Gerhold, 1995; Dunbar, 1981). As the growth of population placed demands on the need for more frequently and more reliably delivered goods so the motorised vehicle in 1905 had the ability to move goods more efficiently by road. This meant that a local producer of products could sell its goods further away than the local economy, thereby selling more products, becoming more profitable and servicing more of the population.

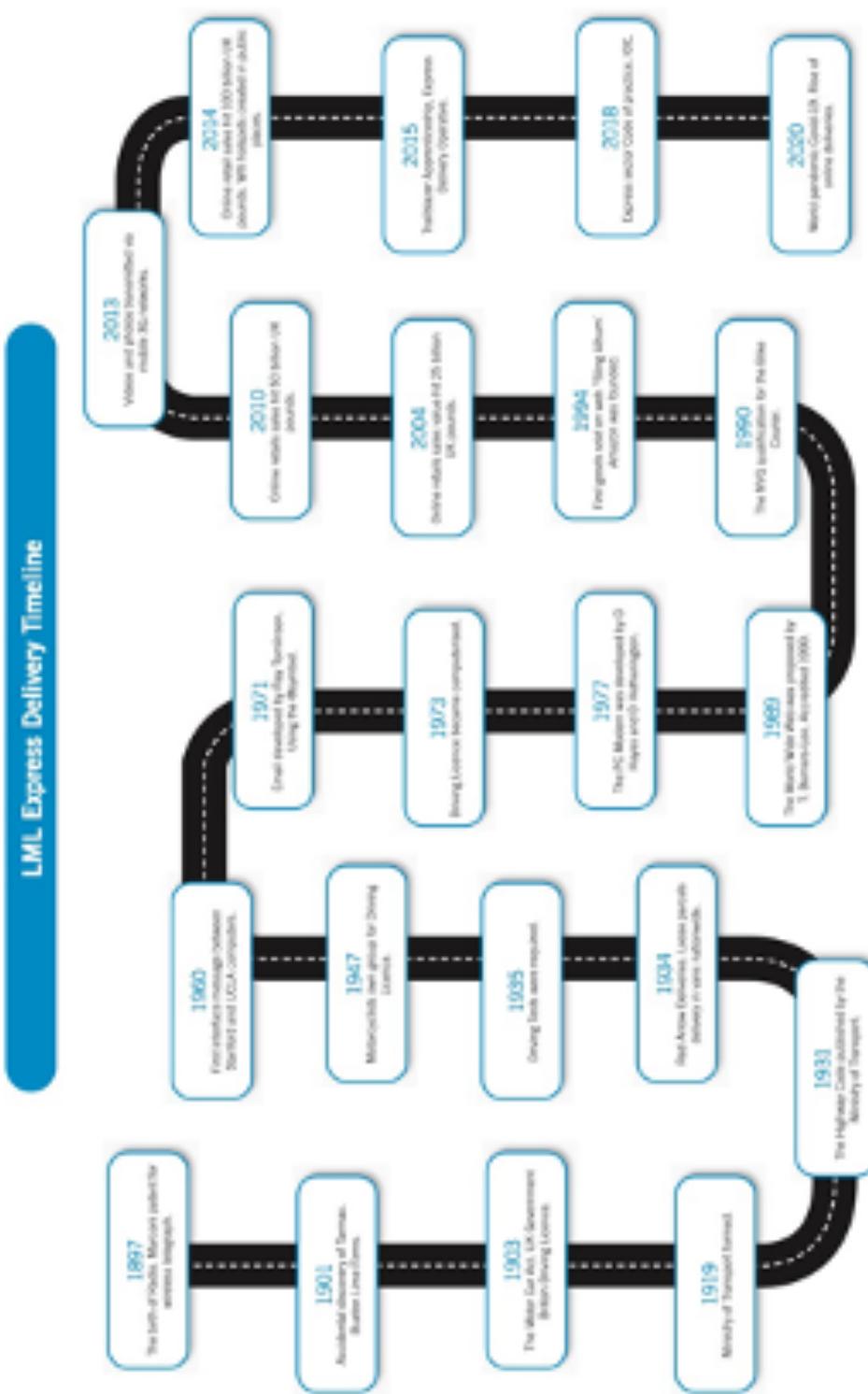
The growth of the road delivery service was enabled by a multitude of infrastructure changes, not just by one single influence of change (Barker & Gerhold, 1995; Dunbar, 1981; Underwood, 1997). The transformation was slow but through a long catalogue of minor improvements and adjustments the road service industry grew. Two of these improvements were the infrastructure and building of road surfaces and the regulation of vehicles and transfer of upkeep costs by the government (Barker & Gerhold, 1995; Tarmac CRH Company, 2018). By building a network of roads, this offered the motor industry the opportunity to provide more reliable vehicles to transport a wider variety of goods. Without the infrastructure and the regulation of the roads, the vehicle industry business would not have built and provided a mass production vehicle. The invention of tarmac meant that roads became smoother and more consistent around the distributing cities that served areas of the UK, and more importantly throughout the whole of the country (Tarmac CRH Company, 2018). This transition of infrastructure gave way to a whole new industry standard for the manufacturing of the vehicle, followed by the government ruling vehicles should be weighed and inspected to a set safety standard and regularised by contributing to the road network, thereby bringing taxation to the vehicle to support more road infrastructure (HM GOVERNMENT, 1933). This standard meant that vehicles being produced were reliable and able to be used across the UK, and by setting a known capacity for each vehicle, it gave users a more reliable distribution capacity.

Minor improvements and adjustments, such as springs on a vehicle or pneumatic tyres, are another example of the expansion of the vehicle industry (Dunbar, 1981). With the innovation of tarmac being laid as an infrastructure up and down the UK, the vehicle industry could create a standard tyre and springs for a vehicle that became reliable over distance, offering a ride for the comfort of goods and for the comfort of passenger transport. Goods, freight, and passenger distribution were services that could be co-ordinated because of the technology providing the means of comfort for a journey over long distances (Barker & Gerhold, 1995; Dunbar, 1981; Underwood, 1997). This influence of infrastructure and technology was the nucleus for the long-distance travel of freight that was of a finished nature; designing delivery to meet the customer's demand for products and services. Later in the discussion chapter the author relates similar issues for the LML with a need to design and meet customer demands. These

adjustments and influences on road infrastructure and vehicle technology are an example of external interaction with a business model, and this interaction will affect the decision of the business as to whether it accepts or rejects the innovation (Baden-Fuller & Mangematin, 2013; Teece, 2010).

In the timeline of its evolution, the industry has experienced both the development of infrastructure and the innovation of technology on multiple occasions, thereby affecting the business model of delivery, Figure 1 (Lomas & Worth, 2006). From handcart to combustion engine (1442-1902), delivery by land and road is reliant on external influences: local business ability or provision of service, who owns the right equipment, who has access to infrastructure or where the demand by customers to use such a service is (Allen, et al., 2018). The growth of shorter distance delivery came with influences on the roads, mass-produced vehicles and a rise in the population's demand for products. The railways also brought increased delivery of items by road, as many smaller towns did not have a railway station in the nineteenth century, so vehicles would be called to the larger railway towns to collect produce or mail, to then be delivered to the rural communities by smaller vehicles (Barker & Gerhold, 1995; Tarmac CRH Company, 2018; Underwood, 1997). In the twentieth century this idea was carried out through the company called Red Star, using the railways to run the parcels long distance and local couriers to collect from the station (Lomas & Worth, 2006).

The carrier was unable to capitalise on the use of modern vehicle technology until after the Second World War, with the investment of wider and more even road surfaces by the Ministry of Transport (formed 1919) (Tarmac CRH Company, 2018). Until this time the growth of the carrier industry was constricted. Today the express industry has failed to recognise the impact that technology has had on the ability for individuals to use online shopping, mobile technology and 24/7 open access to products. Technology has led the way in creating massive growth for the LML delivery industry. This is the vehicle springs vs road network evolution of the digital consumer (Barclays Bank, 2014; Wang, et al., 2007).



Content reference - To modify an existing knowledge. Data collected from government and industry research and academic research, updated on 7 March 2020.

Figure 1: Timeline of Express Delivery (Lomas, 2020).

2.2 Supply Chain to Customer Demand Chain

“The Literature on Last Mile Logistics (LML) models remains relatively fragmented, thus hindering a comprehensive and holistic understanding of the topic to direct research efforts” (Lim, et al., 2018, p. 309).

2.2.1 Definition of Last Mile Logistics

The above cited paper by Lim et al (2018, p. 310), suggests “that without a consistent and robust definition of LML, the design of LML models is problematic”. The previous perception of LML service was as ‘a courier’ (Perboli, et al., 2017, p. 2) but with the digital age and conception of e-retail the client recognises the terms ‘home delivery’ or ‘express delivery’. Either way, the definition of the LML industry remains unclear. Variations include Business to Business (B2B), Business to Consumer (B2C), Consumer to Consumer (C2C) (Fernie & Sparks, 2009, p. 208), and Courier Express Parcel (CEP), described as door to door with a proven traced delivery (Sage, 2001, p. 457). Others describe it in the following terms, “the core business of the express industry is the provision of value-added, door to door transport and deliveries of next-day or time defined shipments, including documents, parcels and merchandise goods” (Oxford Economics, 2009, p. 3). Manners-Bell (2014, p.138) adds the definition: “the express parcels industry fulfilled a need for faster, more reliable services, which also provided customers with an increased level of supply chain visibility”.

In this research the author agrees with and uses the definition by Oxford Economics (2009) and Manners-Bell (2014), taking LML to be an express delivery service that delivers the freight to the client with transparency. The lack of common agreement over the definition of LML does not diminish the contribution of this research (Lim, et al., 2018; Oxford Economics, 2009). The wider, common understanding of delivery as the physical movement of goods, the act of delivering or distributing goods (Harper Collins, 1992, p. 405), is not the specific understanding of LML described as the last stretch of a business to consumer (B2C) parcel delivery service (Lim, et al., 2018).

‘Logistics’ has been used to describe the physical movement of goods as far back as the Napoleonic wars but has since then been adopted by businesses to describe the

provisioning of their goods to clients (Jenson, 2011; Pienaar, 2003; Zeiger, 2018). Supply chain management (SCM) became a widely accepted and respected academic term from the 1980s and describes the system by which goods are processed, ordered, controlled, stored and shipped to the customer. There are other definitions of the term SCM but for the logistics industry it is commonly defined as the transportation and delivery of goods (Hines, 2004; Rhonda, et al., 2001; Robinson, 2014). This is the parent family of the current industry of LML, as the SCM umbrella expands to the warehouse and logistics industry, as well as the transport and haulage industry, and the mail and express delivery industry.

An early description of the last mile delivery, known as a Private Carrier, was described by Dunbar (1981, p.18) as the customer choosing to use the local road delivery versus the use of the canals. The private carriage as a proportion of the whole was more important over shorter distances than long. Dunbar (1981) goes on to explain that light goods of high value was worth sending by private carrier because of its greater speed and reliability. The purpose of the carrier or known today as the LML was to deliver faster, with greater reliability whenever it was called for rather than wait for the routine regular delivery service. The private carrier then and the LML now have the same elements of service to their customer, the LML collects and delivers to the customers demand and satisfaction and is measured by reliability of that service.

Operations of the LML industry grew primarily over two periods, between 1990 and 2010 we saw the birth of the internet and a mobile ability for the public to reach suppliers not otherwise available directly to the public (Barclays Bank, 2014). This end-to-end delivery process became the customer-driven supply chain between 2010 and 2015 (Mulcahy, 2018; Lomas, et al., 2018), and further expanded and continues to metamorphize to a greater multifaceted customer demand chain delivery today. Logistics is essentially a planning orientation and framework that seeks to create a single plan for the flow of products and information through a business (Braithwaite & Christopher, 2015). SCM builds upon this framework and seeks to achieve linkage and co-ordination between the process of other entities in the pipeline, i.e., suppliers and customers and the organisation itself (Browne, et al., 2019). Thus, an example of one goal of supply chain management might be to reduce or eliminate the buffers of

inventory that exist between organisations in a chain, through the sharing of information regarding demand and current stock levels, with the facilitation of last mile delivery.

Hines (2007, p. 59) claims that “the supply chain encompasses all activities associated with the flow and transformation of goods (products and services) from initial design stage through the early raw materials stage, and on to the end user. Additionally, associated information and cash flows form part of the supply chain activity”. These descriptions cover the process prior to LML delivery but do not exclude LML. In Figure 2, the diagram shows the linkage and parts that put logistics and the supply chain together. Larson and Halldorsson (2004) suggests that the linkage is an intersectional perspective on supply chain management and logistics. The wider understanding of supply chain management is as a strategic action and depending on your perspective, a strategic action that crosses all areas of supply chain and logistics enabling delivery of superior customer value throughout the chain. The idea is that when the whole chain works together, the chain is worth more in value than the individual parts (Casadesus-Masanell & Heilbron, 2015).

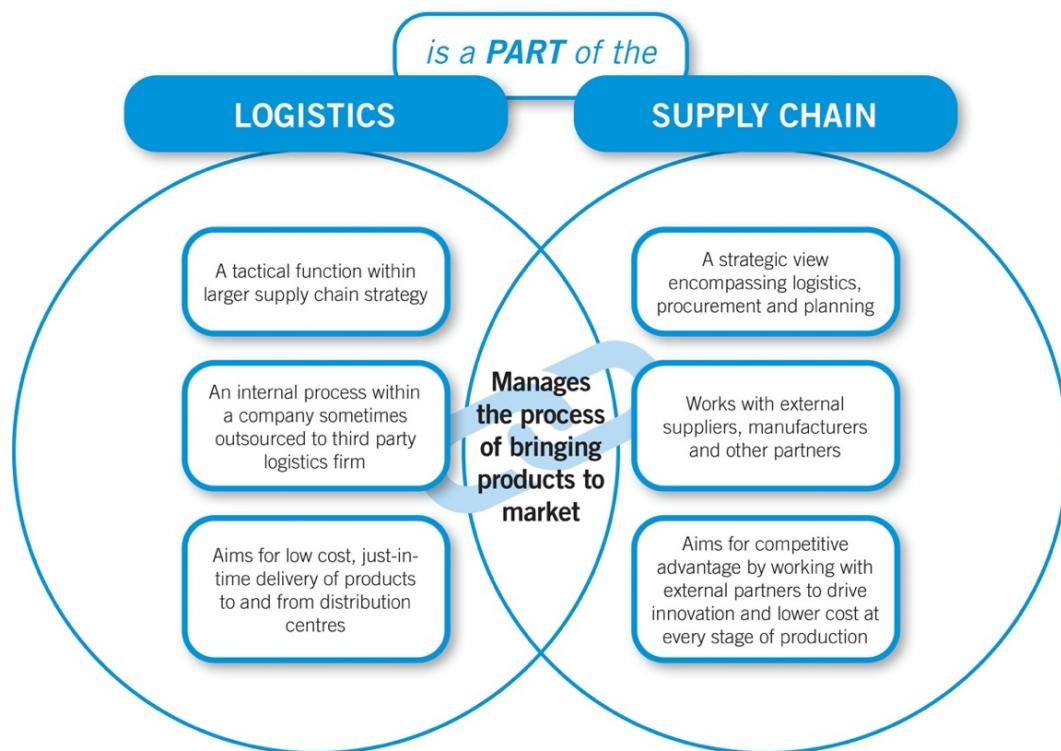


Figure 2: Logistics part of supply chain (adapted Argentus, 2017).

Manners Bell (2014, p.138) introduces the concept of express delivery as discussed in the review of the Origins of Express parcels saying, “the express parcels industry fulfilled a need for faster, more reliable services, which also provided customers with an increased level of supply chain visibility”. Express has enabled and benefited from trends such as globalisation, e-commerce, lean inventory, management, Just in Time and customisation of mass production”. The LML delivery is always carried out by road, but the vehicle chosen can be a car, van, motorcycle, pedal cycle, electric cycle or even a pedestrian walker. Each of these modes will have a different carrying capacity, varying by number of parcels, size, and weight.

In 2001, Express Delivery was considered a collective term and comprised of three concepts 1) courier service, 2) express delivery service, and 3) parcel delivery service. At the time considered part of logistics (Sage, 2001, p. 457), since 2010 Express Delivery has been recognised as a major function in its own right (Teece, 2010). However, both the academic and business world accept that there is a need to adopt a more holistic view of those different operations (Browne, et al., 2019; Zetes Transport and Logistics, 2019). Acceptance and recognition by the public has been influenced by the technological advances that have led to the customer demand chain. In response to public recognition of the industry, a variety of media has been produced about it, including news reports and films (The Courier, 2012; Butler, 2019; Premium Rush, 2012; Moss, 2019). Wide recognition adds value to a service or product (Jevons, 2005), as for instance in the case of ‘hoover’, which has come to be used as a generic term for vacuum cleaner though it is in fact a brand name (Taylor, 2005, p. 74). When this common acceptance of a service/brand is advertised, the customer expectation is reflected as that common acceptance. For example, when a customer needs a hoover, they may buy a Hoover (brand), even when they may not actually want that specific brand but just require the product.

The relationship between the retailer and LML is for the benefit of the customer and in particular the added value created by the supply chain. When working together as in the case of online purchases for delivery to the customer, the retailer and LML are required to work together to meet the customer demand (Baden-Fuller & Mangematin, 2015; Braithwaite & Christopher, 2015; Daugherty, Bolumole, & Grawee, 2019). Unless the

retailer chooses to disclose such details, it is not always clear to the customer who is providing the LML delivery. If the LML delivery service is neither chosen nor known to the customer, the customer may believe the LML delivery is part of the retailer or product brand. This raises the question of who owns the delivery process (Advantec, 2017; CMR, 2018; Zetes Transport and Logistics, 2019). Both retailer and LML share partnership values and are affected by external influences on their service provision. This research looks for answers to understand where the customer value is within the LML, so that a common understanding can be reached.

2.3 Delivery Models

Retail logistics started when manufacturers needed to get their goods to market for sale and businesses wanted to bring in different goods to sell to their customers (Dunbar, 1981; Marks and Spencer, 2019). The need to transfer goods became the road map of the ‘hub-and-spoke’ model to meet the need of a retail delivery model. ‘Bricks-and-mortar’ is the name given to the shop model of retail, a traditional street-side business that offers products or services to its customers face-to-face in a shop, within a physical building of bricks and mortar. This was the traditional way for individuals to purchase goods before the internet.

Today, due to technological innovation, the customer has a number of purchasing options: the traditional shop, as well as web orders with home delivery or click and collect from a store, locker or local collection point. The customer can also choose to purchase from a pureplay operator who is a retailer without a shop and sells products on the internet for direct delivery (Found, 2017; Knight, 2013; Neville, 2013).

Following the innovation of the internet (Anderson & Lee, 2017), the next business model of retail included the ability to click and collect. In essence, 'click and collect' refers to the process by which a customer purchases a product by simply clicking on the relevant part of the website and 'collecting' the product from their chosen location. This model of shopping was seen as a faster and more convenient way for retailers to provide goods for a busy working person. Argos, John Lewis, and Next were some of the first stores to engage with this model. However, Pizza Hut have been attributed with the first 45

click and collect online order, when in 1994 via the ‘PizzaNet’ a customer could go online and order a pizza for collection from a store (Pizzahut.co.uk, 2014). This system of ordering and collecting became popular, and with further mobile technology developing, the innovation of the pure play retailer and service providers emerged. Technology became the mechanism that enabled both the consumer and the business to have access to each other without physical contact, a virtual shopping engagement that meant a customer could place an order and have it delivered before seeing the physical product. The click and collect and pure play retail models have become the delivery model for the last mile express sector (Figure 3).

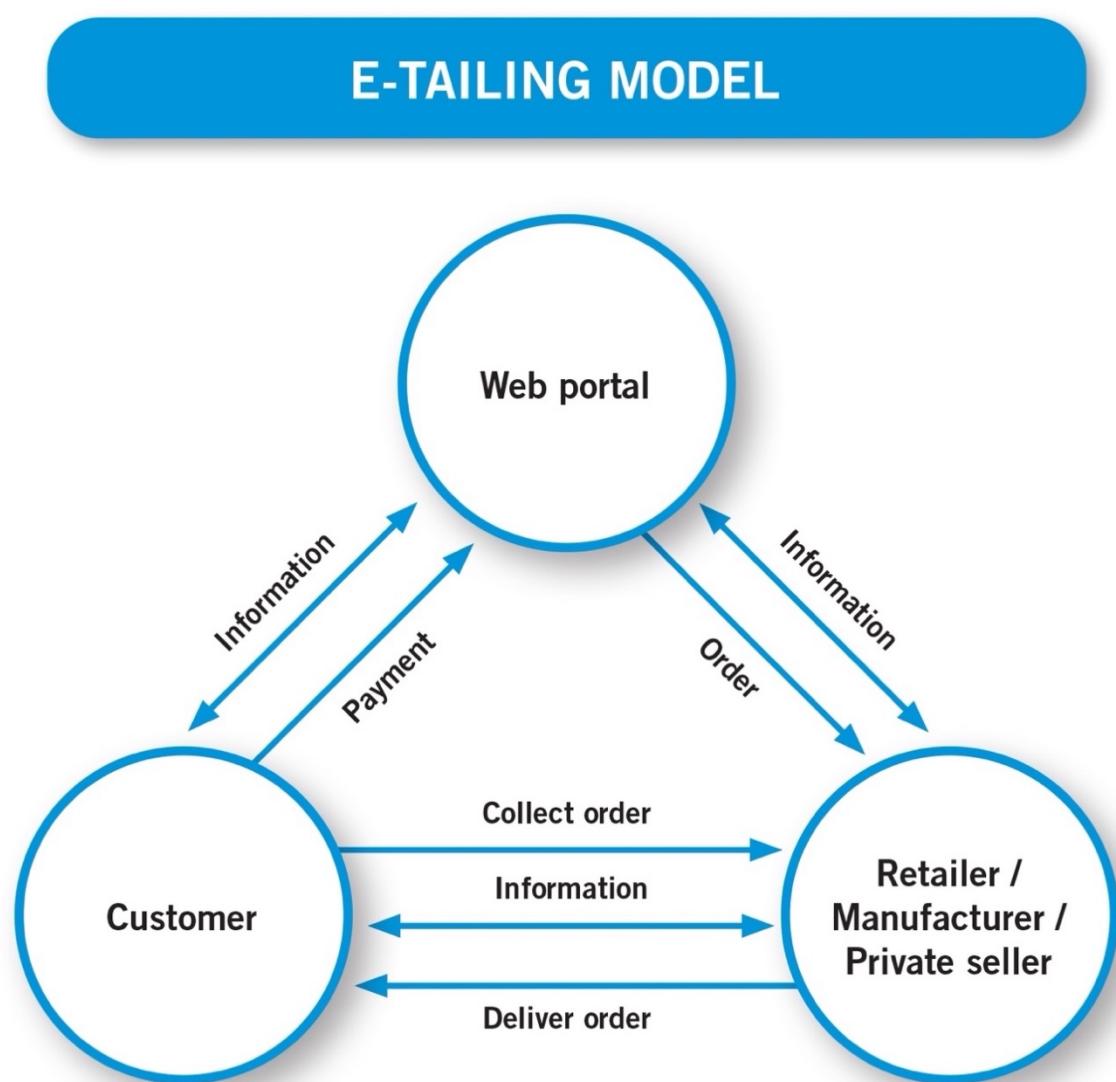


Figure 3: E-Tailing Model. (adapted Wrigley, et al., 2002).

2.3.1 Operational Delivery Model

The operational delivery model will vary according to the resources and structure a business decides upon (Braithwaite & Christopher, 2015). Within the last mile delivery sector there are two main areas of operational delivery, those businesses with in-house trunking or overnight carriers and those who do not have trunking ability. The function of trunking or linehaul is the collection of parcels from and to a central hub. At the central hub the sortation of parcels is completed and loaded for distribution, by the trunking network, to be delivered to the regional or depot locations. Those who control this function have the capability to move resources to match demand, those who do not have in-house trunking have to rely on those who do, meaning, they will have less control over customer demand.

Figure 4 depicts a number of current LML companies, providing a better understanding of their capabilities and behaviour (Rodrigue, Comtois, & Slack, 2020, p. 200). By using cognitive constructs of a non-hierarchical typology, the figure identifies the different structure and operational strategies engaged by LML companies. The LML delivery road map describes the ownership capabilities of each identified group. The diagram draws the network link between the LML companies who own in-house trunking resources with those who do not. This does not imply any hierarchical structure but rather, the dynamics of this link create another network. Rodriguez et. al (2000, p.51) suggests that beyond the typology of tangible networks further areas of transportation space are evolving.

Vaguely defined and delimited. The space of existing hub-and-spoke networks may be shared with other modes, and it is not the object of any particular ownership, only rights of way.

Without definition. The transportation space emerging out of the online retail industry has at present, no tangible form. Little control and ownership are possible, but agreements must be reached for common usage.

MAP OF LAST MILE DELIVERY SECTOR

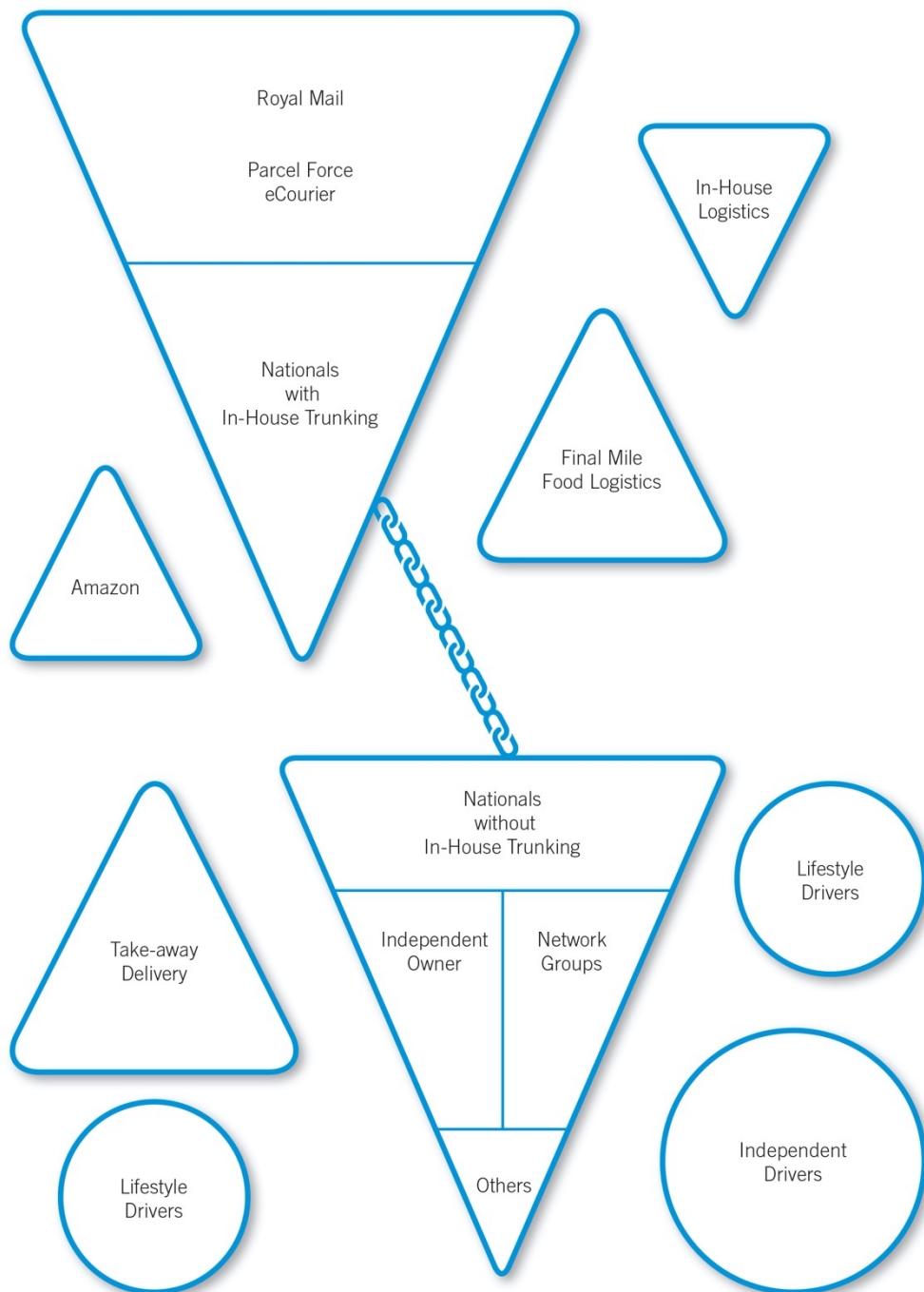


Figure 4: Express Delivery Identified Group (adapted Rodriguez, Comtois, & Slack, 2020).

The separate identified groups, Lifestyle Driver, Independent Courier Driver, Final Mile Food Logistics, and In-house logistics are vaguely defined or without definition. These groups can work within the linked network or not, may choose to work in more than one other area and vary the commitment or times of interaction with the linked network (Allen, Piecyk, & Piotrowska, 2018). The orientation and extent of the interaction of each concept is not identified at this time and will benefit from future research.

In summary, a LML will choose if they want to carry out trunking as part of their operation. National companies mainly favour in-house trunking, but it is acceptable to also co-resource trunking to those companies who do not own in-house trunking. The shape of the operational delivery model then is formed around this choice (Allen, Piecyk, & Piotrowska, 2018).

2.3.2 Hub and Spoke

The early hub and spoke delivery model was created to support the railway system on which national companies organised themselves to provide a nationwide service (Dunbar, 1981; Farahani & Rezapour, 2011; Underwood, 1997), the system transitioned to other industries like airlines, utilising the central hub to increase passage capacity (Cook & Goodwin, 2008, p. 52). Likewise, the parcel capacity for the network is restricted to the capability of the central hub, through which all routes can achieve an increased directional or destination traffic (Figure 5).

The carrier or supplier of goods will use a road fleet, consolidating the routing of the vehicles from each spoke into the central hub, and out of one central hub to deliver direct to the client. The hub model creates a hierarchy, wherein centralised vehicle routes can be controlled and utilised with greater efficiency. The hub-and-spoke system is used by the vehicle routing model and can be developed further depending on the number of hubs, regional hubs, and depots a company runs (Wasner & Zäpfel, 2004). The growth of these networks or national companies, operate on the extended operational model of the hub-and-spoke called the dandelion model (Figure 6). By utilizing the hub system, per item delivery distances are minimised whilst through input can be increased without creating greater demand for last mile delivery routes.

HUB AND SPOKE

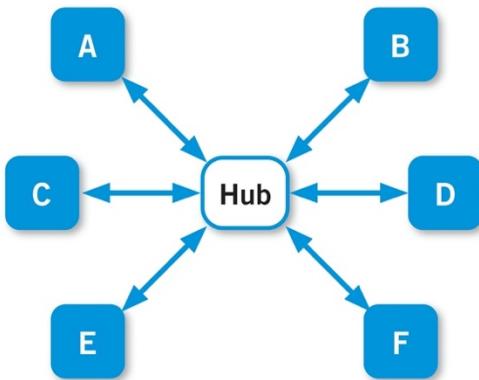


Figure 5: Hub and Spoke Operation Model (Cook & Goodwin, 2008, p. 52).

The same-day delivery system offers the customer an immediate response (Browne, et al., 2019, p. 146). There is no prior knowledge of the order, therefore LML cannot plan for the journey, and the engagement of the collection and delivery is immediate. Communications from the customer to the LML company are transmitted electronically via phone, web platforms, or mobile apps. A specific collection time is selected for delivery and is picked up and delivered by the same driver, within the hour or day. Specific and sometimes very complex instructions are given as to who, where and how to collect and deliver the package. This service may require the driver to be vetted, trained, or skilled to enable them to carry out the delivery. It is expected that the driver will have a certain level of skill to understand knowledge of digital mapping, point of delivery devices, radio and telephone communication, vehicle knowledge and customer relationship engagement (Institute of Couriers 2021). Typically, the driver does not return to a central point or hub after each job but will move to the next collection location from the last delivery point.

DANDELION HUB AND SPOKE

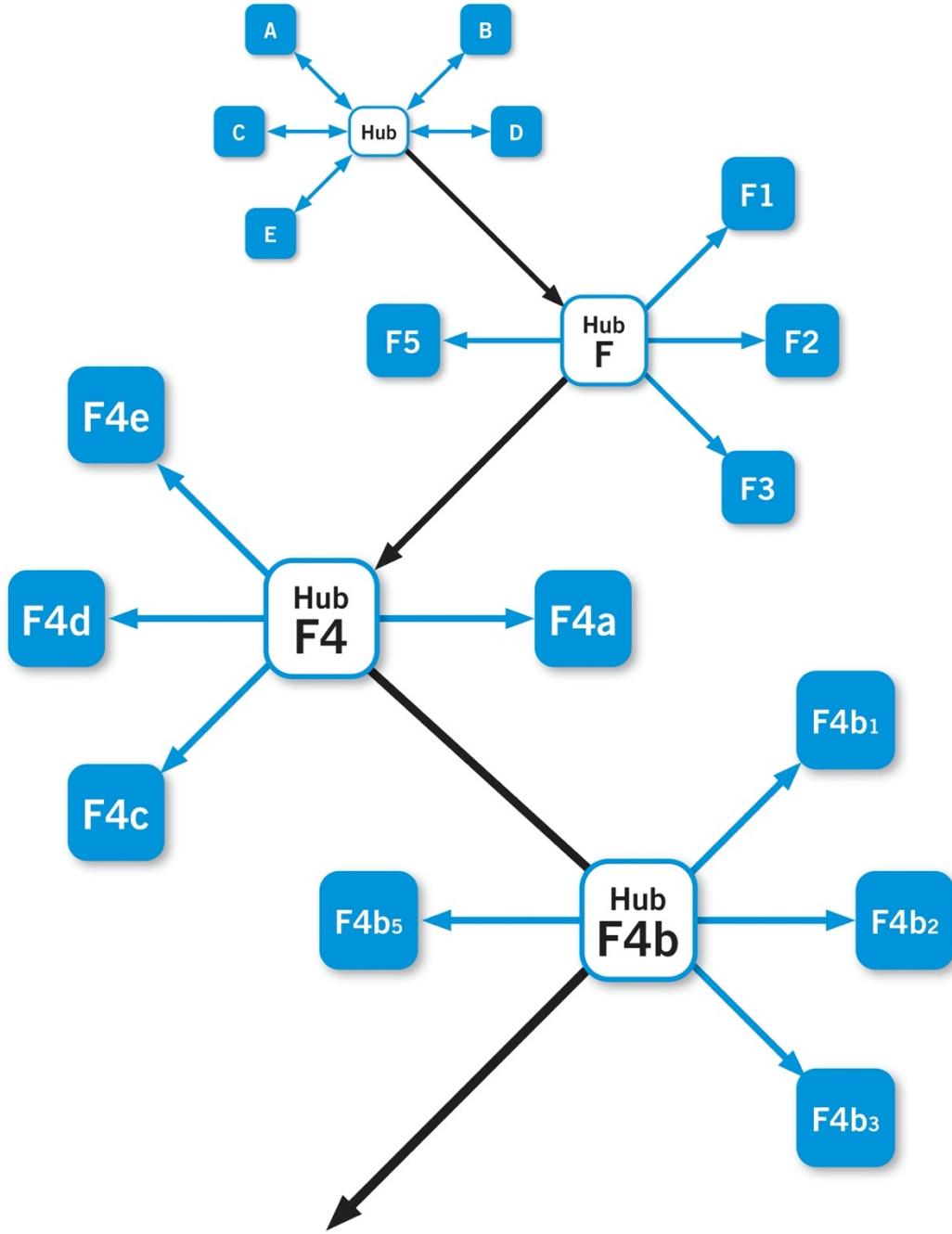


Figure 6: Dandelion 'Hub and Spoke' Delivery Model (adapted Greasley & Assi, 2012).

The driver in this system is commonly self-employed and paid for each job completed but most companies will hold both self-employed and employed drivers on the fleet. The LML sector is responsible for ensuring that the delivery is carried out according to the customer's demand and each LML company can choose their operational model to achieve this. The business structure is similar for all types of express delivery companies, once the package is within the UK.

The hub-and-spoke method support three types of market segments (Braithwaite & Christopher, 2015): 1) Retail shop, traditional bricks-and-mortar, 2) Click and collect, order online and collect in store, at a locker or local collection point, and 3) Pure play online retailers, no physical retail shop.

2.3.3 Next-day and Same-day

The UK LML delivery business model utilises two types of operations: same-day delivery which is a direct delivery from pick-up to drop off (Lim, Jin, & Srai, 2018), and next-day or slower delivery which utilises the hub and spoke system. Allen et al. (2018, p. 9) suggests that “the same-day parcel sector is a relatively small part of the total UK parcel market, as most parcels are sent either for next day or slower delivery”. Greasly and Assis (2012, p. 796) suggest that the reason for using the hub-and-spoke model is part of a ‘highly organised mechanism for collaboration’. The effect of a central hub provides an operational system for next-day or multi-day delivery, enabling the user to reduce costs and achieve economies of scale, therefore providing a cheaper delivery charge (Allen, Piecyk, & Piotrowska, 2018). The selection of these two services are a choice of time and cost that the customer wants (Anderson & Lee, 2017; Capgemini Research Institute, 2019; IMRG, 2020).

A customer chooses a next-day delivery when they do not require it urgently and are happy to wait for the package to arrive the next-day. The customer may choose next-day delivery (delivered to the destination the day after the customer ordered the product), a timed next-day delivery (the package arrives before a deadline the following day) or a two, three, or five-day delivery (a package is collected and delivered at some point within the next two, three or five days) (Allen, Piecyk, & Piotrowska, 2018; Greasley & Assi, 2012). The next-day last mile driver will be given a route each day for those

packages sent via the hub-and-spoke system (Lim, Jin, & Singh, 2018; Perboli G., Rosano, Saint-Guillain, & Rizzo, 2018; Rabinovich & Bailey, 2004). The driver will have drops within a set period in their shift pattern. Parcels will have arrived at the local depot the previous night and been sorted into routes, usually before 4am. They will then be allocated to a vehicle for delivery within a set period, depending on a number of variables specific to the depot in question.

The driver will regularly drive the same route, starting and finishing at the depot and will be familiar with its customer deliveries and roads, to achieve greater delivery efficiency over time. This route may be covered at different times of the day, but drivers can build relationships with customers, understand local road congestion points and may even be asked to make collections along the route. The driver for this system can be drawn from employed staff or from a pool of self-employed drivers. Self-employed drivers are individuals who have the choice to work when and where they prefer. A derivative of the self-employed driver is the lifestyle driver, who may not work a typical full day but rather a shift that is reduced to two, three or four hours, and fits in with that individual's lifestyle (which may include parenting, caring for the elderly or disabled, or being retired). The lifestyle driver could also have irregular hours or choose a specific day to work. The choice of drivers used for the service is determined by which operational model the company uses.

The National Courier and Dispatch Association (NCDA) and the Alternative Parcel Company previously known as A Perfect Choice (APC) arose from the network of small local delivery courier companies in the early 1980s. Both grew out of a need to create a national network of local couriers to challenge the national companies and to win larger geographical contracts. Each local courier company invested in the network, and an agreement of charges and priority of delivery was established as APC became a national player. The NCDA continues with a network structure that gives each company the right to deliver in a specified area, and for an agreed standard of service throughout owner-managed express delivery companies.

DHL, FedEx, Whistl, Hermes and DPD are all corporate companies using their unique service provision to support their customers' delivery choice. DHL and FedEx are

internationally owned and their provision for the UK extends to the rest of the world, meaning that a customer may choose their service over other companies as they offer delivery around the world. DPD is a European company that has marketed itself as a national company, providing quality delivery and a breadth of services. Similarly, Whistl is a national company selling on quality, but with a breadth of services within that delivery. Hermes is both a European service and a UK service, with a delivery service choice at a lower cost and with longer delivery options.

The growth of these networks and national companies, operate on the extended operational model of the hub-and-spoke called the dandelion model.

2.3.4 Bricks and Mortar

The traditional transport hub and spoke method is based on the retail selling process of a shop. The shop owner, having ordered a product, will receive that product via a truck. The product having been selected from the warehouse, is placed on a truck, delivered to a regional hub, and then put on another truck for delivery to the local shop. This traditional method presupposes that the customer is happy to visit a ‘bricks and mortar’ shop to make their purchase. This system is still the backbone of most retailers’ fulfilment as using this traditional retail method puts fulfilment of customer orders on a regular and set timescale of availability. Retailers who are known as ‘bricks and mortar’ retailers’ require the business to own or lease a property as a place for them to store, view and sell their goods to the customer. Traditionally these stores are in towns, villages, or city high streets.

The hub and spoke method usually provide an efficient process of which to provide supplies for the store, with an occasional requirement for express or same-day delivery due to ‘person error’ in not meeting a customer’s order or demand for the delivery to be made with specific requirements. This market of business to customer (B2C) delivery was only a small part of the last mile delivery sector prior to the 1990s (Lomas & Worth, 2006; Browne, et al., 2019). This delivery system has now changed, as we see the customer asking for a timed and specific delivery instructions of goods. The current trend of shopping and delivery demands will be explained later in this chapter.

Today, due to technology and the rise of internet mobility, the customer demand chain chooses when they want an item and where they want it to be delivered and has the instant mobility to change these instructions (Fernie & Sparks, 2019). This pattern of purchase does not fit the traditional hub and spoke fulfilment model. A retailer looking to fulfil a customer's demand must now be able to be mobile in its order, payment, communication, and delivery processes.

2.3.5 Click and Collect

The post-millennium customer requirements have brought major changes to the delivery process. The effect of this change is complex, and it can be argued that technology created the change (Anderson & Lee, 2017). With the rise of the internet, the last mile delivery service became more visible to the individual shopper (Accenture, 2016). Interestingly, the very first sale or purchase on the internet has been variously attributed to pizzas, farm produce, and illegal substance delivery in 1994 (Fessenden, 2015). However, the title for 'first sale on the internet' most likely goes to a CD sold by one friend to another using data encryption software, for a grand total of \$12.48 including the CD and postage. The CD was the Sting album 'Ten Summoner's Tales' (Fessenden, 2015; Lomas & Worth, 2006). This became the recognised point at which online shopping was created.

Click and collect (clicks-and-mortar) is a provision of service by a traditional retailer which allows the customer to choose how to view, reserve, and collect their goods. The customer knows the retailer is situated in a particular place and the product can be viewed online. The customer may then choose to 'click' to order, reserve, or pay for their product. They then have the option to collect from the store in person or from another designated collection point for example a local shop, locker or a drop box. This has been made possible by various technologies including: the internet, the infrastructure of modems, laptops, mobile tablets and phones. All these and more have contributed an individual's ability to view products and/or services from all over the world, not just on their high street, and to collect them in store.

2.3.6 Pure Play Online

The pure play online business model is that of an online (internet) retailer who has no physical presence and offers direct communication with the customer via the internet or web portal (Found, 2017) see Figure 7. Brousseau (2000) argues that the electronic data interchange (EDI) for the online purchase is not the only medium to refer to internet shopping since orders placed with a retailer can be carried out on other medium like the telephone or fax. In the customer pre-purchase stage, the most common choice of EDI is online, as it is known to give a more efficient process (IMIMobile, 2016; IMRG, 2019). Though not exclusive to the purchase process, online is more commonly understood and for the purpose of this research is the media referred to for the pure play online business model. Through the technological advances of the internet, a product supplier has new channels connecting them to the customer. This shortens the supply chain and removes costs, while still supplying the customer with what they want. Pure play refers to a supplier who provides a service or product without the use of a manufacturing building, shop, or warehouse. The early model of pure play saw a generation of Business to Consumer (B2C) entities that eliminated the intermediaries of shopfront and distribution costs.

Primary examples of the pure play interface are Amazon and eBay. Neither company has any physical connection to the customer, rather the use of technology, the internet, is their sole interface with their customer. This interface allows physical goods to be viewed for purchase without having a shop or store them in one place, meaning that the traditional storage in a shop is no longer necessary. One or more item(s) can be requested and delivered from any one point to another. The pure play company decides how these items are delivered and will choose a system that meets their business model for service delivery. The pure play market segment of retail became a disrupter to both the retail and delivery market as technology exploded in around 2000. Pure play created a shift in expectations that changed the customer's perception of a purchase's value. Price wars were created as customers gained greater access to products and price comparison with complete ease and a change to the pure play model emerged (McCleod, P, 2015; Turban, et al., 2018) (Figure 8).

Online retail marketing revolutionised the purchase behaviour of consumers (Doherty & Ellis-Chadwick, 2010; IMRG, 2019; John Lewis, 2019) and this revolution has had a significant impact on the UK express delivery industry. It is now beginning to shape the business models of LML. Through the use of technology, this new access and mobility offers increased customer product choice, awareness, and comparison to other products. An item anywhere in the world can be viewed for availability, description, and comparison to allow the customer a wider choice; the customer has become king again (Walmart, 2019).

EARLY PURE PLAY MODEL (PRE 2009)

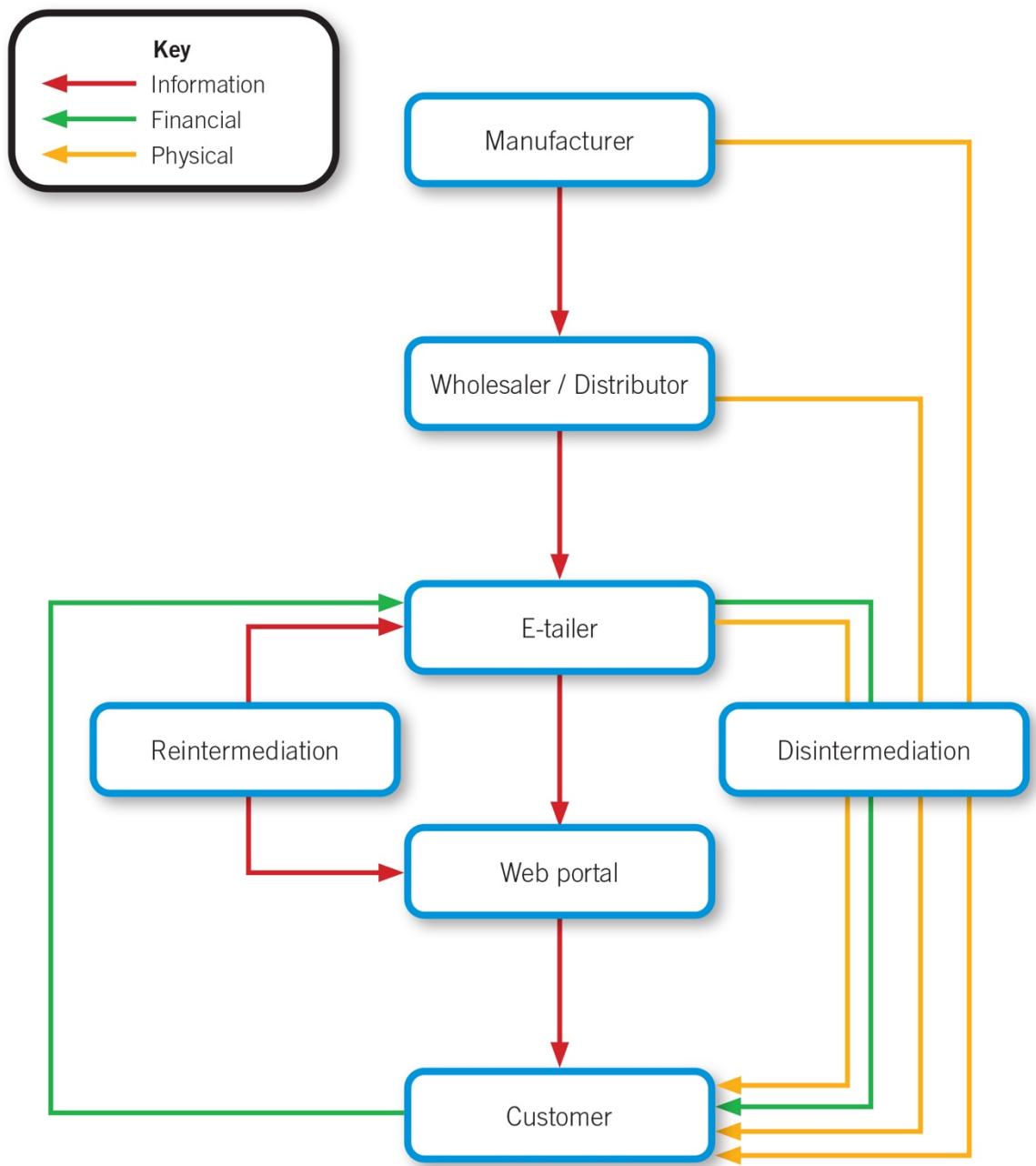


Figure 7: Early Pure Play Model (pre 2009) (Chaing, 2001).

PURE PLAY MODEL (POST 2010)

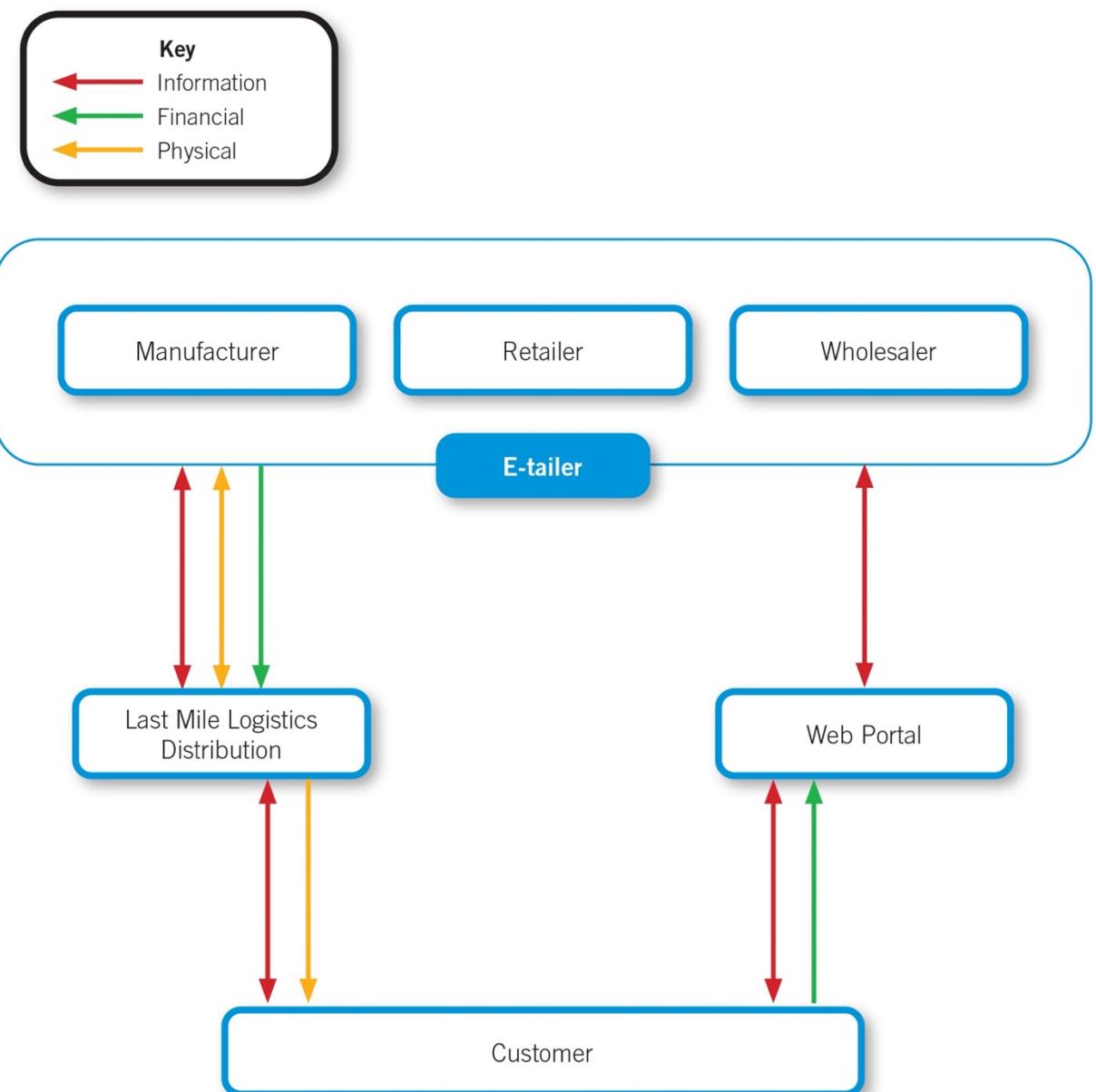


Figure 8: Pure Play Model (post 2010) (Turban et al 2018).

2.3.7 Customer Shopping Demands

The Interactive Media in Retail Group (IMRG) estimated in 2014 that the UK online and catalogue retail industry served 26.9 million active online consumers with the consumer spending figure reaching £107bn. In 2016, this number increased to 47.8 million online consumers and consumer spending at £130bn. This confirms that online retail marketing and service expectations of consumers has changed the product purchase process and delivery outcomes (Doherty & Ellis-Chadwick, 2010; Fernie & Sparks, 2019). Customers have the technology, mobile ability, financial resources, and ease with which to place an order at any time of day and from almost anywhere. This technology has had a significant impact on the business operational processes of the last mile delivery service (Bask, et al., 2010; Barclays Bank, 2014; Braithwaite & Christopher, 2015).

Last mile express delivery, known to some as a ‘door-to-door delivery’ or ‘home delivery’ (carried out by companies such as CitySprint, DHL, DX, Hermes, FedEx, TNT, UKMail) implies that the parcel will be brought from the supplier or manufacturer and delivered to the door of the consumer. In many cases this is correct, but the consumer is now asking for the door-to-door delivery to be more specific; this refers to the consumer’s choice of delivery scope, time and place. Next-day last mile express delivery is creating more regular routes as the customer purchase can use various collection points, such as click and collect from a store, or drop boxes at supermarkets and garage forecourts. Collection and return points can also be at railway or underground stations using Doodle (ceased trading 2020) or Collect+. Online purchases for same-day or timed deliveries are changing the dynamics of the same-day delivery model.

Table 2, Online Sales 2011 – 2018 the data GBR £, shows, how the industry has grown. Every year online sales have increased, data from 2011 starts at £68bn online sales when shops were on the high street and click and collect didn’t exist. Now in 2018, a record of £170bn online sales was recorded by IMRG.ORG, with the increase of pureplay and click and collect facilities for the customer, growth of 280%. 2019 was a year that started slow, but an upturn in sales for Nov and Dec 2019 recovered the years figures but only managed a full year on year increase of 6.7% versus the previous year’s

growth in 2018 of 11.8%. (IMRG, 2019). However, the data picture by April 2020 at the start of the Covid-19 Pandemic show the online spending as a proportion of all retail sales soar to 30.7% with June 2020 IMRG figures showing a 33.9% year on year growth (Jahshan, 2020). Online retail sales growth is related to the growth of the LML deliveries and for the year 2020, increase volume is related to businesses working from home due to the government restrictions of Covid-19.

Several issues are beginning to emerge that have significant implications for the home/workplace delivery service strategies of LML companies. This includes problems such as increasingly demanding customer service expectations, difficulties in forecasting service demand, failed deliveries and return logistics costs, higher order fulfilment costs, increasing environmental pressures caused by urban traffic congestion, and the threat (or opportunity) of potential channel disintermediation (Allen, et al., 2018; Anderson & Lee, 2017).

Consumers expect higher levels and greater choice of service, and LML companies are finding ways to offer this wider choice of service. DX Nightfreight was the first express courier to provide time window deliveries in the UK, and Hermes was the first company to offer Sunday delivery, followed by DPD in summer 2014. Retailers like Amazon and New Look now offer delivery within the hour, and since April 2016, Sainsbury's has offered same-day delivery and click and collect just five minutes after ordering, as does Screwfix. ASOS has offered unlimited next-day delivery for an annual fee of £9.95 since 2014. In 2016, John Lewis began to provide a click and collect next-day service from its stores and sister company Waitrose for £3.95 (Scarlett, 2018), whilst using innovative merged inventory at its UK service distribution centre (Magna Park, Leicester). The retailer is making changes that the LML company must either match or exceed.

There is, however, a limit to what consumers will pay for next-day delivery (Anderson & Lee, 2017; Barclays Bank, 2014; Worth, 2019; Starkey, 2019). The evolution of the last mile delivery service has not changed from Dunbar's (1981) suggestion that the customer lacks a willingness to pay more for a service whilst still having expectations of that service. Today, understanding the customer expectations is a tool by means to

deliver customer satisfaction, an example of this is described by Zeithaml & Bitner (1996, p. 93) suggesting that the supplier should understand and incorporate a ‘zone of tolerance’ between the expected service and the perceived service, understood by the customer. The nature of this zone has controllable and less controllable factors, of which companies need to constantly evaluate as industries competitively seek new ways in which to meet the customer expectations, “the more turbulent the industry, the more frequent the monitoring is needed” (Zeithaml & Bitner, 1996, p. 97). By using a tool to measure the customers zone of tolerance, this will assist the company in being able to meet the customers perceived quality and satisfaction, or at worse be within the zone of tolerance that the customer will accept (Figure 9).

Comparison between Customer Evaluation of Perceived Quality and Satisfaction

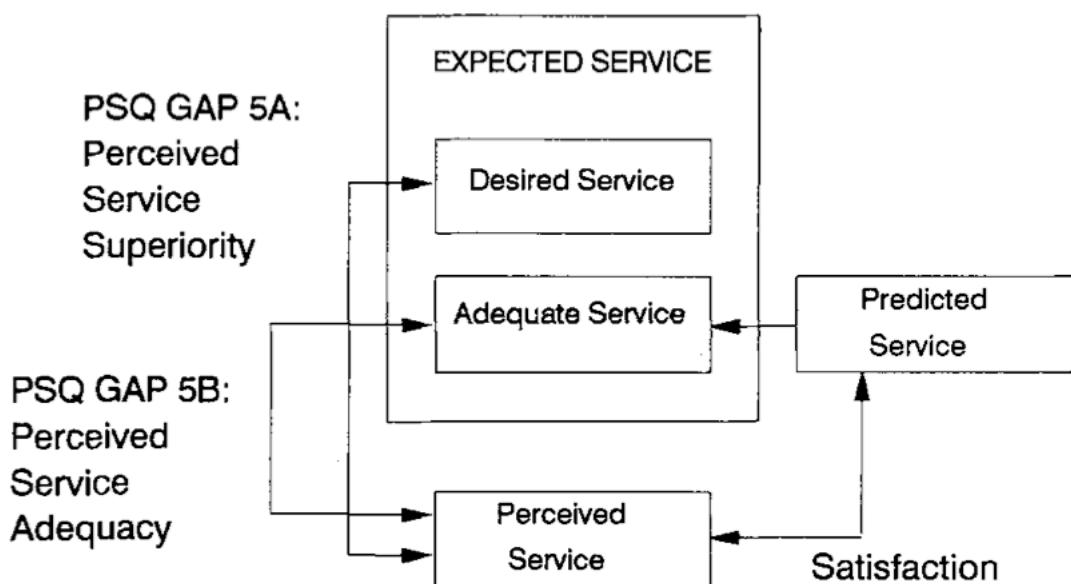


Figure 9: Comparison between Customer Evaluation of Perceived Quality and Satisfaction (Zeithaml, V.A; Berry, L.L; & Parasuraman, A. 1993, p.8).

Year	2018	2017	2016	2015	2014	2013	2012	2011
<i>Online Sales Total</i>	170bn	156bn	130bn	114bn	104bn	91bn	78bn	68bn
<i>% of Retail Market</i>	21.50%	19.50%	24%	21%				
<i>Peak Nov/Dec</i>	31bn	27bn	24bn	21.6bn				

John Lewis passed 50% of retail value sold online via e-retail in 2018
Data taken from the IMRG annual Cap Gemini surveys Online Sales Total (IMRG, 2019)
Retail Market value UK purchased online, ONS (Office of National Statistics, 2019).
Peak defined by IMRG.ORG as the period between November 2nd and December 27th.

Table 2: Online Sales (GBR £) 2011-2018 (author 2019).

When a customer purchases a product, they expect that this product will come to them, rather than them (the customer) having to go to the product or retailer. Frenetic competition between pure play retailers means that shoppers are being trained to expect even greater convenience, coupled with lower prices and increasing speeds of delivery (Benady, 2013). The accumulated effect of this competition between retailers is putting pressure on LML companies to provide higher levels of service in narrower delivery windows inside tighter budgets, with some negative consequences.

CityLink went into liquidation in 2014, and though the reasons for the demise could be attributed to the financing of the company structure, the managing director David Smith expressed his opinion in February 2013 that for another fifty pence per parcel (delivered), the company could have been far more sustainable (Department for Business, Information and Skills, 2015). Meanwhile, Yodel (previously known as Home Delivery network), which distributed over 150 million parcels in 2012 and is the UK's second largest parcel delivery service provider, lost contracts after failing to meet delivery targets (Home Delivery Network, 2012). Furthermore, there are several instances of express companies losing customers through the website services of Shntl, as retailers and consumers choose which last mile delivery service they want to use (Shntl, 2008).

Carphone Warehouse (Carphone Warehouse, 2016) and Pets at Home (Pets at Home, 2016) proudly state on their websites that DPD delivers their goods, using the well-renowned name of a LML company as a positive reason for a customer to order a product from them. While, Next (Next, 2016) uses the incentive of ordering before midnight for 9am delivery (using DX) as a promotion to buy a product from them. Collaboration between retailer and delivery service is becoming inseparable, and the customer may not understand or be able to identify who exactly is delivering, as the retailer offers the delivery but may not explicitly link it to the LML company in question or vice versa. Whilst a choice of delivery options increases the cost of delivery, the customer rarely perceives this as their responsibility. After all, they are buying a product, not a delivery service. If the supplier cannot deliver it to them (whether pure play or click and collect), the customer will purchase from someone who will deliver to their requirements.

Although it is perceived by many as a free service, and retailers frequently promote it as such, home delivery is an expensive service provision for the retailer to account for and for the LML company to provide. Research has shown that high customer density and wider time windows result in greater cost-efficiencies for parcel couriers (Boyer et al, 2009). LML must embrace dynamic approaches that anticipate transport costs in time window design, and link this understanding to consumer service expectations, such as selecting next-day delivery every time a purchase is made. The consumer culture in 2016 took for granted that next-day delivery was possible for any purchase, from paper clips to sofas.

The customer appears to be king. From influencing the retailer in their choice of LML partner and being able to compare prices before choosing who to purchase the item from, to having the power to demand specific instructions for delivery or collection. The customer's effect on retail is influencing the last mile delivery company's choice of operation. The relationship and interfacing between strategies, business models and operating processes explain how the business operations model concept draws on the 'customer lens', 'operations management' and 'commercial viability', which then create the business strategy and market structure (Figure 10) (Bask, et al., 2010; Rumble & Mangematin, 2015; Teece, 2010). The question arising here is, did the customer create the business operations model through its external influence facilitated by technology? This question will not be answered directly in this study, but it will instead explain how the interface of one influence, the customer of retail crosses over into the other, the service provision of the LML company.

The provision of click and collect by using a network of collection/delivery points (CDP), such as post offices, supermarkets and local shops is a potential strategy by LML companies to reduce first-time delivery failure rates (Triangle Management Services, 2016). Amazon was one of the first online retailers to offer a CDP service (Retail Gazette, 2016), and more recently has begun partnering with banks, positioning lockers within their premises for client parcel collection and returns. The take-up of the CDP concept depends on the strength of the relationship between retailers, LMLs and the various networks of independently operated CDPs (Song, et al., 2009).

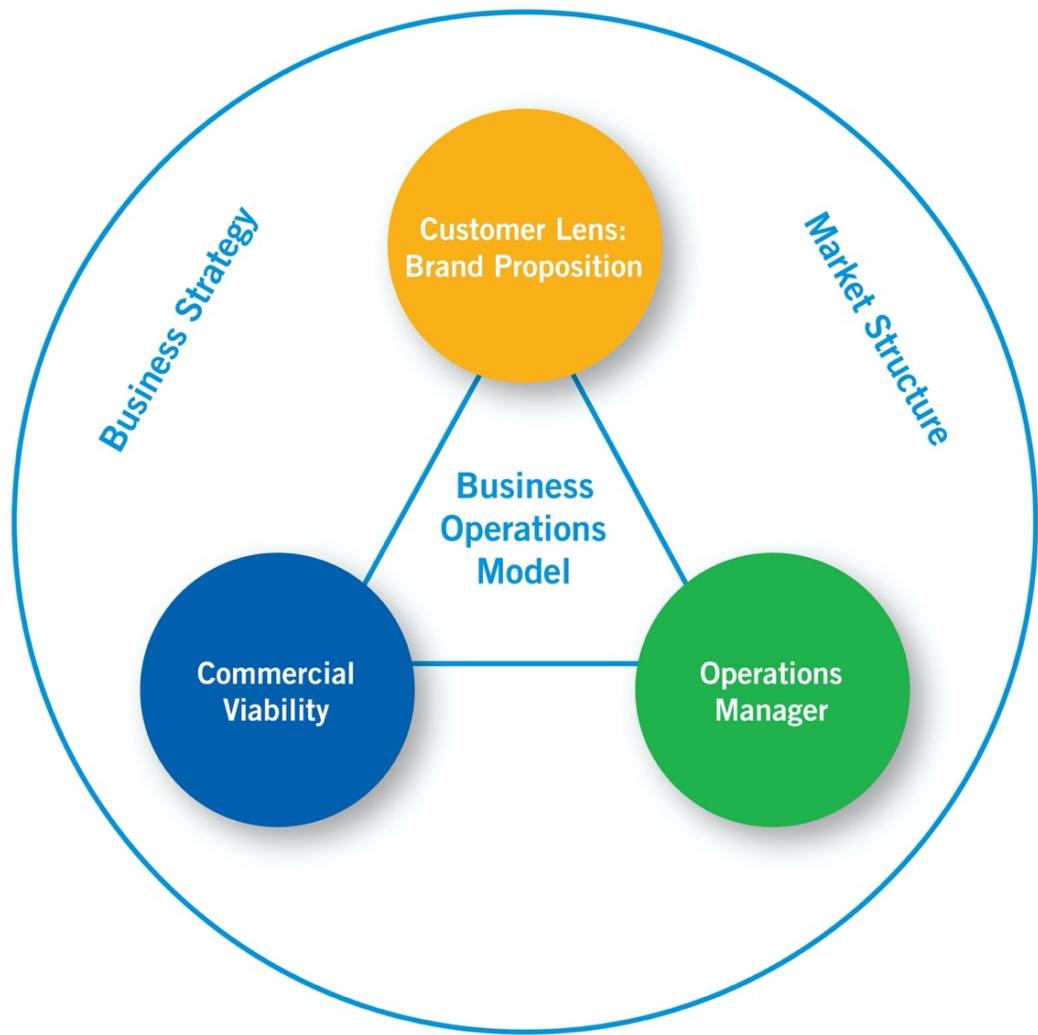


Figure 10: Business Operations Model Concept (Braithwaite & Christopher, 2015, p. 2).

The increase of internet deliveries has come at a cost to the retailer as the average consumer expects and has been taught by retailers that they can receive free delivery. The retailer includes delivery in the price of the product or at a low additional cost as part of the online purchase. The customer perception of the delivery cost needs to be changed. Instead of giving away the delivery value, the consumer should be paying the real cost (Benady, 2013). Offering parcel tracking, mobile information, text messaging of delivery and process verification online, allowing for time window precision delivery at a choice of locations gives added value and convenience to the internet delivery.

An environmental impact in urban locations has been attributed to the rapid increase of online shopping and the vehicle movements of home delivery (Figliozi, 2011; Nuzzolo & Comi, 2014; Piecyk & McKinnon, 2010). There is no easily definable potential solution to the trade-off between the desire for consumer convenience, and urban clean air and congestion. However, this represents a concern of the customer that retailers, couriers and local authorities must tackle together. In all likelihood, this will affect the choice of LML business model.

2.4 Business Models

The last mile express delivery sector has been affected by the multi-sided business model's disrupters to the delivery market. Amazon was founded 20 years ago to supply the earth with products (Singamsetty, 2019); a grand and futuristic view. Today, its business model is to plan for long-term growth from its origin, as a pure play provider. However, Amazon has changed and since 2017, the company has expanded into an online supplier and retailer, with its own warehouse and distribution centre (DC). It also provides its own logistics, right through to last mile delivery. Amazon is now a retailer using an online platform and bases its business model on long-term sustainability of growth for the company, whilst its strategic model focuses on the customer. It calls itself customer centric. Amazon CEO Jeff Bezos argues that both its business and strategic model pushes and pulls the business and explains this as 'true customer obsession' (Tabaka, 2019):

"The first and by far the most important one is customer obsession as opposed to competitor obsession. I have seen over and over again companies talk about being customer focused, but really when I pay close attention to them, I believe they are competitor focused" (Singamsetty, 2019). There are many ways to centre a business. Bezos talks of competitor focused, product focused, technology focused, or business model focused but believes that customer focus or customer centric to be by far the most important. It is, he argues, the desire to deliver to a customer something they don't yet know they want that will drive a business to achieve its long-term growth (Figure 11). It can be argued that the business model is pushed by the strategic model and the

strategic model is the outcome of what Amazon wants to deliver: its goal to give the customer what they want and give the company the platform to achieve this through economy of scale. Amazon combines economy of scale with the use of an online platform, a commission selling service and a subscription service provider. The elements of this are centred around the customer's immediate gratification and access to the service they want, referred to as the customer demand chain (Lim, et al., 2018).

Whilst parts of current LML business models are similar to Teece (2010), and utilise a repeating process, the integration of the process does not exemplify the added-value concept that Casadesus-Masanell et al (2015) suggests we should not underestimate. These business models could be referred to as more of a strategy than a business model as this research has found, LML companies are not sure which model, business or operational, they should be using to drive the company forward. However, it is clear that both, play an important role to achieve the company goals (CitySprintGroup, 2018; I1, 2017; I7, 2019).

2.4.1 Business Model Structure

The business model is a blueprint for achieving the best possible outcome for a company; it is the mediator between theory and practice (Bask, et al., 2010; Rumble & Mangematin, 2015). Rumble (2015, p. 99) argues that “the implication of this definition is that firms neither own, create, nor innovate business models – rather they operationalize them; as a concept, the model exists independently of how it is applied”.

Historically, we have seen the collapse of businesses that can be attributed to a lack of focus or application of the business model (House of Commons, 2015). If we accept that a business model is a concept and that the operational model delivers that concept, we can see that, in order to succeed with an operational model, a business must understand the aims of the business model (Mikhalkina & Cabantous, 2015; Rumble & Mangematin, 2015; Teece, 2010). It is in this part of the process, understanding the aims of the business model, that innovation and growth will occur. By this definition, we accept that there is a business model and that it has influence on, if or how the company grows.

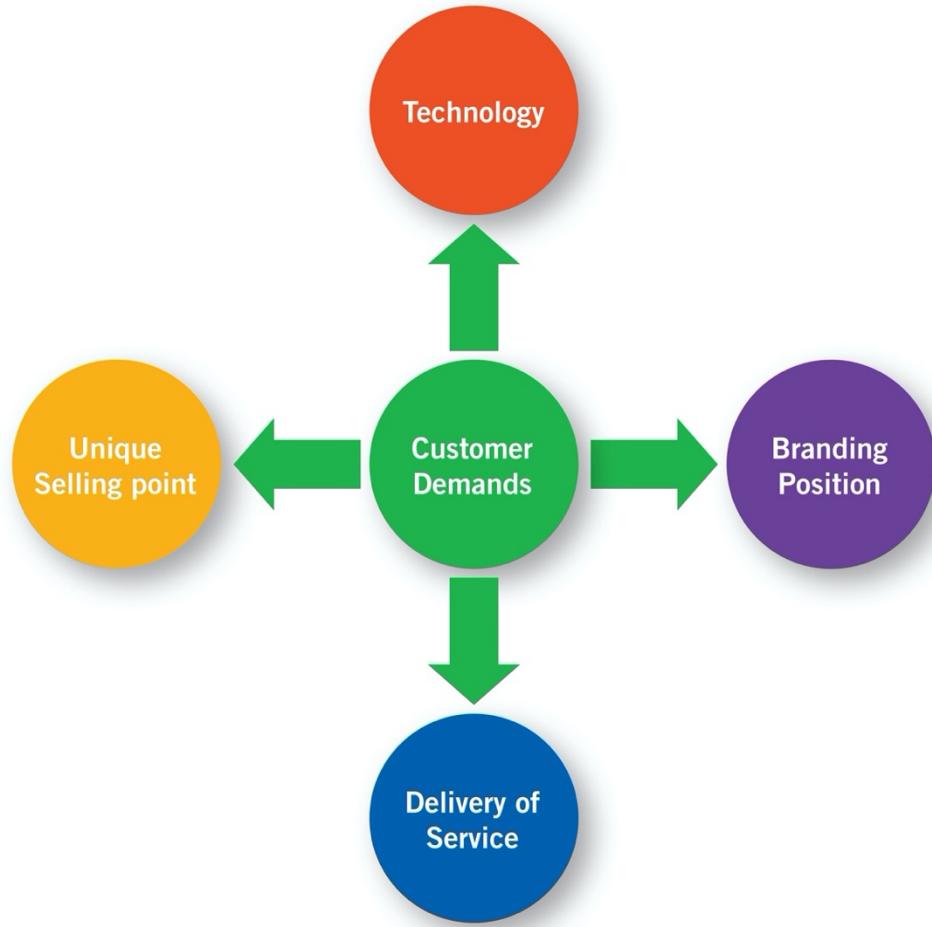


Figure 11: The five parts of business model considerations (adapted Braithwaite & Christopher, 2015).

Further to the concept of the business model is the inter-relationship with strategic and operational modelling. These concepts arguably ‘pull and push’ each other in no particular order altering the reaction to or with the business model (Bask, et al., 2010; Braithwaite & Christopher, 2015). McKinsey’s ‘7 S’ framework originated in 1982 with the idea of studying American businesses and understanding how organisations were organised and managed (Peters & Waterman, 1982). This framework, forty years later, continues to be used as a lens for evaluating organisational excellence, the interrelation between the business model and operational model, and a method for adjusting the two to achieve a desired effect (Shaqrab, 2019). This effect is the driving vision or the lens through which a business wants to achieve their goal. The four soft systems of shared

values, skills, style, and staff influence the hard systems of strategy and structure. This interaction creates the outcome to the business model. The relationship of LMLs is with both the physical and virtual ‘cloud’ technology that relates to the customer demand chain. The business framework must therefore have a mechanism that allows the model to capture value from its service (Teece, 2010; Braithwaite & Christopher, 2015), as the value relates to the ability to take its service to market. This means that multiple business frameworks can be utilised for different areas of the business, but whichever framework a business uses, it will fail if it does not capture value from its service.

The last mile express delivery business is an end-to-end customer business model. The ‘last mile express delivery’ is ordered by a customer, collected from ‘the customer’s customer’ and delivered to ‘the customer’s end consumer’. The business, the delivery, is all about the customer. The last mile express sector responds to the fluid and ever-changing need of the customer and the adoption of a business model must be about choice and suitability (Rumble & Mangematin, 2015), to fit the operational delivery, and create value for the customers and stakeholders of that business. Baden-Fuller & Mangematin’s (2013, p. 98) conceptual framework for business models identifies four key dimensions with which a business model can become operational: customer engagement, customer identification, monetisation, and value chain linkages.

These four-part dimensions provide the defining characteristics of a business model and allow a company to make of the model what it wants (see Figure 12). Baden-Fuller and Mangematin (2013) suggest that with these dimensions, any company can apply this to their own service and make the business model unique. Like a baker who takes raw produce and bakes a cake, so another baker can take the same raw produce and make buns. Similarly, a company can take the same raw materials (the business model) and use a different recipe (the operational model) to deliver their own unique service. A LML company should evaluate their business using the business model process so that their company can evolve and potentially grow. Utilizing four dimensions does not include the interaction of external or internal influences and assumes a two-way relationship with the customer. The business model drives the operational model which means that more attention is required in the process of establishing the business model (Bash et al, 2010). Baden-Fuller and Mangematin (2013, p. 424) conclude that business

models are “manipulable instruments which are used to explore cause and effect and understand the business world better”. This suggests that a business must explore the cause and effect of a business model in a multi-dimensional relationship with the customer.

The application of this conceptual framework requires cognitive mapping or road mapping processes, which improve the causal links between the understanding of those models that exist as mental representation or as the visual or physical objects (Baden-Fuller & Mangematin, 2013). The mapping process enables analysis and expansion of each question to shape their future business model, acknowledging the importance of the cause-effect structure (Funari, 2015, p. 211). By implementing a conceptual framework, the analysis of the business model the company is using is reviewed, the characteristics of the framework offer the means to explore and communicate between the inter-relationships of the business and the market in which they operate (Schaller, et al., 2018)

BUSINESS MODEL KEY CHARACTERISTICS

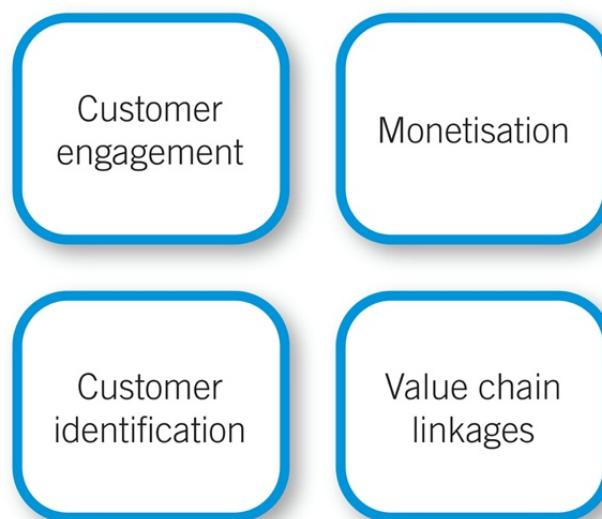


Figure 12: Conceptual framework for business models. (Baden-Fuller & Mangematin, 2013, p. 420)

2.4.2 Value Based Business Relationship Models

Moving from a two-way relationship to multi-collaborative relationships, the business model by Bask et al (2010) values the internal and external influences on a business to shape a business model. Casadesus-Masanell and Heilbron (2015) go a step further to examine the nature and benefits of a business model. They claim, that describing the business model as decisions enforced by the authority in the company ‘allows the analysis of the business model through the analysis of the individual firm’s choices’ (Casadesus-Masanell & Heilbron, 2015, p. 3). Within the LML business model the question should be, who is the customer? This is the primary direction that the business moves towards and offers a framework for creating value for the customer, while facilitating understanding of how that value interacts with the company and the cause and effect of the relationship.

Baden-Fuller and Mangematin (2013, p. 418) argue that it is through this configuration of the four key dimensions that a company can understand the ‘causal links between traditional elements in a firm to those outside’. The connectivity between internal and external elements is directed through those tasked with the delivery of success, and the success of the business model ultimately directs the outcome of the operational model. Casadesus-Masanell and Heibron (2015) argue that although a company has power over its employees and a degree of power when interacting with other companies (for instance, by appealing to their self-interest/mutually benefit exchanges), it does not have the power to directly control or dictate the behaviour of other companies. Therefore, it must appeal to self-interest between parties and choose with whom it wishes to interact.

The internal power of a company is that by which a company worker provides value. For the company to benefit from the value of the collective activity of those workers, it provides normal working practices as the minimum activity and the collective activity adds value. This means that an individual carrying out a task for a set purpose can use the existing collective knowledge to add greater value to the activity. For example, the sortation of parcels for loading into a vehicle. Should the individual recognise that a parcel is in the wrong place for loading, they can utilise the knowledge of others who are more experienced to put the parcel in the correct place for loading and thereby complete the sortation task. Although this would be a variation on the company’s

normal procedure, value is added in the completion of the task using collective knowledge. In order to complete or tie all this internal power together, the company will choose how it will value its workers. For example, by paying a worker as an employee or offering a choice of self-employed work, both of which may be enhanced through bonuses, rewards for specific actions or remuneration for different job roles and outcomes.

Utilising the internal power of a company will direct the business model to success, and the purpose of a business model is to generate creative or innovative approaches to acquiring value. Where Baden-Fuller and Mangematin (2013) present the four aforementioned dimensions for understanding the business model and achieving the company goals, Teece (2010) argues that it is the ‘architecture of revenues, costs and profits associated with the business enterprise that delivers the value’, see Figure 13. The internal power structure of the company is the drive of the business model and must harness the revenues, costs and profits that deliver the company value, to become innovative and for innovation to create more value. The business model is the process through which a company can evaluate the success of what they do.

Having gained popularity over the last decade the business model has given more impetus to its use, and this can be attributed to the rise of the internet and the mobility of communication and accessibility (Baden-Fuller & Mangematin, 2015; Bask, et al., 2010; Lim, et al., 2018; Teece, 2010). With this rise, the business model of old that captured value through a product, mass produced and sent to retailers or wholesalers, replaced by electronic access to and payment for goods, a virtual world of products has emerged. Variations to a business model come from the input of the company and those individuals who are creating the business model. Demil and Lecoq (2015) describe this as crafting a new business model, by utilising a circular effect that culminates in the progression to a profit margin, which supports the start of the business model of resources and competences. This model should be considered as the start of analysis for LML to improve and innovate for added value and interaction with the customer.

Similar to the collective within the company, the purpose of the collective within a vertical chain is to establish the value created by the supplier, the firm, and the buyer -

dependent upon the characteristics of all three. In simple terms, a line graph of the share of value created within the collective defines the value created by each business in the chain (Figure 14). This example represents: suppliers share, the retailer of the product; firm's share, the express delivery company; and buyers share, the customer. The exact division of value between each share will be dependent on the bargaining of each player. Further exploring the division of value, this becomes the ambivalent value of that relationship (Baden-Fuller & Mangematin, 2015). This relationship implies that the sharing of the two parts adds significantly to the value of the collective, which demonstrates the importance of the added value of the collective demand chain, including the supplier, LML, and customer.

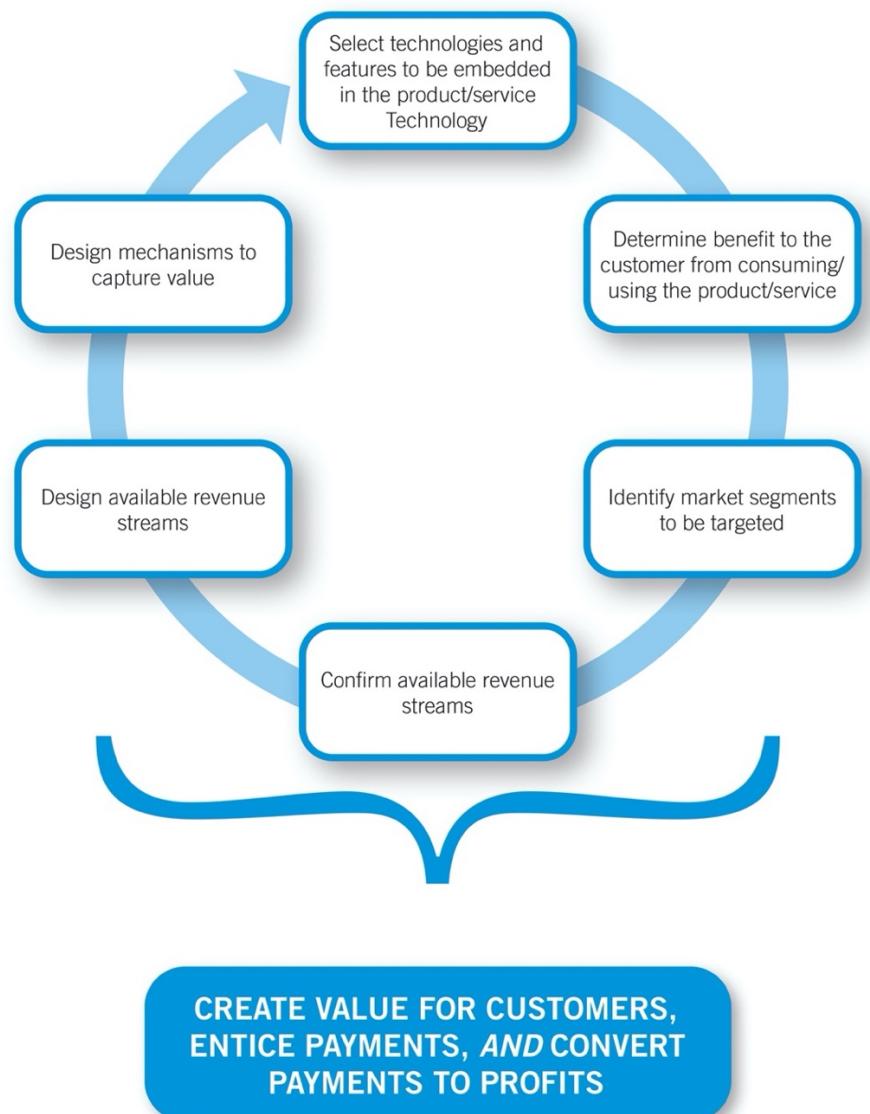


Figure 13: Elements of business model (Teece, 2010, p. 173).

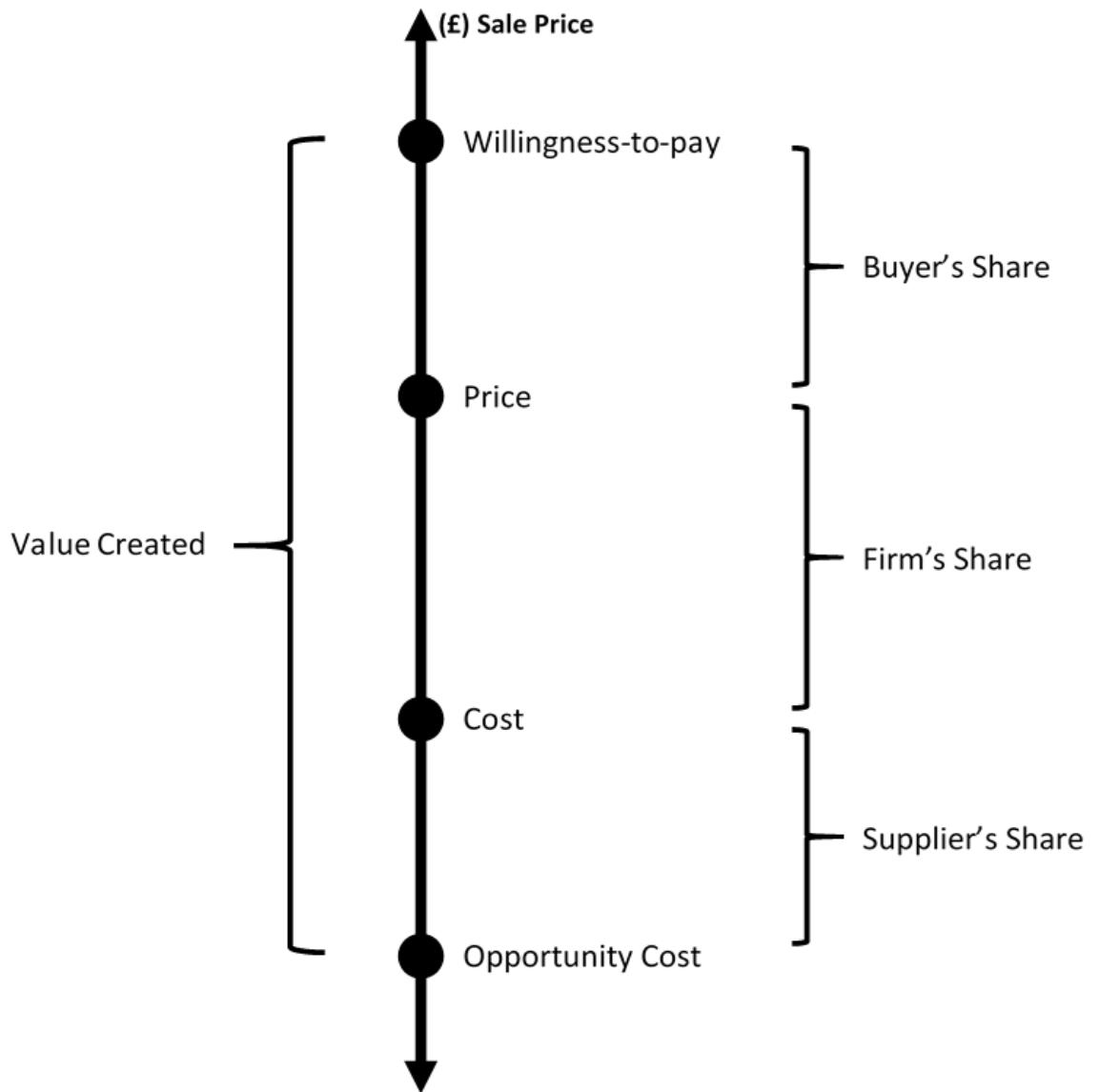


Figure 14: Division of Value Created (adapted Brandenburger and Harborne, 1996).

Baden-Fuller and Managematin (2015, p. 6) further define ambivalent value as the sharing of a process, when two businesses connect in order to provide a service to a customer, resulting in a transaction that offers greater profit to both parties. The ambivalent value theory offers clarity on which player secures which proportion of the value-added chain and by their shared extension the added value of their activities to the customer.

Consider an example of the shared use of ambivalent value between the supplier and LML end point delivery company. The retailer wishes to send a product to the customer and the customer is only willing to pay £10. The product costs £1 to make therefore leaving a profit of £9. Depending on the delivery service dictated by the retailer's business model, the retailer can negotiate the cost of that service within the ambivalent value, i.e., the £9 made in the sale. Likewise, if company A wishes to invest in the supplier's business by providing a digital application for retailer and customer to use, this investment becomes the added value to the collective of the two parties and the overall added value to the customer and attaches company A to that supplier, thereby keeping other competitors out of the process. At least according to the value base business strategy, this means that company A provides a higher value-added share to the value created for the supply chain. These two examples focus on the 'value created' by individual parties when in negotiation with each other. The moveable scale of ambivalent value moves between parties according to the abilities and demands of each. In reality, it is likely that the party who can carry out 'tough' negotiations will benefit more, but in this process, it is the joint outcome that contributes the greater 'value created' within the supply chain. Variations to the value-added chain rely on the willingness of participation of each party. For this research it is reasonable to understand the foundation of the value-added chain and the process of sharing that created value.

Reviewing a business model is complex, the reality involves multiple influences, affects, processes, and choices, leading to multi-directional change. A multi-sided process of evaluation considers the customer engagement and the effects of that engagement, in a way that Demil & Lecoq's (2015) business model does not (Figure 15). It takes stock of what is important to the company and what the customer may think is a process that involves multi-sided business model evaluation (Parmentier & Gandia, 2017, p. 52).

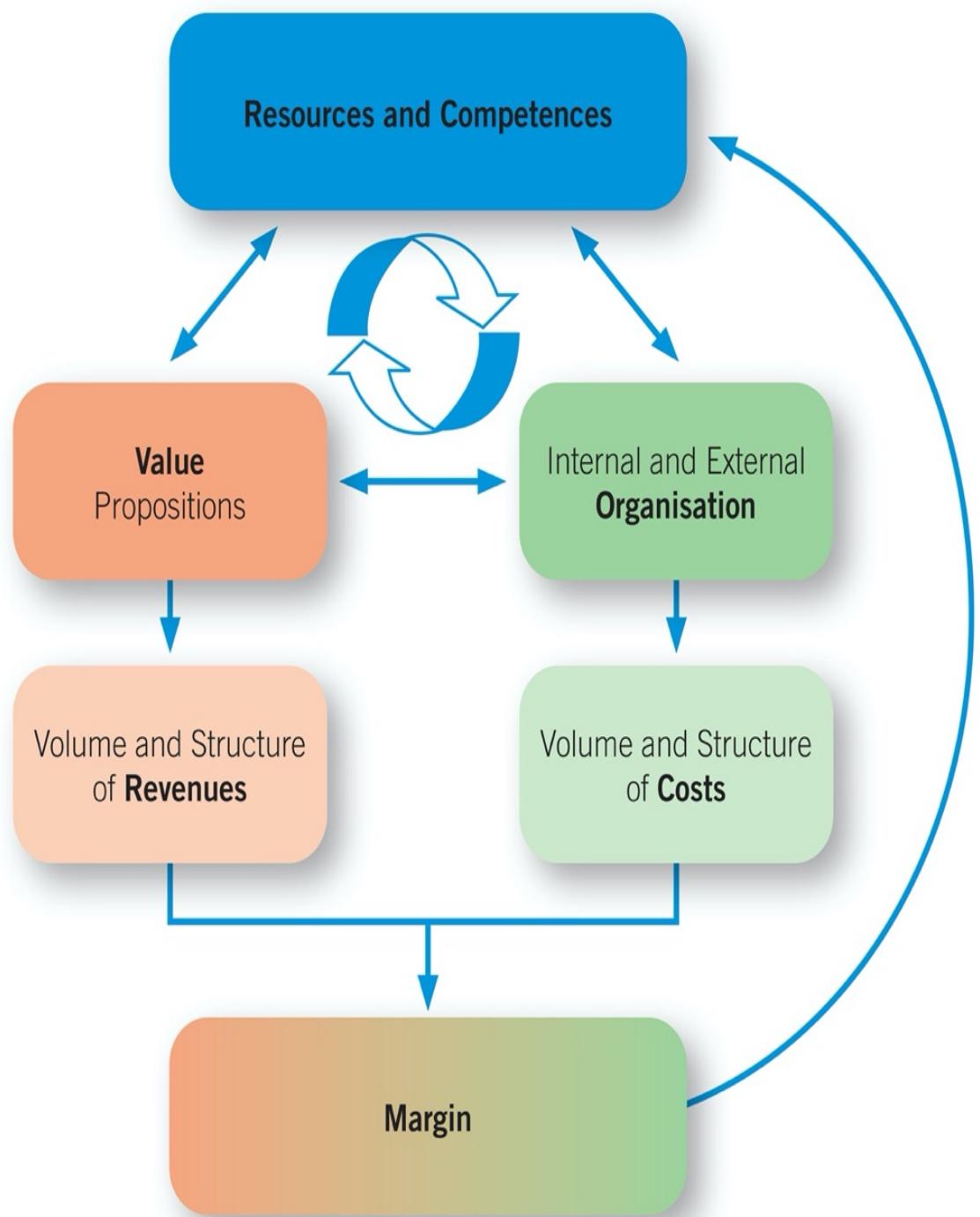


Figure 15: Business Model (Demil & Lecoq, 2015, p. 46).

One weakness of the Braithwaite and Christopher (2015) business model is that the five parts to the business model structure do not provide guidance for the successful integration of the technological media used for online shopping (Lim, Jin, & Srai, 2018). The structure recognises technology as a requirement in reviewing a business model but omits the necessary interaction between each party. Rumble (2015) believes that a business model is ‘operationalised’ by the business and therefore, to use this model would omit the operationalisation of the interaction of parties.

Braithwaite and Christopher (2015) suggest that the customer ‘demands’ to control the business model and this relates strongly to the shoppers demand for information of their purchase and delivery and is relative to how they determine their satisfaction with an online purchase (Accenture, 2016; CMR, 2018; Capgemini Reserch Institute, 2019; DHL, 2021; I6, 2017; IMRG, 2019; KPMG, 2018; UPS, 2019). The customer demand is reviewed in a business model in the characteristics of ‘customer engagement’, ‘customer identification’ (Baden-Fuller & Mangematin, 2015), ‘customer benefit’ (Teece, 2010) or ‘Value Propositions’ (Demil & Lecoq, 2015). These elements within the business model are valued and necessary but do not relate to the customers’ demands without the interrelationship with technology or the two-way flow of that communication.

Casadesus-Masanell and Heilbron (2015) argue that the novel way in which business models may capture value in a process, will in fact create greater value for the company and customer. Analysis of a business model is important as part of the process (Schaller, et al, 2018), as a missing part of Bratithwaite and Christophers (2015) model this demonstrates a weakness in their approach.

Each of the business models researched show elements of the process being used individually (Baden-Fuller & Mangematin, 2013; Brandenburger & Harborne, 1996; Braithwaite & Christopher, 2015) or in a repeatedly (Demil and Lecoq, 2015; Teece, 2010) with the common goal of generating value for the customer (Bask, et. al, 2010). None have included the two-way technology relationship required to satisfy the customer demand for information and control of delivery.

Understanding current research shows that the customer engages with a service that creates or gives them value and/or something they benefit from, means that the LML company needs to engage with the customer demand for control and communication (Capgemini Research Institute, 2019; Fernie & Sparks, 2019). The researched business models provide various parts and integration of a business model but do not include the engagement of technology.

It is clear, from this research, that value-added components that are currently being demanded by the customer (Accenture, 2016; CMR, 2018; Christopher & Ryals, 2014; Fernie & Sparks, 2019; Hazen & Ellinger, 2019; IMRG, 2019; UPS, 2019) (CMR, 2018). Taking the structure of the aforementioned business models and adding the two-way relationship for technology communication supports using the ideology of ambivalent value to the business model structure. The additional elements to the business model are supported by Casadesus-Masanell et. al. (2015) suggestion that a business should not underestimate the importance of ‘value-added or value-created’ in the business model process and highlights that ambivalent value can contribute to this process.

2.4.3 **Last Mile Strategic Models**

The last mile express delivery sector has been affected by the multi-sided business model’s disrupters to the delivery market. Amazon was founded 20 years ago to supply the earth with products (I7, 2019); a grand and futuristic view. Today, its business model is to plan for long-term growth from its origin as a pure play provider. However, Amazon has changed and since 2017, the company has expanded into an online supplier and retailer, with its own warehouse and distribution centre (DC). It also provides its own logistics, right through to last mile delivery. Amazon is now a retailer using an online platform and bases its business model on long-term sustainability of growth for the company, whilst its strategic model focuses on the customer. It calls itself customer centric. Amazon CEO Jeff Bezos argues that both its business and strategic model pushes and pulls the business and explains this as true customer obsession (Tabaka, 2019):

“The first and by far the most important one is customer obsession as opposed to competitor obsession. I have seen over and over again, companies talk about being customer focused, but really when I pay close attention to them, I believe they are competitor focused” (I7, 2019). There are many ways to centre a business. Bezos talks of competitor focused, product focused, technology focused, or business model focused but believes that customer focus or customer centric to be by far the most important. It is, he argues, the desire to deliver to a customer something they don’t yet know they want that will drive a business to achieve its long-term growth (Figure 16). It can be argued that the business model is pushed by the strategic model and the strategic model is the outcome of what Amazon wants to deliver: its goal to give the customer what they want and give the company the platform to achieve this through economy of scale. Amazon combines economy of scale with the use of an online platform, a commission selling service and a subscription service provider. The elements of this are centred around the customer’s immediate gratification and access to the service they want, the customer demand chain.

The current business models (Figure 16 & 17) reflect that whilst the parts are similar to Teece (2010) and utilise a repeating process, the integration of the process does not exemplify the added-value concept that Casadesus-Masanell et al (2015) suggests we should not underestimate. These business models could be referred to as more of a strategy than a business model as this research has found, LML companies are not sure which model, business or operational, they should be using to drive the company forward. However, both play an important role to achieve the company goals (CitySprintGroup, 2018; I1, 2017; I7, 2019).

CitySprint UK is a same-day express delivery company, a national company that (literally) delivers its service. Like Amazon, the company is young, emerging in 2001 from a management buyout of three other courier companies (Delta, Security Dispatch and West One) (Lomas & Worth, 2006). Their ethos centres on the customer experience. Today, their business model focuses on ‘evolving delivery’ with a three-part model of innovate, create, and deliver. They aim to be the major same-day distribution partner of choice; to maintain our market-leading position in local last mile delivery solutions, and to deliver leading-edge technology for final mile delivery challenges

(CitySprintGroup, 2018, p. 06). This statement represents the best possible result for this company through a business model that focuses on relationships, market position and technology (Figure 17).

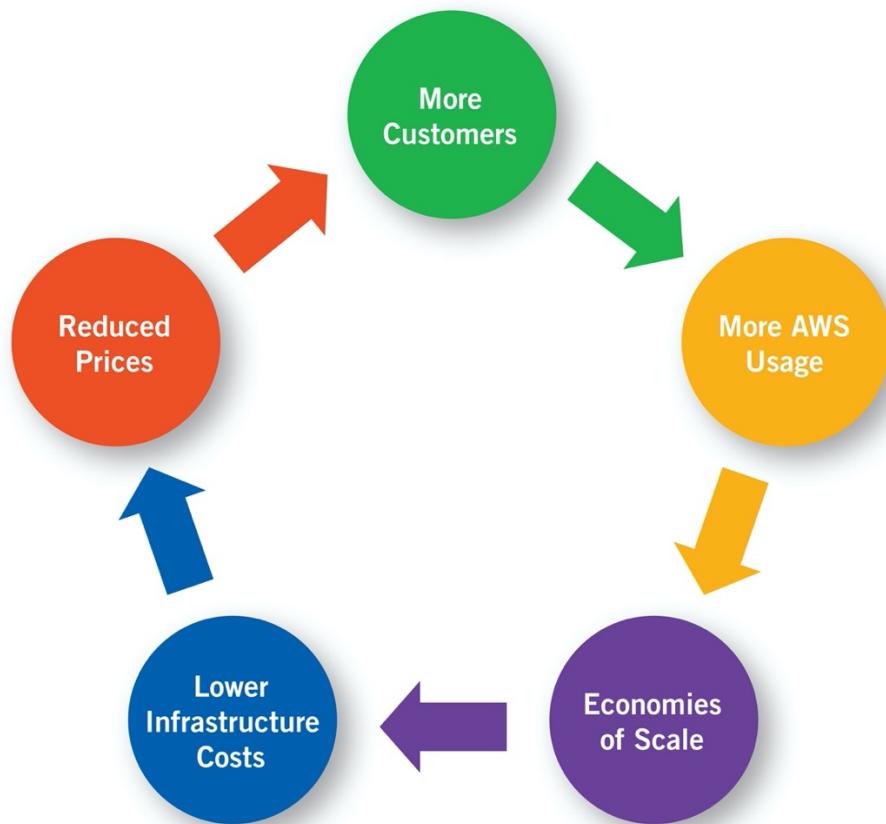


Figure 16: Amazon Business Model (Sands, 2017)
AWS = Amazon Web Service.

The structure of CitySprint's business model lays within the logistics business model cycle that uses the parts that interrelate to make the whole (Rodrigues, et al., 2008). CitySprint's business model matches with the process of the logistics cycle process (Customer, Shipper, Carrier), the customer creates the demand, the shipper is required to deliver the product, and the carrier needs to be innovative to meet the customer demand. The concept of CitySprint's business model relates to the operational model of innovate (input), create (what they do) and deliver (outcomes). Again, the business

model and operational model ‘push and pull’ each other without succumbing to the dominance of one over the other.

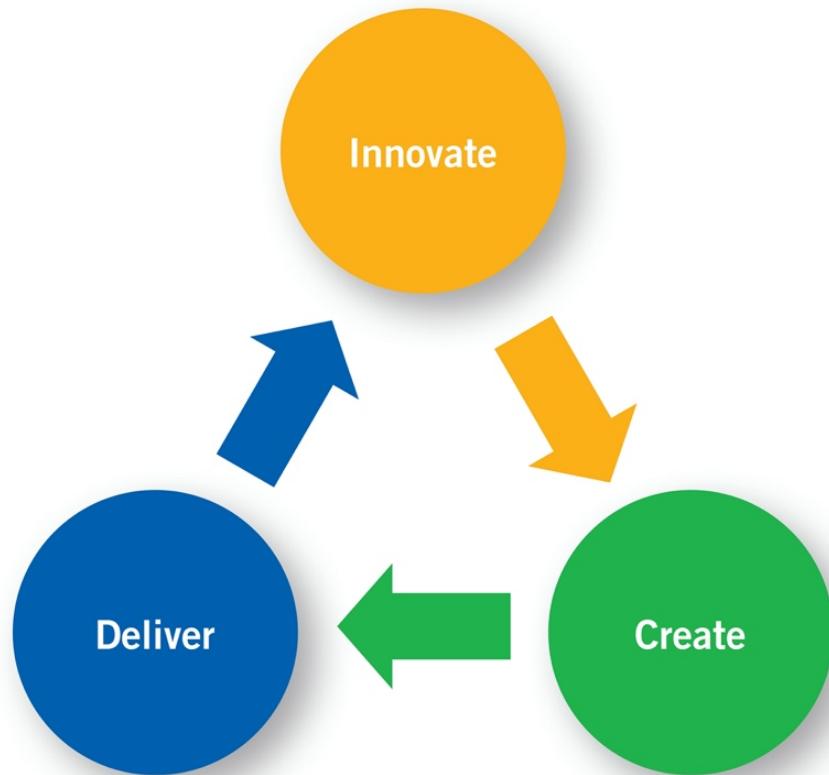


Figure 17: CitySprint Business Model (CitySprint Group, 2018, p. pg. 3)

2.4.4 Consideration for a Multi-sided Business Model

At the beginning of this chapter, it was noted that Baden-Fuller & Mangematin (2015) focus on the tool that designs or defines the business model, and that the internal and external influences will shape the future of that business model. Even though one is a retailer and one an LML company, Amazon and CitySprint both use the business model concept so that decisions and influences, whether internal or external, can be tracked, worked through, and modified when necessary. When decisions are taken based on a cause-effect relationship, the business is going through a business model process. Teece

(2010) states that the sector accepts, that a business needs to take into account the operational model that will deliver its goals. Last mile express delivery interrelates the operational model with the business model to make sure this happens, and to capture value for the business.

The sector delivery models for Amazon and CitySprint use a cycle of decisions from a cause-effect relationship to move on from each stage of their business model. The cycle is never-ending, and it is the iterative, repeating applications of the cycle that meet the challenges of the business model goal. The concept of a business model can be described as ‘manipulable instruments’ (Baden-Fuller & Mangematin, 2013, p. 134), playing on theories that benefit or influence the outcome of a business. It is this concept that allows the business to probe and explore, thereby gaining a greater insight into the innovation opportunities or the constraints to a business. This research argues that it is the operational model that delivers the insight to enact the processes of the business model (Baden-Fuller & Mangematin, 2013; Bask, 2001; Teece, 2010).

The reaction and interaction of internal and external influences will change the perception of the outcome that the management is expecting, and therefore a business model morphs over time (Casadesus-Masanell & Heilbron, 2015; Teece, 2010). The right business model is rarely apparent early on in a business’ growth (Teece, 2010, p. 187). For example, both Amazon and CitySprint focus on evolving their business models to follow their cycles and to diversify, whilst still delivering their core service. This research argues that both business and operational models are pushed by the same concept, the operational model, which in turn is controlled by the customer (Braithwaite & Christopher, 2015; I1, 2017; I4, 2015; I7, 2019; Teece, 2010). What is agreed by the sector (I1, 2017; I3, 2018; I4, 2015; I6, 2017; I7, 2019) is that any sustainable business model must have systems, processes and assets that are hard to replicate, to become the disrupter in any given sector (Teece, 2010, p. 182). The technology of the internet, web platforms and mobile communication has brought a new dimension to all businesses. The customer uses these platforms for their everyday social and business needs, and the new generation of millennials is testimony to a life of digital communication. When a company wants to do business, they must incorporate the customers demand and need to interact with the service process. The multi-sided business model is driven by this

technology and, distinctly, by the interaction or the relationship between the customer and the company (Funari, 2015; Parmentier & Gandia, 2017).

Multi-sided business models require greater vision in their conception and therefore better design tools are needed (Rumble & Mangematin, 2015). The conception of a business model takes vision, passion, and clarity. Sharing this with other actors means that the conception becomes a reality. However, in that process the reality may not always reflect the expected outcome. The revelation that a company needs to grow, recover, or gain more market share is the impetus for developing a new business model (emphasis on new). The multi-sided business model is a way to open up new processes, to gain new markets or customers. When using such a model, the LML company will be able to take the lead in relationships formerly dictated by customer demand.

In interview, I7 (2019) stated that, “the key is knowing what segment will respond to your unique offering. Who your product appeals to is just as important as the product itself” In the past, we have seen that without a business model’s constant revaluation, a company’s demise is inevitable (Baden-Fuller & Mangematin, 2013; I6, 2017; Teece, 2010). Companies such as Woolworths collapsing in 2009, Kodak in 2012, and CityLink in 2014, offer proof that ignoring the financial business facts, the decline of sales of products, services, location-specific issues, or customer interaction will lead to a company’s demise. Demil and Lecoq (2015, p. 32) state that “that businesses tend to insist on a gradual emergence of business models, and on the progressive refinements that need to be made to them over time, so they become efficient”. This argument suggests a continual appraisal, re-evaluating the business model to encourage refinements to be made at regular intervals, for instance twenty years. Teece (2010, p. 177) describes how businesses morph over time and business models must adapt to gain better efficiencies. Recognising that a current business model is failing, or even has already failed, should lead to a review of the plan. Rumble and Mangematin (2015, p. 98) continue the idea of incremental change, morphing over time but add that “where the value created for one set of customers/users depends on some kind of interaction with another set, this adds complexity to a business model”. The business model becomes multi-sided especially when one industry converges with another. In this research, that is the LML company and the retailer and customer. The assumption is that

for the LML business model to gain better efficiencies it becomes a multi-sided model. With the change of customer demands and the global shift of digital communications, the traditional business is left stranded (Casadesus-Masanell & Heilbron, 2015). In all the above examples, if the companies had chosen to re-evaluate the business model they were working with, they may have survived. What prohibited these companies from re-evaluating their business models can be described as the cause-effect relationship (Funari, 2015). The business (the actor) needs to understand the relationship between customers, the organisation and the money. The adoption of a new business model is not just the responsibility of the leaders and managers of the company, but includes the understanding, reaction and interaction of the customers and stakeholders.

Take, for instance, the vacuum cleaner. The public have long used the phrase ‘hoover’ to describe a product which is really called a vacuum cleaner. Why? The public bought into the brand and quality of the vacuum cleaner made by Hoover and as such the product became so iconic that a vacuum cleaner is now known as a hoover (Oxford Compact English Dictionary, 1996). The relationship with the business, the customer and the agreement of all parties relates to the operational process of a multi-sided business model evolving. Businesses that are looking to change or engage in a new multi-sided business model do not have to create a new way (Mikhalkina & Cabantous, 2015). Rather, new and equally successful business models can be related to and developed out of those that are seen as iconic or by leaders of the industry, just as Hoover is now challenged by Dyson.

Parmentier & Gandia (2017) multi-sided platform architecture seen in Figure 18 shows that with technology at the core of the model, interaction with all other users will contribute to value creation for the organisation. Each side (user) has the ability to interact with the other sides, enabling the core user (technology in this model) to increase the value and profit for the organisation. This framework is multi-sided, interactive with and interconnected to all users, as is the requirement for the LML organisation when providing their service.

When a company is improving its ability to create and capture value, through the process of analysis, mapping and separation of business and strategic intellectual properties, the process is about specific activities, but it can be argued that through the use of ambivalent value sharing an outcome can lead to greater profit. The process which is described as the interconnected business operation transacted along the value chain, appropriate to the field of use, it can be referred to as a common-sense device and of latent value (Casadesus-Masanell & Heilbron, 2015, p. 5). However, using a multi-sided platform is not a guarantee of success, the platform needs to provide value for the industry, be competitive and exhibit the controls for value capture (Evans & Schmalensee, 2013).

The process to achieve a multi-sided platform is strongly influenced by the developer and it should be acknowledging that this may place greater value, of the interconnected business operation, with the developer (Abdelkafi, et al., 2019).—It is evident that even if a business does not knowingly carry out this process, when a group of actors share processes, the combined value is greater than when working alone. The ambivalent value is attained whether knowingly or unknowingly. If a company understands and knowingly engages in this process, it can more effectively create value for all parties, supporting Parmentier's theory (Parmentier & Gandia, 2017). Ambivalent value is a means to capture value within the business model, however, if it isn't understood then the model is flawed.

Barney's (2018 p. 313) resource-based theory similarly looks at how a company who has the largest impact on the value created, has the strongest incentive to maximise that total value created by the ambivalent value exchange. Utilising the supply chain in an agreed process means that the core aim of a business, bringing goods to market so that consumers may purchase and use them, is achieved with a greater profit.

Parmentier et al (2017)suggests that business opportunities emerge through the use of multi-sided platforms, creating value for all sides. ‘An organisation can change the activities it preforms, recognising and altering who completes them and where’ (Mancha & Girdon, 2020).—Utilising the Parmentier et al (2017) model opens the process to the opportunity of engaging with third parties to co-innovate the service

offerings, thereby bringing greater value to those parties (Bayram, 2021). This however is reliant on the market forces and the ability of the company to ensure that competitors cannot imitate the same value chain. The ability lies with a company to achieve a unique packaging of ambivalent value. It must create or re-assemble resources that are expected to create value and are distinct so that others cannot recreate the same value.

Hänninen et al (2017, p. 160) suggest that ‘a multi-sided platform-based business models are less capital intensive, easier to scale and more profitable in the long-term’. This also refers to the capability of the Parmentier et al (2017) model that a multi-sided platform business model is more agile, responding more effectively to the client demand of the LML sector. This capability requires the user to understand large amounts of data, to respond to the client demand. Therefore, the multi-sided platform will not be of value if the user, unable to or unfamiliar with, the process large data analysis (Hänninen, et al., 2017). Even though there are negatives to this model, the positive contributions of the multi-sided business model platform provide a varied and flexible process to capture value for a business.

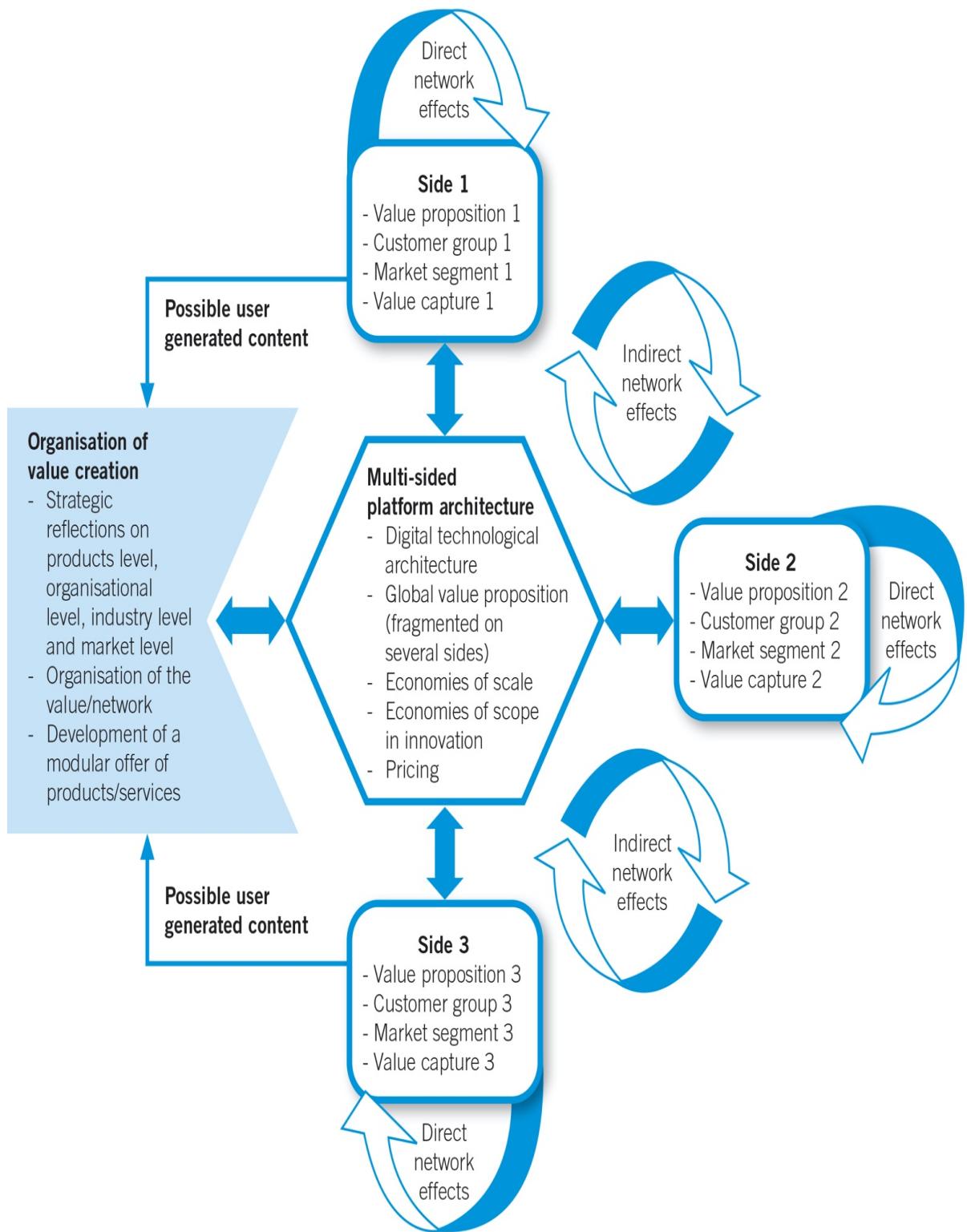


Figure 18: Multi-sided platform architecture (Parmentier & Gandia, 2017, p. 54).

2.4.5 Re-designing a Business Model

The business model concept has more recently become a hot topic among academics as well as the business sector. Demil & Lecoq (2015) suggest that the gradual introduction of a business model provides the most efficient results but yet such an introduction within an established business has yet to be fully explored. Adapting a business model in this way is aimed at offering improved value for the customer. The customer has become agitated and wants to control the service, or at least believe they are in control. This is evident in the customers' demands when purchasing and requesting delivery (Anderson & Lee, 2017; Lim, et al., 2018). The way the customer perceives the value of a service is determined by whether the provider can either improve or enhance the perceived benefits or reduce the total cost of the service provided (Braithwaite & Christopher, 2015). The adaption of or improvements to the current LML business model should be able to offer this. In particular, Parmentier & Gandia (2017, p. 55) suggests six steps when redesigning a business model, "from a multi-sided perspective, business model design requires simultaneously targeting several consumer groups, developing and implementing new technologies and supporting the scalability of the platform". This concept can provide the tools to rework the LML business model (Table 3).

In the LML adaptation of Parmentier and Gandia's (2017) operations of business model design, the six operations are similar, and the principles and effects relate to the LML industry. The transformation of using digital technology and co-specialised resources increases the opportunity for the LML to have scalability and information flow.

The LML can modularise the operational steps for change through the three phases of implementation: Phase 1, creating the technology platform, Phase 2, engaging with new user groups via co-specialised resources, and Phase 3, linking user groups for mutual benefit via co-specialised resources. This way, the LML business can engage with the new user groups that have been created through the acceptance of new technology platform, for example apps or an online ordering system.

Linking the new user groups by co-specialised resources means that all parties can look to achieve their optimum value. The implementation between different sides of the

business model enables the business model, in this case the LML, to capture value for the business that it may otherwise fail to capture. On assessment, the party that has the greater impact on the value created within the exchange maximises the division of ambivalent value between the co-specialised resources, knowing that added value or complimentary services are worth more when offered together to a customer (Barney, 2018; Casadesus-Masanell & Heilbron, 2015). This concept of value added or value created by the co-specialised resources extends the current theory of the multi-sided architectural platform. It increases the opportunity to understand the incentive to assess the ambivalent value of the exchange, thereby giving the analyst (in this case the LML) the greatest opportunity to create and capture value for its business. The concept of ambivalent value giving all parties the opportunity to work with each other, whilst benefiting from the co-operation by increasing the captured value for all parties (Casadesus-Masanell & Heilbron, 2015).

Phase 4 develops the linkages to resolve, co-create and innovate processes which will increase the information flow, building consumer/retailer engagement and the sources of captured value. Utilising the multi-sided architectural platform to open up the value creation process meets the phase 4 suggested linkage. The opening up of the business model takes the analyst to the next stage of trying to multiply and grow. Phase 5 of the remodelling design aims to increase the business share by identifying new markets and consumer groups. The suggestion of diversifying, for example expanding the customer market from parcel to medical products or services, is the delivery of the same service but to a different customer group. Another option is to explore a larger range of needs from the same domain, for example the customer purchase for a product online, at a store or from pure play businesses, offering the service to all elements of the purchase and delivery.

The final, stage 6 asks that the value for the user increases, for example by providing part of the value proposition for free, this could be under the offer of ‘free delivery’. Naturally, ‘free delivery’ is not free of cost to provide and will have to be paid for. However, the LML provider using the concept of phase 3, the co-specialised resources, can negotiate the ambivalent value to the benefit of all parties so that the perception of customer value is met (Braithwaite & Christopher, 2015).

	Operations	Principles	Effects
1	Setting up the platform	Set up a technological architecture for a digital platform. Deliver complementary products / services	Favour customization Favour modularity Create support for multi-sided structure
2	Reformulating the value proposition	Review the value proposition to target a new broader consumer category. Create new value-added features and remove unneeded features.	Create more value for more customers (blue ocean effect) Meet new or unmet expectations.
3	Structuring and linking groups of complementary customers	Create complementary value propositions to make user groups interdependent Analyse interactions between user groups to identify which group creates value for the other(s).	Generate (positive) indirect network effects Reduce costs of search and networking.
4	Opening the business model	Open the value creation process (cocreation, co-innovation, problem-solving, etc.) Open the value capture process (create business licensing, spin-offs, valuing IP, etc.)	Multiply sources of value creation and value capture Build consumer engagement.
5	Multiplying the niches	Target a large number of market segments to address a large range of needs Identify consumer groups with a large range of needs in the same domain.	Multiply sources of value capture (long tail effect) Explore market trends Build additional sides.
6	Structuring prices	Provide a part of the value proposition for free Transfer a part of free users to a paid offer Valuing user presence (for advertising) and user-generated contents.	Attract a large number of users Encourage users to pay on other sides Generate more profits.

Table 3: Operations of business model redesign (Parmentier and Gandia, 2017. p. 55).

2.4.6 Creating Value

Utilising traditional business values of “customer value/service performance, market presence/transformation, measuring cost/optimization and delivery” gives structure to a company business model (Braithwaite & Christopher, 2015; Rushton, et al., 2010). However, in a modern digitalised world, there is a new way to view creating greater

value and add structure to the business model. Parmentier & Gandia (2017 p. 52) suggests there is a way to transform a one-sided business model into a multi-sided business model without having to become a new start-up and with little resources. This idea is not new. It has been in evidence in the literature for the past couple of decades, including Coase's method of building more realistic models of choice which puts the emphasis on choice to grow a one-sided business model (Bingyuang & Gunning, 2002, p. 223). This continuity of thought strengthens Coase's idea that the success for economic business modelling is in the expansion of the single to multi-sided mechanism. The shape and the direction of the expansion to a business model becomes a choice for the company to make (Demil & Lecoq, 2015, p. 32). This research has evaluated the design of business model processes and structure, similarly, discovering that the approach to the business model should raise questions for analytical considerations leading to strategic choices and in particular the interaction between competitive strategy and business modelling, the expansion of one-sided business model to multi-sided business modelling.

Markides (2015, p. 140) suggests that if a company does not separate "between business and strategic models" the company will repeat old theories and will not be open to embracing new innovations. Therefore, to halt this process, it is necessary for a business to identify the differences between their business and strategy. The segregation of intellectual properties into business and strategic models allows the company to concentrate on the specific and detailed activities necessary for the company to expand their business model. The architecture of the multi-sided models often use technology to achieve this. Airbnb, Uber or Deliveroo all use technology to link the customer, supplier and service together. The definition of the multi-sided platform is "a technology support that facilitates interactions between two or more distinct but independent customer or user groups" (Parmentier & Gandia, 2017, p. 53).

The elements of the multi-sided platform are therefore its interaction and facilitation between users whether it uses technology or not. Establishing differences between the business and strategic model allows the company to expand on those differences. Markides (2015) discusses that strategic model processes can be simply crossed over into business modelling as they both do the same thing, describing the process as how

the firm operates. Following this process nothing new will be gained, but if the differences are identified as Baden-Fuller & Mangematin (2013) suggest, this will lead to spatial awareness and specific focus on the detailed activities that the company wants to achieve. This process could be claimed as similar to Porters (1996) conceptualisation of a firm's strategy as an activity system (Markides, 2015, p. 140). This can be challenged by the multi-sided business model concept that implies the expansion of a business model relates to external influences as well as internal influences, known or unknown (Parmentier & Gandia, 2017). In this the internal influences are 'human', real people, decisions, building, values, or other ingredients necessary to conduct human activity and it is through this mechanism that a company achieves the capability of creating and capturing value.

2.5 Summary of Literature Review

A business model is the tool used to evaluate the business processes and outcomes, and a tool that helps bring theory into practice. Such a model is commonly accepted as a practical tool to implement the wishes of the company in achieving its goal (Casadesus-Masanell & Heilbron, 2015). This research has evaluated work by Baden-Fuller & Mangematin (2013, p. xix), which argues that a business model can be used to engage with the customer, not just in the traditional concept of production or finance, but in novel ways. Including, using technology to alter the dynamics of engagement aspects of the business. This led to Casadesus-Masanell & Heilbron (2015, p. 3) suggesting that ambivalent value promises to help sustain superior profits in the long run and that the use of this concept offers a greater value to all parties. Casadesus-Masanell & Heilbron (2015, p. 10) go on to say that even though a business model is a chaotic human activity it must appeal to the self-interest of others to facilitate transactions. The concept of ambivalent value, when included in a business model, would offer a novel way to alter and adapt to the dynamics of business engagement.

Understanding of the business model is what this research pursues, exploring the norm and how new approaches might be developed to ensure its successful application as a tool for the present day. Understanding the current business models used by LML

companies and retailers does not define the relationship between the two services, or their relationship with the user. This research unpacks the relationship between these models to understand the various express delivery strategies within the last mile delivery industry.

Identifying with Baden-Fuller et al (2015) literature suggests that the business model structure should allow for the values of internal and external influences to be analysed and this leads to the idea that when strategic action is considered across all areas of a service this process will deliver superior customer value, the concept that when the whole, end to end process works together, the chain is worth more than the individual parts (Casadesus-Masanell & Heilbron, 2015; Larson & Halldorsson, 2004). This research supports the argument that the business model neither “owns, creates or innovates” (Rumble & Mangematin, 2015, p. 99) but the operationalisation of the concept is the added value that the customer demands (Bask, et al., 2010; Rumble & Mangematin, 2015). As the growth of the internet and online shopping erupted (Barclays Bank, 2014) end to end delivery process changed from the supply chain demand to customer demand (Lomas, Lascelles, & Worth, 2018; Mangiaracina, Perego, Seghezzi, & Tumino, 2019). Acknowledging this concept led to understanding that the current business model (CitySprint Group, 2018) does operationalise the business model to fully incorporate the customer added value demand (Lim, Jin, & Srai, 2018). Parmentier and Gandia (2017, p. 54) proposes that the multi-sided platform architecture model (Figure 18) allows for added value to be created by all users through two-way interaction and customer transparency. Parmentier and Gandia’s (2017, p. 54) concept can be operationalised by the LMLs to achieve multi-sided interaction and customer added value, something not shown in the current business model.

Academic literature appears to focus primarily on internet retail marketing and e-business models (Anderson & Lee, 2017; Braithwaite & Christopher, 2015; CMR, 2018; Dablanc, et al., 2017). By comparison, relatively little has been written about the impact of online retailing strategies or electronic marketplaces (EM) on the business models of logistics service providers like last mile delivery (Rabinovich & Bailey, 2004; Wang, et al., 2007; Yuan, et al., 2011). Dunbar (1981, p. 9) writes that failing to recognise the revolution in transport caused the slower expansion of transport

companies. Similarly, the technology emergence since the 1990s has been a revolution for the last mile delivery sector. Advancements in technology for the customer have brought access to better knowledge, instant choice and removed all geographic boundaries of a product, bringing the customer and the product together from anywhere in the world. The LML companies must rise to the challenges of the technology revolution.

The advancement of greater knowledge and choice for the customer means that LML companies must evolve and become more responsive to the customer's needs. The expansion of this phenomenon has changed the last mile delivery model to include a multi-faceted customer interaction LML delivery (Allen, et al., 2018; Braithwaite & Christopher, 2015; Daugherty, et al., 2019), with digital technology leading the evolution but does not replace human interaction (Parmentier & Gandia, 2017). As the client demand chain takes priority, so the LML delivery needs to evolve the multi-faceted business model.

Three types of business model used by retailers explain the interaction between the retailer and customer, but not the encounter of the LML with the retailer and customer. Click and collect suggests various processes for the collection point (Anderson & Lee, 2017; CMR, 2018; IMRG, 2020; UPS, 2019) but research suggests that retailers would prefer to offer their own click and collect service, meaning, that the customer having clicked online to purchase, would then collect from their own store to encourage customers to make further purchases (JDA Ltd, 2016; Murfield, et al., 2017). [TW1] In this account of retailer preference, the purchase follows the online journey more than the traditional retail delivery journey. With the traditional purchase journey of delivery, the customer is clearly known to the LML. However, with an online purchase, whether instigated by a retail or business interface, the customer of the LML company can be the customer who purchased the product, the manufacturer, the pure play warehouse, the store, or the third-party service provider for the product. It can be said with absolute certainty that the receiver of the product is the customer, who will inform the LML business if they have delivered according to their own (the customer's) perceived value. Figure 19 shows the customer purchase journey (Lemon & Verhoef, 2016), from a customer thinking about what to purchase, through to which pathway the customer

wants to receive their purchase, overall, the customer experience is a multidimensional construct in response to a firm's offerings. The upper part of the diagram, pre-purchase, and purchase stage, shows the customers thought and action to purchase, whilst the lower part, post-purchase stage shows the physical delivery of purchase. The customer has two main pathways to carry out a purchase starting with a physical or virtual process. Lemon (2016) research suggests that the role of information technology connects the customer with the retailer and believes that this tool will lead to reducing the friction in the customer purchase journey. For some retailers like John Lewis, purchases sent via LML company now make up over 50% of all purchases annually and understand that the whole customer purchase journey needs to be frictionless (Scarlett, 2018). The early pure play model (Figure 7) has multiple connections from the manufacturer, wholesaler, and e-retailer linking to the customer. That model is too chaotic for the current customer who wants to make a purchase and receive the goods with as little effort as possible. (Bhattacharjya, Ellison, & Tripathi, 2016; CMR, 2018; Chillman I., 2018). The customer purchase journey (Figure 19) based on the post 2010 pure play model of Turban et al, (2018) relays the process of how the customer wants to be the focus and in control of information, and it is technology that will fill this gap and provide a frictionless customer purchase journey (Chen, et al., 2011; CitySprint Group, 2018; Daugherty, et al., 2019).

Understanding the business models currently used and the process required to evolve these models for future implementation by LMLs is key to the research needed. In utilising an evolving analysis concept in this research (Baden-Fuller & Mangematin, 2015) through means of qualitative and quantitative data research, longitudinal immersion, and case study techniques this process gives participants the opportunity to open up which in turn offers large quantities of quality data to the researcher (Buchanan & Bryman, 2015; Cassell, et al., 2018; Saunders, et al., 2019; Wells & Nieuwenhuis, 2017). This concept recognises the benefits of interaction and relationships between parties which fits with the multi-sided platform architecture (Parmentier & Gandia, 2017; Wells & Nieuwenhuis, 2017)

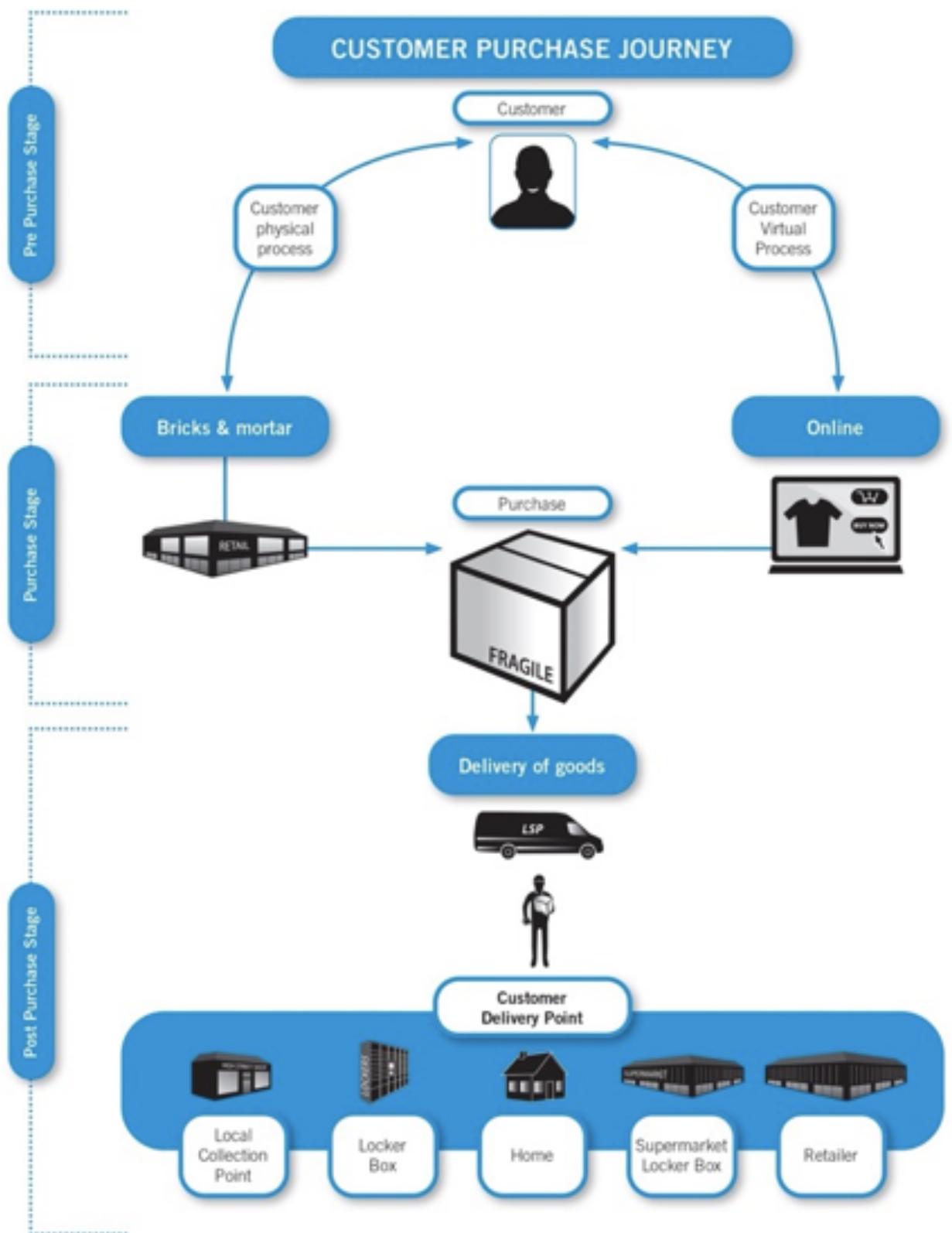


Figure 19: Customer Purchase Journey (adapted Lemon, K; Verhoef, P; 2016).

The literature review has offered several concepts of business models (Baden-Fuller & Mangematin, 2013; Braithwaite & Christopher, 2015; Demil & Lecoq, 2015; Parmentier & Gandia, 2017) that suggest customer added value is the driver of operationalising a business model concept and by utilising a qualitative research method, including longitudinal immersion and a single company study the research process can be relied upon as robust data upon which to base an analysis of the implementations of express delivery strategy within the UK last mile delivery industry (Lim, Jin, & Srai, 2018; Schaller, Vatananan-Thesenvitz, & Stefania, 2018; Wagner & Sutter, 2012). Conversational analysis makes the point that research benefits from projection, non-verbal interaction and mannerisms that make a difference to the message being delivered; the same can be said of listening (Cassell, et al., 2018, p. 485). Listening to the customer will tell a business whether it is successfully delivering a customer's perceived value of its service.

Harry Selfridge, John Wanamaker, and Marshall Field are suggested as having coined the phrase that infers the customer should be given what they are asking for. Sam Walton of Walmart (Braithwaite & Christopher, 2015, p. 51; Walmart, 2019) is attributed with saying:

Rule 1 – the customer is always right

Rule 2 – if the customer is wrong, refer to rule 1

Sam Walton's attitude to making a business a success was set at the heart of the customer. Today, the emergence of the LML industry demonstrates that the client chain demand resonates with this rule. This means that at the heart of a business model, the client must be integrated and bonded to both the business models of the LML and the retailer. The methodology through which a business model might be understood and achieved is discussed in the next chapter.

2.6 Literature Review Gap in Research

Several issues begin to emerge that have significant implications for the home/workplace delivery service strategies of LML companies. This includes problems such as increasingly demanding customer service expectations, difficulties in forecasting service demand, failed deliveries and return logistics costs, higher order fulfilment costs, increasing environmental pressures caused by urban traffic congestion, and the threat (or opportunity) of potential channel disintermediation (Allen, et al., 2018; Anderson & Lee, 2017). IMRG estimated in 2014 that the UK online and catalogue retail industry served 26.9 million active online consumers, spending £107bn. In 2019, this number increased to 53.2 million online consumers and consumer spending at £170bn (IMRG, 2019). Customer's expectations, ability to access through technology and mobile resources has a direct and significant impact on the business operational processes of the last mile delivery service (Bask, et al., 2010; Barclays Bank, 2014; Braithwaite & Christopher, 2015). The industry needs to understand the LML business model better to be able to meet the upsurge of customer demand (Lim, Jin, & Srai, 2018).

This research has reviewed the current knowledge of business modelling (Baden-Fuller & Mangematin, 2013; Braithwaite & Christopher, 2015; Demil & Lecoq, 2015; Parmentier & Gandia, 2017; Teece, 2010) and analysed the corresponding use of current LML business modelling (CitySprint Group, 2018; I7, 2019) to identify and achieve the objectives of the first aim; to identify the key business models that articulate the structure of the UK Last Mile Delivery Industry. This review led to further understanding of the internal and external influences affecting the industry and the changes needed to improve a two-dimensional business model relationship to multi-dimensional through value recognition of the internal and external influences that shape a business model (Bask, et al., 2010). Casadesus-Masanell and Heilbron (2015, p. 3) further the process of business modelling describing the business model as decisions enforced by the authority in the company which "allows the analysis of the business model through the analysis of the individual firm's choices". This highlights the responsibility of the decision makers within the LML company and how their 'choice' affects the operationalisation of the business model.

The third aim of this research is to develop a business model for the LML industry. Research has identified Parmentier and Gandia (2017) multi-sided platform architecture, understanding that the process of including all parties in a two-way process of transparent communication and information gains both customer - added value and creates added value. This model, a process of inclusion, corresponds with the needs of the LML company and meets the third aim to develop a business model. In the next chapter the method of how this is achieved is discussed and evaluated, evaluating the best means to achieve robust data collection for analysis.

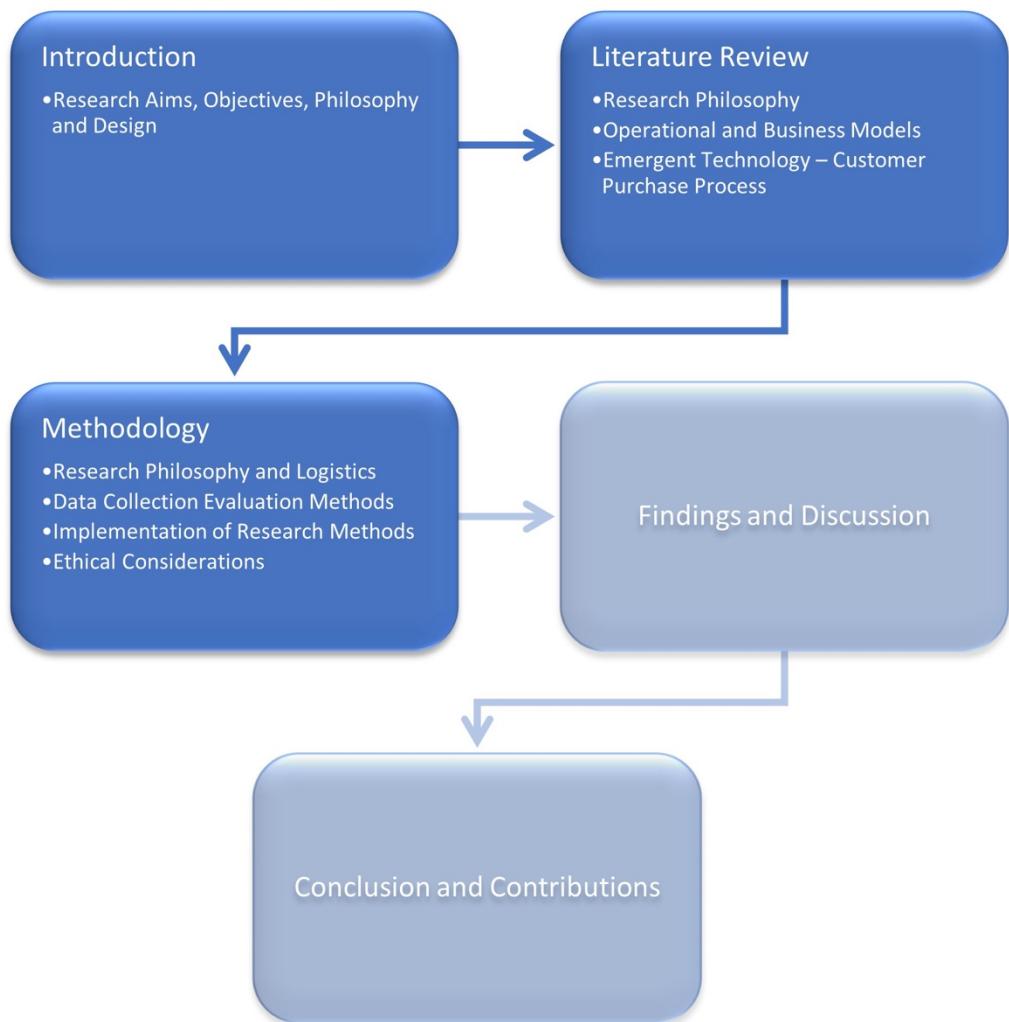
3 Research Methodology

3.1 Introduction

Following Chapter Two, which discussed the background literature that shaped the research aims, this chapter sets out the research methodology through which this study was conducted, and for some of the research issues a specific and deeper knowledge obtained from the stakeholders. Using a mixed methodology approach allowed more suitable and relevant methods to enable the gathering of data from different actors, each with different motivations for future policies.

This chapter begins with a discussion on the research philosophy theories relevant to Logistic Service Providers (LSP) and Last Mile Logistic (LML) companies. This is followed by an evaluation of various qualitative research methods, including questionnaires, interviews, and case study. The first stage of the research predominantly utilises group interviews, together with a pre-interview questionnaire. This then leads to secondary questionnaires and one-to-one interviews. Justification is given for the methods selected at each stage of the research and the strategies adopted for recruiting participants are also provided. The implementation of each chosen method is discussed in detail, and potential ethical issues that may affect the research have also been considered. The data collection timeline is shown in Appendix 2 and at the end of this chapter the stages of methodology flowchart summarise how the research methods and aims have been met by the chosen method (Table 11). Finally, the chapter is summarised, and conclusions are drawn, prior to the presentation of the research findings. In order to lay out the epistemological framework for this thesis, the following section considers theoretical paradigms related to and focusing on logistics research.

The research flowchart 3 identifies the previous, and this chapter's topics of data collection.



Research Flowchart 3: Research Methodology

3.2 Research Philosophy and Logistics

This thesis has adopted a primarily qualitative approach identifying with the ability to get closer to the actor's perspective through detailed interviewing and observation (Naslund, 2002, p. 328). Qualitative research involves a more interpretive and subjective approach whereby the world is essentially relativistic suggesting, that a researcher must understand the research from the point of view of those who are directly involved in the study (Naslund, 2002, p. 324).

Research carried out in the field of logistics to date has most prominently been of a positivist nature, due to the dominance of quantitative survey research (Da Mota Pedrosa, et al., 2012; Naslund, 2002). Frankel et al (2005, p. 197) examined logistics research published in the Journal of Business Logistics between 1999 and 2004. A total of 108 articles were studied, and 51% of those (that is, 55 articles) adopted surveys as the primary method. The remaining 49% predominantly used experiments and literature reviews as their primary research methods, with interview studies highlighted as the most popular secondary method. These findings support earlier research by Dunn et al (1994) whose review of methods used in articles published in four logistics journals discovered that 36% were based on surveys and/or structured interviews. These studies have highlighted a growing trend towards survey and modelling research dominating many logistics studies. Logistics is complex and socially constructed (New & Payne, 1995, p. 61) qualitative methods allow the researcher to ask the how and why questions that leads to an enriched understanding of this complexity (Doherty & Ellis-Chadwick, 2010; Trautrimas, et al., 2012). Näslund (2002, p. 322) discusses two possible explanations for the popularity of quantitative research methods in logistics studies. One is the high volume of positivist research being published in leading American journals and the second, that many publishing opportunities are controlled by positivist researchers. There is now greater support and acceptance of qualitative methods in logistics (Lim, et al., 2018; Trautrimas, et al., 2012).

3.2.1 The Interpretivist and Positivist Paradigms

All research is influenced by the way in which people view the world around them. The term paradigm is used to describe our worldview, the lens through which we view the world. It is therefore important for different paradigms to be understood, through which different research methodologies can be applied (Da Mota Pedrosa, et al., 2012; Naslund, et al., 2010). A paradigm can be divided into three parts: epistemology, ontology, and methodology, to create a model for the researcher to evaluate the subject. Epistemology addresses the way in which we view and understand the knowledge of the world, how we communicate this to others and how they may understand this knowledge (Hughes, 2007). Ontology deals with reality and the existence of objectivity, what constitutes fact. Methodology is the way in which knowledge about the world is gathered, it is greatly influenced by a number of factors (Buchanan & Bryman, 2015).

Previous research in the field, research objectives, the evolution and changes to the research and the competency of the researcher (Medlin, 2012).

Quantitative researchers traditionally follow a positivist paradigm, which follows the belief that an objective reality exists, using surveys and statistical analysis to explain and predict through precise, probabilistic theories (Randall & Mello, 2012, p. 868). By contrast, the qualitative research approach is generally more interpretive and subjective. This research follows a positivist paradigm, focused on prediction as a means to gaining knowledge about the world from the perspective of individuals (Nilsson, 2019; Randall & Mello, 2012).

3.2.2 Criticisms of Quantitative and Qualitative Research

Quantitative research is based on the belief that the subject is a natural phenomenon, a method developed in the natural sciences. Qualitative research is a method developed in the social sciences, the study of social and cultural phenomena. Various criticisms of quantitative studies include the risk that respondents misinterpret or do not understand survey questions, generating results that are likely to be incomplete and difficult to draw conclusions from. Similarly, if a statistical analysis is carried out on a data set which is not properly contextualised, the results are likely to be of little value or use. Another criticism of quantitative studies is that survey research is “almost always...past orientated” (Naslund, 2002, p. 325), which has led to much survey research lacking originality or investigation of new ideas and concepts. Thus, a substantial amount of academic research is targeted at testing theories that are already well-established, and essentially producing “a snap-shot of the current condition” (*ibid*, p.325). However, researchers can address this issue to a certain extent by including questions that look to the future.

Quantitative research has also been criticised for its attempt at breaking down complicated real-world dilemmas into smaller, more manageable research questions, which, when answered, offer no significant benefit to practitioners. From the perspective of leadership research, Näslund (2002, p. 326) refers to a decade old practise that practitioners view the abstraction of quantified material and statistical correlations as very remote from everyday practice and therefore of little use. However,

qualitative methods that include a questionnaire as part of a mixed method approach to the research subject, supported by triangulation theory, allows the researcher to look at the same subject from different angles or through different lenses simultaneously. The use of survey, semi structured interviews and case studies gives a fuller picture of what is happening (Myers, 2013; Naslund, et al., 2010; Nilsson, 2019; Trautrimas, et al., 2012).

Naslund (2002, p.328) points out, the inadequacies of survey research have perhaps paved the way for increased acceptance of qualitative research methods. That being said, interpretivist methods are not without their critics and, as Silverman (1993, p.20) points out, are only regarded as useful in the preliminary stages of research, before the serious sampling and counting begins. Amongst the many critical remarks made regarding the value and usefulness of qualitative research are the notions that it is unscientific, only exploratory, or investigative, and that it is completely personal and therefore full of bias. Berg (2007, p. 3) (2007, pp.3-4) notes that the practice of qualitative research is sometimes criticised for being non-scientific and thus invalid because of its focus on assessing the quality of things using words, images and descriptions, as opposed to quantitative research methods, which are regarded as scientific.

Those conducting qualitative research suffer the stigma of being labelled journalists or soft scientists (Denzin and Lincoln, 1994; Naslund, 2002). This is not to say that qualitative research should be discounted, merely that different research problems lend themselves to different research methods. Therefore, it is necessary to assess the relative strengths and weaknesses of all research forms in order to apply the most appropriate method to address the research problem, whether it be quantitative or qualitative (Naslund, 2002; Silverman, 1993). Naslund (2002, p.329) points out that there is no reason why good, scientific research could not be performed using qualitative methods. Evidence has since been accepted that there is a need to establish practical research within the last mile logistics (LML), the focus being on practitioners, which qualitative methods provide (Svanberg, 2020). Several advantages and disadvantages of using qualitative and quantitative data are evidenced by Denscombe (2010) and are summarised in Table 4.

Advantages	Disadvantages
Accepts that different researchers using the same methods may achieve different conclusions and interpretations.	The application of codes and themes may take the meaning of the data out of context, thereby altering its original intended meaning.
Analysis of quantitative data is based on objective laws as opposed to the researcher's values, and hence quantitative data is suited to statistical techniques that incorporate principles of mathematics and probability.	The quality of quantitative data depends on the questions asked and the methods of data collection.
Using statistical tests of significance raises the confidence and credibility of findings.	The real purpose of the research can be lost if attention is focused too much on the technical aspects of analysis.
Interpretations and findings from quantitative data are based on measured quantities.	Although large volumes of data can strengthen quantitative analysis, collecting too much data can overload the researcher.
Quantitative data analysis can be a relatively quick process.	Despite quantitative data being considered more scientific, researchers are still able to influence the analysis, and potentially bias the findings.
Findings resulting from quantitative data can be disclosed effectively in charts and tables.	

Table 4: Summary of the advantages and disadvantages of quantitative data analysis (adapted Denscombe, 2010).

Advantages	Disadvantages
In-depth study of specific topics creates rich and detailed data.	Due to the small sample sizes associated with qualitative research, it can be difficult to determine the level of generalisability, regardless of how detailed or in-depth the findings are.
Accounts of social phenomena allow for a tolerance of ambiguity and contradiction.	Findings tend to be more cautious and tentative, due to the assumption that the researcher's identity, background and beliefs have a role in data generation.
Descriptions and theories drawn from qualitative research are grounded in social reality.	The complexities of social phenomena may lead researchers to underplay or possibly disregard data that is inconsistent or ambiguous relative to the rest of the data set, which can lead to oversimplification of the explanation.
	Data analysis is often a lengthy process due to the unstructured form of raw qualitative data.

Table 4: (Continued).

3.2.3 Qualitative Design Research

The design cycle described by Hennink and Hutter (2011) provides a natural evolution of the process of formulating research. This is structured around three cycles: the design cycle, the ethnographic cycle and the analytical cycle, which is more simply described as a fieldwork cycle. This is a design cycle that includes other design cycles, which rotate in ever evolving circles. In this approach, qualitative research begins with a question, such as, 'which business models can the Logistic Service Provider (LSP) for last mile delivery use'. A researcher needs to ask themselves does the question at every stage of the research support the design cycle of think, read, conceptualise, and implement (Hennink, et al., 2011; Hesse-Biber & Leavy, 2006). Hennink and Hutter

(2011) believes that qualitative research can make a difference to the real world, which also reflects a pragmatic style acknowledging the power of relationships in qualitative research.

As part of the research process, it must be acknowledged that a researcher will see things through their own lens (Crotty, 1998), the author in this case is a positivist with an interpretive perspective. This research design acknowledges the ways in which a qualitative report can include and provide the context in which the research is conducted (Willis, 2007).

3.3 Data Collection Evaluation Methods

The decision about which data collection technique to use is largely dependent on the nature of the research questions being asked and the competence of the researcher.

The aim of this study is to identify the key operational and business models, customer perception and demand expected of the LML delivery sector, and to develop a new business model for UK Express LML delivery sector. The research aims to understand current business models and identify weaknesses that fail to meet current customer demands for LML services. For some issues to be researched thoroughly, stakeholders with specific knowledge and experienced are required. The use of flexible qualitative methods supports this.

In this research a qualitative approach was chosen for three main reasons:

1. The roundtable discussion gave rise to the research question and ignited the passion of the researcher to understand what could be done.
2. The researcher is well-known in the industry and has access to company and senior individuals.
3. The sector is an emerging market and availability for company study research was possible.

Data collection was carried out first, via an initial survey and industry roundtable discussion which highlighted areas of interest and initiated this research. A five-year survey data collection compiled the customer opinions, over the same period, one to one interviews with members of one LML company, and additional industry experts
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completed in-depth interviews. All this data was analysed in pursuit of the research aims.

3.3.1 Recruitment of Participants

This research identifies and studies the UK express delivery industry as the core stakeholders in last mile delivery. A combination of purposive and snowball sampling strategies were used to identify and recruit several suitable initial and roundtable participants to invite for interview. It was necessary to invite a variety of people from stakeholder groups, so as to uncover a broad range of perspectives and to maximise the potential for the interviews to provide theoretical insights capable of answering the research questions (Taylor & Bogdan, 1998).

Initially, logisticians were recruited from all areas of transport. This selection included individuals who were part of the wider supply chain industry but had an interest in last mile delivery (Appendix 3). Geographically, the selection came from two main regions of the UK, the Midlands and London/the South. Both these areas have a variety of freight, distribution, and delivery related issues. However, these individuals' working environment ranged from local to national and international companies, which had the benefit of helping to ensure that any trends identified in the initial area of study were not unique to the region but could be found elsewhere.

Potential interviewees were identified from express and transport companies that are known to the research team and an email was sent out inviting them to take part in a research interview. Additional email invitations were sent to generic industry email addresses, which were known but had not previously been contacted. Other interview participants were recruited through a process of snowballing, whereby some early interviewees acted as key informants and recommended and referred contacts to the researchers (Berg, 2007; Warren & Vincent, 2001). The sample of participants interviewed from transport and express companies was intended to cover a variety of transport types of LML companies, including cities, port cities and rural conurbations. In total, 18 representatives from the transport industry were recruited for interview, summaries can be seen in Appendix 4. A further 40 were not interviewed but offered written comments.

The first stage, initial and roundtable discussions, influenced the second group of stakeholders available for interview. These included practitioners from the logistics and transport industry, predominantly from companies who undertake a large proportion of their operations in urban areas, making deliveries or collections known as LML delivery. Interviewees were selected based on the researcher's knowledge of the industry, assuring participants were representative of the wider population of interest, due to the nature of their parent group or the wider operational activity of that participant. Such a sample is referred to as a purposive or judgemental sample (Berg, 2007). The researcher invited known individuals from national LML companies to participate in an in-depth semi-structured one-to-one interview. Invitations to participate in these interviews were distributed via both email and telephone to 16 potential participants, who were already known to the researcher. A total of five companies participated, with two part of the same group and one company CitySprint selected as the case study for this research.

3.3.2 Focus Groups

To draw out known knowledge on the issues of concern, a researcher may use a focus group. Focus groups (referred to as group interviews until the 1980s) involves interviewing between 6-12 unrelated individuals, through a facilitated group discussion on a particular topic or topics (Berg, 2007; Stewart & Shamdasani, 1990; Weisberg et al, 1996). The main goal of a focus group as described by Rubin and Rubin (1995, p.140) is to let people spark off one another, suggesting dimensions and nuances of the original problem that any one individual might not have thought of. Therefore, focus group scenarios have the capacity to generate a far greater number of ideas, issues, or solutions to a problem than an individual in-depth interview. Krueger (1994) explains that focus group data is qualitative, comprising attitudes, perceptions and opinions belonging to the participants, and that results are produced from a combination of open-ended questions and participant observation.

Focus groups are particularly useful for exploring new areas of research, as they allow the researcher to get a general feel for how people perceive particular issues. They can also help researchers to understand underlying motives and meanings that explain particular views, opinions, and to gauge the extent to which exists a fair level of
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agreement and shared views regarding a specific topic (Berg, 2007). Stewart and Shamdasani (1990) list seven uses for which focus groups are suitable: obtaining general background information on a particular topic; generating hypotheses for use in further research; stimulating new ideas and concepts; diagnosing the potential for problems within a new program, service or product; gathering opinions on products, services and other things of interest; understanding how respondents talk about the phenomenon of interest; and interpreting previously gathered qualitative results.

As a method of gathering qualitative data, there are several advantages associated with using focus groups compared with other techniques (Berg, 2007; Stuart & Shamdasani, 1990). These include a high level of flexibility (in terms of participants, cost and time) and the fact that a large amount of information can be collected from a potentially large number of people over a short period of time. They also enable researchers to understand how group members reach or alter their conclusions on a particular topic or issue. Participants are equals with each other and the researcher, which provides opportunities for clarification, follow-up questions and probing, and means that related unanticipated topics that arise during discussions can be explored. Since complex sampling strategies and statistical analyses are not required, the verbal responses of most participants are relatively easy for researchers and decision makers to understand.

Despite the number of advantages that focus groups can offer, there are several limitations (Berg, 2007; Gibbs, 1997; Krueger, 1994; Litosseliti, 2003; Morgan, 1988, 1993; Stewart & Shamdasani, 1990). These disadvantages include the fact that the quality of data is dependent on the facilitator's ability to understand, motivate and moderate the group, as well as their prior knowledge of the subject. Since attendance is voluntary, unexpected absences could result in an insufficient group size. Responses represent group opinions, which limits the generalisability of findings to a wider population, and there is also a danger of strong personalities dominating a session and biasing the outcome. A facilitator could also (either knowingly or unwittingly) provide suggestive cues that could manipulate participant responses and bias the findings.

Berg (2007) explains that a key difference between focus groups and interviews is that focus groups present the opportunity to observe interactions about a discussion topic,

although interviews can achieve a more detailed pursuit of content. The dynamics of a focus group allow participants' views to dominate, which often leads to spontaneous responses as participants formulate opinions after hearing from other group members, thereby removing the researcher's perspective from the data (Berg, 2007; Taylor & Bogdan, 1998). However, despite the information collected through a focus group providing similar types of data to those gathered in a traditional interview, the data is not of the same depth as that collected in a long semi-structured interview.

Utilising the many advantages associated with focus groups described above, it is well suited to encouraging joint participation in a workshop setting. In particular, the flexibility of the method to enable group participants to interact as equals and reach conclusions on a particular topic is important for encouraging stakeholder collaboration. In order to minimise the risk of one or two participants dominating the group, the facilitator kept to a theme for the discussions, which meant that other group work techniques needed to be incorporated into the workshop format to avoid potentially limiting the level of consensus.

3.3.3 Research Data understanding

Having introduced the traditional business model, concept of delivery and e-retail online delivery processes in chapter one, research concludes that the express delivery concepts and terminology is widely understood by both the industry and the public (Barclays Bank, 2014; Capgemini Research Institute, 2019; Hazen & Ellinger, 2019; Holdorf & Haasis, 2014; JDA Ltd, 2016; UPS, 2019). It is accepted that the public understand the terminology of home delivery, click and collect or collection point. For each customer it is a personalised tailored outcome (CitySprint Group, 2018; IMRG, 2019; JDA Ltd, 2016; Scarlett, 2018; I7, 2019; Sword, 2019). A personalised tailored delivery to the customer is a multifaceted process that the research data explores to understand who owns the delivery. In this research, data is drawn from one-to-one interviews carried out by the researcher and not taken from journal or book references.

The introduction chapter explained that last mile express delivery is a modern process, derived from the larger process called Supply Chain Management (SCM) and further evolved to a sub section of SCM called Logistics (Braithwaite & Christopher, 2015;

Manners-Bell, 2014; Rushton, et al., 2010; Wasner & Zäpfel, 2004). This sub sector, logistics has since been accepted as a major function, in its own right and within logistics the evolution of LML has become established. It is now common, understood and accepted and implies, as part of everyone's knowledge the phrases 'home delivery, express delivery, click and collect, next day, prime delivery, last mile' (Allen, et al., 2018; JDA Ltd, 2016; Lim, et al., 2018).

"*'Home delivery'* is the bringing of items to the customer's home rather than the customer taking or collecting them from the store" (Harper Collins, 2019).

What this definition does not explain is the many variations to home delivery. A customer orders the product to arrive at a destination, this can be the consumers home address but there are more choices for the end point of delivery. The common understanding of the phrase express delivery or home delivery is that the consumer can make a choice, that suits their needs for that order, according to the variety of delivery options preferred or offered. Table 6 shows the options offered by different retailers. If someone says 'I have just bought a dress and I am having it delivered' the statement 'having it delivered' could mean any of the many delivery choices offered, home or workplace, end point delivery, same day or next day. Collection could be from a local collection point, shop, store, or locker. It could mean the consumer gave instructions for the package to be left in a safe designated area at their home address or with a neighbour (CMR, 2018; Douglas, 2017; IMRG, 2019; KPMG, 2018; Nguyen, et al., 2017; Starkey, 2019). To the consumer delivery means 'I can have it' but within LML that one phrase contains multiple pathways between retailer and customer.

Delivery for Same day and Next day is to an address, whereas the term Collect+ refers to the option for the customer to go to a local designated point to collect or return their purchases. This could be a corner shop, a high street retailer or a supermarket counter. The click and collect process is used by the online seller to offer the customer a more convenient collection/delivery of their online purchase. It also engages and encourages the customer to make a purchase whilst within the collection point retail shop (Scarlett, 2018; I7, 2019).

	Same-day	Next Day	Collect+	Click & Collect Store	Lockers
John Lewis	Yes	Yes	No	Yes	No
Argos	Yes	No	Yes	Yes	No
Sainsburys	Yes	No	Yes	Yes	No
Asos	Yes	Yes	No	Yes	No
Next	No	Yes	No	Yes	No
Morrisons	Yes	No	No	Yes	No
Amazon	Yes	Yes	Yes	Yes	Yes

Table 6: Delivery Options offered by different Retailers (adapted Allen et al., 2018).

The customer having chosen a local collection point of their choice will not be inconvenienced to make the collection as they will have been attending this local collection point for other reasons. Similarly, the use of lockers offers a local point for a consumer to collect their delivery or to send and return parcels. The advantage of the locker is that the collection is available 24 hours a day, 7 days a week and does not require staff assistance. These lockers are situated at popular demand points like supermarkets, petrol stations or bus and rail stations.

3.3.4 Research Data Timeline collection

A timeline of data collection for this research describes the three-stage process for this research starting in 2015 (Appendix 2). The roundtable discussions led to an initial survey that identified the issues affecting the LML (Appendix 5). The results of this survey became the seed question that the researcher believed needed further research. An initial survey was carried out asking what the priority and type of demands the modern online shopper wanted from their express delivery. The second stage was the Longitudinal survey (Worth, 2019). During the same period, the third stage was conducted, consisting of semi-formal interviews, both in person and via telephone. These interviews were carried out with four individual experts within the same company, one of whom was interviewed three times. Additional interviews were completed with five express logistic experts as the opportunity became available to offset any convenience sampling bias from the four main interviewees (Etikan, et al., 2015), (Table 7).

Start Date	Finish Date	Concept	Facilitator	Collection
March 2015	March 2015	Roundtable discussion	LLEP request for regional business knowledge	Roundtable set questions. Followed by informal discussion in groups and one to one interview discussions
Mar 2015	April 2015	Initial Survey	LLEP gathering data	Online Survey
April 2015	May 2015	Initial Interviews	Roundtable discussions	One to one interview's
March 2015	June 2016	Initial Last Mile Express Survey	Roundtable discussion responses	One to one online survey data collection
March 2016	June 2019	Longitudinal Last Mile Express Survey	Researcher	One to one online survey data collection
March 2016	June 2019	Interviews with Industry Leaders	Survey responses	Face to Face interviews, telephone interviews, Conference lectures
Feb 2018	May 2019	Follow up Interviews	Business Model	Face to Face, Telephone Interview
March 2020	July 2020	Re-Thinking the Future. Covid-19 Pandemic Discussions	HM Government, Cabinet Office, Dept for Transport	Video conference calls/meetings. Telephone discussions

Table 5: Data Collection Timeline (Author 2020).

3.3.5 Research Data Collection Techniques

In the following three sub sections the process of data collection is explained and analysed. The first roundtable discussion was opened to the wider logistics industry and from discussions raised the emergent question for this research. ‘How will last mile express delivery companies (LMLs) relate to the changing delivery demands of retail’ The second stage involved a longitudinal survey over five years of the customer’s opinion and demands for online shopping delivery. Individuals were approached to answer a short survey on ‘how they receive their e-retail goods when purchasing online’. The third and final stage of the data collection process was interviews with

experienced, knowledgeable, and respected individuals working in the last mile express delivery sector. The one-to-one interviews followed a semi-formal questioning format with time for open discussion that arose from the semi-formal questions.

In the first stage, workshops entitled Express Logistics, Last Mile Delivery Strategy, were carried out by the researcher and supported by the Institute of Couriers. Workshops were chosen for this stage because they gave various stakeholders the opportunity to meet and work together at solving a shared problem. Each workshop lasted approximately four hours (morning/afternoon/pre-industry event), which included refreshments and networking time either at the beginning, middle or end of the meeting.

The three key objectives for each workshop were:

- 1) To raise awareness of the key issues that businesses face when implementing business strategy.
- 2) To identify a range of possible solutions to overcome key issues, match or exceed new customer demand and incorporate good practice to alleviate problems caused by urban traffic congestion (reduce air and noise pollution caused by stationary vehicles, create safer urban environments, etc.).
- 3) To understand how to implement customer demand whilst meeting business policy and law enforcement, in order to contribute to the creation of a better informed, more efficient business model for last mile delivery.

3.3.6 Recruitment of Workshop Participants

No statistical calculation was used to determine a target sample size. However, elements of the nominal group technique (NGT) were used. NGT prescribes monitoring a group of workers within the same environment, in this case those who were invited to the workshop were from the operational management of a logistics company. The focus groups consisted of no more than twelve and not less than eight participants per group. The research topic dictates that the key stakeholder groups must all be companies involved in last mile delivery, including the supply chain, users, policymakers, and managers of last mile delivery. These groups included representatives from local, regional, and national express logistics companies, representatives from logistics and

freight transport industry organisations (Chartered Institute for Logistics and Transport – CILT (UK) and Freight Transport Association (now known as Logistics UK), and local authority representatives from Transport for London (TfL) and Transport for Greater Manchester (TfGM). Others were recommended by contacts from Sheffield Hallam University, Derby University, Manchester Metropolitan University, University of West London, West Thames College and London Metropolitan University. Further recruitment was made through the membership list of the Institute of Couriers and Local Enterprise Partnerships (LEPs) business listings. In total, 62 participants took part.

Since this was a qualitative workshop study, a theoretical sampling strategy was adopted, whereby participants were selected from key stakeholder groups based on their level of knowledge and familiarity with the research topic. Some participants were recruited through a snowballing process, where respondents were asked to recommend others that may be suitable for the study. In addition, each person that was sent a personal invitation was also asked to forward the advertisement onto anyone they thought suitable who may wish to take part in a workshop. Anyone who could prove they were involved in the express logistics business at a director level was also welcomed. The advertisements and invitations provided potential participants with the background to the study, a brief overview of the workshop objectives and the means to register their interest and attendance at a workshop. These communications also explained that all personal information gathered during the course of the research project would be kept strictly confidential, and that anonymity would be maintained in reports and publications that resulted from the study. On arrival at the workshops, each participant was also asked to confirm their consent prior to starting the activities.

3.3.7 Workshop Venues, Activities and Format

The workshops took place in three locations around the UK, with the first workshop held in Derby targeted at capturing participants from within Derbyshire and Nottinghamshire, the second targeted people from the East Midlands and the North of England, held at East Midlands Airport, and the third workshop took place at Heathrow, capturing central London, the M25 and the South. Potential participants were invited to a workshop in their region but were also given the opportunity to attend any or all of them. The selected venues all had a transport connection with ease of parking, a

motorway network, and a source of interest, as most participants would travel by car and providing an interesting venue gave a benefit to participation.

One of the most common reasons for using the NGT is to minimise the biasing effect of group opinion or the opinions of the most dominant group members. Since this technique is occasionally combined with a more traditional focus group so that the research can benefit from the advantages of both methods, it was decided that the processes of NGT and idea building would be combined with the discussion element of focus group research to create interactive workshops. These workshops raised qualitative themes, key issues, and priorities which research explored further within the one-to-one interviews. The workshops focused on one of the central interview topics: - the stakeholders' perspective of the exponential growth of demand by consumers. The stimulus question used at each workshop was 'what is the biggest influence on our business strategy'.

In order to use the adapted NGT and idea-building techniques, the workshops were divided into three sessions. There were two workshop facilitators and two workshop group facilitators, which enabled one person per group to act as leader, collating ideas and facilitating discussions, while the other was the recorder. The participants at each workshop were placed into mixed groups according to the type of stakeholder. For the first sessions the participants were grouped where they sat, while for the second and third sessions they were put into groups of mixed stakeholders. These groups were decided prior to the workshop to ensure that no one stakeholder had dominance within the group of eight. At the conclusion of each session, the groups were given the opportunity to comment on the other groups' summaries.

An evaluation feedback form was also available to each participant at the end of each workshop. Enabling participants to give their views on the content and general organisation of the event, as well as to provide specific comments regarding their enjoyment of the activities and suggestions for ways to improve future workshops. Participants invited to each workshop were asked to add their reasons for attending on the feedback form and to complete the online survey related to this research.

This feedback contributed to the recognition that further research was needed and would contribute to a clearer understanding of how the sector could evaluate their business modelling.

3.3.8 Questionnaire Data Research

The second stage, questionnaires, which are a structured method of data collection, which enable researchers to determine both the questions asked and the range of possible answers to be provided. Often the researcher is not present whilst the questionnaire is completed (Hennink, et al., 2011), therefore removing the potential for interviewer bias. Questionnaires are of most value when used in tandem with other methods. This is mainly because researchers can have greater confidence in their findings if there is a consensus amongst the results drawn from different methods. Myers (2013, p. 12) provides evidence in the use of triangulation but suggests that triangulation as one framework for research, and that, by using a qualitative research cycle, research may still offer rigor and relevance in their work as shown in Figure 20 and Table 8.

A dominant advantage to using questionnaires according to Gillham (2000), is saving time. A researcher can easily distribute 1000 questionnaires, electronically, in less time than required to conduct two semi-structured interviews. It is also possible that individuals targeted for interview may not be readily available or willing to participate, by comparison a questionnaire is both relatively low-cost to administer and a quick method of eliciting information (Marsland, et al., 2005; Myers, 2013; Saunders, et al., 2019) The pre-determined nature of a questionnaire can also simplify the coding and analysis process. Similarly, with all respondents receiving the same questions, a degree of standardisation can be achieved.

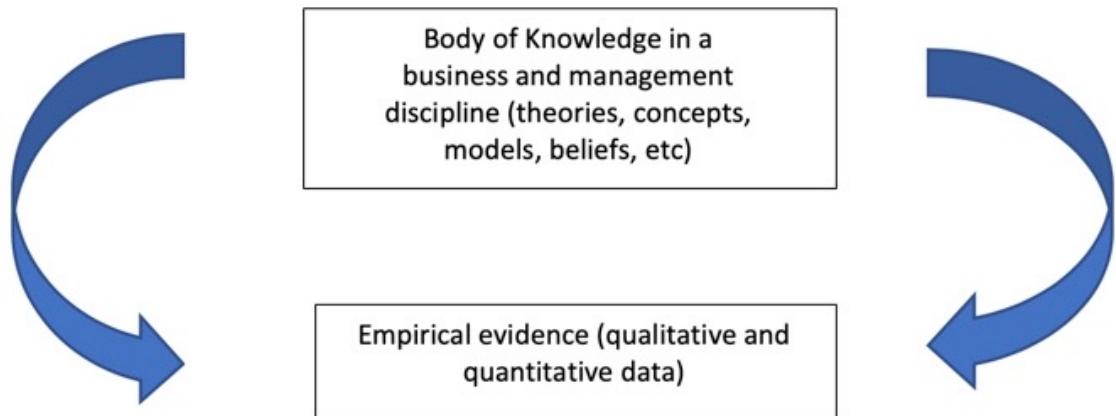


Figure 20: A model of research in business management
(Myers, 2013, p. 294).

Rigorous Research	Relevant Research
Scientific Research	Relevant to business practitioners
Emphasis on meeting scientific standards such as validity and reliability	Emphasis on being immediately relevant to practise
Subject to academic peer review	Published in consulting reports or industry magazines
Published in academic journals	
Theoretical contribution	Practical contribution

Table 6: Rigour and Relevance in Research (Myers, 2013, p. 295).

Questionnaires also allow respondents the comfort of completing them voluntarily, that is at their own pace, and doing so anonymously. In the event the researcher would prefer to reach out to respondents for follow-ups, a respondent's choice to participate anonymously can be disadvantageous. However, this was not a problem in this research as the surveys were carried out either by prior agreement or face to face, so the researcher was able to engage with the respondents directly and follow-up letters or telephone interviews were possible (Gillham, 2000). In the case of respondents who wished to remain anonymous, the researcher secured follow-ups by guaranteeing

confidentiality and providing feedback. Entering the respondents into a prize draw to help maximise the return rate (Munn & E, 2004). During this process, the researcher recognised that personal bias could impact the data gathered and subsequently took care to ensure questioning was standardised across all participants (Cunliffe, 2012).

Whilst questionnaires have the benefit of being a neat data collection technique that is relatively easy to analyse, for the respondent they are often boring and can become frustrating or tedious to complete. Furthermore, since researchers do not know the reasons behind the selected responses, or what answers may have been given if respondents had been able to answer outside of the pre-determined options provided, questionnaire data is often regarded as necessarily superficial (Munn & E, 2004). Gillham (2000) highlights some other disadvantages of using questionnaires, such as the typically low response rate (approximately 30% on average), and the fact that many will be completed hastily with little consideration of responses. In this study, surveys were taken in the presence of an interviewer, to reduce any misinterpretation or misunderstanding and thereby allowing the participant the ability to amend their answers. Although the questionnaire collection in this study involved a researcher-thus potentially biasing respondents' answers-it allowed for the gathering of additional comments and more detailed accounts, giving an 86% accuracy of data collection.

The initial questionnaire of 24 questions, was initially designed drawing on closed and open questions that covered four areas of interest: - staffing, infrastructure, business development and technology. The participants were selected within a geographical area called the Midlands, operational within transport logistics same-day business. Both heterogeneous and homogenous sampling was chosen to provide a diverse and relevant questionnaire (Saunders, et al., 2019). How does a business cope with the current infrastructure, the effects of regulation and the difficulties of staffing or vehicle purchase. The initial questioning served to establish the needs of a logistics business and what main external influences were causing concern or restricting business activity (Appendix 5). The questions covered topics such as: how important was connectivity, internet, and the use of software systems to the business? How strongly did they believe their business would be affected by road networks and congestion, or by the influences of planning and development? Did they consider how their business would be affected

by government regulation, low emission vehicles, diesel vehicle replacement schemes or the effects of fuel cost? This initial research asked the wider industry to consider which external issues and difficulties they considered of most concern or would most effect their business. Essentially, the aim of the initial survey was to better understand the external issues effecting a logistics and LML business and how they could be overcome. However, the analysed survey data raised further questions for research. 45% of participants stated that the lack of staffing was hindering and affecting business success (Q18), 33% agreed that client demand would outpace business capacity within the next two years (Q17), 70% (Q9), 48% (Q15) and 58% (Q13) strongly agreed that their business would be affected by infrastructure issues. 90% considered that the internet and technology was very important for their business (Q7).

With multiple questions left unanswered at the roundtable discussion, this led the researcher to enquire further to understand the needs of the LML industry. This initial survey became the seed of enquiry to understanding how the LML industry could cope, an ethics application was reviewed (Appendix 19) and the first of the longitudinal survey was created (Appendix 12).

A review and a re-design of questions was carried out to be more specific to the LML sector and to target the outcome of LML service. Understanding what the customer wants and then overlapping this data with the service provision will improve academic insight into the issues (Naslund, 2002). If research is consistently carried out in a similar process or narrow methodological scope, the area of research, in this case LML, will not expand its knowledge (Daugherty, et al., 2019; Dunn, et al., 1994; Lim, et al., 2018).

The new question properties were similar in character but altered to represent the customers view. These included what goods were purchased online; the amount of time the participant would wait for a delivery; how much they would expect to pay for delivery and other aspects of charging within a purchase price; charges related to delivery speed; their expectation of delivery speed; expectation of returning goods; communication before delivery; and a customer's experience of delivery satisfaction. Some questions were asked in different ways, triangulating answers to provide a view of the most important aspects of a customer purchase choice and the delivery of that

purchase (Bryman, 2016). For the final questionnaire, 19 questions were selected. These questions asked about the ‘importance’ of different stages relating to an online purchase and the way in which the delivery was carried out.

A further three years of survey questioning was completed in 2017/18/19, including questions such as:

- When making your purchase, how important a factor is delivery speed?
- How many days will you wait for delivery of goods (over and under £50)?
- If having to choose a single day for delivery, which day would it be?
- Would you prefer a delivery company to provide information about delivery time?

This proved successful and each year a sampling of results was reviewed which brought about the core seven questions on which later, the analysis of data was used.

Creswell’s (2013) data collection circle highlights the process of data collection, which can start at any point. As Creswell (2013) suggests, it is the interaction of several activities that gather the emerging research questions. This research started with purposeful sampling, the researcher is reaching out for the question or issue to be raised on the subject (Baden-Fuller & Mangematin, 2015; Cresswell, 2013). The researcher surveyed the customer to understand if the customer had different ideas from the researcher on process of delivery. In support of the initial questionnaire, interviews with the wider road transport industry were conducted to understand which issues were important to the LML. By comparing the initial questionnaire (2015) with the interviews’ qualitative data, the researcher was able to understand what was of greater importance to the customer and what was the greater issue for the LML in terms of online purchases. On the basis of this, questions in the longitudinal survey were redefined

3.3.9 Initial Questionnaire and Surveys

Prior to each interview taking place, interviewees were asked to complete a pre-interview questionnaire, an introduction to what would be asked in the interview. This gave the participant a focus for the interview, which helped to utilise the time spent in the interview more effectively (Appendix 13). The questionnaire was distributed via

email to those individuals who had agreed to take part in an interview. As discussed earlier, a questionnaire was the most relevant way of collecting pre-interview data before an in-depth semi-structured interview was conducted. The purpose of this questionnaire was two-fold; firstly, it enabled generic background information to be collected from each interviewee about the logisticians' understanding of delivery and their expectations of delivery as a customer, and secondly it helped to increase their interest and prepare each respondent for their forthcoming interview.

The pre-interview questionnaire for the express delivery logisticians encouraged them to add information about their company's vehicle fleet, the nature of its business operations, the types of urban area they operated in, and the customer demands known to them. Eclectic coding methods (Saldaña, 2013) were applied to understand the most important issues to the participants. Using the highest percentage of answers, these results provided the interview structure (Saunders, et al., 2016). This provides important context for interpreting the interviews. The final question for those completing the questionnaire in-person offered respondents the opportunity to propose any issues that they wished to see discussed or investigated further through this research. The full list of surveys shown in Appendix 13 with the ethics approval Appendix 19.

The initial survey (LLEP Mar 2015) was written for transport industry companies of all sizes but specifically those connected with the supply chain of last mile delivery. It was aimed at understanding the processes behind transport companies' issues of distribution, location and consideration of future company growth and expansion plans. The questions for the initial group of participants covered processes used by the transport company to determine external influences on their business strategy evolving from the initial research. This led to the formation of semi-structured interviews because they allowed greater flexibility in terms of the order in which issues and questions are raised, and they also allowed the respondents greater freedom to provide more detailed, open-ended answers (Taylor & Bogdan, 1998). The one-to-one setting also helped to make these interviews relatively easy to arrange and control, whilst transcription was easier with the use of audio recording, albeit more time consuming. Despite the many disadvantages associated with telephone interviewing, each potential participant was also presented with this option.

The second survey (The Last Mile Question 2015) was given to representatives from the express logistics industry, with questions tailored towards the customer demands of last mile delivery. The initial survey had included the wider transport sector, but further research focused on the opinions of those who were supplying the service, this gave a focus for the evaluation of results from the supplier and customer understanding. Widening the participation was beyond the scope of this research. The objective was to investigate the expectations of those who work within the logistics industry but are also the customers of this service.

The survey questions were influenced from the literature review of Baden-Fuller & Mangematin (2013) and Casadesus-Masanell & Heilbron (2015). Their work suggested that business model innovation requires creativity when engaging with the customer, while the ambivalent value concept explains how through agreed engagement, a greater value can be achieved by all parties. Accomplishing both these theories means including technology in the process. Therefore, the questions asked included reference to preferred communication processes and timescales of delivery, the importance of the delivery process and returns procedure, among other things. The questions focused on the shopping habits and the customers general perceptions of last mile delivery, including the importance of a purchase decision and the extent to which delivery time frames and communication were acceptable. Both questionnaire groups were asked to add to the questionnaire by offering their opinion on future issues that might affect last mile delivery to the customer.

3.3.10 Longitudinal Survey

From survey 1 & 2 (Appendix 13) the researcher realised that further research was needed to improve the LMLs understanding of customer demands. Gaining a clearer understanding of the customer demands would enable the LML to adapt their business model to meet these needs.

The first of the longitudinal surveys, Timed Delivery 15th March 2015 (Appendix 13) was launched online, advertised via press release and shared with Institute of Couriers members. The success of this survey was encouraging. The researcher had the opportunity to continue throughout the year and this established the longitudinal survey. Over the following four years, the same survey was offered at different trade shows, where both logisticians and the public were able to attend. The decision to attend trade shows was based on 1) access to the trade shows, 2) the number of visitors, and 3) the repetition of the annual events. These three elements meant that the collection of data could be analysed for year-on-year trends, changes of customer demands and an understanding of what the customer wanted.

The surveys were collected by a personal, face to face request of those who came to the trade shows. A full list of surveys is shown in Appendix 13. Early on it was recognised that it took up to 3 or 4 minutes to complete one survey and this influenced how many surveys could be collected in the day. The researcher asked other students to assist at various shows and this proved successful increasing the number of respondents completing the surveys in one day. These events were held over a two- or three-day period, the researcher was present every day and was joined by others of varying numbers to assist over the five-year collection of data.

The same number of questions were asked from survey number 6 to 13. This was a period of 3½ years from 2015 to 2018. During this time the surveys were collected using a mobile digital tablet with two researchers and more researchers were utilised to collect paper surveys. Using the digital technology reduced the time it took to complete the survey and improved the respondent participation. This was also supported by a reward for completing the survey. Offering a reward runs the risk of encouraging wrongful completion to achieve the reward. However, through 2015 and 2016 the reward included chocolates such as: Mars bars, Kit Kats and Crunchies. By far the chocolate that brought smiles to respondents and the most enthusiastic response was the Curly Wurly. The significance of the reward resonated with childhood memories and led to engagement but gave no undue influence to the competition of the answers.

The year-on-year data from 2015 – 2017 was analysed and the main finding returned was a significant high percentage of consensus to some of the nineteen questions, meaning that questions were either, unclearly written or the respondent had no opinion on the question asked. These results suggested that a shorter question survey would still provide evidence of the customer demands for an online delivery. In 2018 the eight most variable percentage questions were put into the surveys number 5-1, 2018 – 2019. Starting with Multimodal 2018. The outcome, from a reduced number of questions coupled with an increase of digital mobile tablet survey collection, was an increase in the respondent's participation. The survey therefore produced results consistently for those eight questions, over the five-year period. (Table 15)

The five-year longitudinal survey data was produced through Survey Monkey software providing formatting of XLS, CSV, SPSS, or PDF. The research was analysed from both XLS and SPSS formats and crossed referenced to ensure no bias to the end results. The detail of this data is explained in chapter 5.4. During the longitudinal survey period interviews were carried out whilst being aware of the year-on-year survey results and is discussed further in the following section

3.3.11 Interviews

The third stage of data collection, in contrast to questionnaires, which assume respondents come with somewhat ready answers, carrying out interviews allows respondents to reflect on their thoughts and encourages interviewees to provide a fuller response. Semi-structured in-depth interviews can provide maximum opportunity for ideas to be conveyed between the researcher and the participant completely and accurately (Cannell & Kahn, 1968, p. 554).

An interview may simply be defined as a purposeful conversation that is used to collect information from selected participants (Berg, 2007). Through qualitative data collection, greater, in-depth understanding of each individual can be achieved (Holdorf & Haasis, 2014; Mangan, et al., 2004; Naslund, 2002; New & Payne, 1995; Yin, 2011). The essence of a qualitative interview lies in conversation and therefore obtaining good data is reliant upon both the skills of the researcher at questioning and listening, as well as the respondent's ability to provide relevant answers (Rubin & Rubin, 1996; Warren &

Vincent, 2001). Taylor and Bogdan (1998) explain that qualitative interviewing has been described as nondirective, unstructured, open-ended, and non-standardised, and as such the term ‘in-depth interviewing’ is often used to refer to this method. Qualitative interviews are similar to standardised survey interviewing; however, the purpose is very different. Whereas a survey interview may seek to derive interpretation of facts or laws, an in-depth qualitative interviewer is focused on understanding experiences and situations from the perspective of the respondent, as expressed in their own words (Taylor & Bogdan, 1998). It is worth noting that qualitative interviews are often chosen by researchers when their concern is with establishing common patterns or themes between types of respondents. There are various forms of interviewing that can be adopted for a variety of different uses. The most frequently referred to version is individual interviewing, which is conducted through an in-person (face-to-face) verbal exchange (Denzin & Lincoln, 2008). Often interviews follow one of three major formats or structures, which Berg (2007) identifies as standardised (formal or structured), unstandardised (informal or nondirective) and semi-standardised (semi-structured or focused). Table 9 summarises the main differences between the three types of interview structure, although the main distinguishing feature between them is their level of rigidity.

All research methods and techniques for data collection have their strengths and weaknesses, other researchers suggest that qualitative data collection is not scientific enough (Adams St. Pierre, 2012; Aitken, et al., 2016). This research acknowledges this and, in an effort to compensate for such perceived weaknesses, applies a positivist, mixed methodology approach that supports quantifiable observations and data (Thompson, et al., 1989). Further, this research supports the use of in-depth interviews as particularly appropriate under the following circumstances: when there are relatively clear and well-defined research questions; when it may be difficult or not possible to access particular settings or individuals; when there is limited time available to collect information that would otherwise have been gathered through participant observation; and if the objective of the researcher is to understand a wide range of settings or people that contribute towards the establishment of general theories (Taylor & Bogdan, 1998). Some common weaknesses mentioned by Taylor and Bogdan (1998) include that the reliability of the responses can be difficult to determine since people respond differently

under different circumstances, and therefore an interview may elicit an unrealistic response. A second limitation is the risk of misinterpreting a respondent's use of language, leading to the interviewer making assumptions that may be incorrect. Only through researcher participation could some of these issues be avoided, or at the very least minimised.

However, Taylor and Bogdan (1998, p. 92) recommend getting to know people well enough to understand what they mean and creating an atmosphere in which they are likely to talk freely, as one way of overcoming these limitations. In this case, such an approach was feasible due to the researcher's professional knowledge of the participants.

Another factor to consider when using interviews as a method of gathering research data is the choice of mode, either in-person or over the telephone. Shuy (2001) explains that there are advantages and disadvantages associated with conducting interviews using these two modes. For example, when time is short, a telephone interview can prove a cost-effective way of obtaining a complete interview, mainly because the speed of questioning tends to be higher over the telephone as respondents provide shorter answers to open-ended questions. This results in telephone interviews taking approximately 10-20% less time to conduct (Groves, 1979). However, interview topics involving complex issues are easier to conduct in-person, as it helps to avoid the impatience and fatigue associated with long-duration telephone conversations and generally garners more accurate responses.

The visual element of a face-to-face interview also encourages respondents to provide more thoughtful and explanatory answers, resulting from the contextual naturalness which leads people to talk more openly and be more at ease in general (Shuy, 2001). Groves (1979) also argues that interview respondents prefer to be questioned in-person as opposed to over the telephone, so this has the potential to lead to higher response rates.

A researcher can use the following nine criteria to help assess the most appropriate mode (telephone or in-person) for their interviews (Shuy, 2001):

1. Type of interview to be conducted (e.g., research, polling, journalistic, medical, etc.).
2. The type of information desired (e.g., demographic, personal, sensitive).
3. Interviewee's attitudinal variability, safety and workload.
4. The requirement for consistency and uniformity amongst multiple interviewers.
5. Participant's social variability (e.g., age, gender, etc.)
6. Need for response and setting to be contextually natural.
7. The ability for participants to respond without being influenced by the questions.
8. Complexity of the issues and questions.
9. Economic, time and location constraints.

Standardised Interviews	Semi-standardised Interviews	Un-Standardised Interviews
<p>Most formally structured. No deviations from question order. Wording of each question asked exactly as written. No adjusting of level of language. No clarifications or answering of questions about the interview. No additional questions may be added. Similar in format to a pencil-and-paper survey.</p>	<p>More or less structured. Questions may be reordered during the interview. Wording of questions flexible. Level of language may be adjusted. Interviewer may answer questions and make clarifications. Interviewer may add or delete probes to interview between subsequent subjects.</p>	<p>Completely unstructured. No set order to questions. No set wording to any questions. Level of language may be adjusted. No clarifications or answering of questions. Interviewer may add or delete questions between interviews.</p>

Table 7: Types of interview structure by level of formality (adapted Berg, 2007).

In this research the preference was for in-person interviews wherever possible, with telephone interviews being used when participants were unable to meet in-person and for wider data collection.

The company CitySprint Group was chosen for this research because it is a national same-day parcel company with multiple divisions, but the core of the service being UK same-day parcel delivery. It was chosen because the board members of this company and the researcher are well-known to each other, access and data information was free-flowing and readily shared, and availability and flexibility for face-to-face time was achievable, without impinging on day-to-day activities. Subsequently, consent for one-to-one interviews to be carried out with four different individuals who represented four different areas of the business and access to board and company information, was acquired. Profiles of the individuals are in Appendix 8.

Interviews were conducted either on site at the CitySprint HQ or other office facilities to which interviewees had agreed. During interviews participants were welcome to invited professional colleagues to confirm or provide detailed knowledge of a question asked. The participants were also offered a choice between an in-person interview and a telephone interview, but all chose one-to-one, in-person interviews. All participants were asked if they would allow audio-recording of the interviews for ease of transcription and to limit misinterpretation, one participant agreed. Three interviews were carried out with one interview, all other participants were interviewed more, once before, during and after the longitudinal survey. The questions asked in the interviews were developed to include the three categories of question that should be used in a qualitative interview (Rubin & Rubin, 1996; Warren & Vincent, 2001).

The structure of the interview was based on the initial survey results (Appendix 6) with ten questions providing the basis for the interviews. Collection of this data was analysis of the text, documents and interviews (Naslund, et al., 2010). Most of the interviewees were not comfortable with any audio recording but acknowledge that more time was required within the interview for written notes. The structured format of the questioning enabled the researcher to directly compare answers between interviewees. In addition, the more open-ended questions or conversations that took place added depth and insight to the interviewees' experience. The researcher's familiarity of the terminology used by the sector and the insight into the company CitySprint all supported the process of assessing the responses given. The opening question of the interviews was designed to

ascertain the interviewees' perception or philosophy of life, is the glass half full or half empty?

3.4 Implementation of Research Methods

The decision of which data collection technique to use is largely dependent on the nature of the research questions being asked and the competence of the researcher. In pursuit of the aims of this research, to understand the exponential growth and emerging markets triggering the change from supply chain to customer demand chain as both the customer culture and technology has evolved, the use of flexible qualitative investigation was deemed most appropriate. For some issues to be researched thoroughly a specific and experienced knowledge is required from the stakeholders taking part and typically, logistics research involving practitioners and policymakers adopt either questionnaire surveys or an interview approach to achieve this (Dablanc, et al., 2017).

The roundtable discussion is a form of qualitative research that enables different opinions to be filtered and grouped into themes (Cassell, et al., 2018; Cresswell, 2013; Dul & Hak, 2008; Saunders, et al., 2019), in acknowledging these themes the analyst has the opportunity to explore any inter-relationships and apply them to the strategic plan for that business. The roundtable discussion led the researcher to ask the following question, 'what are the implications for the future of express delivery strategy within the last mile delivery industry?'.

The results of the roundtable discussion highlighted four themes: workforce issues, land use strategies, roadside facilities, and sustainability. In other words, businesses found it difficult to employ and keep drivers, maintain delivery services to the client as expected and were restricted as to depots or sortation hubs situated within a town or city. These external influences affected the reliability and sustainability within the business, which leads to the failure to achieve customer demand and satisfaction. This evaluation indicates that further analysis is required to support the LML business modelling. Further analysis and process of data collection according to Cassell, et al. (2018, p.

309), ‘the process in which empirical research can be processed’ may be done so in multiple ways and supported using the four conceptions of process thinking. One of these involves understanding this question further through qualitative research methods, described as evolution (Table 10).

This research followed the process of evolution through the availability and access to the raw data within the sector due to the researcher’s status within the industry. The initial data collection fitted the process of evolution, which is described as relying on qualitative and longitudinal data, or the discussion of information from a source by the individuals of the organisation, not the organisation itself (Cassell, et al., 2018, p. 311).

Research design and data	Longitudinal case studies with data from multiple sources
Analysis	Hierarchical coding into a unified temporal narrative
Dilemmas and limitations	Complexity of integrating data across space and time
Illustrative studies relating to organisational identity	Corley & Gioia (2004), Dutton & Dukerich (1991), Howard-Grenville et al (2013), Ravasi & Schultz (2006)

Table 8: Evolution- Four Concepts table (adapted Fachin and Langley’s, 2018).

The benefit of this empirical research was that multiple interviews were carried out with one firm, four interviewees participated over six interviews. This may not represent ‘one case study’ defined by Meyer (2001, p. 330) as ‘the fact that the case study is a rather loose design, implies that there are several choices that need to be addressed in a principled way.’ The definition of case study once confirmed becomes the ‘one case study’, in this research LML is the case study of which several interviews were carried out with one firm and multiple interviews from other LML firms. This is the case study
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on which the qualitative data has been collected. Meyers (2001, p. 336) emphasises that when relying on interviews as a major data collection, it is very important that the researcher establishes and builds rapport with interviewees. This research method fitted well with the researcher and interviewees. In context of this company study definition, the single company study provided a rich and dense data set (Buchanan & Bryman, 2015; Cassell, et al., 2018).

The researcher is an accepted and well-known expert in the field of last mile express delivery, with work experience from military service to partnership level. As a senior member of four express delivery companies, she has 30 years of industry knowledge and engagement with both government and public professional bodies. Reflecting on research by Wells & Nieuwenhuis (2017, p. 48), the ‘engaged scholarship approach’ is described as one in which a researcher who seeks involvement in and with their subjects. The researcher in this case could be considered as such. Her experience gives her access to the senior board level of express companies, who gave the authority to speak to individuals who understand and have knowledge on the relevant issues. It was necessary to have this access to collect data from the board members considering their influence over business models within the company (Myers, 2013). When describing research using the engaged scholarship approach, Wells & Nieuwenhuis (2017, p. 50) describe the outcomes as “develop[ing] theory and contribute[ing] to practise” which reflects the third aim of this research to develop a new business model.

Qualitative research methods suggest that where one or a small number of case studies are used, the study can provide a process to enable the shift of dynamics to be identified across all levels of a company, enabling the researcher to bring together data collected from multiple sources (Buchanan & Bryman, 2015; Cassell, et al., 2018; Saunders, et al., 2019). These multiple sources include company individuals, one-to-one interviews and group discussions, as well as data collection through surveys and other sources such as literature or individual (personal) conversations.

3.5 Ethical Considerations

Any high-quality research that involves human participants requires careful consideration of potential ethical issues, and therefore the avoidance of harm to those people involved. One of the most serious ethical considerations in social science research is the assurance that a participant's involvement is entirely voluntary and that all the potential risks have been made known to them (Berg, 2007). Therefore, in accordance with the Sheffield Hallam University ethical guidelines and regulations, approval for this research project was sought from the university's research ethics committee prior to any data being collected. Once ethical approval had been granted, the recruitment of potential participants began (Appendix 10).

All potential interview participants were sent an information sheet that outlined the proposed research (Appendix 9). This document explained the nature of the research project, the role of the participants and any potential issues of confidentiality and anonymity. A participant consent form was forwarded and signed by those who were interviewed (Appendix 11) and for CitySprint interviewees an additional confidentiality consent form was signed (Appendix 11.1). Participants were also able to withdraw from the study at any point and were assured that their responses would then be removed from the data set. This was also verbally reiterated prior to consent forms being signed. In addition, initial invitation emails and letters distributed to all potential participants summarised the content of the information sheet, providing background details to the project before inviting them to take part in either an interview or a workshop. Potential participants were given a minimum of two weeks to decide whether to participate in the research.

Informed consent (in writing) was obtained from everyone that agreed to take part in the study. Berg (2007, p. 78) defines informed consent as 'the knowing consent of individuals to participate as an exercise of their choice, free from any element of fraud, deceit, duress, or similar unfair inducement or manipulation'. For both the interviews and workshops, this was achieved by asking participants to sign a consent form prior to taking part (Appendix 11). This form contained written statements that requested permission to record the interviews, agreement to take part in a research workshop, etc. and confirmation that participants understood what was required of them. Participants were free to ask for clarification of the statements in the consent form at any point.

Once a consent form had been signed by the participants, each one received a copy of it for their own records. Throughout the workshops, nobody declined to participate or withdrew during the process. The signed and dated consent forms remained with the main project documents in a secure location to maintain the participants' privacy and confidentiality. Where this data is electronic, the details remain in password-protected documents and are stored in a secure electronic file store.

The utmost effort has been made to ensure a high degree of confidentiality and anonymity in the reporting of research findings. This includes the removal of names and other characteristics that may make it possible to discover a participant's identity. Even where participants have made no objection to the use of their identity, this information was removed to maintain anonymity.

3.6 Risk Assessments

Prior to undertaking any interviews or workshops, risk assessment details were forwarded to the supervisor using the standard risk assessment form (Appendix 14). These details referred to locations, times, dates, means of travel and emergency contact details, and were cleared with my supervisor for each research activity.

3.7 Methodology Summary

This chapter discussed and provided a rationale for the research approach and methods undertaken in this thesis. It began by introducing the positivist and qualitative approach which has been adopted, described within the context of express logistics research. Group work techniques were carried out through the initial roundtable discussions, a benefit to this process is the ability to engage with an 'economical, fast, and efficient method for obtaining data from multiple participants' (Onwuegbuzie, et al., 2009, p. 2). The results from these focus groups provided the basis of enquiry for this research. This was followed with the collection and evaluation of questionnaire and semi-structured interviews, which make up the primary research components in stages one and three of this research. The ethical considerations associated with this research have also been considered, along with the required risk assessments. A summary of the research

methods used for each stage of the process illustrated how the activities flowed into each other.

This innovative workshop method provided a neutral and engaging environment for public and private sector stakeholders to meet and discuss issues related to last mile delivery. In addition, the facilitated workshops encouraged participants to focus on a particular issue or problem and work collaboratively to develop potential solutions that sought to benefit multiple stakeholders. The use of the nominal group technique also helped to create an environment where all participants were heard and subsequently each proposed idea was given equal consideration in the discussions that followed. The facilitated workshops devised in this research provided an innovative method for bringing together a variety of express delivery companies, local authority and operational stakeholders to tackle the issues and demands being brought to bear on the industry by the users of the service. The interactive nature of the workshops fostered collaboration between all participants involved and enabled express delivery stakeholders to become actively involved in contributing to the generation of ideas for potential inclusion in future business modelling. This helped to ensure that key themes and issues identified were taken forward to the consultation stages of one-to-one interviews and are therefore more likely to be included in future business models.

The following table 11 shows how each of the research aims have been met through the chosen research methods. Mangan et.al. (2004, p. 7) suggests that a three-phase methodology leads to a greater outcome of development and provides multi-dimensional insight to the problem. Using the three-stage method, the results from Stage one highlighted a gap in knowledge of the LML industry. Issues raised through the stage one process confirmed LML company concerns about finding a solution or a process to help companies adapt to future known and unknown issues. The second stage of data collection, the longitudinal survey, enabled the researcher to analyse customer demands, as well as negative and positive influences on the delivery expectations. These findings also provided evidence for LML board members to consider when adapting to the new customer age (Lim, et al., 2018).

Stage	Method	Aim 1	Aim 2	Aim 3
1	Roundtable Discussion Focus groups Initial Survey & Interviews 1-1 Survey data collection		X	
2	Longitudinal Survey 2016 -2019		X	X
3	Multiple Industry interviews Leaders within one company and other LML companies	X	X	X

Table 9: Stages of Methodology in use to achieve research aims.

The data collection of stage 3, in-depth qualitative interviews, provided information of the current LML operational and business models. Using semi-structured interview techniques (Myers, 2013), industry individuals shared their knowledge of the business and operational models in use, with positive and negative effects. This collection of data gives evidence that is crucial to how theory and practise can integrate. Daugherty et.al. (2019), Fernie et.al. (2009), and Lim et.al. (2018) all look at the customer focus and demand on the LML delivery, indicating that LML companies need to consider the customer needs in their modelling, they also agree that further research is needed to explore business models that evolve to better fit current customer's needs.

4 Findings of Data Collection.

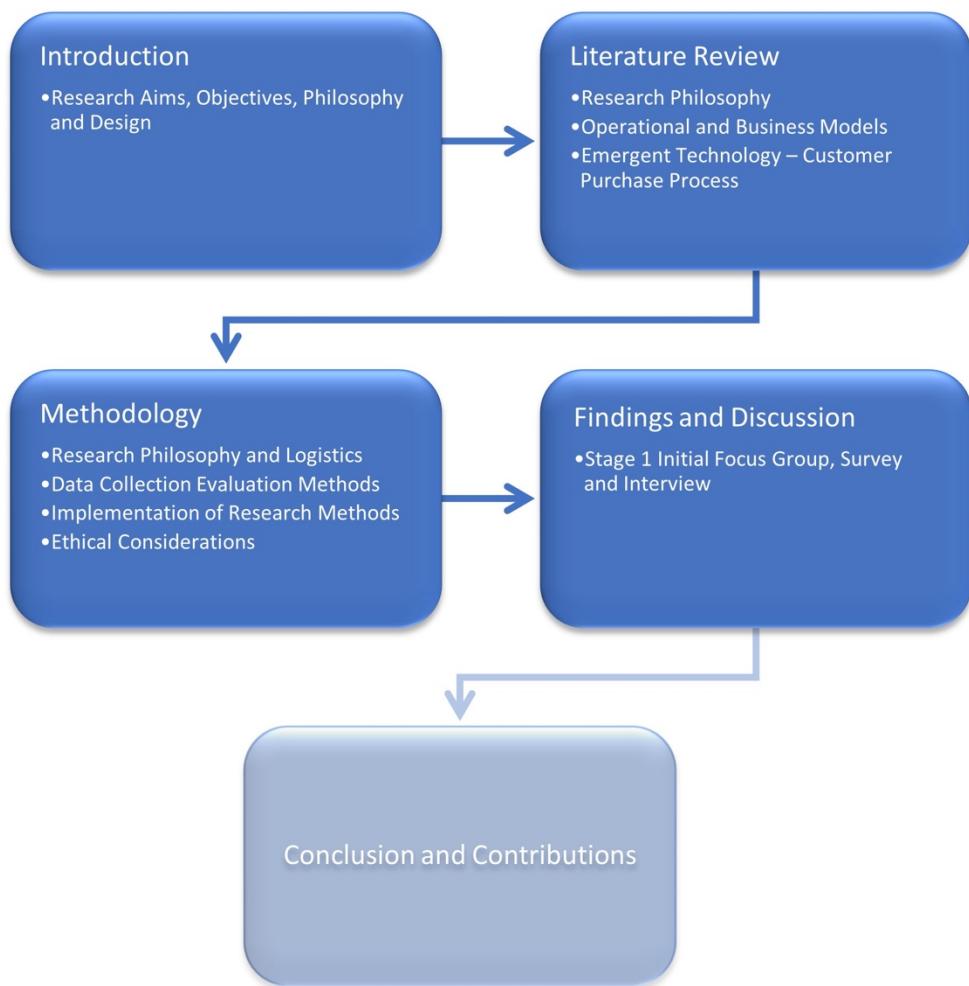
4.1 Findings of Initial Data Collection Process. Phase 1.

The purpose of the following three chapters is to develop the knowledge to formulate a framework business model for the last mile logistics (LML) industry to answer the research question and aims. This chapter summarises the insights of the roundtable discussion group – stage one. Chapter Five continues with stage two, the analysis of the longitudinal survey between 2015-2019 (Appendix 13) and evaluation of results which constitute the knowledge of the customers' priorities. Chapter Six, stage three is a discussion of the results of the one-to-one interviews with industry leaders (Appendix 15). These three stages lead to a conclusion for the development of an adaptable business model for the LML industry.

As before, the following research flowchart 4 identifies the previous chapters and the topics of data collection, starting with stage one, Roundtable Discussion, and Initial survey. From the initial roundtable discussion, the research question emerged through identifying and coding the values of the roundtable discussion, further data research was completed with the initial survey 1 (Appendix 13) of LML companies who attended the roundtable (Saldaña, 2013; Saunders, et al., 2019).

4.2 Roundtable Discussion and Initial Survey

The transport and logistics roundtable discussion were held in Leicester as this region is strongly situated in what is known as the ‘Golden Triangle’. Leicestershire, Northamptonshire, and Warwickshire are the central areas for retail logistic warehouses like Argos, John Lewis, Marks and Spencer, Office Depot, Amazon, Asda, Disney, Toyota and the distribution hubs for Hermes, TNT, FedEx, DHL. Business leaders were invited to attend an open discussion of ‘the current state of the industry and the key issues for the future’ roundtable discussion in Loughborough and Leicester in March 2015. During the month of March and April 2015 Survey 1 was sent to 28 businesses that agreed to complete the survey and 18 initial interviews were carried out.



Research Flowchart 4: Stage 1. Findings.

The roundtable discussion events were sponsored by Leicester Local Enterprise Partnership (LLEP). Data collection was based on qualitative methods (Cassell, et al., 2018; Dul & Hak, 2008; Saunders, et al., 2019). The event was carried out over one day to minimize disruption and was supported by a ministerial visit and speech about the current state of the economy for logistics in the UK by the local MP for Loughborough and the then Education Minister (2014-2016), Nicky Morgan. Both breakfast and lunch were provided to offer social networking and discussion around the event, allowing researchers then opportunity to assess the mood of the participants and later to clarify or to be advised further of roundtable comments.

4.2.1 Roundtable Participants

The target attendance number for the roundtable discussion was restricted by the size of venue, allowing no more than 60 persons to attend. The benefit of this was that within the time frame for the discussion all attendees were able to discuss and offer their opinion on all issues raised. Participants were invited to attend the roundtable discussion titled Logistics and Distribution Employer Forum (Table 12). A discussion that looked at future issues or themes of issues that would affect the business employers of logistic firms. The attendees were placed into groups. The roundtable was led by the researcher and from the Institute of Couriers (IoC). Each table had a nominated facilitator who had been briefed on what the researcher wanted from each discussion. The summary of the roundtable was then reported by the researcher. Each attendee was given the terms and conditions of attending the roundtable discussion and they confirmed their agreement to participate by signing in at the beginning of the event.

- Regional Logistics Managers/Directors; Transport Business owners, Transport Managers, Distribution Directors; logistic and last mile depot managers all of whom hold years of experience in the operational procedures for logistics.
- Professional educational trainers and academic industry lecturers who educate the next generation of logisticians and who themselves have previous industry operational knowledge.
- Council traffic planners and board members representing the region with knowledge or positions held responsible for the infrastructure, planning and business support to the logistics industry.

Table Participants	Number
Local Authority	14
Business Employers	26
Academic Educational	11
Six Tables of 8/9 plus 6 facilitators	

Table 10: Roundtable participants.

4.2.2 Roundtable Key Themes

The roundtable discussion was introduced by the LLEP as designed to understand barriers to future growth faced by local transport and logistic businesses. The purpose of the event was to hear first-hand from local transport businesses the issues that caused difficulties or restrictions to carrying out their service delivery. The outcome was a report for the LLEP to use in their future Transport Strategy Plan (Lomas, et al., 2015). The results of the roundtable key themes raised further questions for the author that resulted in this research being carried out.

4.2.3 Industry Trends and Aims of Roundtable Discussion

The purpose of the roundtable event was to hold open discussions to address two main aims from businesses in the Leicestershire area:

- How to achieve greater Economic growth potential in the area.
- Develop and action plan to achieve greater growth.

The results were then to be put to the LLEP for implementation, to improve the regional support of logistic companies in Leicestershire. However, this discussion focus group raised more issues than those strictly being addressed by the roundtable event, resulting in this further research.

In particular, the discussion drew attention to the year-on-year increase in commercial van registration since 2007 (RAC Foundation, 2017; Freight Transport Association, 2018). Around 47% of vans are commercially owned (RAC Foundation, 2017) and is predicted to double by 2040. The LSP is seeing increasing growth of home delivery demand, and this can be attributed to the increase in smaller vehicle purchase (IMRG, 2017; IMRG, 2019). The impact of local, regional, sustainability or national legislation will impact on how the last mile express sector carries out its service. These discussions were followed up in the survey 1.

4.2.4 Roundtable Key Themes Discussion Results

The table discussion was led a researcher and at each table an impartial observer took notes and clarifying issues raised. In considering this initial form of data collection the researcher was aware that if the procedure was not carried out with direction or comfort

for those participating, the results may be of limited use. The process emphasised that all discussions were for the ‘greater good of the industry’, highlighting the joint advantages to understanding the issues, placing individuals in a comfortable environment, and removing barriers to individuals speaking freely (Bryman & Bell, 2011, p. 515). These notes, written on A1 board sheets were labelled by table number, then submitted to the researcher at the end of the discussion. Each table invigilator then presented the issues raised to the research team. The collective results were coded and aligned to produce the list in order of importance, relating to the highest number of times an issue was raised from each table.

The collective notes from each table, which each group was able to revisit and discuss further before the end of the event were summaries as follows: -

- Legislation – Land Use and Road Strategy.
 - Impact of costs to the business and change of vehicle operation
 - Length of run-in time and vehicle life versus regulation changes variations of standards across counties.

The cumulative volume of goods being moved as the result of delivery and collection decisions made by online shoppers, retailers, and other businesses is rising year on year (IMRG, 2019; KPMG, 2018; RAC Foundation, 2017; UPS, 2015). This means that road and kerbside networks have to accommodate these delivery vehicles. Unreliable transport networks mean, late deliveries and mitigating inefficiencies in the road network, involves costly additional use of vehicle and human resources to ensure that goods reach their destination on Regulation, Parking and Air Quality (Allen, et al., 2012; Birmingham City Council, 2014; FTA: Freight Transport Association, 2014; GLA Greater London Authority, 2015; Greater Manchester Combined Authority, 2016; Transport for London, 2017; Dept for Transport, 2019).

- Roadside Facilities and Workforce.
 - Recruitment faltering due to external issues of infrastructure facilities. For individual support and vehicle use.
 - Understanding and consideration of all vehicle types used to supply business and warehouses and required access to delivery addressees.
 - Career awareness is low and costly for the licence. Base knowledge level of individuals is not sufficient for customer interfacing, nor are basic competencies for IT use and road awareness.

Technology can be used to consolidate transport flows into, out of and within urban areas, so companies engaged in e-commerce will continue to seek and rationalise their logistics. However, HGVs can carry as much as up to 10 van loads causing potential implications for kerbside delivery space and congestion arising from a shift towards smaller vehicles (FTA: Freight Transport Association, 2014; Freight Transport Association, 2018). The relationship between e-commerce and van usage is not clear (RAC Foundation, 2017) but an agile and reliable logistics service is pivotal to the delivery of online orders and products (CMR, 2018; KPMG, 2018; IMRG, 2019; I7, 2019; Starkey, 2019). This effect has consequences for road strategies of both regional and national government.

- Sustainability - Alternative powered vehicles and clean air
 - Legislative demand for alternative powered vehicles not matched by the manufacturer's availability.

These issues were a concern to the industry as to reduce congestion and improve environmental quality often increase delivery costs (Allen, et al., 2013). This increases the price of goods and ultimately raises the cost of living. While vans may have less direct environmental impact than Large Goods Vehicles (LGVs), the increased number of vehicles on the road and engaged in deliveries is not without consequences.

4.2.5 Legislation – Land Use and Road Strategy

Logistics & Distribution businesses operate in a highly regulated environment (Dept for Transport, 2019). The operation of a goods vehicle fleet is the subject of an operator licensing scheme overseen by the Traffic Commissioners (Government, 2019) who have extensive legal powers which at the extreme, can bar a company from operation. Vehicles driven on the public road are subject to all the traffic regulations related to weight and size restrictions, speed limits and parking controls all of which have the potential for financial penalties or even a driving ban through accumulated licence points. There is an unknown new set of emerging regulatory and compliance issues relating to home delivery (Butcher, 2013; British Standards Institute, 2019).

Recognising that a huge shift in retail from high street purchase to online shopping and goods arriving at home, LML companies face the new challenge of dealing with

doorstep signature, parking, and roadside legislation (Capgemini Research Institute, 2019; IMRG, 2019; Kirsty, 2019). The changing face of the high street has been attributed to the digital age of online shopping (Chillman, 2018; I4, 2015; IMIMobile, 2016; IMRG, 2019; Post and Parcel, 2019; PWC, 2019; Sword, 2019). The customer no longer goes to a shop to browse or ask for gift ideas as the internet now offers open access, anytime of the day through the digital medial of the customer's choice, phone, tablet, laptop, or computer. Digital access has removed the need for the customer to physically go to a place to shop since this can all be done virtually via a digital device. With the shift toward using digital devices the process demands a means to have the goods delivered. This has become what we call, express last mile delivery.

Conventional policy for delivery businesses was a signature at point of handover to a warehouse controller, office receptionist or the concierge at a hotel. The delivery of a package direct to a named recipient was a premium service, documents delivered to the board room for the consignment addressee only are charged, logged, and costed as appropriate (Lomas & Worth, 2006). The highly competitive new market created for home delivery does not allow such premiums to be charged. The point of delivery still remains the signature at point of handover, but a moral question then arises when an age restricted consignment, for example alcohol, drugs or an rated-18 DVD is handed to a sixteen year old for signature (Anna Child Trust, 2014; Institute of Education, 2019; NSPCC, 2019). The need to verify the age of that individual, their authority to answer the door or be alone in that building is new to scope of logistics home delivery. Given the high cost of re-delivery, there is a pressure on the carrier to hand over the goods. Re-delivery cost and the risk of breaking laws related to safeguarding of young people is one of the most negative influences in this emerging market. While transport compliance lies around road and driver legislation and goods carried regulations, the retail shift boom from high street to home is in urgent need of best practice guides on point of delivery issues, safeguarding goods and recipients.

4.2.6 Roadside Facilities and Workforce.

Local authorities are responsible for the enforcement of and issuing of penalty charge notices (PCNs)-parking fines. LML companies say that the lack of kerbside parking, loading and unloading bays are the cause of the added cost to home delivery due to the

need to infringe parking controls to unload their vehicles. Commonly seen in cities as a van parking on double or single lines to leave the vehicle for a brief time to make a home delivery. In October 2013 the House of Commons Transport Select Committee urged greater clarity on the rules for loading and unloading and urged local authorities to work with the industry to devise pragmatic local solutions, and supported regulation to ensure more fluid parking availability especially for delivery vehicles (Dept for Transport, 2019). However, at present, no local council has committed to better loading facilities. Improved roadside facilities for parking, loading, unloading, and stopping for rest periods, would improve the stress levels that a workers experience thereby improving the recruitment and retainment of workers (RAC Foundation, 2017).

4.2.7 Sustainability - Alternative Powered Vehicles and Clean Air.

The concerns for air quality regulation and social responsibility affect the planning of vehicle procurement and the operations strategy for businesses. 21 % of UK greenhouse gas emissions are from transport (Environment Agency, 2018) and of all transport emissions, large goods vehicles (LGVs) account for 21%. These concerns about the impact of transport on the environment coupled with fuel costs mean that businesses will have to review their vehicle and operational strategies. Some businesses are adopting different vehicle technology and are adapting routings for an increase in smaller parcel deliveries. Concerns have been raised by businesses as they believe the logistics industry is unfairly criticized for air pollutants when some reports say buses, taxis, and electricity generation cause more air pollutants (GLA Greater London Authority, 2015) The logistics sector is concerned that in order to meet these targets, measures might include a tightening of controls on vehicles in cities, with many investigating equivalents to London's Low Emission Zone; and further controls on emissions from vehicles, particularly diesel engines. Such measures could increase the cost and complexity of deliveries.

In the analysis process, the emerging issues and affects that impact on businesses were coded (Appendix 6) (Saldaña, 2013), enabling the various issues spoken about to be collectively unified in categories (Fachin & Langley, 2018).

The results were categorised as:

- Road Issues/Compliance – (Roadside Facilities and Workforce)
- Law Compliance – (Legislation – Land use and road strategy)
- Vehicle Costs – (Sustainability - Alternative powered vehicles and clean air)

4.3 Initial Survey and Interviews

Following the roundtable event, eighteen different logistics companies, of which eleven were LML companies, were chosen to represent a cross section of logistic companies. The selection consisted of national and regional companies, which provided a range of delivery services from abnormal load vehicles to parcel and post and international air freight. The initial survey was conducted by using Survey Monkey and eighteen follow up interviews were carried out (Appendix 4).

4.3.1 Initial Survey

To further understand the roundtable discussions eighteen individuals agreed to complete the initial survey. This gave further evidence to the issues raised at the roundtable discussion and led to the reason of this research.

Question 9 of survey 1 (Appendix 13) asked: Over the next two years, how strongly will your business be affected by strategic and local road networks and congestion? Over 70% of respondents believed strongly or very strongly that road infrastructure, congestion, kerbside delivery was a big concern. The LLEP report (2015) and the RAC foundation report (2017) agrees with this issue and suggests that government road infrastructure planning does not account for the human element that affects traffic regulation. Transport planning and infrastructure policy fails to recognise that non-commercial road-users may behave irresponsibly whilst driving, disregard regulations and byelaws, and how these actions affect professional drivers trying to carry out their service.

However, it is not only the human element but the physical road infrastructure and regulation that can cause congestion or roadside issues. 50% of the survey respondents cited the standard of roadside facilities, especially for female drivers as a concern (Freight Transport Association, 2018). The lack of rest areas with hygiene facilities are

specifically as being a reason why LGV drivers do not take up long distance driving (Road Haulage Association, 2019). All survey respondents stated that the regulation and local laws that affect delivery hours, pedestrian or paved areas make an impact either strongly or very strongly on their ability to deliver at the customers convenience. 47% of businesses are strongly concerned about potential unknown regulation and laws that both national and local government may bring in. Businesses are concerned as it is commonplace for one county or one borough to have one byelaw and for another borough to have a different law. Congestion charging or ULEZ legislation is an example. For instance, in London, Euro 6 diesel engines as the minimum standard while in Manchester the Euro 5 is the minimum standard to enter the city boundaries. There is a similar issue related time of entry to paved or precinct areas in different cities and London boroughs (Sadler Consultants Ltd, 2019). These rules vary in standard, and it is this issue that troubles the businesses.

Further issues will be imposed with any new regulations to be introduced, such as the improvement of air quality. Transport for London (2019) believes that air quality must be improved and that the logistics industry has to recognise its impact. The logistics industry is being blamed for the pollutants (Taylor & Gayle, 2018) so new regulations and byelaws are being brought in via enforced standards of service. One example of this is the Fleet Operator Recognition Scheme (FORS) (Fleet Operator Recognition Scheme, 2019). The FORS scheme is a voluntary standard but many public, government and major organisations will insist that LML companies must have achieved at least bronze FORS if they want to work for them. FORS is a voluntary standard that you commit to, including criteria the meeting of which corresponds to either bronze, silver, or gold standard. The FORS standard looks to improve the fleet using alternative fuelled vehicles. The Mayor of London has declared that the city will be a zero-carbon city by 2050 (Mayor of London, 2019). This regulation is intended to promote clean air in the city and the only vehicle that will be allowed in the city must be of alternative fuelled vehicles. However, typically, fleets consist of diesel vehicles and across the UK there is a variety of standards for vehicle types, as well as support for businesses to change vehicle types. These expected changes in regulation effect the roadside facilities that are made available for both vehicles and individuals, as well as creating uncertainty about

the kinds of vehicles business owners should use or buy and about whether vehicles would be acceptable to other areas of the UK (RAC Foundation, 2017; TFGM, 2019).

Further reason for transport businesses to change their vehicle type are related to the variation of fuel charging. Transport operators are not always able to stock or purchase fuel at an agreed price. There are fuel bunkering systems and credit card facilities that pre-arrange a price for the purchase of fuel at related forecourts with the UK and this system offers the transport operator a means to know the cost of fuel over a period of six months to a year. Whilst this system allows a business to manage their fuel costs over time, it does not account for the continued rise of fuel prices caused largely by the government tax on fuel supplies. The LML fleet is commonly made up of self-employed workers who do not have access to the UK fuel bunkering or credit card systems. Diesel van fleets will have to consider a fuel variation cost of up to 32% when purchasing fuel across the UK forecourts. Furthermore, fuel taxation will continue to rise for the foreseeable future (Office Budget Responsibility, 2019).

4.3.2 Initial Survey Review

The key responses to the initial survey were focused on external influences. LML companies are aware of but have difficulties in responding to influences outside their control and recognise the affect this has on the LML business model. The respondents were asked to rank the key issues that affected their business. Twenty-four questions were used relating to five areas within a business. The data collection was carried out using Survey Monkey, the results were transferred to a spreadsheet showing the percentages of the results. The results (Table 13), by percentage importance were: -

Issue	Percentage
Roadside Infrastructure	67
Legislation	56
Vehicle Cost (Sustainability)	47
Finance	23
Operational Provision (Road Freight Delivery)	62

Table 11: Percentage of respondents ranked to key issues (2015).

The results showed that road infrastructure and legislation compliance affected their business structure the most (Figure 21). These results lead to the conclusion that the LML must include external influences in the making of a business model. Without this inclusion, LML companies will fail to meet the customer demands. For example, it would be impossible for a LML company to deliver into the City of London if not driving a zero-emission vehicle by 2050, or perhaps as early as 2030 (Transport for London, 2019). Having to meet this regulation means that the fleet of a LML company will have to adapt and change the type of vehicles used, thereby affecting the choice of business model.

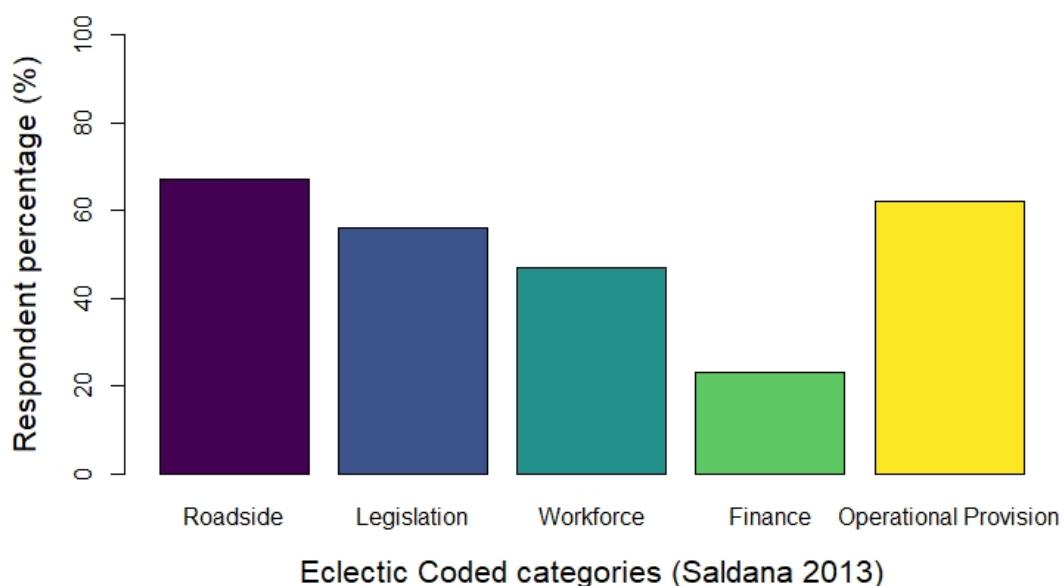


Figure 21: Initial Survey Respondents Key Issues.

These results raised further questions for the researcher as to how the LML can sustain their business with so many external challenges. The researcher questioned how a LML would incorporate the external influences into its business model, if indeed they had one. What effect would, not having a business model have on the future for the LML company or was the current business model able to cope with the external influences and challenges placed upon it? These questions brought the researcher to ask another question: Is there a business model suitable for the current challenges and circumstances of the LML company? The answer was unknown. Further investigation was needed to understand how the research could continue. The process to explore further these 150

questions were carried out through interviews with some of those who had attended the roundtable discussion and completed the survey.

4.3.3 Initial Interview Introduction

Eighteen companies agreed to discuss the roundtable and initial survey issues further via a one-to-one interview (Appendix 4). Both these data collection methods, survey and interviews were completed between March and May 2015. The initial interviews were carried out using semi-structured questions via the telephone, at a pre-determined time controlled by the participant and with knowledge that the discussion would take at least 40 minutes. Most were happy with the timings and completed the discussion within one conversation. One participant was re-contacted as business interrupted the call.

4.3.4 Initial Interview Discussions

The researcher opened the discussion with thoughts on general business economy and issues. This was followed by semi-formal questions based on the survey, specifically addressing issues the participant could see arising for their business and the wider logistics industry. The majority believed that the infrastructure for their business was poorly supported through local and national government. Fourteen out of eighteen responded that there was a lack of support for the internet and road infrastructure. One respondent, CI3, stated “it would be a great assistance to road networks if those responsible [for roads] took into account all the types of vehicles on the road”. Another, CI9, stated “we need infrastructure to support the physical and the technological, online delivery is here to stay and we are just not ready”. CI10 commented “it is a dirty job, it isn’t glamorous, and the technical skills required compared to ten years ago has multiplied, roadways have to support this trend”. Only three respondents had positive things to say about road infrastructure and that could be due to the road improvement works currently being carried out in their area. Regional government legislation impacting on planning applications for businesses to expand in the area or build new, came up several times. Examples of businesses having to move out of a town due to planning permission being rejected for business expansion include this quote from CI15, “location is about access for the customer, the team and suppliers.” This

sentiment was repeated in five other interviews (CI5, CI9, CI11 and CI16). Notably, CI14 had this to say, regarding expansion and infrastructure, “born, loved and built a business in Leicester since 1987 but will now have to move away” due to planning refusal for the business.

No-one disagreed with the need to support the use of alternative fuelled vehicles. Since 2013 there has been an increasing number of legislations around clean air which is restricting all types of vehicles from entering a city centre, to improve the air quality in a specific area (Transport for London, 2019). The interviewees indicated concern about how their business would cope with the legislation, as the on-the-road infrastructure did not match the need created by new regulation. Comments by respondents focused on wanting to support clean air but not having the ‘supply or infrastructure’ to support alternative fuel vehicles. CI3 suggested, “we fully support electric vehicles and are bringing them on fleet, but not much good when the supplier says the vehicle comes off the production line in 3 years.” Similarly, CI4 stated, “we deliver 160,000 parcels a night, it should be managed but where can I refuel? not enough forecourts to support alternative fuel vehicles.” Respondents commented with “we want to do our bit, if you can show me how I can run my night shift [the distance the vehicle drives at night] on the refuelling stops available, then I will change vehicles.” Respondent RN12 acknowledged the role of customer demand, commenting “customers want us to change, sustainability is key to customer focus and I’m a customer too”. While CI18 said that “we are dependent on driver hours (legislation), our routes are planned to meet the four-hour restriction. When the vehicle doesn’t match to this demand, the refuelling is hotchpotch at best, the supply of the vehicle is drips and drabs, how can we change?”

Having to meet new vehicle regulation will cause greater operational problems for routing and delivery points. Most respondents (16 out of 18) would choose electric vehicles as their new vehicle, but this response was the most common format available in 2016, from 2018 onwards the success of LPG, hybrid electric and all electric vehicles has grown to provide a wider alternative vehicle power source. These regulation and common concern for clean air have impacted on operational delivery strategy and the technological platforms but the interviewee concerns were the implementation of these

new challenges, believing that regulation was being implemented before infrastructure could support it.

The interviewees expressed concern about the speed of legislation, the lack of support for IT platforms, and the lack of road infrastructure, and how all of this would impact the running of their business. CI1, CI2, CI3, CI5, CI7, CI8, CI12 and CI16 all gave similar comments relating to the speed of legislation. “I am a FORS member (Fleet Operator Recognition Scheme), I want to compile but supply and infrastructure does not happen as quickly as the clean air zones are brought in.” Further to these comments, interviewees explained feeling held back by the inconsistencies between counties, local regulation doesn’t transfer to a national regulation. The infrastructure standards vary enormously across the UK and little consideration is given to achieve collaborative solutions. This disjointed regulation standard causes complication to operation routes and delivery points that will have an adverse effect on meeting client chain demand.

The interviewees raised the continuing issue of recruitment versus the increase of freight demand. Public perception of the industry isn’t helped with poor infrastructure. The lack of public toilets or personal cleaning facilities, lack of public wi-fi access or safe overnight parking places with eating and bathroom facilities is a cause for employer concern. Businesses are creating their own in-house training schools and academy’s (Office Depot, APC, FedEx) alongside the traditional graduate schemes (TNT, DHL, UPS). Working with schools to start an early awareness of the industry and as in the case of JCB creating their own school (16-18 year-olds) to link with industry providing the specific engineering skills and qualifications for direct entry to a job. These systems of recruitment are aimed at trying to encourage new interest into the industry to offset the poor public perception of the industry.

4.3.5 Initial Interview Review

In the initial interviews the respondents confirmed that road infrastructure and regulation were a concern to companies agreeing with the online survey results. The relationship between poor infrastructure, facilities, and varying regulation upon LML companies look to compound issues caused by increased demand of online shopping

(Scarlett, 2018). Whilst alternative modes of transport and collection by the customer is being evaluated and used (click and collect, in-store, collection points and lockers) the online shopping volume is rising exponentially, and this is putting a heavy burden on road deliveries and infrastructure (Lowe & Rigby, 2014; Starkey, 2019; UPS, 2019)

The regulation of alternative fuelled vehicles set to meet city commitments (London, Birmingham Leeds) of Zero emissions by 2020/25 raises concerns for businesses who will have to evaluate their fleet and the model of delivery to service their customers (Birmingham City Council, 2014; GLA Greater London Authority, 2015; Greater Manchester Combined Authority, 2016). More cities include Aberdeen, Bath, Brighton, Dundee, Edinburgh, Glasgow, Leicester, Norwich, Nottingham, Sheffield & Oxford who are in different stages of consultation for ‘Clean Air’ or ‘Zero Emissions’ cities (Sadler Consultants Ltd, 2019). Cargo cycles and electric vehicles are leading the charge for alternative vehicles and the initial scheme for LMLs to use portage, pedestrian couriers with trolleys and micro hub distribution points are showing potential for city deliveries (Allen, et al., 2018). In the research carried out by Southampton University they established that a courier (Gnewt) who drove a van in London, walked 6 miles versus driving 5 miles during a shift with the vehicle parked at the kerbside for long periods of time (Cherrett & McLeod, 2018).

The introduction of this research came from the LLEP asking for an understanding of the logistic business needs for infrastructure, staffing, property, and delivery access in their area (Lomas, et al., 2015). The roundtable discussion highlighted key themes that affected LML. Issues with parking, delivery access and alternative refuelling supply, clean air zones and business planning, as well as alternative vehicle supply. These themes were coded into three categories: roadside infrastructure, legislation, and vehicle costs. These key factors impact on the LML business model and how the industry should prepare for the future (Allen, et al., 2018; Capgemini Research Institute, 2019). The rise of online shopping has increased the use of LML companies and has come at a time of global awareness of air quality (IMRG, 2019). The public demand to reduce air pollution influences government legislation and the regulation of the LML industry, affecting business strategic, planning and business models (The Guardian, 2019).

4.4 Data Collection Summary

This chapter has summarised the roundtable focus discussion, the initial survey, and the initial interviews. Listening to the participants, understanding those issues, and investigating further through survey questionnaire has provided coded categories to be recognised as those which are currently causing most effect on LML business. The final interviews supported those findings and were specific in recognising the main issues that needed addressing. With the recognition that express delivery is on the increase, the emerging question is “how will LML companies account for the external influences of the changing delivery demands as well as the influences on road infrastructure, legislation and vehicle costs?”

To address this question, further research on customer demands for online purchase delivery and business strategy is needed. The process, based on the data collection circle, aims to look at interrelated data activities to gather good information to answer this question (Cresswell, 2013, p. 146). The LML is the link between the retailer and the customer, so to understand the issues and to evaluate the issues within the business model the LML will need to understand the customer (Chen, et al., 2011). The results of the initial survey and interviews became the foundation of knowledge for the questions relating to the customer demand of the LML industry. Stage one provides the research enquiry that supports the longitudinal survey. In the next chapter, the results from the longitudinal survey, what the customer wants from their online retail purchase delivery, are analysed.

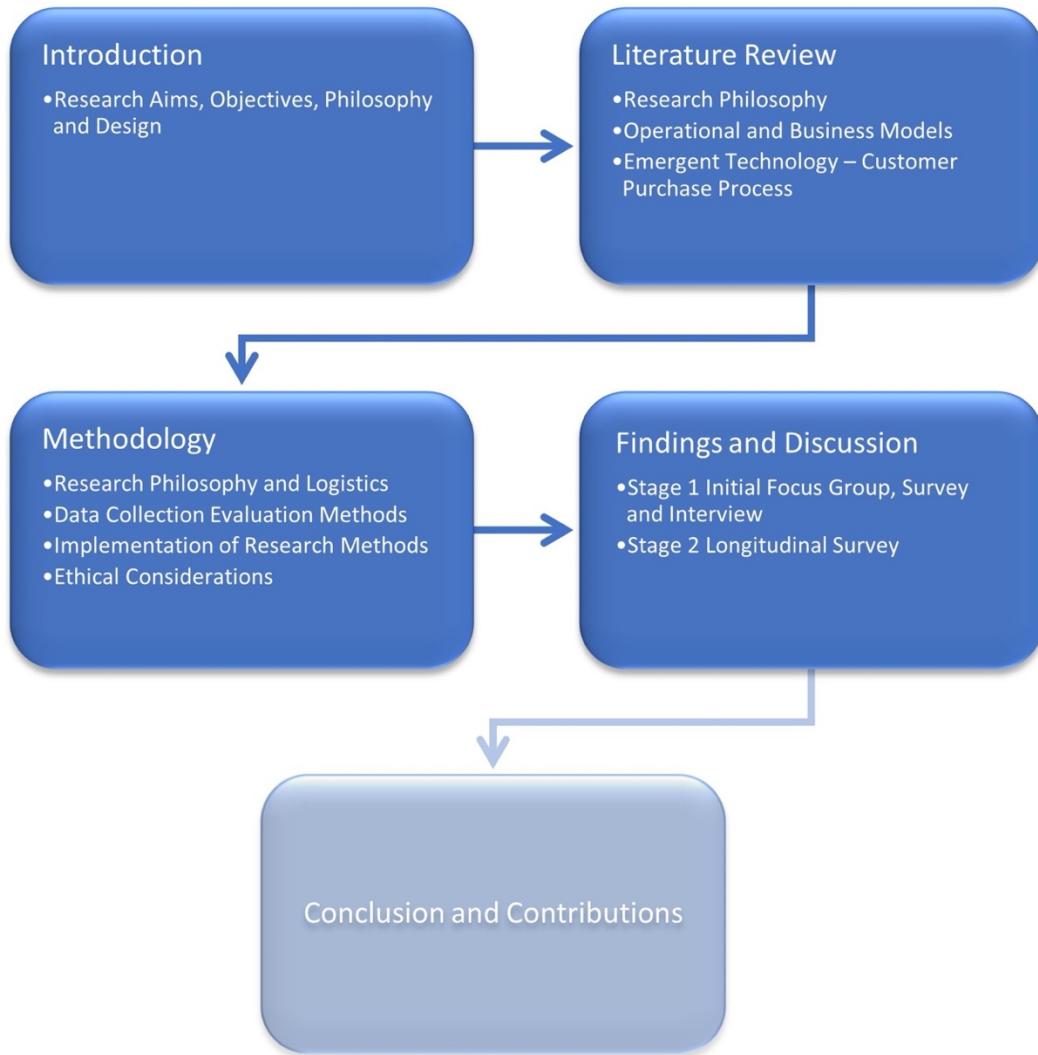
5 Findings of Longitudinal Survey Results. Phase 2.

5.1 Introduction of Longitudinal Survey

The rise of e-commerce and delivery of the online shopping phenomena has raised concerns for LML industry and the effect on the LML delivery point (JDA Ltd, 2016; CMR, 2018; Dept for Transport, 2019). Initial research carried out during Mar/May 2015 evaluated the needs of the Last Mile Logistics (LML) industry and the concerns that the Logistic Service Provider (LSP) businesses raised. The summary of these concerns was related to external influences. Concerns that raised the question for the researcher of how LML companies will relate to the changing delivery demands of online purchases? LML businesses are struggling to meet customer demand and purchase satisfaction, they believe this is due to a lack of infrastructure and difficult regulation that does not fully match the LML delivery service capability (Capgemini Research Institute, 2019; Lim, et al., 2018; RAC Foundation, 2017). Shopping habits have been changed by technology, which has enabled orders to be made 24 hours a day, seven days a week, and more recently with the Covid-19 (2020) restrictions it has enforced the public to make greater use a home delivery service (Dablanic, et al., 2017; Johnson, 2020; Lim, et al., 2018).

The methodology chapter addresses the survey technique and effective data acquisition, boasting a 100% completion rate due to the face-to-face data collection approach (Bryman, 2016; Cresswell, 2013; Nardi, 2018). The following research flowchart 5 shows stage two of the data collection process, the longitudinal survey. The findings will provide evidence of what matters to the customer, what expectations there are of the LML delivery service. These findings will reflect customer perceptions which are part of the multi-sided architectural platform (Parmentier & Gandia, 2017). Understanding customer demands and being able to adapt will provide the LML business with information that directly affects the LML business model choice. The longitudinal survey contributes to the operation management and optimisation stream of the business model, which affects the interrelationship between customer and service provider (Allen, et al., 2018; Lim, et al., 2018; Perboli, et al., 2017). The findings of this

chapter will verify the customer demands and expectations that LML businesses need to consider within their business model.



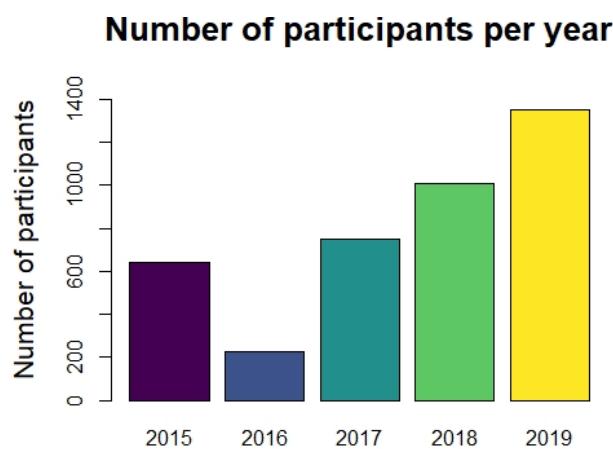
Research Flowchart 5: Longitudinal Survey. Phase 2.

5.1.1 Survey Sampling

The survey set in March 2015 introduced twenty questions, of which eight were a constant throughout the five-year survey. In total, the survey had 4,001 respondents. Survey respondents were asked at similar trade shows each year, which attracted the same type of applicants answering the survey over the period. An adjustment to the number of questions was made after it became clear that the twenty-question survey was taking up too long, up to ten minutes, to complete and participants were becoming

weary. To reduce the question set, eclectic coding was chosen to match the operational stream within the LML business model (Lim, et al., 2018; Perboli, et al., 2018; Saldaña, 2013) reducing the number from twenty to eight questions. Filtering the number of questions asked, to reduce the time taken to answer the survey helped to increase the number of survey participants within any one period. It was also clear that to achieve the highest success rate, respondent data collection needed to be carried out face to face as a personal collection request and to encourage and thank the participate they were offered a Curly Wurly chocolate bar, on completing the survey.

At the beginning of the survey, it is noted that due to the set-up of the software the first question in the 2015 survey allowed the participants to make more than one answer, this resulted in plus 5% of answers being recorded. Even with this error in the survey, the researcher considered the variation of error and is noted that if the 5% was to be taken off any of the totals, overall, there is no difference to the trend of answer. This was rectified and the following years clear of this error. The five-year survey results show that 2016 is a proportionally small sample size compared to the other four years and therefore does not accurately represent the public opinion. However, 2016 had the second highest percentage of participants answering 100% of the questions after 2019, making the collected data reliable (see Figure 22).



Year	2015	2016	2017	2018	2019
Yearly Participants	667	222	750	1010	1352

Figure 22: Number of Longitudinal Survey Participants per year collected over the study.

5.1.2 Year on Year Survey Results

In 2015 the first year of the survey, twenty questions were asked of the recipients, questions asking what type of area you live in, how accessible is your address for delivery, do you sell goods online, what is your job and work pattern. Table 14 shows the number of questions asked and the collated question numbers for each year in relation to the survey questions. However, the surveys numbered 1 & 2, 2015 were identified since not all answers were completed. The software system, Survey Monkey was used as the data collection source and within the setup of survey questions the creator of the survey could enforce an answer to the question. In the first year this setup was not utilised fully and some of the setups and questions were changed following 2015. For 2016 one question, ‘which day of the week do you shop online’ confused the participant so was removed, leaving nineteen questions which took approximately two and a half to four minutes to complete. The questions were balanced between soft, easy to answer questions to hard, thought-provoking questions to keep the respondent engaged and positive about completing the survey honestly, the final question asked if the respondent wanted to receive further information about the survey and the industry, they submit their email address.

Through the survey numbered 6 – 10 it was identified that the number of questions could be reduced. Focusing on those questions that rated the highest, positive, or negative response. Understanding those questions which were producing the highest percentage related to the most common customer demands of concern for an online purchase delivery. From the year-on-year analysis, eight questions were selected representing those questions which during the survey period between survey 6 - 10 had shown the highest percentage variation relating to the product of delivery. A benefit of reduced questions was that the final eight questions provided a shorter completion time of approximately 40 seconds to 1 minute and thereby increased the opportunity to approach a higher number of participants during a day. Of the eight questions, one was not used as it related to a secondary question not related to this research - ‘Is it acceptable to send retail packages to the office?’ The remaining seven questions were considered as reliable data for analysis and for consistency the survey question numbering is used (Table 15).

Year	Survey No	Appendix	Survey Question No	Q 1	Q 2	Q 3	Q 4	Q 5	Q 6	Q 7	Total No of Qs
2015	1			4	6	7	8	9	12	13	19
	2			6	*	*	*	9	12	13	19
	3			6	*	*	*	9	12	13	19
	4			6	*	*	*	9	12	13	19
	5			4	6	7	8	9	12	13	19
	6			4	6	7	8	9	12	13	19
2016	7			4	6	7	8	9	12	13	19
	8		Question number of each survey relating to the research questions as shown in Table 10	4	6	7	8	9	12	13	19
	9			4	6	7	8	9	12	13	19
	10			2	3	4	5	6	7	8	9
	11			2	3	4	5	6	7	8	9
	12			1	2	3	4	5	6	7	8
2019	13			1	2	3	4	5	6	7	8
	14			1	2	3	4	5	6	7	8
	15			1	2	3	4	5	6	7	8

Survey questionnaires 2,3,4* 2015

For Q2,3,4 – a variation of wording was used to that of the following years

Table 12: Survey question totals and numbering for each survey.

Survey Question No Table 9	Questions Listed Appendix 12	Questions
Q1	4	How do you normally receive the goods that you purchase online?
Q2	6	When buying online, how important a factor in your purchase decision is delivery speed?
Q3	7	How many days would you wait for free delivery of non -food items under £50?
Q4	8	How many days would you wait for free delivery of non-food items over £50
Q5	9	If you had to choose a single day for free delivery, which day would you choose?
Q6	12	I like delivery companies to text delivery advice.
Q7	13	I would like delivery companies to provide ‘delivery proof’ estimate of at least.

Table 13: Longitudinal Survey Questions used for this research.

The data analysis presents that in the 5 years of the survey, all questions were answered by at least 90% of participants (to 2 decimal points), which gives a good representation of those respondents, on the topic (see Figure 23). The exclusion to this is Q3,4,5 and 6 in 2015 which had a participation rate below 35% this was due in part to a) software system setup and b) the variation of these questions in the survey at certain events where the survey was taken. Therefore, it can be considered that 2015 gives less reliability to the data on these questions (Q3,4,5 and 6) but does not make any significant change to the percentages overall.

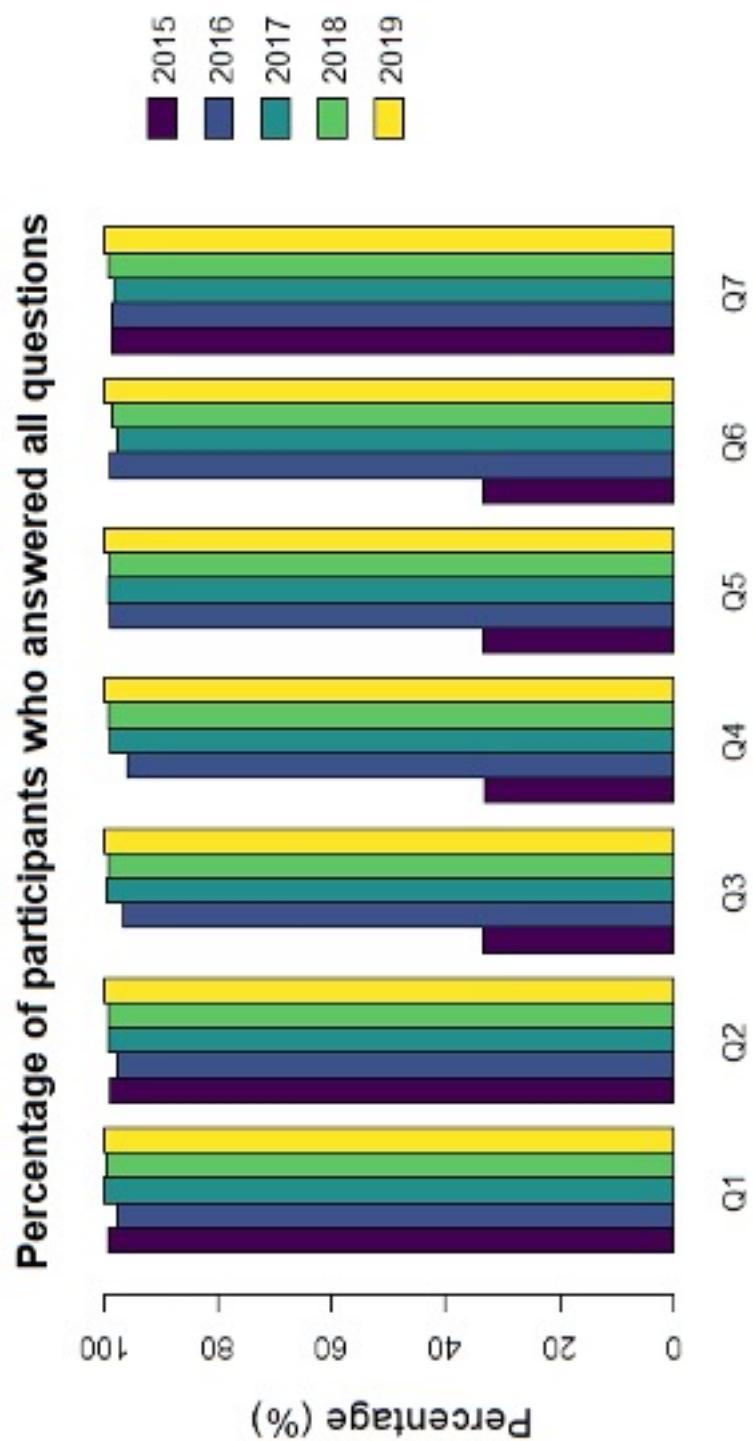


Figure 23: Percentage of participants (2 d.p) answering all research survey questions.

5.2 Survey Question Results

The software used to create the data analysis gave the results in spreadsheet and graph form, providing the researcher with the ability to check the raw data numbers against the software analysis before presenting the results in this research. The following analysis is from the seven questions that were consistently asked over the five-year period of research and which were considered the most significant.

Question one (Q1) asked how online shoppers wanted to receive their goods once an order was placed with a retailer. The choices ranged from home delivery, by which the customer need not make any effort to receive the goods, and purchase collection at a given location. The results in 2015 were inconsistent and can be attributed to the common practice and services being provided by the retailer and the LML sector at that time. In 2015, click and collect or collection points were not commonplace. The process of offering the customer the option of going to the shop, as click and collect, was the first step to today's variation of collection points (2020). Collection points can offer a convenience of knowing that the goods will be available when the customer wants them to be. The data showed that over the five years, the new trend of collection points was not as popular as the suppliers had believed it would be (CMR, 2018), and this data confirms that the majority of participants preferred to receive their goods through home delivery (see Figure 24).

Over the survey period the delivery options have increased from delivery to a home or business point to include collection points at stores, high street shops and standalone lockers, supermarkets, and garages yet this has not increased interest in collection point delivery (Allen, et al., 2018; Capgemini Research Institute, 2019; JDA Ltd, 2016; IMRG, 2017). Q1 asked the customer, how do you normally receive the goods that you purchase online? In response, less than ten percent of respondents said they would collect their goods from a shop/parcel or collection point/locker or other such third-party provision. With such a varied choice of collection points, anytime and almost anywhere, the customer still chooses the home or business delivery. It is possible that the customer would prefer to remain at home rather than be required to make another journey, however, this research did not investigate why the customer made this choice. This remains a worthy avenue for further research.

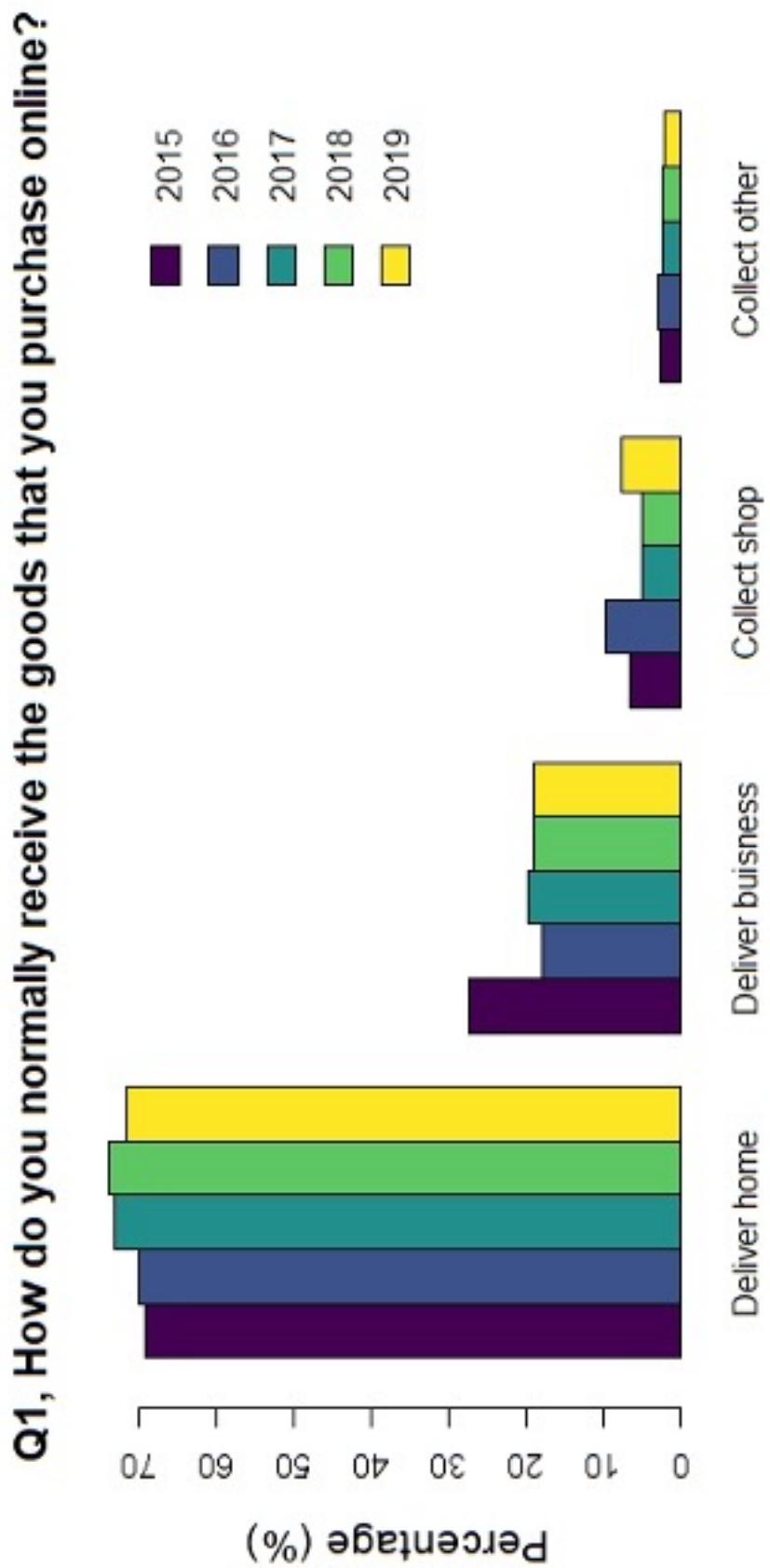


Figure 24: Q1 Longitudinal Survey.

The survey data shows that delivery to home and to a business address increase over the period and there is a large gap between the option of collecting from shop or other collection points (Table 16). Knowing that the customer wants their delivery to home or business, suggests to the LML company that a customer is asking for their delivery to a place where they spend most of their day, rather than when they are travelling around going to work, taking children to school or shopping.

In 2016, the number of participants who collected goods from a shop/store (9.59%) is higher than any other year. As mentioned, however, the 2016 data is inconclusive due to the size of the sample, which was 222 people, the smallest of the general analysis samples.

	Deliver home	Deliver business	Collect shop	Collect other
2015	67.47	24.88	5.63	2.02
2016	69.86	17.81	9.59	2.74
2017	72.99	19.65	4.95	2.41
2018	73.84	18.93	5.05	2.18
2019	71.52	18.79	7.62	2.07
Years	All results are a percentage % (2 d.p.) of the total respondents			

Table 14: Q1, How would you normally receive the goods that you purchase online.

The question two (Q2) data highlights that throughout the five-year period more than 76% of participants found the factor of delivery speed to be very important/important in their decision to make a purchase (see Figure 25). From 2016 to 2019 the number of participants who believed the factor of delivery speed was very important increased by more than 15% and the percentage of respondents who thought that this was neither important nor unimportant decreased.

By 2019, 90% of respondents believed the factor of delivery speed to be important in their decision to make a purchase. The gap between those who considered it important and those who considered it neither important nor unimportant had increased by 31% (Table 17). Customers who were previously not influenced by this had moved to recognise that delivery speed was a key influencing factor for them, when making a purchase online. The data concludes that over the five years the customer moved from a wide differential base of opinion to a concentrated agreement about what matters when online shopping.

	Very important	Important	Neither important nor unimportant	Unimportant	Very unimportant
2015	28.39	48.11	17.67	5.05	0.79
2016	24.66	55.71	14.61	2.28	2.74
2017	29.70	57.53	10.75	1.48	0.54
2018	35.00	50.45	11.07	2.19	1.30
2019	40.46	47.71	9.17	1.78	0.89
Years	All results are a percentage % (2 d.p.) of the total respondents				

Table 15: Q2, How important a factor in your purchase decision is delivery speed.

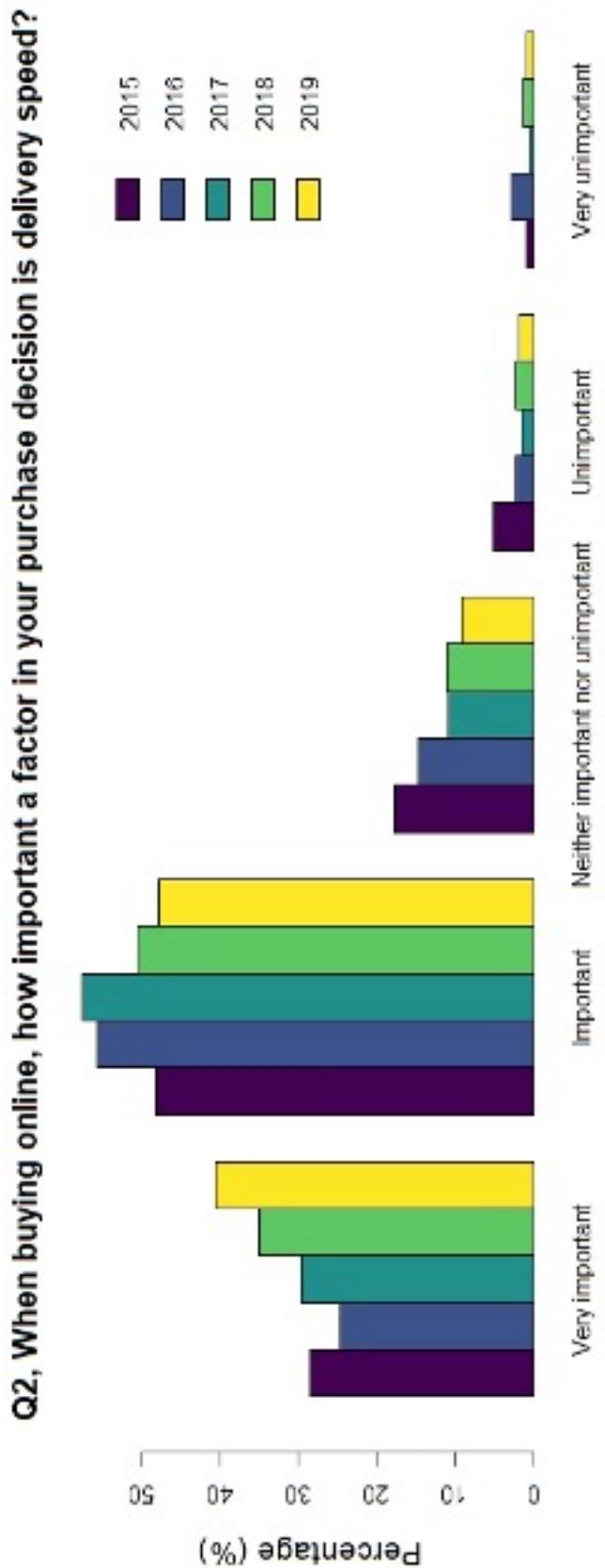


Figure 25: Q2 Longitudinal Survey.

Question three (Q3) looked at the needs of delivery focused on the cost or value of the goods ordered online under £50. Analysis of question three highlights that most participants would wait up to 2-3 days for free delivery on non-food items under £50. This does not mean that the public's preference is a delivery window of 2-3 days, but that they would wait 2-3 days if necessary. Over 15% of participants each year stated they would wait 5 days for free delivery, which is more each year than those who said they would wait 4 days. It may be concluded that when online purchases are made a customer either wants their goods within 2-3 days or will wait a longer, up to 5 days, to receive their delivery (Figure 26).

Significantly, only 10% of respondents believed that immediate one day delivery was important in the context of free delivery. This suggests the opposite conclusion from question two, as 90% of respondent's state that speed of delivery is important to their decision to make a purchase (Table 18). The significance of this data is that those surveyed changed their opinion when asked a question with a different meaning, but which is related to a similar outcome. The contradictory evidence, though each individual question is conclusive, raises concern and another question. Does the customer understand each question to mean something very different and therefore answers accordingly? What does the customer understand of the phrase "of delivery"? Though the data results are clear and conclusive they cannot explain this anomaly and if evaluation of the cost question was continued further this may become more apparent.

Days for Delivery	1	2	3	4	5
2015	6.07	22.43	40.65	9.81	21.03
2016	9.22	25.35	39.63	6.45	19.35
2017	9.24	30.66	35.88	8.57	15.66
2018	9.97	28.71	35.69	9.37	16.25
2019	10.36	29.66	38.17	6.29	15.53
Years	All results are a percentage % (2 d.p.) of the total respondents				

Table 16: Q3, How many days would you wait for free delivery of non-foods under £50.

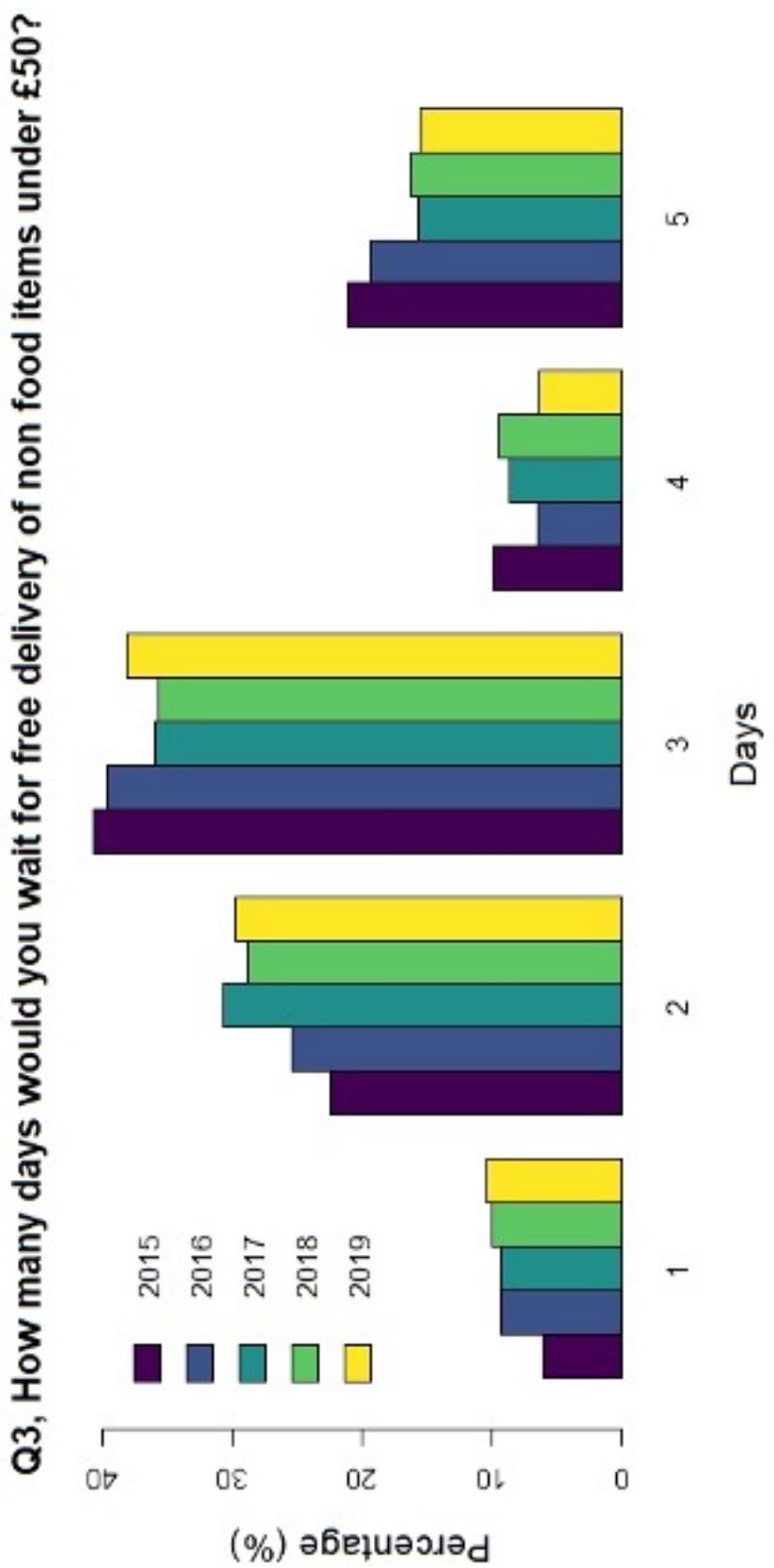


Figure 26: Q3 Longitudinal Survey.

Question four (Q4) looked at the demand for delivery speed for purchases over £50. There are similar trends to those for question three, people either want it quite quickly, within 2-3 days, or they will wait longer, up to 5 days (Figure 27). The analysis of question four, see Table 19, is not as conclusive as question three in that the highest percentage for any one answer is 2 days at 34% for the value of goods over £50. In Q3, over the five years, the highest percentage was for 3 days for the value of goods under £50. This indicates that the customer relates the value of the purchase to the speed of delivery. In the most recent survey (2019), 20% of those surveyed would only wait one day for free delivery of a purchase over £50 whereas for goods valued under £50 it was only half that number, 10%. This result supports the suggestion that customers relate speed of delivery to the value of the purchase.

Days for Delivery	1	2	3	4	5
2015	18.01	30.33	27.96	7.58	16.11
2016	13.95	33.02	27.91	6.51	18.60
2017	19.32	34.19	27.16	6.76	12.57
2018	19.14	29.41	28.61	7.48	15.35
2019	21.01	32.62	28.85	5.25	12.28
Years	All results are a percentage % (2 d.p.) of the total respondents				

Table 17: Q4, How many days would you wait for free delivery of non-foods over £50.

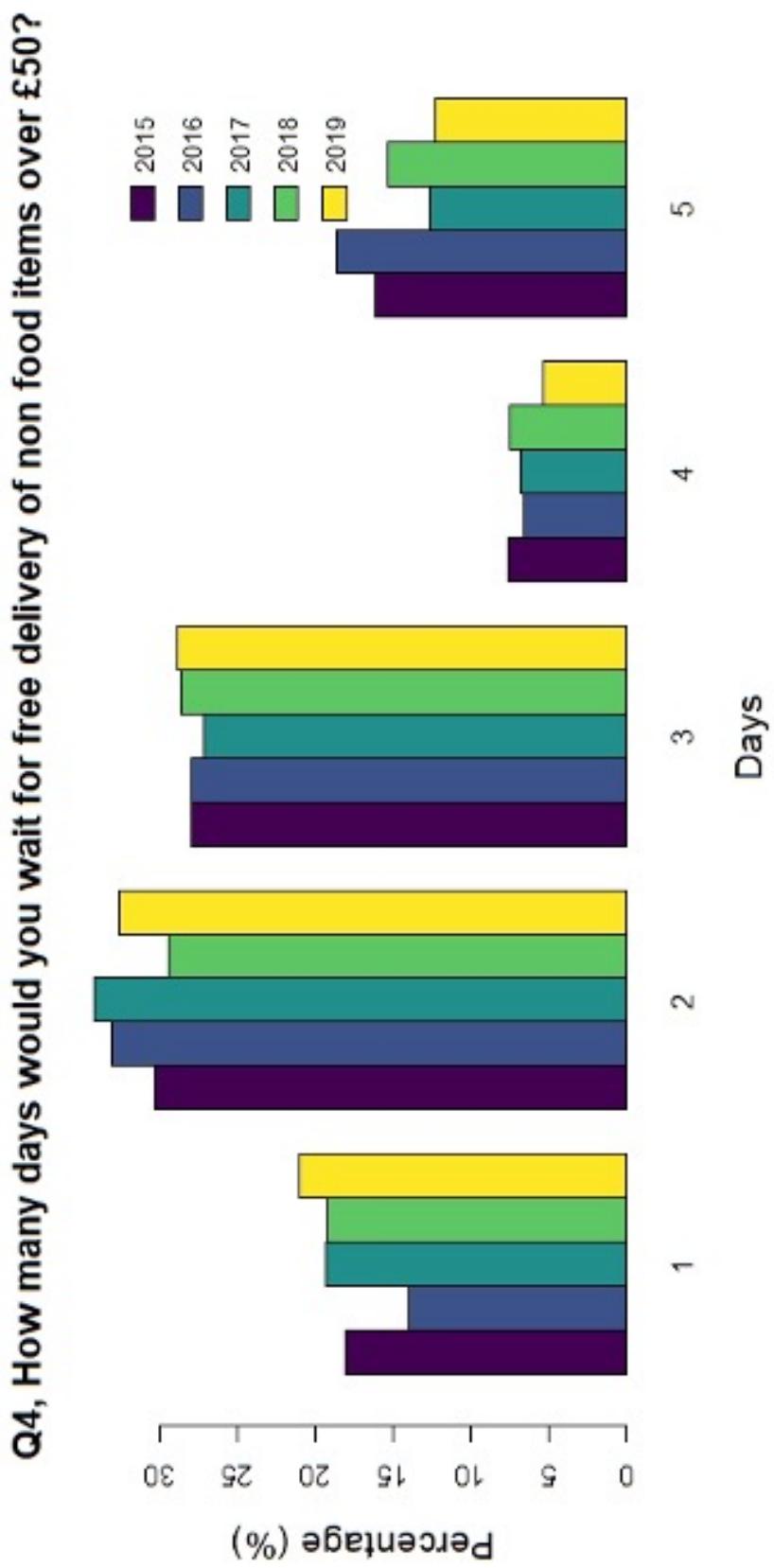


Figure 27: Q4 Longitudinal Survey.

Question five (Q5), which single day would you prefer to receive a free delivery, identified Saturday as the general preference (Figure 28). One reason for this could be that the national working week is from Monday to Friday and therefore a customer would be at home to receive the delivery at the weekend (Sopher, 2014). Considering the results of this question, further research could be beneficial to understanding more of why customers still believe the weekend is the best day for a delivery.

However, delivery options have changed over recent years (Allen, et al., 2018; Capgemini Research Institute, 2019), retailers like Hermes and John Lewis (Next PLC, 2018; Scarlett, 2018; Starkey, 2019) who have changed their processing to accommodate customer orders by midnight for delivery the very next day and new delivery options of same day delivery like Amazon and Argos (Sword, 2019). These options are making next day delivery more common, rather than waiting a few days or even having to choose a particular day for free delivery. Over the five-year survey, respondents have always favoured a weekend delivery, (Table 20) it might therefore be assumed that they do not expect to work over the weekend, but the data is not sufficient to give any more conclusive reasoning.

Preferred free delivery days	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
2015	13.49	3.26	5.58	5.12	15.81	47.44	9.30
2016	13.96	3.60	7.21	4.50	15.77	44.14	10.81
2017	10.48	3.90	7.26	6.45	16.26	47.72	7.93
2018	14.89	4.20	6.49	4.80	16.88	42.86	9.89
2019	15.24	4.36	6.21	2.59	20.12	43.20	8.28
Years	All results are a percentage % (2 d.p.) of the total respondents						

Table 18: Q5, If you had to choose a single day for free delivery, which day would you choose.

Q5, If you had to choose a single day for free delivery, which day would you choose?

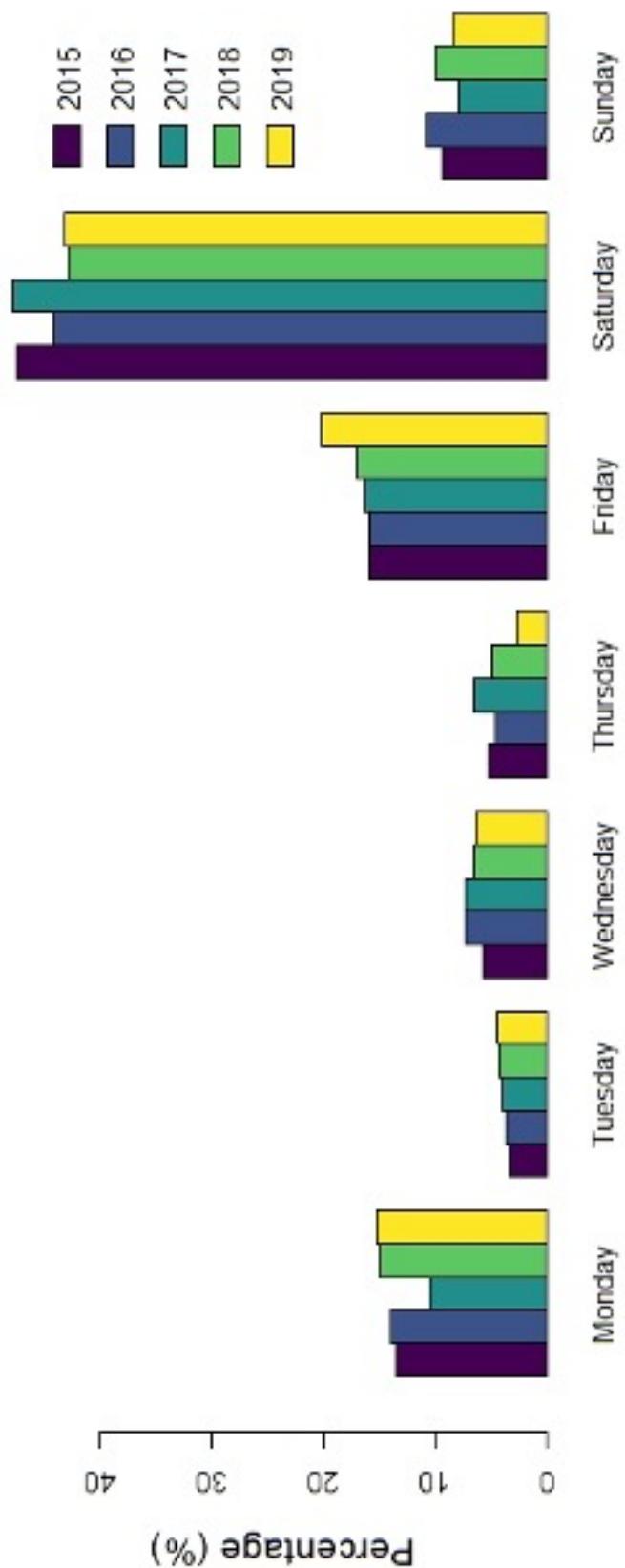


Figure 28: Q5 Longitudinal Survey.

Question six (Q6). Using modern technologies, such as the internet, mobile phones, tablets, and apps customers can now purchase goods 365 days a year, 24 hours a day. Naturally, the delivery service industry has had to change in response to this technology, as well as customer and the retailers demands. According to the results from Q1, generally respondents want their order to arrive at their home. The customer demand for maximum convenience is confirmed by the results of Q6, more than 88% of the participants each year strongly agreed or agreed that they would like delivery companies to text delivery advice (Figure 29). Delivery advice is known in the industry as the time period that the delivery will be made at the customers delivery point.

In the final two years of the study the percentage of people who strongly agreed to the statement was higher than 53%, together with respondents who agreed, the percentage was 93% of those surveyed, leaving all but 7% who selected neither agree nor disagree, disagree, or strongly disagree (Table 21). This represents conclusive majority in favour of a text delivery communication. This demand for knowledge or transparent understanding of where goods are physically, suggests that the LML delivery service needs to use technology to meet client driven demand. The question related to texting remains unclear whether communication by other means of digital connectivity, like email or voice message, would be equally acceptable.

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
2015	42.52	47.20	8.41	0.93	0.93
2016	42.34	49.10	8.11	0.45	0.00
2017	39.89	49.86	7.79	1.91	0.55
2018	53.21	39.76	5.62	1.00	0.40
2019	53.85	38.24	6.21	1.11	0.59
Years	All results are a percentage % (2 d.p.) of the total respondents				

Table 19: Q6, I like delivery companies to text delivery advice.

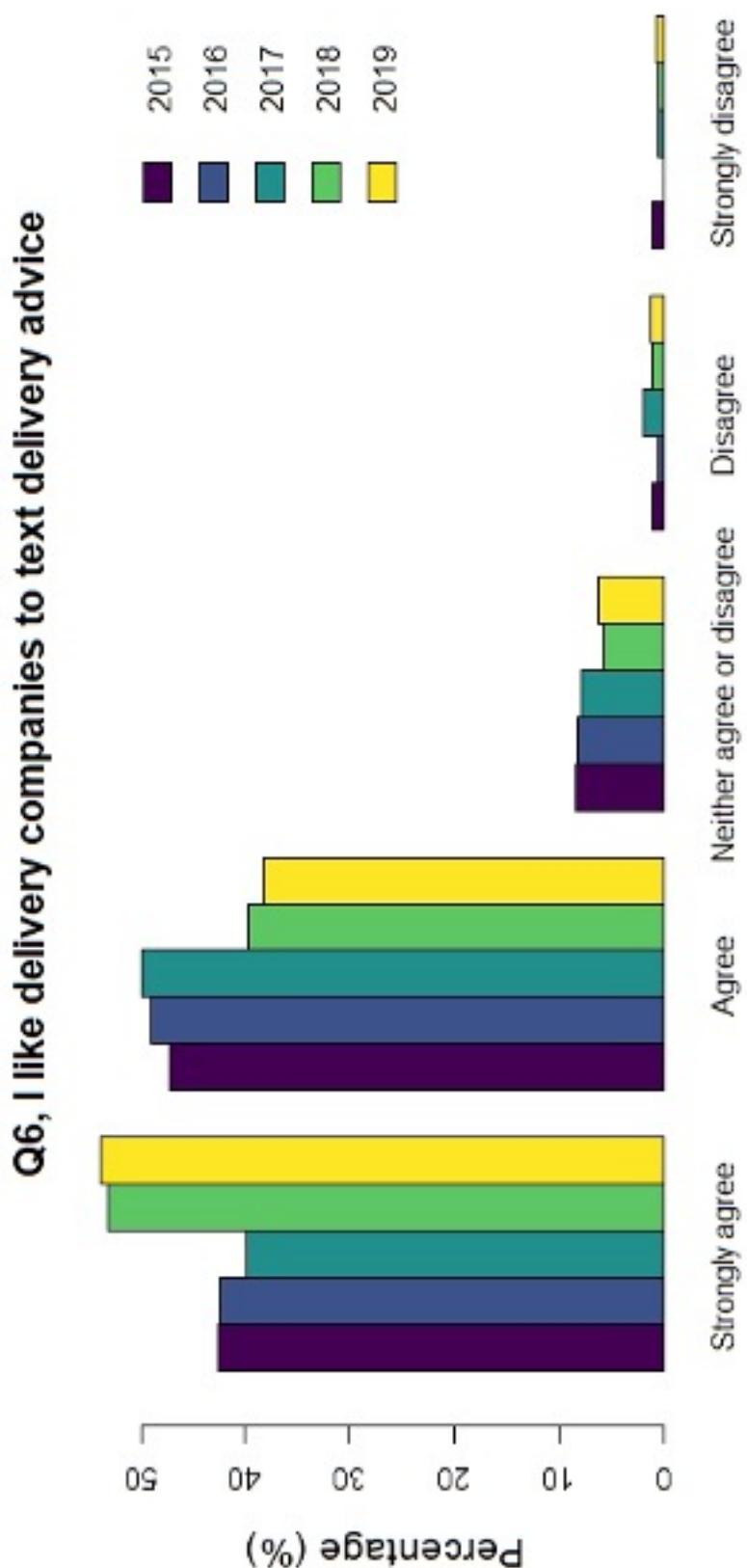


Figure 29: Q6 Longitudinal Survey.

Question seven (Q7), asking participants to respond to the statement, ‘I would like a delivery company to provide a delivery period estimate of at least:’ giving one of a selection of hours in the day. Over 60% wanted the delivery company to provide a delivery period estimate of at least one to two hours. This majority never wavered over the five years and when added to those who would wait up to three hours, increased to 85% (Table 22).

This majority over the five years varies marginally, whilst the longer ‘time period’ percentage fluctuated between the choice of hours but overall, never increased (Figure 30). The response to this question highlights the desire or need for communication, the perceived value of a customer’s time, and the desire for. Why the customer needs to know is not known from this research, but the analysis confirms that the customer wants to be informed. The provision of the information by the LML company is part of meeting the customer demand chain, the customer is not prepared to wait, uninformed about a delivery but requires concise information about when a delivery is expected.

Delivery Period	one to two hours	three hours	four hours	five hours	the day
2015	64.56	20.57	5.22	1.58	8.07
2016	66.52	16.74	9.95	2.26	4.52
2017	63.45	23.51	6.93	2.17	3.94
2018	66.43	20.62	6.47	2.39	4.08
2019	64.05	17.60	6.66	5.62	6.07
Years	All results are a percentage % (2 d.p.) of the total respondents				

Table 20: Q7, I would like a delivery company to provide a delivery period estimate.

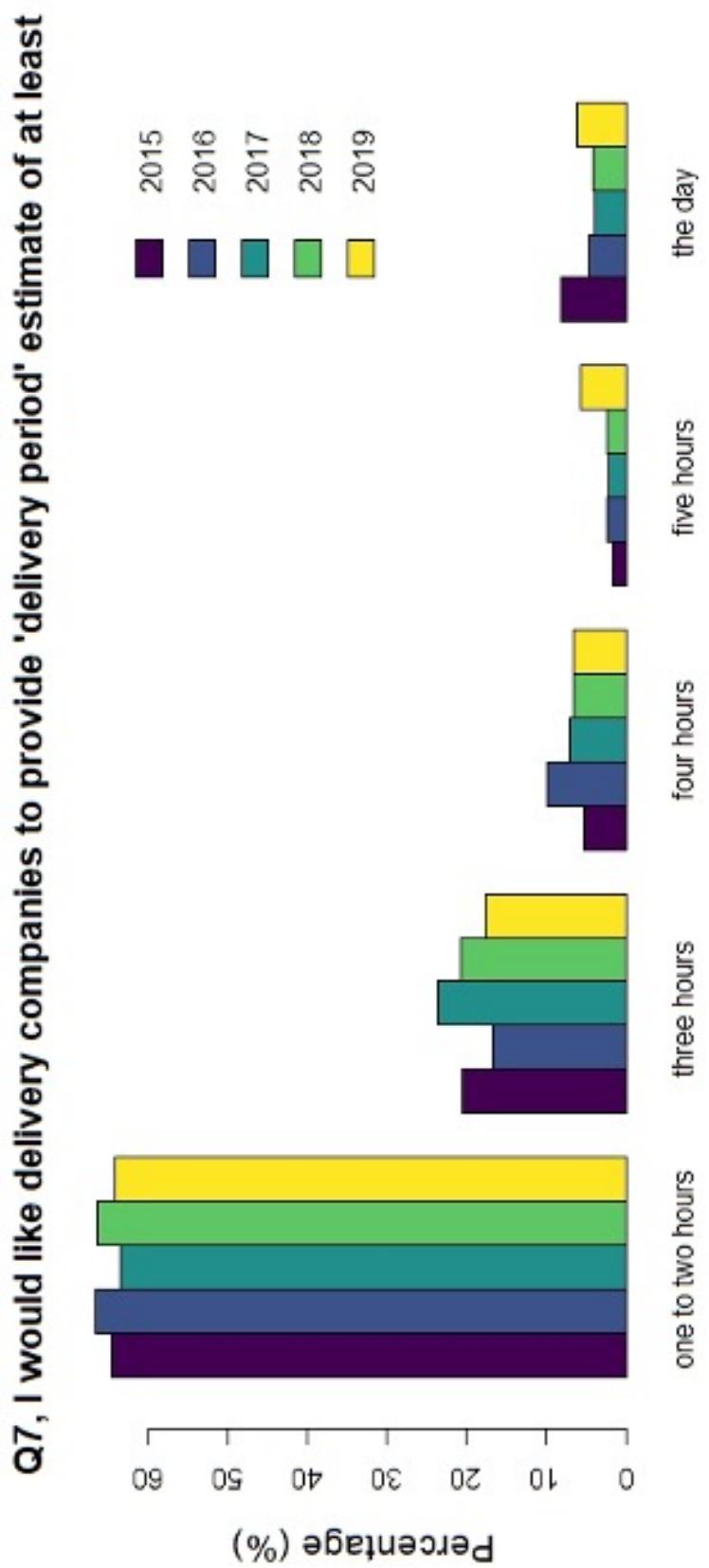


Figure 30: Q7 Longitudinal Survey.

5.3 Longitudinal Survey Summary

Across all five years, over 4,000 participants completed the survey by personal, face to face engagement resulting in more than 96% of respondents completing all the survey questions. This provided the focus of what the customer demands and expects of an online purchase delivery.

Teece (2010) suggests a business model needs to understand the operational goals of a business and to understand customer needs (Barney, 2018; Christopher & Ryals, 2014), therefore, the seven survey questions were aligned to business model categories to identify the scale of importance to each question. Four or more categories are often used as the framework for a business model, Technology, Market, Delivery and Unique Selling Point (USP) (Baden-Fuller & Mangematin, 2015; Braithwaite & Christopher, 2015; Demil & Lecoq, 2015; Teece, 2010). Using this framework (Table 23), the most questions in a category would suggest the strongest effect on a business model choice (Coombs & Nicholson, 2013; Medlin, 2012; Mikhalkina & Cabantous, 2015).

Technology	Market	Delivery	USP
Q6	Q2	Q1, Q3, Q4, Q5, Q7	Q2

Table 21: Survey Question Summary.

- Q1 How do you normally receive your goods
- Q3 How many days would you wait for free delivery <£50
- Q4 How many days would you wait for free delivery >£50
- Q5 If you had to choose a single day for delivery
- Q7 I would like delivery companies to provide a delivery period

Having identified the primary effect on the LML business model, it is also important not to discard other areas, integrating the customer opinion with a business model requires interaction and accessibility, a process that includes mobility, adaptability and evolution is generally provided through technology (Anderson & Lee, 2017). The longitudinal

survey identifies the primary effect of delivery as the ‘value’ of the service purchased by the customer and is core to the business model (Cassell, et al., 2018).

The options of where the purchase can be delivered have changed since the conceptualisation of home delivery or workplace delivery (Allen, et al., 2013). Since 2012, collection from store, at lockers, supermarkets, high street shops or garages has become more readily available (Allen, et al., 2018; Lim, et al., 2018), yet the evidence suggests that the customer prefers the delivery to their home (Q1 90% of those surveyed prefer to have their purchase delivered either to home or business).

Q3 and 4 from the survey asked how long the customer would wait for free delivery, over and under £50. The result conclusively showed that customers would wait up to three days for free delivery. Further research is needed to narrow down this statement, to understand why the customer would wait. Q5 and Q7 of the survey go some way to understanding this. The results of Q5 related to a preferred day of the week for delivery with the result showing that Saturday was the best day for a delivery. It is noted that on answering this question the respondents regularly commented, ‘this was because someone was at home’. Since this survey, the country has undergone a pandemic and subsequent work-from-home orders rendering this question, for many, somewhat redundant.

Minimal variation was seen over the five-year data in response to Q7, about the period of delivery time. 60% of respondents asked for a one to two-hour delivery window and 90% within three hours. Indicating that most customers, want no more than three hours for a delivery window. This was explained further as 91% strongly agree/agree to the statement that they would like delivery companies to text delivery advice (Q6). This preference never varied over the five-year period and confirms that communication is important to the online shopper, especially since 95% of the UK population own a mobile phone this can be assumed as an expected requirement for online shopper (Statista, 2019).

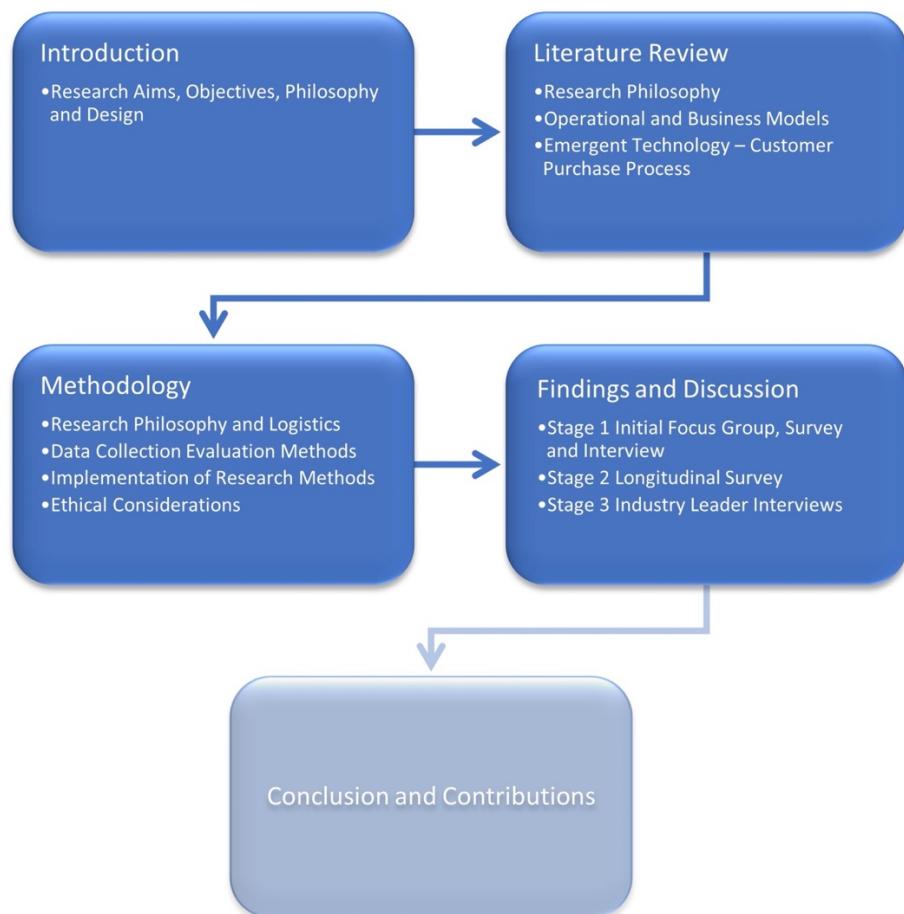
The survey answers are at the core of understanding the client demand chain, revealing the expectations of the customer’s demands when ordering online (Browne, et al., 2019; CMR, 2018). This survey has identified that the customer wants to receive their

purchase at a specified delivery time and be informed about that delivery. Though in Q2 the customer specified wanting ‘speed of delivery’, the survey summary shows that the perception of speed is more about an agreed or specified delivery time. To meet the customers perception of speed of delivery LML is required to communicate that specific delivery time and to do that requires technology. The result of this survey leads to the conclusion that good communication, via a digital platform supports a longer delivery time. Applying these survey results to a business model framework identifies the delivery operation has the greatest effect but requires the support of technology that provides an interface both the supplier and customer can utilise (Anderson & Lee, 2017; Baden-Fuller & Mangematin, 2015; Bask, et al., 2010; Daugherty, et al., 2019).

This chapter has taken the initial roundtable discussion results and applied the themes in the form of a longitudinal survey to ask the customer what they expect from their delivery. Overall, stage two of this research has provided an understanding of what the customers expectation is of the online purchase delivery. The following chapter utilises the survey results as the foundation for the semi-structured interviews, in stage three. The industry interviews will ask how the customer expectations fit together with current LML business modelling.

6 Findings of Industry Interviews. Phase 3.

This chapter draws on the results of the longitudinal survey, stage two, to understand the customers expectation and use the results to form the foundation of the semi-structured one-to-one industry interviews, stage three (Flowchart 6). The purpose of the industry interviews is to understand current business modelling. This includes any adaptions, the success of, motivation for, and ability or wiliness to adapt a company's business model. Using the opportunity to carry out one-to-one interviews to acquire knowledge of current industry business strategy and ideology of operational success as well as a better understanding of how the industry measures the success of their service and if, or how, companies adapt business modelling to meet their goals.



Research Flowchart 6: Industry Interviews. Phase 3.

This research requires the input of those that utilise the service and who provide the service, to understand expectations and demands for, as well as the barriers to providing said service (Cameron & Green, 2020). Social science research, such as interviews or surveys, are argued as part of the natural world, substituting qualitative methods and data for quantitative data (Bryman, 2016; Cassell, et al., 2018). The merit to qualitative interviews is the genuine opportunity to gain knowledge of these areas. The interviewees have been chosen for their expertise, expertise which has grown, expanded over time within the industry and which cannot directly be reduced to a single qualification but is attributed to ‘long-term participation’ or immersion within the industry (Wells & Nieuwenhuis, 2017, p. 56). The benefit of the interviews, as part of a mixed method approach, is a fuller understanding of the issue than that of a single approach method.

6.1 One to One Interview Format and Results

6.1.1 Interviewee Selection and Profile

A cross-section of board members and senior management of the company CitySprint Group were selected to engage with this research, providing a breadth of knowledge from the strategic board level to the management operational implementation team. The criterion for selection was a) a senior job role, b) knowledge and experience within the industry, c) responsibility and influence at strategic decision-making level. Furthermore, the interviewee needed to be available and, willing to participate, as well as have access to supporting documents. Confirmation of co-operation by CitySprint was agreed by a senior board member after which other members of CitySprint were approached.

Further interviews with other last mile delivery companies were also arranged, to broaden the discussion and evaluate findings across the sector. The other interview participants were given similar questions to those asked of CitySprint and as with all participants they were given the opportunity to offer their opinion on the whole sector. Interviewee preferences with respect to data collection method were, wherever possible, accommodated. Subsequently, almost all interviews as a one to one, face to face discussion. One supporting interview was completed over the telephone (Appendix 15).

6.1.2 Interviewees Profile

The list of interviewees has been anonymised, coded in numerical order from I 1 – 8, confirming how the interviews were carried out (Table 24). The duration period is the combined time spent speaking with an interviewee including, many telephone calls for a point of clarification, or a follow up for greater detail. These short interactions with the interviewees have been included in the interview notes of another time. A summary of the primary interviews is shown in Appendix 16.

The researcher selected the interviewees on three elements

- 1) reoccurrence accessibility,
- 2) sector knowledge and experience,
- 3) senior management position and job role.

It is important to be able to have reoccurring access to the interviewee as this allows both the researcher and interviewee to reflect, evaluate and re-evaluate. Recurring access gives more time for the interviewee to confirm or refute assumptions by the researcher, providing robust answers and conclusions.

Sector knowledge and experience were a prerequisite as the research is based on a mixed methodology, of qualitative and quantitative methods. The quantitative method of surveying was carried out and provided statistical information of what the customer believed was important to an online purchase delivery. This information formed the foundation of questioning for the qualitative aspect of the research, the interviews. Those interviewed therefore require the knowledge and interaction with the research subject to understand the survey results. Interaction with board members and senior management meant that the researcher had access to individuals with the highest level of authority regarding decision making for that company, access to the company information, and overall knowledge of the company's strategic goals. The senior members were experienced enough to explain how influences, both internal and external can and do affect their business model.

Interviewee	Position held	Company	Interview process	Recorded or Written	Duration
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I 1	Senior Board Member	CitySprint Group	1 st . One to One 2 nd One to One 3 rd One to One	Written Written Written	4 Hrs 2 Hrs 2 Hrs
I 2	Senior Manager	CitySprint Same-day	One to One	Written	3 Hrs
I 3	Senior Board Member	On the Dot	One to One	Written	2 Hrs
I 4	Senior Board Member	CitySprint Group	Telephone	Written	1 Hr
I 5	Senior Board Member	APC	One to One	Written	1.5 Hrs
I 6	Senior Board Member	FedEx	Telephone	Written	2 Hrs
I 7	Senior Manager	Amazon	One to One	Written	0.45 Hrs
I 8	Senior Board Member	Amazon	One to One	Recording	0.20 Hrs

Table 22: List of interviewees, selected choice of interview process and duration.

6.1.3 Interview Framework

The key issues from the roundtable highlighted the infrastructure inadequacies that LML companies are dealing with while carrying out their business and the concerns about the sustainability of current infrastructure for meeting the needs of the rising number of online deliveries (Starkey, 2019; UPS, 2015; Weltevreden, 2007). In the 2017 survey, 73% of respondents expressed a preference for home delivery while only 8% of respondents gave other collection points as viable options. Compared to delivery preferences over time, this confirms that the inclination for last mile express delivery is continuing to rise and secondary options for delivery lagging (CMR, 2018). The roundtable discussions emphasised the need to meet the challenge, considering better infrastructure, delivery drop off points, and availability of DC's. The second reference point was the demand for (90% of survey respondents) and of which 64% of the respondents wanted a two-hour deliver window. From this it can be assumed that the accuracy and communication of delivery information as well as the expected delivery speed is important to an online shopper. The current issues raised through business and public responses formed the basis of the interview questions.

6.1.4 Pre-set Interview Questions:

The interviewees were asked to consider the questions in the context of the customer/end user expectation of free or minimum paid delivery. To describe in as many words as required or in any preferred format verbal, written or drawn. The following questions were asked of the interviewee as the supplier of a last mile express delivery service.

The following is a summary of the pre-set semi-formal questions used by the researcher.

1. How do you ‘value’ the service you offer?

Interviewee responses suggest that value is measured by the aims and objectives of the business. Categorised into areas of – pride, innovation, and tailored expectations. ‘A job done well gives value, from the point of the customer call to point of delivery’ (I2). ‘If interface and demands are not equal across the platform the client will not be happy’,
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‘The mix of technology, different services used, singularly or combined makes the delivery of service effortless’ (I1). ‘Getting the technology right and the people right, brings the results the customer wants’ (I4). ‘The value of any business is the ability to transform [technology]’ (I3). Other responses supported the measurement of Key Performance Indicators (KPIs), suggesting that, the targets or goals set should reflect the customer demands at all levels. ‘Making sure delivery is made first time’ (I5). ‘What good looks like is the KPI’s ticked’ (I6).

Value, according to six out of the eight interviewed, means take pride in the process, utilising technology and continuously transforming a business, to meet and manage the customers’ expectations. The success of this will provide the value of a given service.

2. How do you price your service; which elements are most influential to policy- externally or internal?

‘Internal elements are controllable even foreseeable and can be managed’ (I1). ‘The external elements are disrupters to pricing if imposed quickly and unforeseen’ (I3). ‘External elements that influence strategy impacts your choice of business model and reflects on pricing structure’ (I6). The customer is asking (Lim, et al., 2018), expressing an opinion and the options for pricing are there for them to choose from (I4). All the primary interviewees agree that pricing is the choice of the customer (Appendix 16), they will pay for what they want or choose an option for free delivery. Six out of the eight interviewees suggested that the controllability of internal elements should not block out the understanding of external influences changing the direction a company wishes to take. The company needs to set a course and listen to the customer but stay on that course (I6).

3. Delivering on your Promise. Which Distinctive elements or measures inform you of meeting your client’s needs?

Six out of eight interviewees commented that delivering on a promise was to make the customer smile. Universal agreement with any promise of service to make the customer

smile and that means you have delivered on your promise (I1, I3). ‘For the customer to feel good about the process cannot be measured other than by customer interface/feedback’ (I1). ‘Listening to the feedback provides information for a company to act upon whether it is the operational or strategic affected’ (I6). The definition of how you make the customer smile in this research, is based on interaction, through a technological solution. Three out of four primary interviewees recognise that the customer interface and discussion process will provide the service the means to delivery on ‘your’ promise. ‘The process of customer interface is about asking the customer when they want their delivery’ (I4).

4. What external influences impact on your business model delivering on your promise?

‘We don’t accept the idea of external impact more about changes and influences to create better ways’ (I1). Five out of eight interviewees responded that the business model is being driven by the strategy and using technology to match the business model of service delivery (I1, I3, I4, I6, I7). When changes happen without cause or understanding to the business, the company must have a system in place to evaluate and change the vision or goals of a company (I2, I6). Service delivery, especially as the physical part of the LML industry, needs to be fluid and communicated to all stakeholders (I1). Research supports the belief that external influences should not be the only thing impacting but rather form, part of a wider range of factors.

5. Describe the relationship connections between the different elements that make up your company.

People, people, people. All eight interviewees suggested that people make the service. The respondents used different phrases, for example ‘it is family, one for all and all for one’ (I1). ‘Professional staff’ (I2); ‘continually innovating you need people to do that’ (I3). This reference to people means that people are the key to the systems used, customer interface, professional training to enable the company workforce to put the customer first (I1, I2, I3, I4, I6). As explained by I3, a company’s evolution of

innovation, their continuous development and better use of technology, needs the right people. Evolution, by the primary interviewees, was considered a momentum of the business model. ‘The company must always look for the evolution of what they did to ensure that the delivery would be able to meet the needs of the future’ (I1).

6. Do you recognise, and can you describe your business model?

Six out of eight interviewed described their business model as ‘what the business does’, the who, what, and how the company does something. For example, ‘we innovate, create, and deliver, that’s what we do, what our business does’ (I4). ‘The business model evolves, it is how we do what we say we will do. Confusing maybe but it means the business model is what the business does’ (I1). ‘The business model continues to evolve so that we can match the customer demand, but we make sure that the plan (business model) is what the business does, delivers on demand’ (I3). Four interviewees suggested the driving force to the business model was the implementation and that it was hard to discern which drove which model. The CitySprint business model is an example of this. The three parts of the model, innovate, create and deliver do not have a start and stopping point, each part feeds and drives the other parts (Figure 17). Describing the business model and strategy as ‘looking to the past, considering the present to add to the future’ (I1) suggests there is a starting point to a business plan. However, six out of the eight interviewees acknowledged that their company utilized both (business and strategic) models but could not identify which model came first, one interviewee described ‘putting the strategic plan first, as it lasts longer’ (I6), but five out of the eight interviewees suggested that to be successful, one modal is not possible without the other.

Acknowledging that, in this research, business management use both a strategic and a business plan. Further comments were made, if the business model is to be successful, this is achieved through the use of technology (I1,I3,I4). Technology plays an important role as the interface for both customers and suppliers of the service, without it the customers become frustrated and not being able to communicate easily results in

unsatisfactory service. Technology provides a means to measure the success of the business model (I1, I3, I5).

7. Describe your company's understanding of their business model.

According to the primary interviewees, understanding what they could do better was driven by the business model - Innovate, Create and Deliver (Figure 15). ‘The business model is the responsibility of the board to ensure we (the company) achieve a better strategy to be more successful than previously’ (I4). A view supported by a secondary interviewee, of an international company, ‘a long-term strategy is taken to build an organisation that fits that need, the model will be challenged and that needs to be improved, sometimes on a short-term basis, that can mean quarterly, that’s the boards responsibility’ (I6).

The business model was assessed as the formula to achieve the company aims and objectives, a directional model to ensure evaluation and evolution. A business model requires to be scalable (I2, I5) which suggests that the model needs to be adaptable or capable of evolution.

8. How does your company create value?

Primary interviewees looked to give the customer something they did not otherwise have and adding further value by listening to the customer’s demand, thereby creating value for their company. For example, ‘for each customer we create added value through the process of giving something they haven’t got’ (I1). ‘We listen to make sure what we offer is what they need and that way, the added value is seen within their company as the delivery is completed’ (I3). ‘Putting the customer first and being able to offer a service that delivers for them and for us. We provide something that adds value to them, thereby creating value for us’ (I4).

However, other comments suggested that by meeting or exceeding the needs of the customer created the added value and was of greater impact to the customers demand of

the added value to the service (I3). The indication that different levels of success can be achieved in creating value for the LML company and the customer.

9. How does your company capture value?

Flexibility was the common denominator of how a company captures value. ‘Capturing value for the customer means that the company has to be flexible, innovative and competitive aware’ (I1). ‘We create value for the customer and technology plays a huge part in making this happen, flexibility, mobility is a must’ (I3). ‘Innovation is a specialisation of the company, being flexible, adapting, having mobile processes’ (I4). Understanding the process of capturing value, for the company means adaptability, flexibility to meet the customer needs and provide added value for them.

10. Do you think your company follows a business strategy or business model?

Interview comments presented confusing answers, including questions such as, ‘is it the same word or does it have different meanings?’ (I2). ‘Business plan outcomes equal strategic value’ (I3). ‘The business model requires its definition to be challenged’ (I6). Six out of the eight argued that the strategic model and business model are intertwined, commenting earlier that each model required the other to work. The terms mean different things to different people within the organisation but relates to the aims and goals of what the company wants to achieve regardless. ‘The business model is what the company does, and the strategy is how it gets to do what it does.’ ‘Our company has a strategy which is the business so if that’s the business model then we follow both’ (I1). Two of the four primary interviewees suggested that the business model is a plan, and the strategy is a process to carry out that plan. ‘We have a plan, and we carry out that plan’ (I4). Five interviewees recognised that a business plan is the aim of the company and that the strategic plan makes it happen, with one interviewee (I6) suggesting that ‘the strategic plan lasts longer than the business plan.’ All interviewees remarked that the business model is about the company aims, what can be achieved, and a strategic plan is how everyone makes it work.

6.2 Interview Discussion Summary

This research has established that due to the emergence of technology, the mobile shopper has reversed the control from supply chain to customer demand chain. Prior to web technology the retailer controlled the demand of supplies as the customer had to physically visit the shop to carry out a purchase or place an order and then wait for the product to arrive in the shop. The influence of technology has changed the fundamental habits of shoppers and this external influence must be part incorporated into LML business model internal discussion. Customer demand and expectation is connected to technology and previously has in the past assessed as an *outside* influence but should be considered as part of the *internal* influence on a business model.

The interviewees acknowledged that innovation and technology are generally part of the company business model, that technology, combined with people will evolve the business. The influence of technology was not, however, apparent in the actual business model the interviewees used at the time of the interview but was considered as a separate, isolated issue to be resolved. The omission of interaction between the business model and the inclusion of technology shows that the current business model is not meeting the LML industry's needs. The customer is using technology for most interventions in their daily lives, from apps on the mobile phones and, desktop internet searching, to automated payments and financial transfers on all mobile communications. If the customer is using it, this influences the delivery of the business (Statista, 2019).

The consensus between interviewees with regards to customer satisfaction suggests that whatever the aim of the LML business model, the business puts the customer first. 'The customer is king, and we need to make sure we remember this and listen to them' (I1). 'We are a customer led service' (I2). 'The customer is the one who we need to keep happy, they're the important one' (I3). 'The customer is always right' (I5). 'Even Fred (CEO FedEx) goes out to customers.... [it] is important to understand our customer' (I6). 'We put the customer first' (I7). Recognising, the customer is king and has the ability and flexibility to shop anywhere they want. Pureplay shops online, have created the need for the retailer to provide an extended connection to their customer via the delivery and the range of delivery options. This means that the LML must meet the expectations of the retailer and the customer. Technology is the link between all these

parties and is also the change mechanism for LML. Retailers give options for delivery and when the customer asks, they expect that delivery, when and where they requested it (IMRG, 2019). The technology that gave the customer the choice of online shopping gives the retailer and the LML company the tool to maintain the connection and the relationship between retailer, customer, and LML provider.

I1 believes that for the LML to create and capture value for its business it must give something that the customer does not otherwise have. That means providing interactive information that is mobile and current, with both the LML customer and the delivery end point customer. This circle of current and interactive information must be accessible right up to the successful delivery. Being able to provide this creates value and capturing added value through this process will increase the sustainability and growth effectiveness for the LML business model.

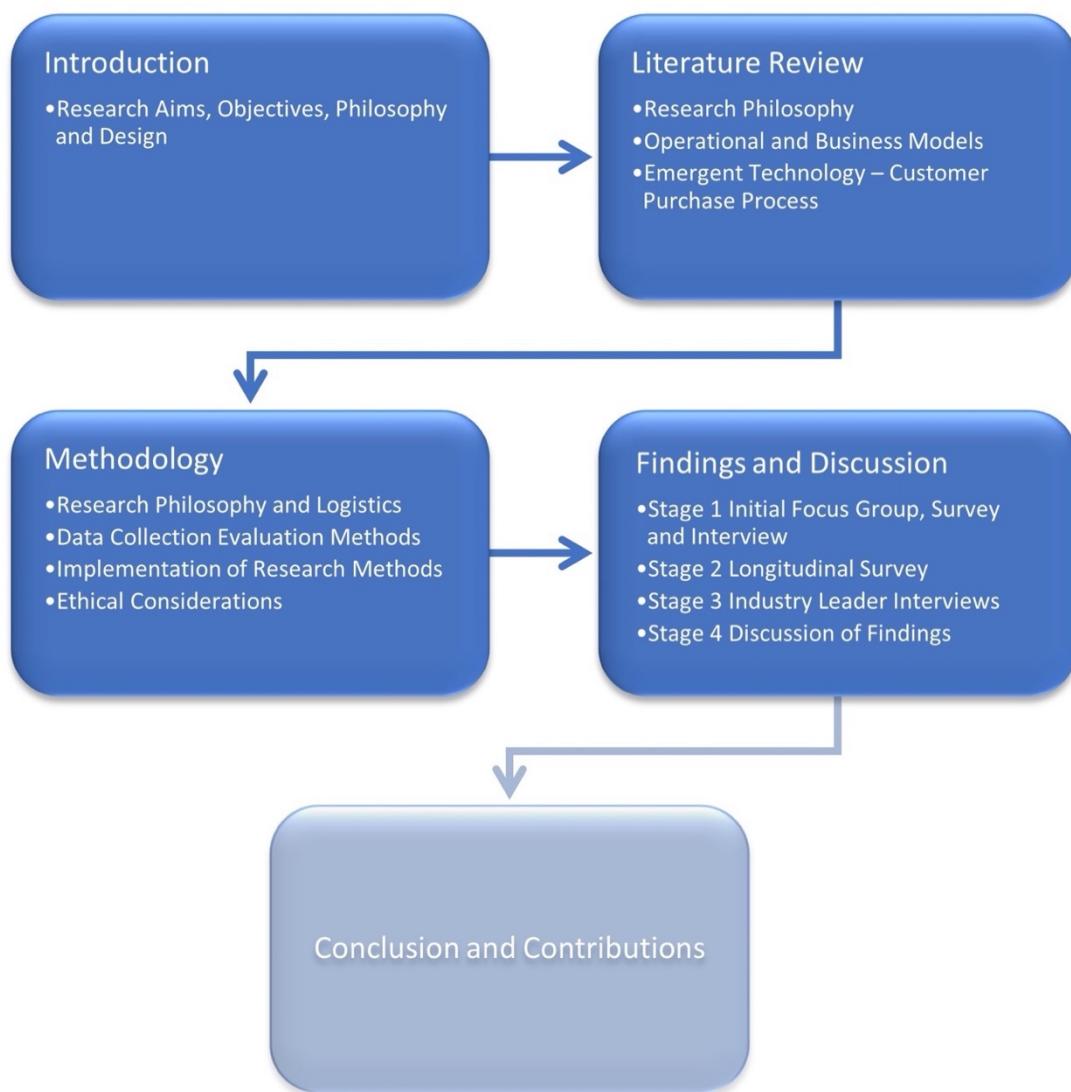
The interviewees believed that business model strategies need to evaluate the effects of the customers purchase satisfaction and not just the delivery. LML companies engage with retailers to provide a delivery service and this research has concluded that customers understand a delivery as part of the product purchase. Both retailers and LML companies agree that the customer must get their delivery on time and within the agreed delivery parameters. Technology allows the customer, retailer and LML company to inform, change and agree specific instructions for delivery points. A business model must be able to include all parties with this information and be able to interact as part of the delivery process.

When considering these discussions, the findings of this research support the conclusion that LML companies need to review their business model to reflect rising mobile customer demands. Further, that business models are the focus of a successful company but not without the connectivity of the strategic plan and the supportive application of a business model framework. The omission of technology within the business model leaves LML unable to sustain the customer demand chain successfully. The process of reviewing this issue and exploring possibility of achieving a solution is discussed in the following chapter.

7 Discussion of Findings

This chapter provides a summary of the research data stage four and explores the current definition and evolution of the Last Mile Logistics (LML) business model (Flowchart 7). It examines the way in which technology has influenced the retail business model and thereby created the need for a different business model for LML delivery.

“E-commerce retail success is intrinsically linked to the effectiveness of their logistics processes” (Daugherty, et al., 2019, p. 23).



Research Flowchart 7: Stage 4. Discussion of Findings.

The research results have highlighted that the customer needs are complex. Early survey responses showed that the customer wanted a fast delivery and would wait three days for a free delivery. The customer wanted choice of delivery point, but wanted most deliveries to a home or business address. These varied customer demands highlight the complexity of LML delivery. A common understanding of the what the sector does may become clear once it is defined by an academic, but to the user the definition can reflect many different types of services and many different expectations (Lim, et al., 2018). Therefore, with the complexity and variations in definition being applied to the analysis of a business model, the LML industry will require a multi-sided approach (Baden-Fuller & Mangematin, 2015). Interviewed leading professionals in this research agree that the common denominator for a LML business model is multiple, complex, interactions of a process to ensure success.

The longitudinal survey and the interview comments explain that the customer has become the client demand chain and the customer no longer waits for the supply chain to provide (Perboli, et al., 2017). The results of the data collected through roundtable discussions, longitudinal surveys and interviews, provides evidence of a shift in the delivery business model as suggested in the literature review from supply chain to customer demand chain (Baden-Fuller & Mangematin, 2015; Lim, et al., 2018; Teece, 2010).

The results of this data provide evidence for more the greater use of technology. In the interviews, six out of eight sighted technologies as a necessary means of informing and proactively communicating with the customer. I1 stated, ‘the mix of technology, different services used by a client singularly or combined makes the delivery of service effortless.’ I2: ‘Technology improves communication’. I3: ‘Continually innovating, drones, automatons vehicle replacements, allocation of routes, the ability to do things better.’ I4: ‘Personalised customer experience, email notification along the way.’ I6: ‘Apps synthesise those values (Business to consumer speed demand, tracking algorithms, adapting change), overlap then understand the realms of profitability.’ Further to the recognition of technology playing a greater part in businesses, I7 stated, ‘I am familiar with [the] multi-sided platform, this offers innovative communication to meet the needs of the customer.’ Agreeing with Parmentier & Gandia (2017), that with

the use of technology within the LML business model, a multisided platform is engaging with all parties to the benefit of added value (Parmentier & Gandia, 2017). Having extended current theory by Parmentier et.al. (2017), the conclusion of this chapter will demonstrate how this new research contributes to existing knowledge by clarifying and illustrating a new concept for the LML sector.

7.1 Sector Background

‘The emergence and recognition of the express delivery sector began at the start of the millennium and continues to evolve quickly, transforming and driving the global economy’ (Oxford Economics, 2009, p. 36). LML in particular is required to transform at a greater speed, in order to maintain its customer base. However, the LML delivery currently does not have a widely used definition and only recently has this sector been referred to as ‘Last Mile Logistics’ (Lim, et al., 2018, p. 308). Multiple interpretations of the definition were evident from the initial survey. Everyone gave a different phrase or word to describe what they believe LML is. A list of different suggestions, shown from two selected survey results (Appendix 20), highlight the various phrases that can describe the definition of the last mile delivery. For example: ‘On time and intact – First time [delivered] every time – Consistent right [address] first time’. The challenge here is to understand how to address or implement the thinking of a successful business model whilst not knowing what your customer thinks you do (Perboli, et al., 2017).

The LML is part of the sector defined as a Logistics Service Provider (LSP) (Fernie & Sparks, 2019). The LSP is commonly understood as a delivery service provided from the distribution centre (DC) to the customer, whether the customer is a retail shop or an individual at home (Rossi, et al., 2013). The recent changes to traditional retailing have meant that the virtual shopper has emerged through the use of the internet and mobile applications, bypassing the need for both physical contact with the product before purchase and delivery to the retailer before the customer’s choice of end delivery point (Browne, et al., 2019). The description of the delivery process carried out by a retailer, known as home or online delivery, is further defined by the place to which the customer chooses for that home or online delivery to be made. As LML is the last part of a

delivery to the customer, they may choose to receive that delivery at home, at a local collection point, at a locker store or through a ‘click and collect’ service from a local store. Many choices are available to a retailer when making a delivery to a client and this process is defined by Lim, et al., (2018, p. 310) as ‘the last stretch of a business to consumer (B2C) parcel delivery service. The delivery is understood to start from the order penetration point to the final consignee’s preferred destination point.’ The longitudinal survey results, of over 4,000 participants over a five-year period indicated that the customer changed their attitude to wanting the product as quickly as possible and also wanting to understand or know when the parcel would be received (Worth, 2019). Thereby confirming that the provision of delivery for purchase online goods had altered and a different process for LML delivery is needed. Browne (2019) suggests that the customer now bypasses the traditional need for physical contact at the point of purchase, and the longitudinal survey suggests that although the customer still demands physical contact at point of delivery, i.e., home or work, they do indeed bypass the need for contact at the point of purchase.

The definition of LML for the Business-to-Business supplier is less confusing, but the business still has many different customer end point delivery choices. However, Oxford Economics (2009, p.3) states that:

‘The core business of the express industry is the provision of value-added, door to door transport and deliveries of next-day or timed-definite shipments, including documents, parcels and merchandise goods.’

The summary of this, ‘the last mile delivery of a product to a preferred delivery point’ is the definition on which this research was conducted. It is noted that the customer demand chain allows the customer to be able to interact with any purchase, whether for personal or business use, due to technology available on a 24-hour basis. The interviewee’s confirmed that they do not necessarily know if a delivery is for personal or business use. This means that the customer demand chain does not differentiate between the two definitions. This research, keeping the customer at the core of the service, also does not differentiate between the customer as an individual or as a business user. This research demonstrates that the above definition by Oxford

Economics (2009, p. 3) reflects the current status of the last mile. The collective agreement by those interviewed confirmed that their service was a provision of value-added, door to door transport with time restrictions but also stated that this provision needed to include communication, information, and adaptability, which are the effects of the multi-sided platform architecture (Parmentier & Gandia, 2017). Thereby understanding that for the LML to incorporate a business model it must account for the effects of a multi-sided platform which provides for the customer with the choice of where and when a delivery is made.

The emerging streams of literature concerning delivery are split between operation management and optimisation, and emerging business models (Allen, et al., 2018; Lim, et al., 2018; Perboli, et al., 2017). This research acknowledges that sustainability and ecology challenges had an influence on those who took part in the data analysis. However, the focus was on the provision to those who are recipients of the LML delivery and their demands. In particular, the longitudinal survey concluded that customers demanded ongoing access to, and flexibility of, a delivery point. The survey results concluding that customers wanted to have certainty of the delivery point and time (Q6 & 7). They expected to be able to make changes to the delivery point, sometimes within an hour of the expected or confirmed delivery time, giving them the right and opportunity to move a delivery point, change the day or time of delivery, or advise of a safe place to leave a parcel.

Though technology has not been directly researched in depth in this research, the survey results indicate that customers are asking for mobile, up-to-date information which can only be provided by using technology (Anderson & Lee, 2017). DPD have the most advanced mobile app for this purpose and can change the delivery point, time and day up until the last hour before delivery (CMR, 2018; Floyd, 2020). CitySprint and others, such as FedEx, UPS, DHL, UKMail, TNT, APC and more, provide an app for use but their restrictions vary as to the capability of timed interaction by the customer. More simply, an app allows the customer to track their delivery and be given notice of the estimated delivery window, e.g., between 10:05am and 11:05am. However, the ability to reschedule the delivery or request to leave it in a safe place may require 12 hours' notice as a minimum. The different standards by the LML delivery technology alters its

capabilities, which might be viewed as the unique selling point (USP) of that LML business model. The marketing of this USP shows success of attracting and retaining customers (CMR, 2018; DPD Group, 2019; Sword, 2019; UPS, 2019). The sector is a complex and varied as the customers demand for delivery.

7.2 Data Collection Findings

The public and industry understanding of last mile express delivery concur that a parcel/product or ‘stuff’ is delivered to a person (I1, 2017). In Chapter Two, the delivery process of click and collect and collection point delivery models were discussed. The customer expresses that ‘home delivery or express delivery’ is one of many different delivery options and that they can have ‘their choice’ of delivery.

‘The last mile is about customer experience’ (Daugherty, et al., 2019, p. 21). However, this raises the issue that for a retailer using an express delivery company they agree a predefined Service Level Agreement (SLA) that retailers sign when using an express delivery company (Appendix 17). This agreement may not offer all the delivery models that a customer expects to be presented, and when making that choice the customer may not fully understand that the LML company is not meeting their expectations because of said SLA.

I4 (2015), I1 (2017) and I2 (2017) all describe how CitySprint puts the moment of truth or episodes of interpersonal interaction between customer and LML company, at the top of its priorities (Zeithaml & Bitner, 1996). I1 (2017) describes CitySprint as meeting the customer’s choice by delivering on their promise, explaining that the expectations of the customer had been predefined and that when carrying out the delivery, the expectations and the reality were matched for the retailer. I2 (2018) strongly believed that delivering on a promise starts from the phone or online booking and extends right through to the delivery. A company must match the customer’s need of when they want their delivery, not restricted by a predefined SLA. Nguyen (2018) suggests that the LML interface can promote customer purchases and build trust, which is why CitySprint wants to say yes to the customer, always. As the survey results of Q6 suggest, as over 90% ‘strongly

agree or agree that a text delivery advice is important to them' relates to the moment of truth which is the importance of delivery satisfaction by the customer. Also, over 80% of respondents to Q7 specified a preference for a 'delivery period' of no more than three hours, suggesting that control over the delivery raises the delivery satisfaction.

To an express delivery company, time is related to the delivery timeframe, meaning 'did we deliver to the time requested, deliver within the time asked for or the speed at which we delivered after collection' (I2, 2018). The results of the longitudinal survey suggest that the importance of delivery speed is more correctly identified by the customer as the reliability of the information given, that informs the customer of when the delivery will be made (Chapter 5.2 Q6 & 7). The retailer understands that the customer must get the goods when they want them and this is the moment of truth for John Lewis to win the sale (Scarlett, 2018), but that may not be the moment of truth for the customer (Zeithaml & Bitner, 1996). The customer must get the goods when they want or have asked for them. The delivery process used is not important to the customer: same-day, next-day or later, the customer, as the longitudinal survey suggests, wants their delivery on time and when they asked for it. Retailers will not always use the LML company that can make that happen and this leaves the customer believing their expectations or demands have not been met by the LML company (Browne, et al., 2019).

7.2.1 Influences Affecting Customer Expectation for Delivery Demand

The customer's understanding of service is a belief, they judge the quality of service based on personal assessments (I1, 2017; Scarlett, 2018; Starkey, 2019; Zeithaml & Bitner, 1996). Results of Q6 & Q7 in the longitudinal survey, show that when the customer's preference is for automated communication, receiving such yields high customer satisfaction. Other customers may prefer an exact understanding of their delivery and personal communication in the form of a telephone conversation, in which case receiving this would make the service excellent in the customer's eyes. However, if in these examples the customers received the alternative service, they would perceive it to be poor. A customer's expectations are as diverse as their own personal needs, values, and experiences. A business that understands its customer will be able to meet their needs (Hazen & Ellinger, 2019; Parasuraman, et al., 1991). The interviewees agreed that for LML companies to meet customer needs they need to understand their

customer, this is achievable through evolving the service, using technology, and being led by the customer (I1, 2017; I2, 2018; I3, 2018).

In the model of customer service expectation, Zeithaml (1996, p. 91) explains that there is a ‘zone of tolerance’ between the desired service and the adequate or predicted service. This zone is becoming smaller as the retail industry aims for 100% customer satisfaction (CitySprint Group, 2018; Scarlett, 2018; Starkey, 2015). Retailers like John Lewis are setting targets to meet over 92% first time delivery success (John Lewis, 2019), this in turn sets the delivery targets for the LML companies, for example DPD set their KPI for first time delivery at 97% (DPD Group, 2019). The longitudinal survey (2019) identified important criteria that a modern online shopper wants from their home delivery (IMRG, 2019). Earlier references of relating to speed was the customer demand for the product now, wanting the product as quickly as possible (Anderson & Lee, 2017; Barclays Bank, 2014; Dablanc, et al., 2017). The longitudinal survey suggests otherwise, as over the five-year survey the respondents became more focused on wanting to be *informed* and know when the delivery was to be made, within a short time frame (Chapter 5.4 Q2 & 7). This also suggests that customer expectation wants personal, adaptable communication to meet their demands. The multi-sided platform architecture places the digital platform at the centre of the business model, utilising digital-integrated architecture as the communication to all parties and therefore keeping customers informed, resulting in reliable information to meet customer demand satisfaction (Parmentier & Gandia, 2017, p. 53). This model adapted to incorporate the needs of both LML companies and customer demand offers a solution to the issue of a flexible business model.

7.2.2 Customer Service

Customer service focus is related to the delivery as the retailer takes on the omni-channel shopper (Daugherty, et al., 2019; JDA Ltd, 2016; Lowe & Rigby, 2014; Snow Valley Report, 2011; UPS, 2015). Research confirms the emphasises in existing literature on the customer move to more time-based delivery (Daugherty, et al., 2019), alongside the way that customers influence logistics strategies as companies pursue their satisfaction (Dablanc, et al., 2017; Hazen & Ellinger, 2019). Recent research has highlighted that this sector is a niche market, in need of further examination exploring 200

the effects of customer demand, described as impatience (Dablanc, et al., 2017; Daugherty, et al., 2019). This research provides a five-year longitudinal survey, identifying the importance of customer satisfaction and the route to giving the customer greater control of their delivery. This research offers a better understanding of the customer's effect on business strategies for those servicing the online and omni-channel retailers.

The need to know and understand the customer is why so many companies collect data from their customers. The loyalty cards used by retailers to offer rewards to regular customers also give them access to data about their customers' preferences. For example, data on what a customer likes, buys frequently or infrequently, their birthday, location, etc. All data collected can be turned into a customer satisfaction measure. They can also establish whether the customer orders online for home delivery or collects in store, how frequently they order and what their preference is for products, savings or quality. With this knowledge, the retailer can tailor its service to meet the expectation of the customer, thereby aiming to reduce the tolerance zone.

For a long time, speed of service has been assumed as the best way to meet and exceed customer satisfaction (JDA Ltd, 2016; UPS, 2015). It was believed that since the millennial customer was, more or less, born with a mobile phone in their hand, they understand no other way of shopping than instantaneous delivery. The last mile delivery service has raised customer expectations to "higher expectations becoming the norm" (Daugherty, et al., 2019, p. 4), building a reputation that LML is both able and expected to match the customer chain demands for online retailers.

Customer impatience is strongly connected to technology and the rise of mobile communications and is related to the term 'delivery speed'. An individual has the ability to make an online purchase, regardless of where they are or what time of day it is. They can receive automated information regarding their purchase, giving "instantaneous and continuous communication" (Daugherty, et al., 2019, p. 18). In receiving this instant and continuous communication, does the customer believe that the speed of their delivery is fast? Daugherty, et al. (2019) and Anderson, et al. (2017) suggest that, due to technology, the customer demands instant results, expecting to be able to order a

product and receive it on the same or next day. This assumes that no other influence affects their decision to make a purchase. Dablanc, et al. (2017) also highlights the need to understand the customer and to use this knowledge to tailor the delivery to meet the customer's needs, in order for it to be perceived by the customer as a fast delivery. The increase of apps used by LML is part of this desire to achieve customer satisfaction (DPD Group, 2019).

Parmentier and Gandia's (2017, p. 53) business model design is based on two or more parties that are interdependent on each other but completely separate. The interaction is based on a technology platform, which can be customised and tailored to customer demand. The example of user groups interacting to create greater growth, as a principal action, includes the customer interaction with the service. When the technology creates access to or offers information about the service, this means that the principal action will have an effect, informing the customer and increasing their satisfaction with the service. The result offers a solution to the customer demand for instant and continuous communication.

The results from the longitudinal survey confirmed an overwhelming demand for information, commitment, and adherence to agreed delivery times (Daugherty, et al., 2019; Holdorf & Haasis, 2014). This relates to the importance of knowing and communicating with the customer. When the supplier or the LSP gives information, whether automated or personal, or responds to customer requests during the buying process and through to the last mile and moment of delivery, the customer perceives the delivery to be satisfactory, if not great. I1 (2017) gave the view that delivery times agreed by a customer actually become, changeable agreed delivery times and points. In other words, from the moment an order is placed, the customer can make adjustments to the product order and delivery instructions. The use of IT communications by a retailer or LML allows a customer to make changeable delivery points up to the point of delivery (John Lewis, 2019).

7.2.3 Customer and Retailer Technology

Technology is the virtual world of the delivery, and it is for LML to translate the virtual world into the physical world (Anderson & Lee, 2017). The customer uses technology to order a product and through the virtual world of e-commerce, the order is packed ready for delivery. Once in the hands of the LML company, the package is then physically delivered to the customer. The virtual world becomes part of the physical world as communications about the delivery are sent via text message, email, or app tracker to the customer (CitySprintGroup, 2019; DPD Group, 2019). This part of the delivery process is enhancing, adding value to the customer purchase, as it builds a relationship with the customer (Douglas, 2017). The electronic information also builds anticipation for the customer and this process helps to deliver customer satisfaction. Today, the LML has greater access to the technology that provides the tools required to offer this service to the customer (IMIMobile, 2016; Rezabakhsh, et al., 2006; I3, 2018). Amazon, believe they started as a tech company that provided a web-based access to products, but today Amazon is not a tech company, it is a delivery company with tech ability (I7, 2019).

When using an online service to order a product, the customer is commonly aware of the variety of delivery options available to them. Having made their product selection, the customer is now informed of supply availability. Technology offers an automated response, informing the customer whether their goods are in stock, when they will be available, and that the delivery will be today, tomorrow, or up to five days, at a specific time. Delivery day information tells the customer that the delivery will be within a certain timeframe or that their driver will arrive in, for example, 30 minutes. This constant use of technology helps the LML to ensure that the delivery is made on the first attempt, as having to make a second or third attempt at delivery can cost the LML around £20 per failed delivery (IMRG.ORG, 2017; Simmons, 2018). This research (survey questions 6 and 7, in particular) suggests that being able to manage and meet the customer's expectations, for example, sending text message information regarding delivery window, will ensure customer satisfaction according to the survey. Considering Zeitaml & Bitner (1996) zone of tolerance suggests that getting the business model right will help to ensure the success of first-time delivery, thereby reducing the rate of failed deliveries. This process also relates to returns, which are a different service and should

be considered separately. At present, this specific delivery is either carried out by the retailer itself or handed over to a specialist reverse logistics company. The issues of both failed deliveries and returns do not form a detailed part of this research, although consideration of the processes is referred to in passing.

When ordering and agreeing to a confirmed delivery point and time, the customer unconsciously believes that if it does not suit them after they have made the commitment, they will have further options to make changes to their agreed delivery time (Dablanç, et al., 2017; Douglas, 2017; I4, 2015; I1, 2017). This knowledge influences the retailer's strategy when supplying a delivery service and this has become a battleground for retailers to improve their customer service satisfaction (Chillman, 2018; I4, 2015; Kukar-Kinney, et al., 2009; Scarlett, 2018; Sotolongo, et al., 2019). The war to improve customer satisfaction through the delivery service is one LML must join if it wants to keep its customers, use of technology is key to this success (Dash, 2018; I7, 2019)

Technology is key to an LML business success, as e-commerce dominates retail sales (IMRG, 2019) and since government restrictions in 2020 have changed the public's shopping habits. CitySprint's (2018) business modelling does not mention technology, it hides it under the banner of innovation. Teece (2010, p. 173) includes technology as a feature to be embedded in the service, to understand and create value for customers, which will then convert into payment and profits. Embedding technology as a activity in the business model will create greater value, as the process allows for greater interaction between user groups. The last mile delivery service is a user group within the customer purchase process, which means that the technology needs to be an activity that all user groups can access. The multi-sided architectural platform allows for the modification and tailoring of access to meet the user's demands, whether this is for the customer or supplier.

The LMLs software has to either integrate with or stand alongside the retailer's systems so that customer communication and messaging when ordering goods can be done at the customer's convenience, whether that be delivery now, collecting from store in five minutes, a timed delivery window or next-day delivery.

Online retailers and high street shops are trying to sell their goods on speed of delivery, but this really translates to speed of information for delivery (Lomas, et al., 2018, p. 1). Amazon offers delivery within the hour (Amazon, 2018) and Argos can deliver on the same day (Sword, 2019), while Next allows customers to receive their delivery the next day, provided that they order before midnight (Next, 2017). The same speed of delivery has begun to appear for the trader retailers as well, with Screwfix and B&Q both offering customers the option to order and collect within five minutes (DIY.com, 2019; Screwfix, 2019). The retailing battleground has become the LML's war.

The 2018 longitudinal survey shows that 93% of respondents agreed (40%) or strongly agreed (53%) that they wanted companies to text delivery advice for an online purchase, similarly in 2019, 39% agreed and 54% strongly agreed. The research between 2015 and 2019, within a range of 2%, reported that 67% of respondents wanted a one-to-two-hour delivery window. The reason given was that the end user 'will know the purchase is arriving at the given destination at that moment timed window delivery, thereby being available to accept delivery'. The survey was not able to conclude whether the end user would pay a premium for a more reliably specified delivery. The survey also highlighted retailers are offering a promise around speed when the customer is expecting and wanting reliability, but the opportunity to choose reliable delivery details is not an option that retailers are offer.

Research interest in this sector has attracted attention since 2016, the percentage of online shopping to retail sales has risen rapidly (Table 25). Dablanc, et al. (2017) and Daugherty, et al. (2019) conclude that, although delivery gratification has been around for some time, it requires future research. The online shopping boom of 2016 was a public announcement that this industry is important to businesses and that more research is needed. Retailer technology has evolved, and the last mile express delivery sector will also need to evolve, develop, and align with retail, but more importantly evolve with the customer.

Year	2018	2017	2016	2015	2014	2013	2012	2011
Online Sales % Total	170bn	156bn	139bn	114bn	104bn	91bn	78bn	68bn
e-Retail Market	53%	37%	24%	21%				
John Lewis passed 50% of retail value sold online via e-retail in 2018								
Data taken from the IMRG annual Cap Gemini surveys 2018. UK retail value purchased online.								

Table 23: Online E-Retail Annual Sales UK exceed 56% of Retail sold (author 2019).

The same-day courier industry predates online retail shopping and emerged from the courier parcel industry to the last mile express delivery sector. The 1970s and 1980s were the boom years for the courier industry, while the 1990s brought the internet (Lomas & Worth, 2006). Then, the courier service used radios for communication, since at that time the mobile phone was a small box with a phone handset attached and a battery pack that weighed between 20-80lbs (Litty, 2016). Mobility was not technological; it was just a set of wheels. Following the innovation of the internet, the reference to mobility was interpreted as the relationship to an individual or company with the ability of mobile communication (Ask, 2016; CMR, 2018).

7.3 Mobility and Change Adoption

The results of the longitudinal survey initially recorded speed as ‘important’ to the respondent, for goods purchased under and over £50. 88% and 92% of respondents agreed that they would wait either one or two days, respectively, for that delivery. The survey went further to analyse the importance of communication. Delivery was defined in the survey as ‘on-time when promised, first-time, intact and in the right place’. This leads to the conclusion that communication of information and speed are perceived by the end user as the same. However, speed and communication are recognised as different by the LML. Customer demand and satisfaction must be met through a process that is perceived to be within their control and that they have access to, as well as being

within the capability of the LML. The structure of the multi-sided architectural platform design can match the user groups' demands and give access to information and interaction that affect the customer's perception of satisfaction. This effect is reliant on the industry's ability to meet the greater customer demand.

7.3.1 Affecting Industry Change

Question 17 of the initial survey asked, how strongly will your business be affected by client demand/business volume outpacing your capacity? The results showed that 58% either 'very strongly or strongly agreed' with this statement, thereby concluding that the growth of customer demand was believed to be outpacing the capacity of the delivery networks. This was reflected in the lack of available distribution centres (DCs) or sites for DCs and of free-flowing road networks that would ensure continual traffic flow and access for deliveries. Businesses believed that time delays caused by the lack of infrastructure, both for the DCs and road networks, were contributing to the inability to meet customer demand (I4, 2015; Bryson, 2015; I4, 2015). On the other hand, Allen, et al. (2012) suggests that the lack of space in urban shops, offices and factories increased the demand for deliveries between DCs and urban delivery, commonly known as just in time (JIT) deliveries. This also increases the inefficiency of journeys within the urban area and therefore it may be assumed that the road infrastructure influences the capacity for effective urban delivery (Allen, et al., 2012, p. 57).

Urban density is a measure used in urban planning and design to refer to the number of people inhabiting a given area and is not to be mistaken for the measure of population density. DCs need to be close to dense urban areas as this provides the workforce for them to operate. With the average size of a DC being 220,000 sq. ft., a workforce of 120 people is required every shift (Logistics Management, 2018). An example of this can be seen at Magna Park Lutterworth, where there are 29 different occupiers, using, in excess of 8.3 million sq. ft. of sustainable logistics floor space in 32 buildings and requiring 4,000 workers (Magna Park, 2019).

LML companies looking to achieve a higher multi-drop delivery rate need to increase the urban customer density meaning, more packages can be delivered in close or small

geographical areas. This is a balance between gaining customers in any location or gaining customers in the same location. I3 (2018) believes that density growth offers strategic value to a business and the growth of urban habitation means that customers are closer together, allowing deliveries to be made more efficiently and profitably. This positive effect of urban density is good for the DCs that provide the bricks and mortar for online retailers and for the delivery companies, who are integral to nearly all levels of service encounter for the customer (Zeithaml & Bitner, 1996). If the urban habitation density is low or falls, as in rural areas, this adds mileage and increases transport infrastructure difficulties and inefficient routing. The potential negative impacts of urban growth include the rise of congestion, ecological issues and the lack of transport infrastructure to support the growth.

7.3.2 Affecting Customer Expectations

Retailers are fighting for e-retail market share as high street sales slump (Accenture, 2016; I4, 2015). Retailers are making customer promises revolving around speed and reliability of delivery, which has implications for the express delivery companies, who have to execute those promises while battling against urban challenges and operating capacity. If the delivery fails to meet the ‘customer promise’, the customer will be dissatisfied. This will have a negative impact on customer loyalty, thereby undermining the rationale for satisfying customers with the promise of delivery speed (Chen, et al., 2011; Douglas, 2017; I4, 2015).

Today, there is evidence to suggest that 80% of consumers shop online and to meet this rise in online shopping, 56% of retailers now offer next-day delivery (Capgemini Research Institute, 2019). For grocery shoppers, survey results show that they would ideally prefer home delivery, but their second choice would be ‘click and collect’, followed by collection from a third-party location (Accenture, 2016). The results of this research show that speed is not as important as originally assumed, but reliability of delivery is. However, for the grocery market, the speed of delivery is important (Capgemini Research Institute, 2019). For the LML companies, customer choice impacts on which core service it chooses to provide, whilst both the LML and grocers share similar challenges when meeting customer satisfaction through their business model.

Delivery is at the top of every business agenda. How to sell goods is key to profitability, but how to deliver them is just as important (Accenture, 2016; Capgemini Reserch Institute, 2019; Chillman, 2018; Kukar-Kinney, et al., 2009; Snow Valley Report, 2011).

It is now more difficult to buy a specific product in store, as the product brand uses all its digital mobile capabilities to achieve the highest possible interface with the customer, whilst reducing store space. This increases the pressure on stores to offer more diverse activities within their bricks and mortar, in order to attract the shopper through the door. This activity is leaning more toward showcasing products, rather than selling products (Capgemini Reserch Institute, 2019; I4, 2015; Starkey, 2019).

The LML service is being stretched to keep up with the retailer and the ways in which they now showcase selling a product. The LML business model needs to be broadened, extended and interfaced with other aspects of the delivery activity. If LML opens the value creation process through co-creation or coordinated problem solving, it will be able to match the expansion of the retailer selling process and the needs of the retailer's customer and the end user. The provision of resources between user groups will increase that activity and this will then benefit the customer.

7.3.3 Board Strategies Used to Adapt

“We believe that there are only a few things that make the delivery great, firstly the people, then telling the customer their parcel is being and has been delivered. Whatever happens in between, from placing the order, dispatching the order, to the package being delivered, the customer is not really interested in. So, get the people right and the technology right brings the result the customer wants” (I1, 2017).

Getting the people right and the technology right will deliver the goods, but will it be a good delivery? What does the customer perceive as important to them when they interact with the service? In that moment of truth, do they know what they want (Zeithaml & Bitner, 1996, p. 105). The delivery process has many layers or stages and changes to any stage of the delivery may affect what the customer wants. The LML company is usually contracted with a retailer, manufacturer, or pure play retailer, as

described in Chapter 3 Table 6, to provide a specific service that has been agreed between the LSP and retailer. This implies that the retailer is only prepared to offer a service that fits with its business model and operational procedures, but the LML does not know if the service offered will meet the customer's demands. The LML will agree to meet the retailer's service, a Service Level Agreement (SLA), but the LML is then contracted to deliver *only* that service.

If the customer wants to change their agreed delivery point or time, they see the LML as the one who controls that change. However, unless the SLA stipulates the flexibility or includes technology support, the LML is unlikely to be able to meet the customer chain demand, which then reflects on the LML more than on the retailer. The need for the retailer and LML to recognise and use technology clearly plays a major part in customer satisfaction (Anderson & Lee, 2017; Capgemini Research Institute, 2019; Chillman, 2018). Of those surveyed in the initial survey, 80% stated that the internet was very important to their business and from the longitudinal survey 92% on Q6 & 81% on Q7, agreed that communication, which often requires internet connectivity, was important. Businesses are becoming increasingly aware that mobile and digital technology plays a strong role in the delivery of online purchases (Anderson & Lee, 2017; Barclays Bank, 2014; CMR, 2018; IMRG, 2019). Making the connection to the product is the transfer of a virtual order to a physical delivery for the customer.

The LML company must recognise that it is a part of the customer's product satisfaction and not just the delivery. By incorporating the customer as part of the purchase journey within the business model, there is greater chance of achieving customer satisfaction. Incorporated in the multi-sided platform architecture business model is the need to understand value creation, proposition, capture and the marketing segments, all of which lead to the organisation's value and ability to meet the customer's satisfaction. Parmentier and Gandia (2017) suggest that, in order to engage and keep all parties of the business model informed throughout the journey, each user should review the effects between user groups. This process leads to the evaluation of satisfaction at all stages of the service's journey. However, it does not include customer participation at all stages of the journey, and this needs to be addressed if LML is going to achieve a higher level of customer satisfaction.

7.3.4 Disrupters, Challenges, and Influences

So why does speed matter to the retailer? Retailers are fighting for e-retail market share on the potentially flawed assumption that the promise of fast delivery drives customer loyalty and retention, while market trends are driven by competitive pressure. The retailer is responding to competition that has been driven by disrupters like Amazon. The emergence of the pure play retailer as described in Chapter Two, brought the new concept of express delivery to the customer. The customer is now being asked what type of delivery they want, instead of the delivery being decided by the retailer or delivery company (Barclays Bank, 2014; Barker & Gerhold, 1995; Dash, 2018; Dunbar, 1981; Next PLC, 2016; Scarlett, 2018). Often the customer expects such express delivery for free (Wainwright, 2017). Delivery control is now blurred and not distinctly in the realm of the express delivery company (LML), retailer or customer.

The emergence of online customer purchase delivery expectations means that LML companies need to recognise, adapt and evolve to meet the demands (Browne, et al., 2019; Capgemini Research Institute, 2019; Chillman, 2018; CitySprint Group, 2018). One of the negative consequences of this change is that not all LML companies recognise the change, and therefore do not adapt or evolve. CitySprint (2016) saw a gap in its growth that needed to be addressed through the measurement of delivery. By recognising that its business model no longer suits the current customer base, composed of millennials as well as 21st century shoppers, a company can start to manage the process of change. This alters the culture of how a business communicates and operates. Ask (2016, p. 2) refers to the “Mobile Mind Shift Maturity Framework”, stating that four changes must take place for a company to be agile. More importantly, it is the approach of the board in not just setting the goal of using mobile data services, but integrating mobility into everything they do and asking, ‘How can we use mobile data?’.

CitySprint invested in technology as the tool for integrating everything it did. Last Mile Link Technologies was created by CitySprint Group in 2011 to support this cultural change and to allow CitySprint to fully incorporate mobile technology into its entire operation. Last Mile Link was successful and created an app for CitySprint to use for its delivery service. CitySprint continued to invest in the company, recognising that

technology was playing an important part in its growth. In 2016, Last Mile Link merged with CitySprint Same-day and became On the Dot. CitySprint has now completed all four stages of the Forrester Mobile Mind Shift Maturity framework and has become a disrupter in the sector. Just as Amazon started as a technological company and became a delivery company with tech ability (I7, 2019). CitySprint is now a delivery company with integrated technology.

CitySprint believes that, as a delivery company with tech capabilities, it can deliver customer satisfaction and delivery reliability, defined as on-time when promised, first-time, intact and in the right place (I1, 2017; I2, 2018). This is supported by the survey results, which show that 91% of consumers want advice about their delivery time and 87% want the delivery time window to be inside three hours (Lomas, et al., 2018). This therefore illustrates that speed and reliability must go together and are seen by the customer as one and the same. Research into customer satisfaction has highlighted that it is affected by three elements: basic, performance and excitement factors (Chen, et al., 2011, p. 390). Likewise, Douglas (2017) and Anderson, et al. (2017) refer to building anticipation and personalisation of the delivery, to meet customer satisfaction through the use of technology and the presentation of the product. The customer sees their purchase and delivery as one (Anderson & Lee, 2017; Dablanc, et al., 2017; Daugherty, et al., 2019; Douglas, 2017).

The interviews concluded that delivering on a promise is measured through the success of doing the job well and the reliability of the delivery, not just on the actual speed (I1, 2017; I2, 2018; I3, 2018). When a customer wants to buy new clothes for a party in two or three days but cannot get delivery at the right time, they will not buy that item but will choose something else instead. The retailer is under considerable pressure to avoid losing a sale, thus being able to deliver to the customer for free, on demand and on time is both the retailer's and LMLs challenge.

Evidently, CitySprint sees delivery success as based on the customer's understanding of the job having been carried out to their satisfaction (Chen, et al., 2011; Chillman, 2018; Daugherty, et al., 2019; Douglas, 2017). Evidence of success or failure for CitySprint, as a company, means either meeting the customer's expectation or not, believing that

customer satisfaction can be addressed only when the customer is a part of both the journey and the communication. Including a step within the business model that addresses this issue means that the LML is sharing the knowledge that a customer uses to make their decision. This is an informed decision that gives control, understanding and mobility to meet the customer demand.

7.3.5 Legislation and Governance

CitySprint board members consider disrupters, external industry influences and retail demand as an opportunity for the company to grow. Whilst different departments deliver different parts of the service provision, it is integral to the company that the external influences that affect the sector and the company are clearly shared and understood by all within the group (CitySprint Group, 2018). Changes to legislation relating to the sustainability of freight movement and the impact of emissions have brought about further challenges to the sector. There are a number of commissioned reports from Transport for London (TfL) before and since the London Olympics in 2012, as well as other cities, including: Birmingham City Council (2014), Bath and Somerset Council (2021); Transport for Greater Manchester (TfGM, 2019), around the UK has led to high-level commitment by the council authorities around the UK, to reduce emissions from road transport.

In May 2007, the Greater London Low Emission Zone Charging Order 2006 was confirmed, and in February 2008, it was brought into effect by then Mayor of London, Ken Livingstone. By 2013, traffic levels had reduced by 10.2% (BBC News, 2013), but levels plateaued over the following two years (INRIX TfL, 2016). However, congestion charging did not reduce the number of vehicles being used for business and had no effect on the increased demand from online shoppers using express delivery (RAC Foundation, 2017). It is believed that over half of road transport emissions are nitrogen oxides (NO_x), which contribute to illegal levels of nitrogen dioxide (NO_2) and particulate matter (PM) (Transport for London, 2019), causing serious health issues for those living in and visiting areas with high emission levels. The decision has now been made to make the City of London a ‘Zero Emission Zone’ by 2025. This legislation forms part of the Mayor’s Transport Strategy (MTS) and means that all vehicles using fossil fuel (i.e. diesel) will have to either meet certain standards of low or no emissions

or pay a charge to enter the city. Other cities such as Bath, Birmingham, Leeds, Oxford and Southampton are following the lead of TfL, and if this approach continues to have an influence across the UK, it will affect the way in which last mile delivery is made. The effect that legislation has on the sector is huge, as it prompts all LMLs to change the vehicles they use or the process of how they deliver their services.

“Proposal 129 of the Mayor’s Transport Strategy (MTS) provides that the Mayor will keep the Congestion Charging scheme under review and make variations to ensure the scheme remains effective in reducing traffic and congestion in central London and reflects best practice and other developments in relation to its operation and discounts and exemptions. A draft revision of the MTS has been prepared and is currently subject to public consultation. Proposal 18 of the draft revised MTS sets out that the Mayor, through TfL, will keep existing and planned road user charging schemes, including the Congestion Charge, Low Emission Zone, Ultra Low Emission Zone and the Silvertown Tunnel schemes, under review to ensure they prove effective in furthering or delivering the policies and proposals of this strategy”. (Transport for London, 2019)

Change is a constant of the LML service, whether it is created by the customer or legislation. The LML requires both a business and operational model to account for the possibility of change as a positive influence, to create value for the business. If the effects of the indirect network of the multi-sided platform architecture model are replaced with co-specialised resources, the model will have a process in place for variable and fluid interaction with the user groups. This will then provide a solution to the constant change affecting the LML service.

It may be legislation that is the disrupter to the sector, but legislation has itself been disrupted by social conscience and global changes to the environment. The public is aware of, and challenges implemented to promote a cleaner environment (BBC News, 2019). However, while the public demonstrate that the environment should be put first, this does not reflect the actions of online shoppers who continue to purchase products from anywhere in the world (Taylor & Gayle, 2018). The cost for the retailer to deliver their product can be up to 23% higher than selling it in a store, yet the public expect

free, environmentally friendly delivery (Allen, et al., 2018; Scarlett, 2018). The LML must wherever possible act with respect towards the end customer's comments since they decide whether a delivery has been completed satisfactorily.

7.3.6 Customer Demand Chain

Data findings from this research support both Daugherty, et al. (2019) and IMRG (IMRG, 2019) figures, which highlight that customer communication and interfacing are important for the new age millennial customer. The customer expects to be able to communicate, receive live tracking information and change delivery instructions (Daugherty, et al., 2019, p. 23). Prior to internet access, a customer would not have been able to see the tracking of the delivery until the delivery point, but today's customer has mobility communication and transparency. Tracking and flexible delivery options are the norm for a 21st-century customer.

The hub and spoke model is the most commonly used model by LSPs and LML companies but does not fully meet LML needs or the challenges of the customer demand chain (Greasley & Assi, 2012). It requires further expansion and consideration for the same-day and overnight networks, to address challenges caused by the growth of internet accessibility (Lim, et al., 2018). In answer to Q1 (longitudinal survey), 'how do you normally receive the goods you order online?' 90% responded 'to home'. This increased demand on hub and spoke system processes requires operational procedures to be adapted before the purchase is delivery to a customer: consolidation, distribution, and fragmentation, as shown in Figure 31.

The 'distribution' procedure describes the traditional LML hub and spoke model, which is now affected by customer challenges at the beginning and end of the retail delivery. Historically, the traditional collection of a product was from a store or business, and it then travelled through the hub and spoke system to be delivered to a shop or business - this is an operation variable. Time variables, point of collection and delivery were controlled by the supplier and accepted by the customer. This research has evaluated customer expectations for an online purchase and established that, due to digital technology, the customer wants to control their demands for collection and delivery. This customer demand affects the retailer's hub and spoke delivery system. As the

parcel travels in one direction, multiple external influences, including the customer's demands, have an immediate impact and can cause disturbances to the parcel's journey. In the third section of 'fragmentation', the LML delivery model requires the ability to evaluate the variable effects and outcomes of the business model, thereby enabling resources to meet customer demand whilst also keeping the flow of the parcel in one direction.

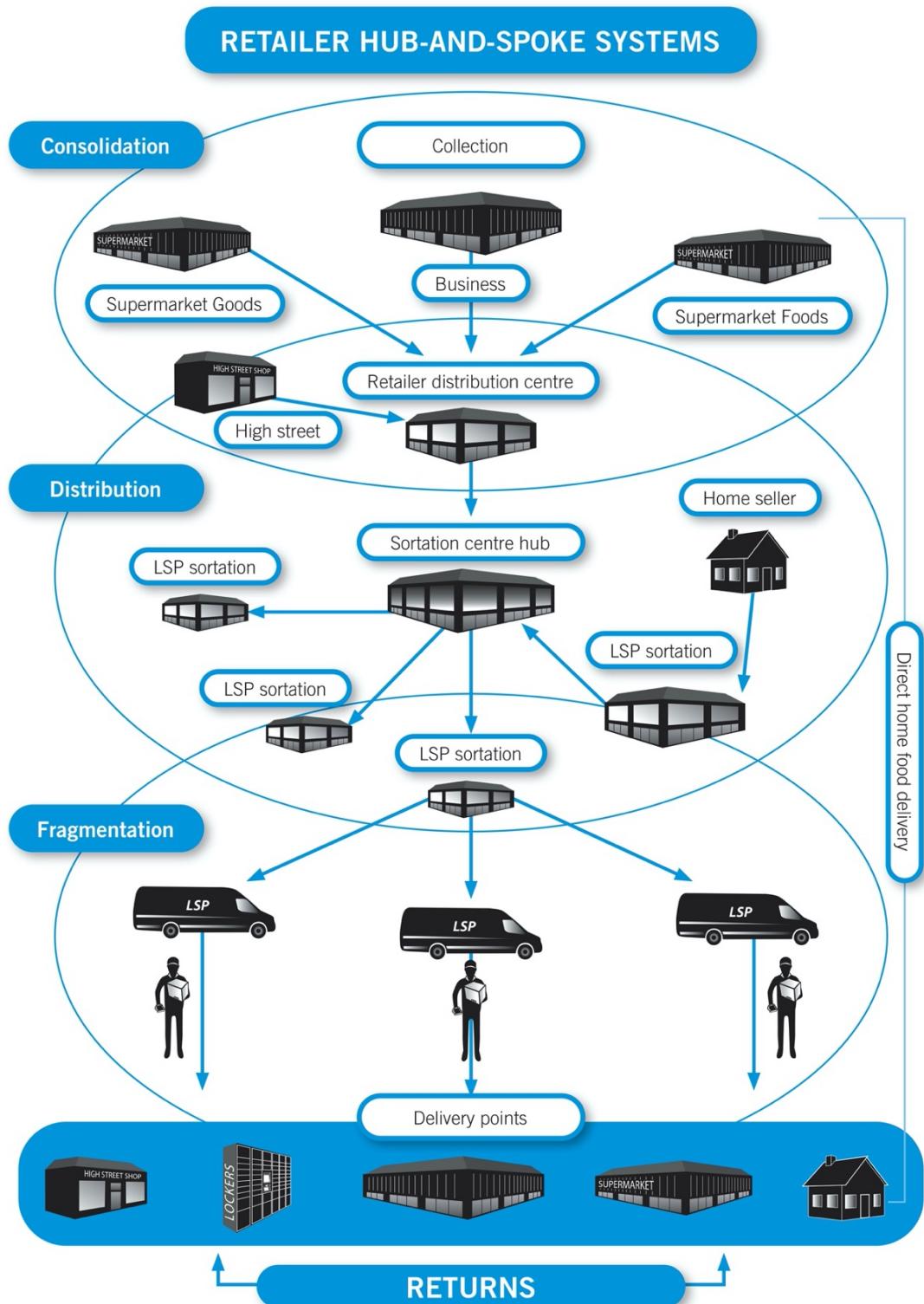


Figure 31: Retail ‘Hub and Spoke’ Delivery System (author 2020).

7.4 Express Business Model Concept

Traditional retail business models provided added value through the physical purchase of a product, but retailing is now in the virtual world. The digital world allows customers to see a product without physically touching it or being required to visit a retail shop. This means that the retailer loses the ability to provide both added value to a customer and a reason for the customer to choose their shop over another. This virtual shopping also means that the retailer providing the product now needs to capture added value differently, and this can be achieved through the delivery to the customer (Baden-Fuller & Mangematin, 2013; Bask, et al., 2010; Lim, et al., 2018; Teece, 2010). The retailer may choose to provide this added value through either in-house logistics, referred to as retail logistics, or the use of a Logistics Service Provider or a LML company (Allen, et al., 2018; Fernie & Sparks, 2019).

If the retailer, whether serving Business to Business (B2B), Business to Customer (B2C) or Customer to Customer (C2C), fails to deliver the product within the customer's expected timeframe, the sale is likely to be lost and the customer may choose to go elsewhere (CMR, 2018; Daugherty, et al., 2019). The customer demand chain implies that the customer making the purchase expects to have full transparency, control and flexibility over the delivery of the purchased product (Capgemini Research Institute, 2019). LML is about the customer experience, and this responsibility falls within the relationship between the seller, buyer and LML (Bask, 2001, p. 473). However, it does not currently include the end customer, whereas the multi-sided architecture platform does (Parmentier & Gandia, 2017; Perboli, et al., 2017).

The business models created by Teece (2010) and Demil and Lecoq (2015) both share the ideology of creating value for the customer, whilst also creating a profit margin. However, in the model used by Braithwaite and Christopher (2015, p. 307), customer demands are at the centre of the five parts of business model consideration. A company must take stock of its priorities and is required to evaluate the process of its business model to ensure it meets the customer demand chain. This helps a company to implement specific and reflective processes, analysing challenges and thereby optimising the theoretical process and applying it in reality to achieve the best possible results. This process aids and challenges the cognitive tools that a company uses to

establish its business model, whether this is emergent or deliberate (Rumble & Mangematin, 2015, p. 124). Recognising the need for evaluate the company business model is the first step to ensuring that it is right for the company.

A challenge to this model is the customer perception of purchasing or selecting a specific delivery service, since the end customer may not separate the multiple actors involved within the purchase delivery (Daugherty, et al., 2019, p. 21). For example, a product bought online from a retailer may be delivered successfully, not to the purchasing customer but to the end customer, who may then leave a comment on the delivery service's mobile app. As an example, one such comment was "thank you to that driver who delivered my ink cartridges, perfect delivery, he knocked, he acknowledged and even waved goodbye. I shall use you again" (Floyd, 2020). With whom does the end user associate the successful delivery: the product brand, the retailer or the LML company? For the end customer, the added value experience is primarily delivered by their interaction with the LML, supporting the retailer's concept of capturing added value through delivery.

The challenge for the LML is to meet the needs of both the customer paying for the service and the end customer receiving it. This is explained within the uncertainty circle model (Aitken, et al., 2016, p. 196), in which the customer within the supply chain appears as both the primary supply source and the demand creator. Applying the multi-sided platform architecture to this challenge includes the uncertainty circle model within the co-specialised resources. This provides all users with a communication and information flow of the service, thereby enabling a business solution to meet the needs of the customer.

The study of CitySprint's business model shows that it is kept simple and, as the Chairman explains, the business model leads to the strategy from which the operational process follows (I4, 2015). CitySprint's business model has three cornerstones: Innovate, Create and Deliver (see Appendix 1). These three cornerstones or sides of the business model are the foundation of the added value that CitySprint provides as its service. By using a circular business model process, CitySprint fails to stimulate the evaluation of variables or inconsistencies for inclusion in the modelling concept. A

business model concept requires analysis of inconsistencies, variables or unknown effects; a process that allows the analyst to evoke divergent questioning (Baden-Fuller & Mangematin, 2015; Braithwaite & Christopher, 2015; Demil & Lecoq, 2015).

Markides (2015, p. 145) states that “a business model is very close to a business strategy”, as the goals, aims and outcomes depend upon the implementation of the strategy to align the business model. Therefore, if it appears that the outcome of the business model leads to the strategy and implementation of a service, it is reasonable to assume that the business model is the lead model of that business. However, should it be believed that the business model is assessed alongside, or by re-evaluation with, the strategic model and/or its implementation, it would be fair to assume that a multi-sided business model is the lead model (Rumble & Mangematin, 2015, p. 103).

7.4.1 Business Model Focus

The business models researched herein are portrayed as circular events, beginning with the act of evaluating an idea before moving on to another part of the model and so on. Businesses add value as they go along, until they either get back to the beginning or are halted to re-evaluate the path they are taking. Retailers like John Lewis show that traditional retail must sit alongside an e-tailing model, which again is used with a circular motion to evaluate and re-evaluate a process. Although the circular method has provided a mechanism for businesses’ reflection in the past, this system was in place when the customer took a physical approach to their purchase. Since the advent of the internet and the online shopping phenomenon, this type of business model has not adapted to incorporate the virtual customer. This relationship can be likened to the uncertainty model, described by Sanchez-Rodrigues (2008, p. 406) as the external uncertainties affecting the supply chain business model. This uncertainty means that the carrier needs to be in the middle of the supply chain, with the sharing of information up and downstream generating important information asymmetries (Sanchez Rodrigues, et al., 2008, p. 395).

The survey carried out as part of this research provides information about customer expectations over a period of five years, and the results clearly show that information

and reliability are key to meeting these expectations. This research confirms that the customer demands two-way information to pass between all three user groups: the retailer, the LML and the customer. This interaction provides the information required for each user group to control and understand the expectations of a delivery, thereby still meeting the customer's expectations.

This research looks at understanding UK LML delivery issues and CitySprint is deemed representative of the wider LML business model, as one of the largest UK-governed LML companies. Since many of the other players are foreign-governed, their applied business modelling for the UK operations are driven by foreign policy, which was not a consideration of this research. CitySprint's business model focuses on the customer and has the technology to support that process. Though initially, technology was not recognised as part of the CitySprint Group business model. However, when the company realised the advantages of technology, it brought that division within the business model of its LML delivery service (CitySprint Group, 2018). The focus of the technology division stated that CitySprint needed mass delivery points to make the greatest use of the technology available and gain customer added value (I3, 2018). This presented an opportunity for CitySprint to partner with those customers who wanted to use the technology added-value service.

The most common LML operational business model is the hub and spoke delivery model, which is widely used in supply chains, LSP, Postal and Packaging, and overnight express LML, as well as in the aviation and maritime sectors (Allen, et al., 2018; Cook & Goodwin, 2008; Fernie & Sparks, 2019; Greasley & Assi, 2012). Although it is currently used by DPD, UPS, CitySprint, FedEx and many more as the core operational business model, this system predates internet technology and the recent use of mobile applications. The question is whether the current hub and spoke system fails to address the new relationship with the end client, who is really the paying client. Another relevant question might be, who is the customer? The LML needs to understand who it is serving, reporting or responsible to.

A company with more than one aspect to its business has more than one customer, so will need to understand multiple customer influences. This is the case for the CitySprint Group, which has express, medical and technology departments, as well as further services categorised as bespoke logistic service, print and mail distribution, UK overnight and international. When looking to provide multiple answers in response to heterogeneous situations, a circular business model process does not propound inquiring or probing questions. There is a need to stimulate questioning about the uncertainties and variables within the business model. Consumer geographical density and physical and time convenience are just some of the contingency variables that require consideration. The customer is also a variable, an uncertainty that requires two-way communication with the delivery outcome (Lim, et al., 2018, p. 320). If the business model provides a variable process for the analysis of each contribution, the challenges and uncertainties can be fit within the organisational effectiveness of the business, whilst keeping the dominant process focused on the customer's demands.

7.4.2 Business Model Evolution

By using the multi-sided platform architecture business model, the LML can evaluate the value creation and needs of each actor within its own delivery model. This is not a new concept. Braithwaite (2015) explains the business model consideration with information interface going both ways to all parties in the same multi-sided platform. In order to evolve and enhance the multi-sided platform business model for use by the LML, the framework needs to include the consideration of ambivalent value between each side (Casadesus-Masanell & Heilbron, 2015, p. 12).

By placing the logistics business model elements in the multi-sided framework, ambivalent value determination makes allowances for resources to work together. When resources are “co-specialised” (Barney, 2018, p. 3314), they are part of the ambivalent value of its creation. Recognising elements and, by extension to account for added value between parties, in presenting products to customers across the retail spectrum can be difficult for respective managements. This can be seen, for example, in Amazon retail to Morrisons lockers, or John Lewis to Waitrose collection points. The benefit of this is not clearly measurable by either party informally, but if based on ambivalent

value theory, the value of bundling together their co-specialised resources can be measured (Barney, 2018; Casadesus-Masanell & Heilbron, 2015). The evolution of the retail, pure play and e-tailing business models and the LML business model are similar in that they all include three of the same elements. Any one of the elements – customer, supplier or LML – has the potential to use the co-specialised resources that ambivalent value theory allows for. Casadesus-Masanell and Heilbron (2015, p. 27) state that, “by definition, complimentary products are worth more to consumers when offered together than the total of each individual one”.

The multi-sided architecture platform provides the framework for a business model that the LML can utilise and adapt for individual use (Figure 18). This means that the business model can be used either for the whole business or in part for subsections within the whole company. However, more than one answer is required to solve the multi-operational and actor interface. The reference to the uncertainty circle model resonates with the new challenges facing the LML customer demand chain, and the need to evaluate the decision and control systems, capacity utilisation and especially the amplification of demand by the customer. This provides an insight into customer variable behaviour (Aitken, et al., 2016; Allen, et al., 2013). The uncertainty model explains how a customer fails to meet an agreed service level and how this impacts on costs and processes for the LML or service provider. Applying the multi-sided platform model would contribute to the regulation and control of that variable.

7.4.3 Multi-Sided Platform Architecture Model

The roundtable discussion, conducted as part of the first stage of the empirical research in this study, brought to light the current views on last mile delivery issues from the perspectives of the wider freight industry and the LML sector. This early discussion, initial survey, and interviews (carried out in April 2015) identified existing issues and further concerns for freight infrastructure and end customer demands, raising the question, ‘How can an LML company meet these demands?’. This prompted the longitudinal survey and case study interviews to evaluate current business models for the industry, which highlighted a gap in the existing business model of the wider freight sector and that of the specialist, more recent and evolving LML sector. A solution has

yet to be found that can clearly resolve the millennium emergence of this sector, further visionary research enquiries are needed to fill the gap (Lim, et al., 2018; Schaller, et al., 2018; Teece, 2010). The priority for the LML lays in its ability to adapt to the customer demands.

The research paper ‘The New Age of Customer Impatience’ notes that:

“For the most part, though, neither the academic nor practitioner literature has advanced substantive narratives about the specific steps companies need to make in order to succeed in a digital environment.” (Daugherty, et al., 2019, p. 25)

The longitudinal survey results show that the customer wants control over the delivery. Time sensitivity and the option to change the delivery point and instructions are crucial to the needs of the today’s customer, with future demands for technological interaction highly anticipated. The customer wants to be in control. These results confirm the growing customer demand for control, which might be achieved through digital capabilities.

The multi-sided platform is a model that offers the analyst variable processes, in order to propose value added or value creation for the customer. Companies can analyse the effects of external influences, as well as how the customer demand chain, inconsistencies and other variables interact with the business model. This gives the LML sector the ability to evolve successfully through the adaptation of a business model (Schaller, et al., 2018). Adaptation and evolution are intrinsically linked to a customer’s understanding of the growing customer demand and how it can respond to this phenomenon (Doherty & Ellis-Chadwick, 2010). The supply chain delivery model has become the customer demand chain delivery model (Christopher & Ryals, 2014). This requires the LML company to be innovative in its thinking, as the customer is more demanding and impatient, actively seeking information about their purchase. “Last mile delivery has replaced the point-of-purchase”, becoming the point at which customers experience the service (Daugherty, et al., 2019, p. 21). This research supports the need for flexible, adaptable, interactive communication and information for the customer. When adapting the Parmentier and Gandia (2017) multi-sided architecture platform, changing the interaction between sides and using co-specialised resources to

give the customer more information and communication, emphasising the interactive capabilities offers all parties the ability to increase the added value for the customer. This new business model for the LML industry supports the various elements of the customer demand chain. Providing a process by which to understand and achieve knowledge, information and communication interaction with the customer and all sides of the service. (Figure 32).

7.4.4 Application of LML Business Model

Increased academic interest in the business model concept and in identifying a structured approach to developing or evolving a new business model would be the catalyst for the LML sector to achieve growth alongside its customer (Coombs & Nicholson, 2013; Schaller, et al., 2018; Teece, 2010). Successful attempts to modify an existing business model are rare, according to Demil and Lecoq (2015, p. 53), but as demonstrated in this research, LML, as an emerging sector, can use an existing business model. It is accepted that the business model is neither owned nor created by a company, but that the LML can conceptualise its application (Rumble & Mangematin, 2015).

The multi-sided architectural platform gives LML a process through which to analyse its business model, with the aim of improving its capabilities of capturing, creating, and delivering added value. The business model uses the multi-sided position of placing the logistics elements of supplier, customer and LML alongside the digital technology, and has the ability to incorporate the ambivalent value of co-specialised resources. This means that LML can appraise and evaluate the value creation for each side of its business model, establishing what emphasis should be placed where, and what added value or profit value can be ceded and by whom on each side of the model. When external factors are affecting regulation, processes, or the status quo of customer expectations, the LML companies can use the effects of co-specialised resources to absorb, adapt or resist the external affects. All stakeholders are included within one of the sides to the multi-sided platform architecture.

Express delivery identified groups (Figure 4), are particularly within the customer or digital technology side. The evolution of the sector may well alter the identified individual groups, and these may move accordingly. Placing digital technology at one side of the multi-sided architecture platform, along with the addition of co-specialised resource value, brings a framework to the model for a sector that requires digital integration, contingency variables, and shared economic analysis (Lim, et al., 2018) (Figure 32).

This new LML business model will enable the LML to utilise its innovation capabilities, understand integration of its digital needs and give it the process to map the variables affecting its service (Rumble & Mangematin, 2015; Teece, 2010).

LAST MILE LOGISTICS BUSINESS MODEL

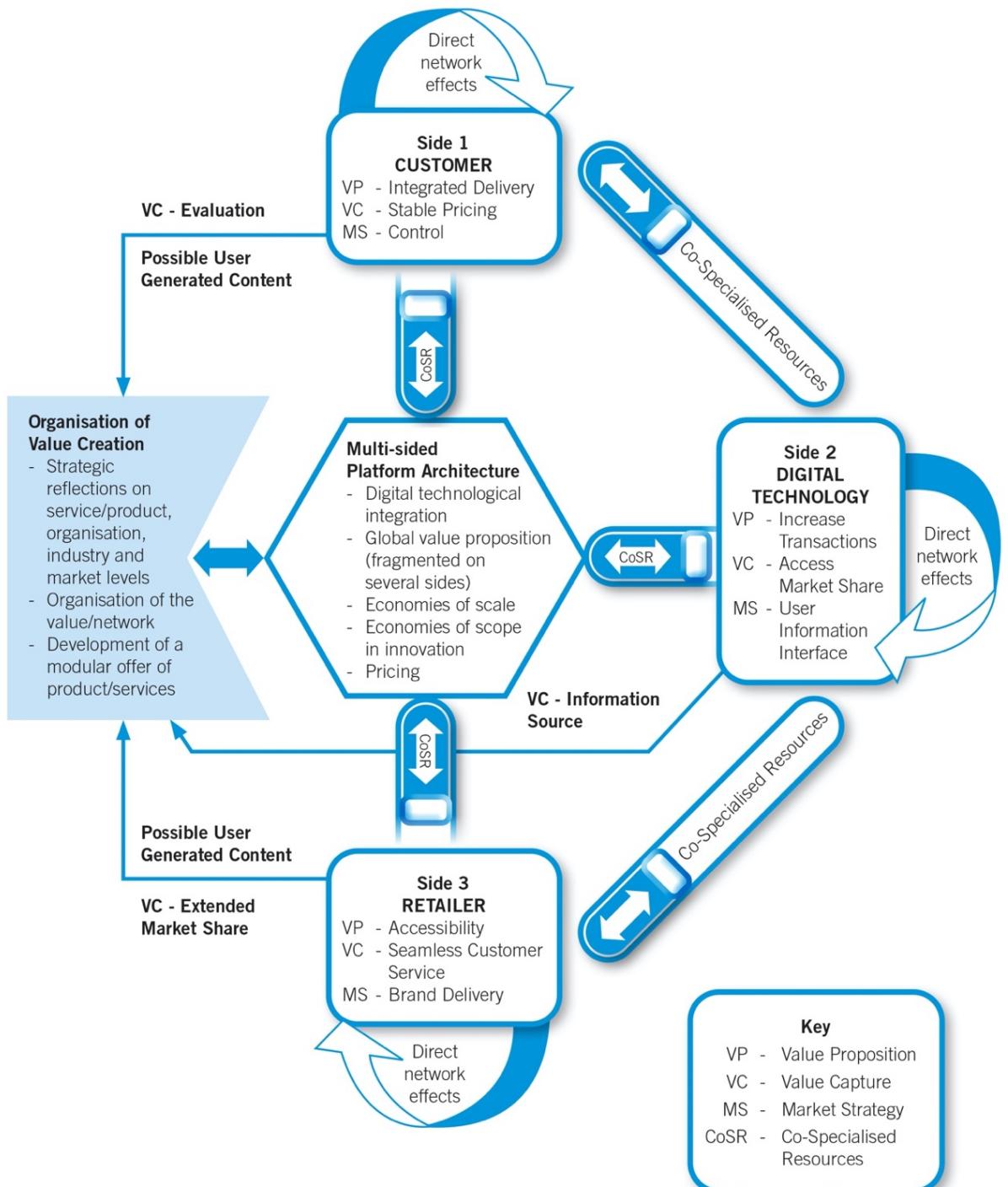


Figure 32: Multi-Sided Architecture Platform Business Model (Author 2020).

In this new model, the multi-sided platform of the LML identifies the company's added value within innovation, integration, scope, and pricing opportunities. It analyses each side of the business model through the effects of co-specialised resources and the ambivalent value process, leading to value creation. To put this in context, an LML company may offer its service to retailer A, who wants to use the LML but does not want to pay the delivery cost of £2 per product, even though other providers charge the same amount. The retailer assumes that the ambivalent value is £10 and the cost for the retailer to carry out the transaction of this agreement is £2. This means that the ambivalent value share is £6 between the LML and retailer. At this stage, the LML and retailer evaluate whether it is beneficial to utilise their co-resources or not. Acknowledging that joint control over the exchange creates added value for both parties, which in turn leads to an assessment of which party will benefit more from the value of the exchange. This, therefore, establishes which party has the strongest incentive to maximise the value created by this agreement (Barney, 2018). If the LML believes that delivering its service to retailer A will lead to more business or new markets, it has a greater incentive to give more of its ambivalent value share (£6 in this example) to the retailer in negotiations. On the other hand, if retailer A believes that receiving the LML service will lead to better delivery and greater satisfaction for its customers, the *retailer* will give more of its ambivalent value share *to the LML* (Daugherty, et al., 2019).

Implementing the business model design will require several operations to produce an outcome and change a one-sided model to a multi-sided business model. Parmentier and Gandia (2017, p. 55) suggest six operations and three phases are needed to create the change. Each operation allows the principle to interdependently engage with the LML, customer, retailer/supplier and digital technology. It is by using this model that the LML will achieve greater value added and capture for its business, whilst still meeting the customer demand. The consideration for implementing this new business model is shown in table 26. In the LML adaptation of Parmentier and Gandia's (2017) operations of business model design, the six operations are similar while the principles and effects relate to the LML industry. The transformation of using digital technology and co-specialised resources increases the opportunity for the LML to have scalability and information flow.

The LML can modularise the operational steps through the three phases of implementation: Phase 1, creating the technology platform; Phase 2, engaging with new user groups via co-specialised resources; and Phase 3, linking user groups for mutual benefit via co-specialised resources.

The implementation of co-specialised resources between different sides of the business model enables the business model, in this case of the LML, to capture value for the business that it may otherwise fail to capture. On assessment, the party that has the greater impact on the value created within the exchange maximises the division of ambivalent value between the co-specialised resources, knowing that added value or complimentary services are worth more when offered together (Barney, 2018; Casadesus-Masanell & Heilbron, 2015). This concept, of value added or value created by the co-specialised resources, extends the current theory of the multi-sided architectural platform. It increases the incentive to assess the ambivalent value of the exchange, thereby giving the analyst (in this case the LML) the greatest opportunity to create and capture value for its business.

The business model requires a conduit to bring a theory into practice and the strategic operations policy is that conduit, bringing the business model to fruition. It will be the responsibility of the LML to choose the right concept and process for achieving this. As described earlier in this chapter, the LML sits firmly in a multi-sided architecture platform, and as such the co-existence of the business and operational models will dovetail through the evaluation from a one-sided business model to the multi-sided architecture platform.

Operation	Principles	Effects
1. Setting up the platform	Set up technological architecture for a digital platform Deliver complimentary services	Favour customisation Favour modularity Create support for a multi-sided structure
2. Performing the value proposition	Review the value proposition to target new value-added features and remove unneeded features	Create greater value and communication for more customers (blue ocean effect) Meet new or unmet expectations and increase customer mobility
3. Structuring and linking user groups	Create complimentary value propositions to make user groups interdependent Analyse interactions between user groups to identify which group creates value for the other(s)	Generate (positive) co-specialised resources Increase shared communication and access to service Increase customer knowledge and remove uncertainty
4. Opening the business model	Open the value creation process (co-creation, co-innovation, problem solving, etc.)	Build consumer / retailer engagement Multiply sources of value capture Increase information flow
5. Multiplying the niches	Target a large number of market segments (diversifying - retail pharmacy, specific product delivery) Identify consumer groups with a large range of needs in the same domain (retailers, pure play, businesses)	Multiply sources of value capture (long-tail effect) Explore market trends Build additional sides
6. Structuring prices	Provide a part of the value proposition for free Transfer some free users to a paid offer Value user presence (for advertising) and user-generated content	Attract a large number of users – retailer and customer Encourage users to pay on other sides – supplementary services Generate more profit – density and branding

Table 24: Operations of Business Model Redesign (adapted Parmentier and Gandia 2017 p.55).

7.5 The New Business Model

This chapter comprised an evaluation of the current LML business models, the customer's needs, and the understanding of the customer demand chain, in order, to provide a concept for a LML business model. Daugherty (2019) talks of the new age customer, the increased demands and control a customer expects with which the results of the longitudinal survey agree. The customer expecting to be informed of the purchase process all the way through to delivery point (Hazen & Ellinger, 2019; IMRG.ORG, 2019; Nguyen, et al., 2018). The interview findings indicate that the LML sector has an awareness of the customer demand chain, but little evidence of a business model to match. With little research into or around the design framework of LML business models, there is a lack of understanding of how to address this (Lim, et al., 2018). The 21st-century new age customer uses mobile app communication and, as the interview evidence confirms, LML uses digital technology. However, the sector has not yet integrated such technologies within its business modelling to align LML demands with the customer demand chain. Teece (2010) suggests that several elements are needed to create the value for customers including the need to select technologies to be embedded in the service (Figure 13), and if we apply the concept that Braithwaite and Christopher (2015) consider, that the business model concept exists independently of how it is applied, it follows that LML companies should include technology as part of the business as well as operational model. The sector business models for Amazon and CitySprint use manipulable instruments to deliver their business model, focusing on a cycle process application. This application fails to recognise the two-way information channels between all parties as suggested by e-retail modelling by Turban (2018) (Figure 8). The result of this excludes the extended interaction of information and digital technology within the business model, thereby establishing that there is a gap in the business model concept for the LML sector to engage with.

7.5.1 Re-Thinking the Future

Concluding with the theory for a new LML business model left the research open to future evaluation on ways of implementing the theory. Whilst this has not been carried out by the author, the opportunity arose during the COVID-19 pandemic of 2020 to evaluate the theory.

7.5.2 COVID-19 Pandemic

On 13 March 2020, the British Prime Minister declared that “all UK persons should stay at home” and that the coronavirus was a global pandemic (Johnson, 2020). Discussion by the Science Advisory Council (SAC) in 2019 led to the elevation of LML to key infrastructure status (Dept for Transport, 2020). During the COVID-19 pandemic, the Cabinet Office Briefing Room (COBR) council assigned key worker status to the LML industry meaning practitioners were not required to stay at home (Lomas, 2020).

The government restrictions meant that, in order for the economy and daily life to continue, much more than previously everyday necessities would have to be delivered to people’s homes. The challenge presented to the researcher by this COBR verdict was to map out the industry to understand how an enormous number of deliveries and collections could be made to the nation’s homes. How might the government carry out these deliveries? The mapping of the LML industry (see figure 33) concluded that two things were needed. Firstly, in-house trunking would be necessary to co-ordinate the UK coverage. The second conclusion was that no single organisation was capable of meeting such high delivery numbers, up to 250,000 per day, without affecting its key freight deliveries supporting the National Health Service (NHS) (Dept of Health and Social Care, 2020).

The mapping of the LML industry highlighted numerous non-freight companies: for example, final mile food deliveries for supermarkets, in-house retail logistics and lifestyle delivery couriers, as well as services for food such as Deliveroo and Just Eat. The mapping of the LML industry also showed that it was possible to achieve coordinated and cohesive delivery to meet the nation’s medical needs. The result was the co-ordinated delivery of COVID-19 mass testing (The Delivery Group, 2020).

MAP OF LAST MILE DELIVERY SECTOR

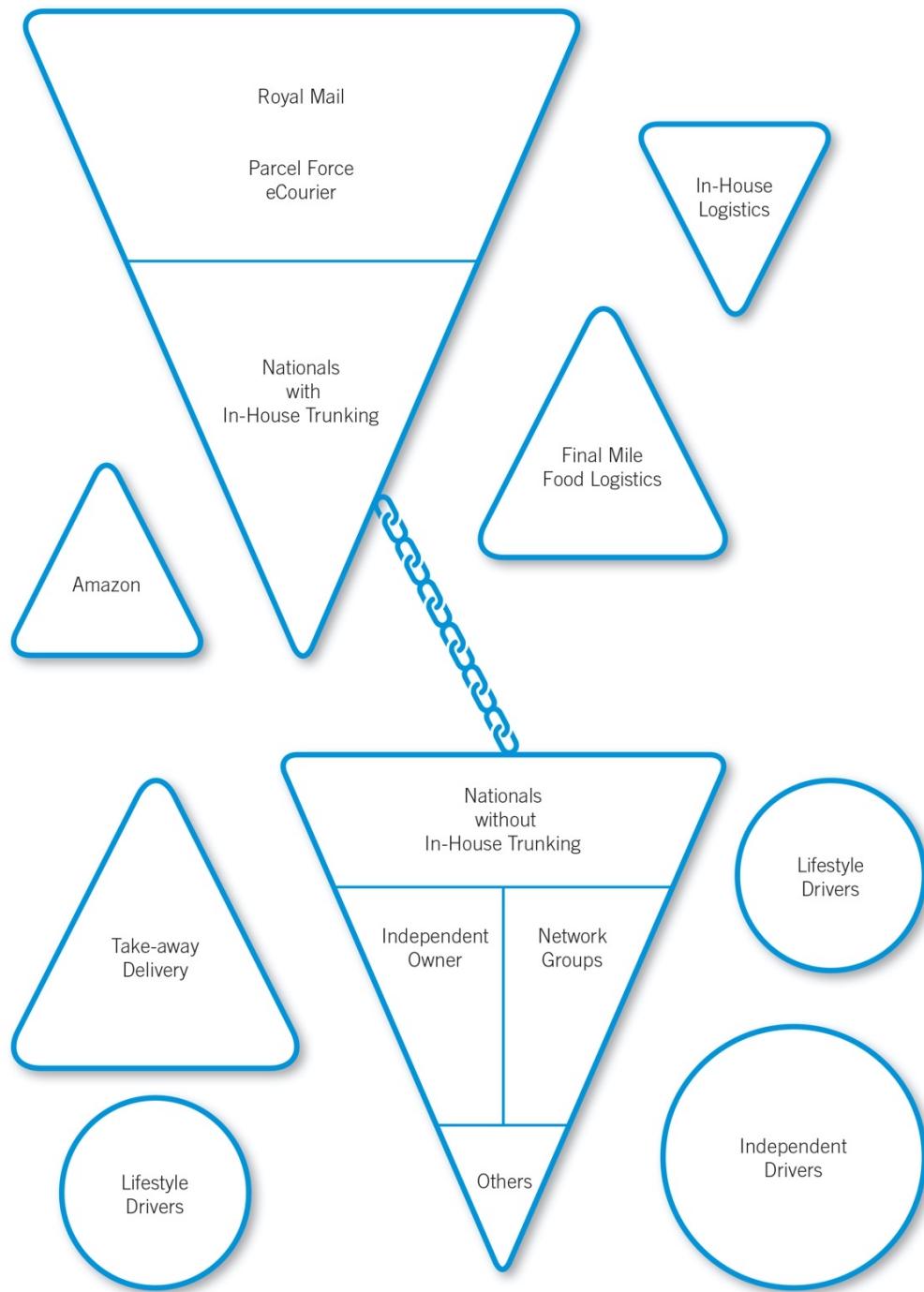


Figure 33: Map of the LML sector (author, 2020).

7.5.3 Challenges to the LML Industry

I1 (2017) states that, ‘On reflection, pre-covid-19 challenges have fueled and improved our industry’s ability to sustainably flex and adapt to the challenges that lie ahead both during COVID-19, and (importantly) after COVID-19’. However, the challenges posed by the coronavirus restrictions (HM Government, 2021; Lomas, 2020), and the need to ensure the safety and well-being of both staff and customers, bring a new focus for LML organisations as to how the service can or should be delivered.

The proposed business model is an analytical tool for an organisation, when applied it provides the schematic by which the success of its current business model can be assessed. It predominantly supports those organisations who want to decrease inefficiencies and increase value added content to a service delivery (Baden-Fuller & Mangematin, 2013; Braithwaite & Christopher, 2015; Teece, 2010). The unexpected demand caused by the Covid-19 pandemic challenged the LML industry. The steep rise in demand increased the usual six-day working week to seven and tripled the required number of vehicle loads (DHL, 2021). The sudden increase in customer demand highlighted a higher number of inefficiencies within the LML industry. Consequently, faster solutions were required at a greater speed than normal. The LML business model presented here can help with this influx by providing a more efficient use of co-specialised resources.

The increase in online deliveries, coupled with the medical demands of the NHS (ONS, 2020), saw an unprecedented number of new jobs advertised to meet the growth of the sector (Appendix 18). The growth of global LML organisation will affect the demand for the UK’s LML small and medium enterprises (SME), as the map of the sector shows a supporting link between the organisations. An SME requires the right tools to grow successfully and for change to be measured and manageable by those conducting the process (Cameron & Green, 2020). For an SME, the outcome of a business model is, ideally, an increase of its added value. This process that can be achieved through collaboration and mutual use of specialised resources. The LML business model helps to achieve this aim. Covid-19 caused a peak that the LML industry had not planned for, as in March to May 2020, the national lockdown contributed to an exponential rise in home deliveries. (Table 27).

March	£2 billion of food supply chain surge
April	150% increase in network volumes to the door
May	200% increase in network volumes in final mile for seven days a week

(Data collection from multiple sources: Dpd.co.uk/news; ONS.gov.uk/freight transport services by road; Statista.com/supermarkets UK)

Table 25: COVID-19 Home Delivery Increase, March - May 2020 (Author 2020).

The growth of the LML industry throughout the Covid-19 pandemic due to the increase in online sales, has brought the predicted gross freight numbers forward by five years (DHL, 2021; ONS, 2021; Signifyd UK, 2021). National statistics for retail sales and the advertisement of an unprecedented number of job vacancies in this sector confirm that, in the first four months of 2020, the increase in last mile deliveries posed multiple challenges for LML businesses (ONS, 2020). These challenges can be overcome with the right tools to make change and adapt to increased customer demands. The government recognised that the LML industry is a ‘significant element of national infrastructure’, encouraging further research and suggesting that this should be supported by an “Industry Challenge Strategy Fund” (Dept for Transport, 2020, p. 4). Post Covid-19, much greater resources will be required from every organisation but, through the modelling of co-specialised resources, UK LML will be able to meet these challenges.

7.6 Summary of Findings

At the beginning of this chapter, the data collection findings evidenced the need for an increase in customer satisfaction. This need amounted to a demand for greater reliability of the service provided, specifically reliability related to service communications, including how and when a customer can interact with the delivery service. The growth of online shopping during the Covid-19 pandemic increased home delivery by 200% in a three-month period, with many national LMLs stating that their company has just met

its three-year predicted turnover. With this volume increase, the customer expectations have also increased, and what was previously known as a supply demand chain has become a customer demand chain (Christopher & Ryals, 2014; Starkey, 2019). The LML sector must now keep the customer informed, so to create interactive mobility.

Leading professionals agree that to achieve customer satisfaction, the delivery has to be reliable, and for that reliability to mean something to the customer, the LML organisation in question must keep them informed, allow them access to information and carry out the delivery as agreed (I6, 2017; I1, 2017; I3, 2018). This means the LML business model must change, adapt or be re-invented. The customer demand chain no longer matches the operational model of hub and spoke delivery, so the LML must change from a one-sided business model to a multi-sided business model (Rumble & Mangematin, 2015; Sage, 2001). Increasing and integrating the use of digital technology to increase business growth and quality of service will help to meet the new customer demand chain (Doherty & Ellis-Chadwick, 2010).

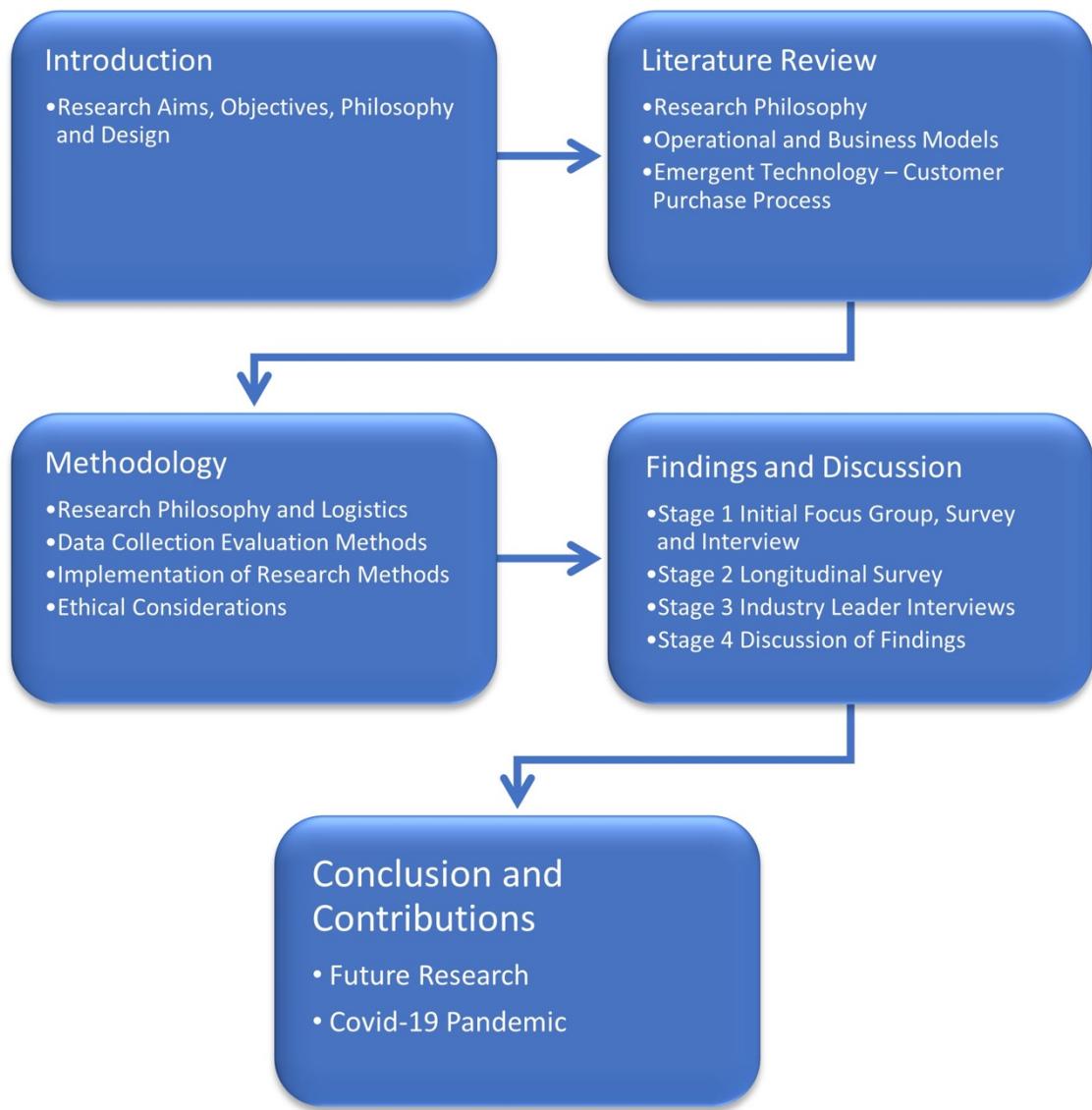
Internet retailing and e-business models agree that the customer is at the heart of the service, just as CitySprint puts the customer at the heart of its business model (Accenture, 2016; CMR, 2018; Daugherty, et al., 2019; I1, 2017; UPS, 2019). Customer demand chain having emerged from online shopping, through technology has now increased the customer's demand to be informed and to be in control of their purchase (Dash, 2018; IMRG, 2019; Lim, et al., 2018). Similarly, the LML companies benefit from the customer knowledge and interaction to secure first time deliveries and perceived customer satisfaction (I1, 2017; I7, 2019). The collaboration between meeting customer demand and the LML business model to deliver, is the core characteristics of a multi-sided architecture platform. The platform brings together all parties of the customer demand chain by utilising the specialised resources of each party, which can lead to added value for the company. To successfully meet the needs of the 21st century customer, the LML needs to utilise a new business model that is flexible, adaptable and enables interactive communication (Lim, et al., 2018). This research leads the author to conclude that adapting Parmentier & Gandia (2017) multi-sided architecture platform business model to represent the demands of the LML industry will offer a new business model solution (Figure 32). The concluding chapter will review this evaluation and explain the potential of bringing a new business model concept to the LML sector.

8 Conclusion and Contributions

At the outset of this research, the Last Mile Logistics (LML) industry was not separately acknowledged but incorporated into the wider industry known as supply chain. The LML sector was overlooked and few research papers had been written about it (Teece, 2010). This could be attributed to a failure by researchers to recognise or define the sector, a lack of recognition within the retail or business sector, or the assumption that it is all part of the supply chain. Examples of the LML industry being identified as a separate and independent sector are seen after 2014, when last mile delivery is first acknowledged especially in the context of retail (Browne, et al., 2019; Manners-Bell, 2014; Thomas, 2015). Previous research, for example urban logistics has been closely associated with, but is not fully representative of the current LML sector therefore, it is reasonable to suggest there is a relative paucity of research on the LML sector prior to that time. Since 2014, the sector has gained standing due to the impact of digital technology and cultural customer habits. The recognition of the sector cannot be defined by a single bolt of lightning, but it has primarily evolved from the technological growth of customer interaction with retailers and manufacturers who were looking to gain market share (Dablanic, et al., 2017, p. pg. 3). In this chapter the conclusion to the research is evaluated with reference to areas for future research and the recent Covid-19 pandemic outbreak (Flowchart 8).

Lim, et al. (2018, p. 308) opens his research with the claim that “the last-mile delivery has become a critical source for market differentiation, motivating retailers to invest in a myriad of consumer delivery innovation, such as buy-online-pick-in-store, autonomous delivery solutions, lockers and free delivery upon minimum purchase levels”. Daugherty, et al. (2019, p. 23) agree with Lim, et al. (2018), arguing that “e-commerce retail success is intrinsically linked to the effectiveness of their logistics processes”.

These researchers’ comments and those of the leading professionals interviewed clearly lead to the conclusion that the LML industry needs to be able to match the e-retailer’s needs by being intrinsically linked with the market. This research addresses the ‘*implications of express delivery business modelling in the last mile industry*’ in order to fill a gap in the knowledge of this industry.



Research Flowchart 8: Stage 5. Conclusion and Contribution.

This concluding chapter reviews the ways in which the aims and objectives of this research have been addressed. Further, it addresses criticisms of current business models and a possible solution to the issues identified in this research. Ultimately, suggesting a new business model for the specific purpose of the LML industry.

8.1 Conclusion of Aim

Early in the research, ‘to develop a new business model concept for the UK’s last mile express delivery industry, to help modernise and minimises inefficiencies’, the literature review demonstrated that this industry had not previously been identified as a separate entity but was generally included in the wider definition of the supply chain sector (Lim, et al., 2018). Due to this lack of understanding of the industry, there has been minimal research into the development of an LML business model framework. Previous studies had concentrated on the technological advancement of the retail and manufacturing supply chain. More recently, the term ‘last mile logistics’ has achieved academic clarity and the recognition needed to initiate the development of an explicit business model framework within the LML industry (Browne, et al., 2019; Lim, et al., 2018). The objectives, as stated in Chapter Two, were addressed with primary and secondary data collection, discussed in Chapters Four and Five. This demonstrated the dominance of the operational model, confirming the hypothesis that the LML industry does not use a specific business model, but one designed for the wider industry.

The business model allows for a rotation of evaluation but is unable to provide a process of evaluation for the inconsistencies of the customer demand chain. The findings from questions 6 and 7 in the survey suggest that when a communication, for example a text, is sent to the customer and, when the LML provides a delivery period estimate; this results in delivery satisfaction for the customer. Part of the customer demand chain is fulfilled when the customer demand for reliable information and flexible communication is satisfied. Having identified this issue, it is clear, the current logistics business model fails to meet the needs of the customer demand chain and therefore requires a new solution. A business model must incorporate the customer demand chain, which is based on integrated patterns of information and communication for all parties.

The longitudinal surveys and the one-to-one interviews with the leading UK LML companies as discussed in Chapter Five, led to the understanding that the operational issues and external influences affecting the business, namely legislation and infrastructure, are agreed to be the greatest inhibitors to strategy governance (I1, 2017; I6, 2017). The interview results added that integration and communication with the customer were important in achieving customer satisfaction. Daugherty, et al. (2019, p. 21) comments that “the last mile delivery is all about the customer experience”. Even

though legislation and infrastructure affect business model decisions, the participants interviewed cared more about the satisfaction of the customer than legislative or infrastructure failings.

The researcher is therefore able to conclude that, due to inconsistencies between the customer demand chain and the LML business model, a new solution is required to minimise business inefficiencies. Consequently, the researcher has identified three challenges:

- i) the absence of an LML business model framework
- ii) the impact of urban infrastructure policy regulation
- iii) inefficient communication and integration connectivity.

I7, a senior manager (2019) suggests that, for Amazon, a business model is simply intended to “innovate for the customer and it doesn’t need to think about the competitor”. This statement reflects the opinions of other leading LML professionals. For example, I1, a senior board member (2017) agrees that innovation is a necessity and that LML companies must be flexible and able to rapidly adapt business strategies to ensure survival. I3, a senior board member, (2018) describes how the innovation of technology has given LML the capability to step up to meet the customer demand chain.

This research responds to the need for a new innovative solution for the LML business model framework. The critique of Parmentier and Gandia’s (2017) multi-sided architecture platform laid the foundation for a multi-party, interactive, co-resources business model based on technology suitable for the LML industry. The adapted multi-sided ambivalent value model provides the analyst with a process through which to understand the value of each party. It highlights the benefits of co-specialised resource engagement, reflecting on the interaction outcomes to increase the organisational value creation. The adaptative, innovative use of ambivalent value integrates technology, communication and added value within the business model. This new business model framework is part of the contribution this research is making to existing knowledge.

8.2 Discoveries

The researcher acknowledges that the definition of the LML sector was not fully agreed upon in the early stages of this research, but more recently it has been independently identified by academics (Lim, et al., 2018, p. 309). To summarise the definition identified and used in this research, the professional consensus and customer understanding is that the LML sector is “the delivery of a purchased product or service to the customer’s chosen delivery point” (I1, 2017).

Following the success of the initial roundtable and initial survey, a qualitative research methodology was implemented. This method was chosen as it suited the researcher’s experience, skills, and own interest. The researcher had access to top-level industry professionals for one-to-one interviews as well as survey locations for the collection of data from over 4,000 participants. Such broad and inclusive availability and access helped to ensure that interview and survey data collection was both relevant and rigorous (Myers, 2013, p. 13).

The outcome of the longitudinal survey challenged the preconceived notion that speed is the most important issue for the endpoint customer. In fact, the survey results concluded that communication is more important and that it is good communication that ultimately leads to customer satisfaction (IMRG.ORG, 2019). The multi-sided business model creates a way for the LML to understand and engage in effective communications with all parties. Taking this platform and utilising the ambivalent value model allows the capabilities of co-specialised resources to meet the customer demand chain more successfully. This addition to the multi-sided platform significantly increases the potential for organisational value creation (Barney, 2018, p. 313). The inclusion of the ambivalent value model holds potential as a better heuristic device to raise and shape questions for the analyst’s consideration.

The CitySprint executive board believes that operational success is achieved through meeting the customer’s needs (Daugherty, et al., 2019). In the researcher’s opinion, this supports the initial understanding that the operational model influences the business model causing confusion as to which model is predominant. The operational influences on the business models currently used within the LML industry fit the core elements of 241

a multi-sided business model framework. The provision of a business model that can be equally or singularly evaluated on any side of the business interaction minimises inefficiencies and innovatively utilises co-specialised resources between each side of the model. I1 (2017) believes that, in order to understand and meet customer demands, a business model framework must provide the guidance and inspiration for board members to focus on. The multi-sided model example is explained further by I1 (2017): “Utilising a business tool that focuses the aims of a company to reach out and create new relationships to deliver the service product means that the business can be creative, innovative and can measure the added value benefit to the business.” This supports the hypothesis that, without a business model, success can be neither measured nor assured (Casadesus-Masanell & Heilbron, 2015; Parmentier & Gandia, 2017).

8.3 Contribution to knowledge

This research has provided a valuable solution for the issues raised by the LML industry and its customers. It makes an important contribution to the operationalization of business models (Rumble & Mangematin, 2015, p. 101). Before 2014, little research on the LML industry has been carried out, this research acknowledges the gap in industry knowledge and contributes to establishing the definition of the LML industry (Dept for Transport, 2020).

A significant contribution of this study is the creation of a new LML business model framework, reviewed by three major UK LML players, provide the LML industry with a tool to meet the needs of the new customer demand, creating value for the business and all parties. A benefit of the model is its application can be, across the entire business or in part. The longitudinal survey results contribute to the understanding of a new phenomenon of the customer demands and supports the argument for an adaptable, flexible and interactive communication flow as the basis for a new LML business model and thereby contributes to a greater understanding of business models in general.

Further to this, the theoretical proposal of the new business model was appraised and used as guidance for the transport government advisory board to COBR. A distribution network for the requirement of Covid-19 medicine and tests was urgently needed, and

this research highlighted the communication and information flow required to ensure a successful distribution and collection of a time sensitive nature (The Delivery Group, 2020), thereby confirming the research contribution to LML literature and fills a gap of empirical evidence and theoretical understanding of a multi-sided platform business model, for the LML sector.

8.4 Limitations

The research originated from a group discussion and concerns raised at the roundtable event (2015) about understanding the current and future issues facing the industry. Inspired by the outcome of the roundtable, the researcher asked, “What does the last mile express delivery model look like now and for the future of the sector?”.

8.4.1 Initial Research

The initial roundtable was held in the East Midlands region. This could mean that any bias in the discussion summary was carried through to the survey questions and interviews, leading to the possibility that the conclusion has a regional bias. This can be mitigated by understanding that the choice of regional roundtable discussion was made due to the East Midlands heartland. The region is known as the ‘golden triangle’ for the logistics industry as the area provides deliveries to 80% of the UK within four hours (Lomas, et al., 2015, p. 4). Therefore, the East Midlands has the highest density of logistics companies working throughout the UK and it can be assumed that their knowledge is based on national issues, as well as those reflected within the region.

The researcher believes that the global supply chain journey behaves differently to the UK LML delivery industry. Typically, global supply chain providers consider the hub to be the heart of the operation and it is this model that influences the journey of the parcel, according to many critical elements that go on to affect the model of the last mile delivery. The understanding that the global supply chain last mile delivery differs from the UK's LML delivery confirmed the decision that this research would only consider UK LML. However, limitations of scalability can be criticised for the focus on

just one company. CitySprint provides independent knowledge of a UK company unhindered by the influences of a global business model. The focus of interviewees was within the CitySprint group, as access to a wider selection of companies could not be guaranteed. However, supporting interviews were carried out with three other global and UK LML companies (APC, Amazon and FedEx). The wider group of interviewees agreed with the majority of CitySprint's conclusions, confirming that a solely UK-based selection of research could work for the wider supply chain.

8.4.2 Methodology

Research in the logistics sector has been a challenge, recognised by Drucker (1969), Dunbar (1981), and New & Payne (1995, p. 61) who suggests that the most common argument being, logistics is complicated and difficult to understand. It continues to search for accepted academic rigour and value, and this research becomes the first step towards achieving that goal (Lim, et al., 2018; Mangan, et al., 2004; Teece, 2010; Trautrimas, et al., 2012).

In this research, one main company was used, representing the UK LML sector. The advantage of this is the opportunity to gain in-depth knowledge of the subject through an exploratory case study process, using cross-departmental interviews. This process supports the rigour and depth required for case study research, whilst offering attractive means to extract information, thereby achieving value and rigour. The disadvantage of using only one sample of data is the possibility of a lower level of accuracy, due to the lack of support or triangulation (Saunders, et al., 2019). Future research could consider using multiple case studies, to ensure the rigour provided by replication as well as practical research outcome (Yin, 2011).

To understand the business model requirements, the researcher explored the expectations of users of the LML industry via a longitudinal survey over a period of five years. The quantitative method provided a means to better understand the needs in the development of the LML business model. The survey comprised questions designed to understand and further explore the research question and was based on the Likert scale (Joshi, et al., 2015). Some questions caused difficulties when converted to this scale and were omitted from the research analysis, meaning that both time and information were

wasted during the research. For future studies, diligent preparation of a smaller number of specific questions for a more meaningful analysis would be beneficial. In this research, the large number of questions in the early survey was not analysed and reduced quickly enough to benefit the research in that way. For example, questions could be phrased in a different way, to produce an answer that correlates with the Likert scale. The process of selecting survey respondents was carried out on a one-to-one basis. The benefit of this was a higher rate of successful interaction, but it also limited the wider selection of respondents from those attending the events where the research data was collected.

As previously established in Section 4.3, the dominant reason for using one company was its independence and UK coverage, as well as the support and full access to senior members of the board. Nevertheless, the researcher recognises that the outcome, based on UK LML (CitySprint operates in England, Scotland and Wales), means that the application or effectiveness of the model in other countries is unknown. However, preliminary questioning of both national and global organisations indicated interest and agreement with the results of this research.

8.5 Conclusion Summary

The initial survey was the inspiration for the hypothesis of this research. The roundtable event with 60 industry professionals provided a platform for communication between the industry and the researcher, to further inform discussions. This was followed by 28 survey interviews and eight, one-to-one in-depth interviews with industry leaders, which broadened existing knowledge and led to productive analysis of the sector's issues. The engagement of the longitudinal survey of over 4,000 participants over five years provided evidence of the customer demand chain, which strongly influences the framework of the LML business model. All of this highlighted the need for LML organisation to actively engage in reviewing its business model, leading to the conclusion that few business models currently adapt to the holistic demands of LML. The aims of this research have been met through the literature review, roundtable discussion, survey and interviews, contributing to enlightenment and greater knowledge of the LML industry. The research fulfilled a contribution to knowledge by concluding

that the new business model framework provides a tool for practitioners to use and explore, and a possible solution for improving added value to an organisation, through the ability to analyse and evolve its business model (Markides, 2015, p. 146). It therefore provides greater understanding of the ‘implications of express delivery business modelling in the LML industry’.

8.6 Future Research

Previous research into supply chain business models was too ambiguous to enable the growth and efficiency of the LML industry (Fernie & Sparks, 2019). Further research into business modelling for the LML industry is required to support its development (Lim, et al., 2018; Perboli, et al., 2017; Schaller, et al., 2018). The rising interest in business models from researchers has led to a greater interest from practitioners. They acknowledge the need to adapt and evolve whilst becoming more innovative, in order to capture and offer added value to the customer.

Further data collection from a wider organisational input may either support or oppose the findings and conclusions of this research. This would therefore give greater robustness for further improvements to the LML business model. For LML to improve further, engagement with practitioners to initiate the LML business model would help to validate or challenge these findings. Furthermore, the results of this research potential offer the LML business model to future research into the transferable value of the model for other industries like the air freight or passenger services which share similar operational and business models (Braithwaite & Christopher, 2015).

Four suggestions for areas that could be examined in greater depth are:

- 1) The connection between retail e-commerce and LML business model frameworks, to support the growth of the customer demand chain.
- 2) The relationship between, online purchase process and customer demands for LML delivery.

- 3) The capability of the LML industry to collaborate in consolidation with other industries; and
- 4) How the LML industry evaluates and innovates the analysis of its business model.

Further research in these areas would support the growth of the industry, the wider economic growth of e-retail and the sustainability of delivery mechanisms. These are exciting times for the industry as the world copes with Covid-19 and the exponential demand for online delivery (IMRG.ORG, 2019). The results of this study confirm the need for further research and the government's recent announcement of funding and support for the industry makes it even more likely that this will be carried out (Dept for Transport, 2020).

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10 Appendices

10.1 Appendix 1 CitySprint Business Model.

The concept of CitySprints' business model is related to the operational model of innovate (input), create (what they do) and deliver (outcomes).

How we create value: our business model

Our business model leverages our key strengths to maintain our market-leading position in local last mile delivery solutions.



(CitySprint, 2016, p. 15)

10.2 Appendix 2 Data Collection Timeline.

Timeline of Data Collections sourced for research carried out.

Start Date	Finish Date	Concept	Facilitator	Collection
March 2015	March 2015	Roundtable discussion	LLEP request for regional business knowledge	Roundtable set questions. Followed by informal discussion in groups and one to one interview discussions
Mar 2015	April 2015	Initial Survey	LLEP gathering data	Online Survey
April 2015	May 2015	Initial Interviews	Roundtable discussions	One to one interview's
March 2015	June 2016	Initial Last Mile Express Survey	Roundtable discussion responses	One to one online survey data collection
March 2016	June 2019	Longitudinal Last Mile Express Survey		One to one online survey data collection
March 2016	June 2019	Interviews with Industry Leaders	Survey responses	Face to Face interviews, telephone interviews, Conference lectures
Feb 2018	May 2019	Follow up Interviews	Business Model	Face to Face, Telephone Interview
March 2020	July 2020	Re-Thinking the Future. Covid-19 Pandemic Discussions	HM Government, Cabinet Office, Dept for Transport	Video conference calls/meetings. Telephone discussions

(Author 2020)

10.3 Appendix 3 Attendees at LLEP Roundtable.

Attendees at LLEP Logistic and Distribution Employer Forum

20th March at Scania Training College.

#	Organisation	Organisation Type	Job Role Status
1	University of Derby	Education	Lecturer
2	Scania GB	Transportation	Manager
3	Wincanton	Transportation	Manager
4	Scania GB	Transportation	Manager
5	Scania GB	Transportation	Blakemore
6	East Midlands Airport	Logistics	Bottomley
7	LLEP	Government	Manager
8	Cromwell Group	Logistics	Senior Manager
9	DVSA	Government	Chamberlain
10	East Midlands Airport	Logistics	Senior Manager
11	Intraining	Education	Manager
12	LLEP	Government	Manager
13	Hinckley & Bosworth Borough	Government	Manager
14	Harborough District Council	Government	Manager
15	North West Leicestershire	Government	Manager
16	Foster Logistics	Logistics	Senior Manager
17	ESPO	LML	Manager
18	Joined up work	Education	Manager
19	AELP	Education	Manager
20	Transport iNet, Loughborough	LML	Manager
21	Charnwood Borough Council	Government	Manager
22	Oxalis	Logistics	Senior Manager
23	Leicestershire County Council	Government	Manager
24	MDST	Logistics	Senior Manager
25	Scania GB	Transportation	Manager
26	Driver First Assist	Logistics	Senior Manager

#	Organisation	Organisation Type	Job Role Status
27	East Midlands Chamber	Government	Manager
28	AIM	Logistics	Senior Manager
29	AIM	Logistics	Senior Manager
30	Office Depot	LML	Senior Manager
31	Lafarge-Tarmac	Logistics	Senior Manager
32	SQA	Logistics	Senior Manager
33	Leicestershire County Council	Government	Manager
34	Nelson Distribution	Logistics	Senior Manager
35	North West Leicestershire	Government	Senior Manager
36	Office Depot	LML	Senior Manager
37	InTraining	Education	Manager
38	LLEP	Government	Senior Manager
39	Harborough District Council	Government	Manager
40	Leicestershire County Council	Government	Manager
41	Skillbase	Logistics	Manager
42	Leicestershire Cares	Transportation	Manager
43	Scania GB	Transportation	Manager
44	Crescent Logistics	Logistics	Manager
45	Trucklink	Transportation	Manager
46	TNT Special Services	LML	Senior Manager
47	TKnP	LML	Manager
48	IDI Gazeley	LML	Manager
49	Blaby District Council	Government	Manager
50	Trucklink	Logistics	Senior Manager
51	Trucklink	Logistics	Manager
52	University of Leicester	Education	Manager
53	S&J European	Logistics	Senior Manager
54	DVSA	Transportation	Manager
55	Scania GB	Transportation	Manager

(Author 2016)

10.4 Appendix 4 Initial Survey Company Interviews.

Summary of case study interviews for initial survey.

Initial Survey Interviews with senior personnel of different logistic companies

Biffa	CI1
Bryson Haulage	CI2
CitySprint	CI3
DHL East Midlands Airport	CI4
DX	CI5
East Midlands Airport	CI6
FedEx Global solutions	CI7
Hermes	CI8
John Lewis	CI9
Lafarge Tarmac	CI10
Marks & Spencer	CI11
Office Depot	CI12
Pall-Ex	CI13
Smith Brothers	CI14

Starmer Transport	CI15
TNT	CI16
Wincanton	CI17
Yodel	CI18

Two-page reports from interviews carried out during Feb and March 2015 for LLEP, based on a twenty-question platform with qualitative focus on business engagement in the region of LLEP from Magna Park in the South to Castle Donnington in the North, including an interview with a senior board member of East Midlands Airport.

The selection of interviewees covered both national companies operating regionally in the geographic and companies directly based in the region. One exception, operating in the other Magna Park to the south of the LLEP area, but taking a close look at its unique omni-channel, click and collect impact into many stores in LLEP.

Industry sector from abnormal heavy loads to parcel delivery and post type operations. Waste management trucks to tippers and tankers, operating in the city environment of Leicester and Loughborough to the more open routes of the M1, A6 and A50. Giants of the air, alongside giants of the road to the most automated warehouse in LLEP and the largest e-retail warehouse in castle Donnington.

(Author 2020)

10.5 Appendix 5 Initial Survey Questionnaire.

Initial Survey Questionnaire. March 2015 (Author 2015).

Q No	Written Question
1	What is your business postcode?
2	Do you believe your business will expand in the next two years?
3	What is your primary business?
4	Do you personally regularly use sat nav?
5	What percentage of your commercial vehicles are using sat nav?
6	How important is the use of software systems to the company management?
7	How important is the INTERNET to your business?
8	How satisfied are you with your INTERNET speed and connection stability?
	Please answer the following questions - over the next two years.
9	How strongly will your business be affected by strategic and local road networks and congestion?
10	How strongly will your business be affected by legal compliance, laws, and/or Health & Safety regulations?
11	How strongly will your business be affected by low carbon issues, i.e., vehicle replacement /scrappage schemes?
12	How strongly will your business be affected by delivery hour restrictions?
13	How strongly will your business be affected by issues related to premises, such as planning permission for expansion and availability of new premises?
14	How strongly will your business be affected by development finance or the availability of short-term finance?
15	How strongly will your business be affected by issues related to roadside facilities?
16	How strongly will your business be affected by fuel cost variability?
17	How strongly will your business be affected by client demand/business volume outpacing your capacity?
18	How strongly will your business be affected by the availability of skilled workers and/or worker commutability?
19	Which modal activities are you involved in? (Please select all that apply)
20	What is the range of your operations?
21	What are your main times of operations? (Please select all that apply.)
22	What type of vehicles make up your fleet? (Please select all that apply.)
23	What types of fuel do your fleet use? (Please select all that apply.)
24	What is the average age (in years) of the vehicles in your fleet?

10.6 Appendix 6 Initial Survey Key Issue Data Information.

Key comments of Initial survey respondents' key issues.

	Category	Key Comments
1	RI	Operating in small streets causes us issues. Kerbside delivery
	LC	vehicles fall into regulations far beyond the conventional logistics business
2	LC	Support for training and planning would be hugely beneficial for our business
3	RI	I would be great assistance for road networks to take into account the types of vehicles that need to use the road to supply the businesses to keep warehouse and distribution centres working
4	RI	Midlands has a unique geographical location 80% of UK within 4 hours of road
5	LC	Electric Vehicles needed. Secure documentation needs secure delivery points
6	VC	Develop an air road business that contributes to the competitiveness of the region
7	LC	We are doing more and more with universities and schools to attract more youngsters, to create a link that opens up the doors to logistics
8	RI	Midlands is a world stage. UK Sunday delivery and two-man delivery to home for larger goods
9	RI	Expansion of distribution hub. Launched own apprenticeship scheme and expanding omni channel delivery via click and collect.
10	LC	Hauliers and LMLs have the perception that the customer does not respect their jobs
11	RI	We use the disability employers scheme employing over 1200 people but are strangled by the infrastructure roadways
12	LC	We have the most sophisticated automated warehouse, with a logistics school of excellence to understand, learn, and retain knowledge base of existing workers
13	RI	Forklift truck academy to get youngsters into logistics. We need to

		build better infrastructure to rail freight
14	RI	Born, lived and built a business in Leicester since 1897 but have to move away due to planning
15	RI	A customer must have a delivery as an extension of their own company. Location is about access for the team who can commute to us.
16	RI LC	Working with local schools. We take 15 parking tickets a day, loading bays are always filled with cars and the pinch points are worst around paved or pedestrianised zones
17	LC	We must have collaborative transport solutions
18	FV	2015 and beyond requires more transparency about the true cost of delivery

CODE	Description
RI	Road Issues / Compliance
LC	Law Compliance
VC	Vehicle Costs

10.7 Appendix 7 Semi-Structured Interview Questions.

Interview questions prepared for the one-to-one interview's evolved from the emergent themes identified in the questionnaires and ongoing survey results.

	Interview Questions
1	How do you value the service you offer?
2	How do you price your service, which elements are most influential to policy - externally or internal?
3	Delivering on your Promise. Which distinctive elements or measures inform you of meeting your promise?
4	What external influences impact on your business model and the ability to deliver on your promise of service?
5	Can you describe your business model?
6	Do you think your company follows a business strategy or business model?
7	Describe the relationship connections between the different elements that make up your company.
8	How does your company create value?
9	How does your company capture value?
10	Do you recognise your company's business model?

Interview Questions created by the author 2017

10.8 Appendix 8 Interviewees Profile.

Interviewees Profile, Company, Job role and Industry experience.

I1 Senior Board Member CitySprint

JM is responsible for all areas of new business and business development. He is the driving force behind improved sales revenues and has built a multi-talented team of professionals responsible for achieving growth in a rapidly evolving industry. Justin is committed to developing smart, sustainable, and scalable solutions that meet the delivery needs of CitySprint's customers.

I2 Senior Manager, London, CitySprint

I2 started in the courier industry in the early 1980's and after holding different roles within the industry his managerial skills and operational knowledge led to the post of Director with Lewis Day Transport in 2001. When in 2011 the company was bought out by CitySprint I2 was appointed as the London Operations Lead.

I3 Senior Board Member, On the Dot.

I3 is responsible for leading the development of the Group's next generation final mile delivery technology and has been instrumental in the design and implementation of On the Dot's defined timeslot delivery platform. Prior to this, I3 worked at Capgemini and held consulting positions at John Lewis, Sainsbury's and Tesco to develop sustainable multi-million-pound supply chain strategies. He has an MBA from Henley Business School in the UK.

I4 Senior Board Member, CitySprint Group

I4 has over 30 years' experience in the same day distribution industry in a career that includes managing a nationwide US same day distribution network. In 2014 he was named UK 'EY Entrepreneur of the Year' and M&A Awards 'Dealmaker of the Year' winner. He led the successful management buyout of CitySprint in 2010 and a subsequent secondary MBO in 2016 valuing the business at £175 million.

I5 Senior Board Member, APC.

I5 started his logistic career in 1989 with RedStar, moving into City Link, Rentokil, Amtrak, DHL when he led the separation of DHL's domestic express business from its global parent, as well as its integration with the Home Delivery Network to form Yodel in 2010 and was subsequently appointed the new company's CEO until 2012 and currently is on the board of APC.

I6 Senior Board Member, FedEx

Appointed VP in 2014 retired in Sept 2018 with 11 years at FedEx. A self-motivated senior executive, results orientated with extensive experience in M+A. 2006, he controlled the purchase of ANC into FedEx UK. 2016-2018 executive focus was on the successful multiple business integrations for FedEx in Europe whilst leading the global integration of TNT into the FedEx organisation. 2019 I6 is a consultant for Connect Group PLC.

I7 Senior Manager. Amazon

Joining TNT as legal counsel in 2008 SS has worked with logistics companies, TNT Express, TNT Airways, European Express Association, FedEx and now Amazon. He is crucial to the processes and regulations applicable to the LSP provision. Leading the EU policy team and advocacy efforts on transportation policy.

I8 Senior Board Member Amazon

Economics student of USA and Germany, author of nine logistic parcel studies and biographical books, consultant to McKinsey & Associates 2001 led to posts in Deutsche Post World Net (Parcels) 2006 Director of Operations and Deutsche Post DHL (Parcels) 2013 VP and currently working with Amazon.

10.9 Appendix 9 Participants Proposed Research Outline.

All potential interview participants were sent an information sheet that outlined the proposed research.

Statement of Research and Interview Process

My name is Tracey Worth, I am a Phd student at Sheffield Hallam University researching the Last Mile Logistics (LML) express industry.

I am reaching out to ask if you will participate in either a survey and or a one-to-one interview.

I have approached you as a senior member of your company and a person who has experience and knowledge of the operational and board member participation of the company. Should I be incorrect in this belief please advise me.

The survey research is online and can be accessed via a link which can be sent direct to you. This will take approximately 5 mins to 15mins to complete and can be accessed at any time.

The interview research may be carried out at a face-to-face venue, over the telephone or by video call. Once you are happy which part of the research you want to participate in, I will be able to advise you when your attendance would be required. Interview day and times will be at your convenience and a minimum of one hour is required.

Personal details will not be shared with others and with your permission your name and company will be included in the research. You will be asked to sign a consent form.

The research question is Business Modelling: Implications of Express Delivery Strategy within Last Mile Delivery industry

If you would like to participate or require further information please respond to this email or call me on my mobile.

I look forward to hearing from you.

Regards

Tracey Worth

Phd Research Student, SHU

Email: mail@instituteofcouriers.com

Mobile: 07976263745

10.10 Appendix 10 SHU Research Ethics Approval.

Please find below the feedback from your Research Ethics application

RESEARCH ETHICS REVIEWER'S FEEDBACK FORM (SHUREC3)

Principal investigator: Tracey Worth

Reference number: SBS-180

Title of project: Business modelling: implications of courier delivery strategy within home, workplace logistics

The Committee agreed the application should be (tick one box):

Approved with attention to the items listed below (1). Please email the details of how the issues have been addressed to the FREC and provide confirmation from the supervisor that the issues have been addressed for student projects.

1. The following issues need to be addressed:

- a) Please clarify that the NDA is worded to prevent the use of the data to publication purposes.
- b) Please also provide participant information sheet for interviews. What commitment is being promised with regard to data confidentiality?

We confirm that we do not have a conflict of interest with the project application.

Signature: Dr John Nicholson Date : 10/2/17

On behalf of SBS Research Ethics Committee

Claire

Claire Bennehan

Senior Administrator | PA to:

Professor Bradley Barnes | Assistant Dean Research

Dr Emma Martin | Head of Department – Service Sector Management

Dr Nicola Palmer | Head of Research Programmes

Sheffield Business School | TSK BEC | Stoddart Building | City Campus | Sheffield | S1 1WB

 Tel: 0114 225 5014 | Email: c.bennehan@shu.ac.uk

10.11 Appendix 11 SHU Research Participant Consent Form.

Research Participant consent form



RESEARCH PARTICIPANT CONSENT FORM

TITLE OF RESEARCH STUDY:

Business modelling: *Implications of Express Delivery Strategy within Last mile delivery industry*

Please answer the following questions by placing a 'X' by the response that applies

- | | YES | NO |
|--|------------|-----------|
| 1. I have read the Information Sheet for this study and have had details of the study explained to me. | X | — |
| 2. My questions about the study have been answered to my satisfaction and I understand that I may ask further questions at any point. | X | — |
| 3. I understand that I am free to withdraw from the study within the time limits outlined in the Information Sheet, without giving a reason for my withdrawal or to decline to answer any particular questions in the study without any consequences to my future treatment by the researcher. | X | — |
| 4. I agree to provide information to the researchers under the conditions of confidentiality set out in the Information Sheet. | X | — |
| 5. I wish to participate in the study under the conditions set out in the Information Sheet. | X | — |
| 6. I consent to the information collected for the purposes of this research study and to be used for any other research purposes. | X | — |

Participant's Signature: _____ **Date:** _____

Participant's Name (Printed): _____

Contact details: _____

Researcher's Name (Printed): _____ **Tracey Worth** _____

Researcher's Signature: _____

Researcher's contact details: **Tracey Worth**
(Name, address, contact number of investigator)

Primitive Hall, Chelmorton Derbyshire SK17 9SH. Mobile: 07976263745

Please keep your copy of the consent form and the information sheet together.

10.11.1 Appendix 11.1 CitySprint Participant Consent Form.

CitySprint research participant consent form.

Tracey Worth Student id 24046483

Participant Consent Form

Date:

STRICTLY PRIVATE AND CONFIDENTIAL

Interviewee:

Field Notes of Interview

1. I/We understand that you wish to interview 'Senior Management' of CitySprint Group in connection with the proposed research on the last mile delivery industry. (the "Permitted Purpose"), and that you and professional advisers in relation to the Permitted Purpose, (together referred to as the "Disclosees"), will need access to certain information relating to the Company (the "Confidential Information").

2. In consideration of our agreeing to supply, and so supplying, the Confidential Information to you and agreeing to enter into discussions with you, you hereby represent that you are a person who falls within Article 19 (disregarding paragraph (6) of that Article) or Article 49 (disregarding paragraph 2(e) of that Article) of the Financial Services and Markets Act 2000 (Financial Promotion) Order and undertake and agree as follows:
 - a) to hold the Confidential Information in confidence and not to disclose or permit it to be made available to any person, firm or company, without our prior consent;

 - b) upon written demand from us either to return the Confidential Information and any copies of it or to confirm to us in writing that, save as required by law or regulation, it has been destroyed. You shall not be required to return reports, notes or other material prepared by you or other Disclosees or on your or their behalf which incorporate Confidential Information ("Secondary Information") provided that the Secondary Information is kept confidential;

- c) to keep confidential and not reveal to any person, firm or company (other than Disclosees) the fact of your investigations into the Company or that discussions or negotiations are taking place or have taken place between us in connection with the proposed transaction or that potential investors/acquirers are being sought for the Company;
- 3. Nothing in paragraphs 2(a) to (c) of this letter shall apply to any information or Confidential Information:
 - a) which at the time of its disclosure is in the public domain;
 - b) which after disclosure comes into the public domain for any reason except your failure, or failure on the part of any Disclosee, to comply with the terms of this letter;
 - c) which is disclosed by us or the Company, its directors, employees or advisers on a nonconfidential basis;
 - d) which was lawfully in your possession prior to such disclosure;
 - e) which is subsequently received by you from a third party without obligations of confidentiality (and, for the avoidance of doubt, you shall not be required to enquire whether there is a duty of confidentiality); or
 - f) which you or a Disclosee are required to disclose, retain or maintain by law or any regulatory or government authority.
- 4. In consideration of the undertakings given by you in this letter, we undertake and agree:
 - a) to disclose Confidential Information to you;
 - b) to keep confidential and not reveal to any person, firm or company (other than persons within our group who need to know and professional advisers) the fact of your research data collection.
- 5. Participants can withdraw the use of the personal or company name at any time of the research period but not after the publication of the research Phd paper.
- 6. The research work by Tracey Worth has been agreed and will be ongoing according to agreement between both parties.

I have read and agree to the terms of the above.

Signed By:

Interviewee

Date:

10.12 Appendix 12 Time Delivery Survey, 2015.

Longitudinal Survey Questions between 2015-2018	
No	Written Question
1	What time of day do you usually shop online?
2	Which day(s) of the week do you usually shop online? (select all that apply)
3	What are your typical online purchases? (select all that apply)
4	How do you normally receive the goods that you purchase online?
5	When buying online, how important a factor in your purchase decision is delivery cost?
6	When buying online, how important a factor in your purchase decision is delivery speed?
7	How many days would you wait for FREE delivery of non food items UNDER £50?
8	How many days would you wait for FREE delivery of non food items OVER £50?
9	If you had to choose a single day for free delivery, which day would you choose?
10	On that delivery day, what time would you choose?
11	When buying online, how important a factor in your purchase decision is the ease of returning goods?
12	I would like delivery companies to text delivery advice.
13	I would like delivery companies to provide 'delivery period' estimate of at least
14	Do you sell goods online? e.g., eBay
15	Which are the preferred delivery choice/s of sending goods sold online?
16	Which model of activities are you involved in? (select all that apply)
17	What are your main working hours?
18	Identify your gender?
19	At what email address would you like to be contacted?

(Author 2015)

10.13 Appendix 13 List of Surveys Completed.

*List of Surveys Completed by researcher
for questionaries' analysing customer demand.*

Survey No	Title of Survey	URL	Data Collection Date Open	No #
15	MultiModal June 2019	https://www.surveymonkey.co.uk/r/multimodal2019	26/6/2019 to 29/7/19	835
14	Kempton Park LSA 2019	https://www.surveymonkey.co.uk/r/kemptonparklsa	20/3/2019 To 31/3/2019	56
13	Intratlogiste X Feb 2019	https://www.surveymonkey.co.uk/r/IntralogisteX2019	4/3/2019 to 17/3/19	461
12	Kempton Park Sept 2018	https://www.surveymonkey.com/r/kemptonpark2018	5/9/2018 To 16/9/2018	26
11	MultiModal May 2018	https://www.surveymonkey.co.uk/r/IOCMultimodal2018	27/5/2018 to 30/6/18	681
10	Kempton Park LSA Mar 2018	https://www.surveymonkey.co.uk/r/LSAKemptonPark	20/3/2018 to 31/3/2018	61
9	Intralogiste X Mar 2018	https://www.surveymonkey.co.uk/r/OCIntralogisteX2018	30/4/2018 to 16/3/18	242
8	MultiModal April 2017	https://www.surveymonkey.co.uk/r/iocmultimodal	8/4/2017 to 30/4/17	750
7	MultiModal May 2016	https://www.surveymonkey.com/r/MultiModalNEC2016	15/6/2016 to 30/6/16	24
6	Intratlogiste X Mar 2016	https://www.surveymonkey.co.uk/r/Intralogistics2017	13/3/2016 to 31/3/16	198
5	E-Retail Mantra WTG 2015	https://www.surveymonkey.com/r/mantra2015	12/8/2015 to 14/8/2015	82

Survey No	Title of Survey	URL	Data Collection Date	Responses
4	E-Retail NEC April 2015	https://www.surveymonkey.com/r/KK57CWJ	21/4/2015 to 30/4/2015	308
3	Timed Delivery Feb 2015	https://www.surveymonkey.com/r/IOC05	14/3/2015 to 30/3/2015	215
2	The Last Mile Question 2015	https://www.surveymonkey.com/r/thelastmilesurvey	5/3/2015 to 12/3/2015	34
1	Transport & Distribution LLEP Survey	https://www.surveymonkey.com/r/XV7HTSG	3/3/2015 to 4/3/2015	28
			Total Responses	4001

(Author 2020)

10.14 Appendix 14 SHU Risk Assessment Form.

Generic Risk Assessment Form describing the process, locations, method of communications and dates of activities carried out during research.

(Sheffield Hallam University, 2015)

10.15

Appendix 15 Industry Leaders Interview List.

Industry leaders interview list.

Interviewee	Position held	Company	Interview process
I1	Senior Board Member	CitySprint Group	1 st . One to One 2 nd One to One 3 rd One to One
I2	Senior Manager	CitySprint Same-day	One to One
I3	Senior Board Member	On the Dot	One to One
I4	Senior Board Member	CitySprint Group	One to One
I5	Senior Board Member	Managing Director	One to One
I6	Senior Board Member	FedEx	Telephone
I7	Senior Manager	Amazon	One to One
I8	Senior Board Member	Amazon	One to One

(Author 2020)

10.16 Appendix 16 Industry Leaders Interview Summaries.

Industry leaders interview transcript summaries.

<i>Primary Interviewees</i>	<i>I1 Senior Board Member CitySprint</i>	16.1
	<i>I2 Senior Manager CitySprint</i>	16.2
	<i>I3 Senior Board Member On the Dot (CitySprint Group)</i>	16.3
	<i>I4 Senior Board Member CitySprint</i>	16.4
<i>Secondary Interviewees</i>	<i>I5 Senior Board Member APC</i>	16.5
	<i>I6 Senior Board Member FedEx</i>	16.6
	<i>I7 Senior Manager Amazon</i>	16.7
	<i>I8 Senior Board Member Amazon</i>	16.8

Primary interview transcript.

Interviews - 4th August 2017 / 8th November 2017 / 28th March 2018

Telephone calls – 8th August 2018, 9th Sept 2019, 12th May 2020

Semi-formal questions, discussion and telephone conversations carried throughout the period Aug 2017 to May 2020

Primary interview transcript

Researcher – TW. I1 - JM

On each occasion the interview was carried out at a hotel with business room facilities. Private comfortable accommodation for the interview. Refreshments served. Initial discussion on the industry, discussing regulations and external issues to the wider industry.

At the interviews I1 gave a history, current status and insight to the future delivery of CitySprint both as express and the group. I1 gave a portfolio presentation.

The interviews were carried as an open discussion with semi formal questions. During the discussion's TW asked specific questions and I1 would repeat and clarify the answer.

I1:

CitySprint is an ‘Evolving Delivery, the strap line of our annual accounts (2016)

We are a Fast Flexible Final Mile. Last mile express delivery.

What do we do, who are we?

We have our technology (on the dot)

Courier parcel delivery

Healthcare (Medway)

Logistics Delivery Service

Multidrop courier services

What do I love to do?

I love reading, I love making it happen, I instigated

Patient Record Repatriation

Online Account

Recruiter Profile

Love Working (at CitySprint)

HQ London

Just short of 1,000 employees over the UK, founded or reshuffled into CitySprint in 2001.

We class ourselves as Express Delivery company but the group is getting wider on the remit of services and will be splitting into CitySprint Group and others soon.

We have 43 wholly owned interconnected service centres (hubs) combining national UK coverage with local customer service (spokes). We are or have a Flexible to Versatile Fleet that meets our customers needs.

TW: So tell me about your competitors? What do you think they achieve that you don't? or maybe what do they do that causes you concern?

I1: I would split it up into categories.

In Food its Deliveroo and Uber Eats

In Pharmacy it's all local pharmacists

Sameday Express / parcel courier services its thousands and thousands of sameday couriers.

In Retail deliveries that is where they have in house delivery or use a 3PL (Third party Logistics) like Clipper or DHL

The influencing issues against us is things like

M&S have an app base 'Quick Pick-up' which competitors created for Retailers

John Lewis is favouring Start -up companies so if you are a start-up company then John Lewis will contract with you and the established companies like us get dumped. Also the plug and play point of sale software that a start-up can use from Shul, web base software gives access to start-ups to have good technology connectivity. Exploiting the mood with technology.

TW: How do you value (sell or qualify) your service to a customer who then supplies your service to their customer?

I1: The retailer's website is the shop door not always necessarily for shopping. If the delivery connection, interface and demands are not equal across the platform the 'client' will not be happy. CitySprint makes that happen.

TW: How would you best describe your company?

I1: Early on, very early on CitySprint choose to be a 'Stakeholder – Employees – Investors' Structure. It is a family and everyone knows everyone else's part that they play. One for all and all for one. We all know each other and what is at stake.

TW: How do you price your service? which elements are important to the pricing policy; external or internal factors?

I1: Pricing is a difficult balance because it is connected to the KPI's (Key Performance Indicators) and the SLA (Service Level Agreement). In discussion with the client, our customer; we discuss what they want to offer their customer. Geographic restrictions and time limits for delivery are discussed. We can deliver from now to one hour to one-hour slot to next day and all the permutations in-between. It is about what they want for their customer and how they want to pay us for the service. Mostly our clients will incorporate the cost of the delivery into their budgeting for marketing and any acknowledged charge goes to support the overall service. For us we confirm the cost of each service level and KPI agreement and then the price is set to that standard.

The internal costs of salaries, self-employed contractors pay is based on who we want in the labour market to work for us, we are competitive and will offer a good market rate for labour and employees based on the current market.

TW: Delivering on your promise (KPI's Key Performance Indicators). What are the distinctive element/measure that says you meet your client needs?

I1: I have said this before, it is our discussion with our client, the package as a whole company we can deliver. The mix of technology, different services used by a client singularly or combined that makes the delivery of the service effortless. Customers like good interface and our technology can do this matched with customer services that are people, good people who interact with others and can react quickly. The customer is king and we need to make sure we remember this and listen to them.

TW: What external influences impact on your Business model changes.

I1: The CitySprint structure is Employees- Stakeholders and Investors. We try not to let external influences make an impact on our business. We work together to create an evolving delivery that allows us to react and respond to changes in the market place as well as within our own business delivery. We don't accept the idea of 'external impact' more about 'changes and influences to create better ways'.

TW Q5 & 6 Do you recognise / describe the business model that CitySprint / On the Dot use?

I1: The business model evolves, it is how we do what we say we will do. Confusing maybe but it means the business model is what the business does. The model is based on customer expectation, so the model must be able to adapt to them. We use more of a strategy process that morphs into the business model, or maybe it's the other way around? However, it evolves it is around the customer's expectations.

TW Q7 Describe your understanding of CitySprint's Business Model or strategic model?

I1: Technology plays an important role in a business model, blimey, we created a whole company out of it so make sure we could delivery on our promise. Customers become frustrated if we can't communicate with them. This has to be on their terms. They want it accessible, easy, mobile, available now. Frustrated if they don't have signal [Wi-Fi or broadband or mobile telecommunication signal] but more frustrating if they can't just

app us on social media or through our app. Technology provides a means to meet our business model. It is Innovate, Create and Deliver and everyone pulls together to do that. Deliver of course.

TW Q8 How do you (OTD) create value to your company? added?

I1: From each customer we created added value through the process of giving something they haven't got. We listen, we advise what we can do and how this can match their needs. It's a relationship and it has to be two-way. The systems we have offer that. We listen to make sure what we offer is what they need. Our company is the added value for the customer, we can deliver

TW Q9 Do you think OTD follows a strategy or a business model?

Is it just the same word or does it have different meanings? The answer is we follow both. The business aims is the plan, we aim to achieve a service, a profit, create innovation and evolve. The strategy is the engine and that is the process that makes the plan work.

Company Interrelationship Activities: Describe the importance and relationship connection between the different elements that make-up the company CitySprint?

I1 states in conversation 25th April 2020

'Utilising a business tool that focuses the aims of a company to reach out and create new relationships to deliver the service product means that the business can be creative, innovative and can measure the added value benefit to the business.'

'Along with a great many other business owners, I am now moving from initial operational critical thinking to strategic critical thinking'

'we are fortunate enough to have enough bandwidth and flexibility to rapidly adapt our business strategies to dodge the proverbial roadblocks and pivot.'

‘The business model you present I cannot fault the approach or information that provides an interesting, adaptive approach to the industry business modelling needs. I see no reason why it would not work well, though its principles have been tested more recently and shown to work. It is a good thing for the industry.’

10.16.2 Appendix 16.2 I2 – Senior Manager, CitySprint.

Primary interview transcript.

Interviews – 17th July 2018

Telephone calls – 18th & 20th Sept 2018

Semi-formal questions, discussion and telephone conversations carried throughout the period July to Sept 2018

Primary interview transcript

Researcher – TW with I2

The interview was carried out on the business premises in a conference room, time period booked out and all digital communications switched off to ensure total commitment of time by the interviewee. Refreshments were made available.

I2 introduced his role within the company, responsibilities and personal views. Gave a short introduction to the current business climate and the effects on the business. The interview technique was to use an open discussion followed by semi formal questions. TW asking specific questions and JR would clarify the answer.

TW: How do you ‘value’ the service CitySprint offers. Are you Just Delivery?

I2: Pride. We all take pride in what we do. If we do not do well, if the job is not done well it reflects on me. Personal.

We say what we do on the tin.

From the port of call to the port of delivery. That’s our value.

TW: Do you get involved in pricing and how are you influenced
Externally or internally by what

I2: Not at all (with) Customer pricing.

Courier Rates (of pay) Yes.

Without the couriers we are not in business. (Couriers) They are our business

Couriers are competitive in the market. Related to who they work for and demand. So we stay competitive in the market.

TW: Do couriers see the value?

I2: Yes. They see CitySprints value, brand, market position and they see the quality of work. They get double ups treble ups and as much work as they want.

TW: Can you tell me the distinctive elements to your brand statement of ‘Delivering on your promise’?

I2: DBT Deliver by Time. Computer generated.

SLA Service Level Agreement. We have three gradings Pearl, Gold, Platinum. Makes the customer feel wanted and doesn’t immediately associate the ‘name’ with first second or third tier.

On the Dot – tech company of CitySprint has created technology to support the ‘when I want it at the time I want it’ customer demand. And they want it cheap.

I2: Open explanation to Q3

Our systems computer generate our delivery. The customer order.

We Deliver By Time. The customer says when they want it, previously it was how quickly could it be collected.

Grading our customers Gold, Pearl, Platinum has certain Service Level Agreements. Everyone is different.

TW: What external influences impact on your ‘business model’ delivering on your promise?

I2: London Road Conditions! Burst watermains. Everything becomes a Guess – to – mate and the customer doesn't care why.

Technology has come a long way – no longer do we need radio licences. Those were the days. No more radios for drivers we use WhatsApp now. App based comms and its free. The world is encouraging us to use greener eco/green vehicles and processes, so we are.

I2: Open Explanation to Q4

The biggest influence on our business model is the road traffic disturbances. Our promise to deliver is dramatically disrupted by road works we have to guess what we may encounter to offer the customer a 'real' delivery time. Even with knowledge and technology you can't calculate the actual disruption to the delivery. We have to guess-t-mate.

Technology has improved communications and as the radio has been replaced that takes the costs out of licences, the administration of repairs and replacements and loses. We communicate via the Whatsapp and it is all connected to the delivery order.

TW: Do you recognise, can you describe your business model?

I2: Evolving business by the demands of the customer. Changes all the time. Our service was previously delivery for set industries, lawyers, accountants. Now we do food deliveries. We have more bikes (cycles) top boxes and back boxes. Our business model evolves changes all the time. It is what the business is what it does, no fancy words just what we do and the customer tells us if we get it right.

Recruitment is easier for food deliveries due to the – work process – hourly rate, with multi skilled evenings. Previous industries were paper documents, office packages. Time consuming delivery points, stairs, mail rooms, desks on thirty-third floor. Now the food industry deliveries are easier drop off points.

TW: Describe your understanding of CitySprints Business Model

I2: The board are not narrow minded and see the bigger picture of people's needs, they are always asking 'Can we do better?' The core industry, used to be B2B now – I can't answer – it is everything!

We are a customer led service.

TW: How do you (CitySprint) create value to your company?

I2: Professional Staff not from the old days. Professional individuals. Computer literate. They understand what they are told, they think. There are no ‘prima donnas’. Everyone is teaching everyone the industry and we are all sponges to learn. We succeed when we meet or exceed the needs of the customer, that shows our value and creates value for them.

TW: Do you (CitySprint) capture value?

I2: Keeping the lid on good work. The standard has to be top notch.

Merges – Nobody likes change, when company merges happen, we gradually merger everyone together. This adds value. We don’t have the corner shop way.

TW: Do you think CitySprint follows a strategy or a business model?

Is it just the same word or does it have different meanings?

I2: Bit of both. Strategy and Value; we speak out mind. Bigger picture discussions. We have good leaders. CitySprint has a strategy which is the business so if that’s the business model then we follow both.

TW: Company Interrelationship Activities: Describe the importance and relationship connection between the different elements that make-up the company?

I2: We are very closely knotted together. People are very important throughout the company and out fleet (couriers) compliment those on the inside.

We have a technological learning curve on Cosmo (software integration system) that both departments use. Everyone has to know how it works

Our customer has an account management team. Every customer has an account manager and they are looked after direct and that account manager crosses all departments.

Our industry sector has changed we use to collect and deliver one package one courier one delivery, all bar the fact many thousands of them. Today we are business to home just as much if not more than B2B.

We have three parts: Sameday – On the Dot – Delivery.

Sameday is still the same, ad hoc straight away, collection and delivery but a lot less than before

On the dot is providing us with a choice, technology integrating with the customer to provide a cheaper option, as cheap as possible rather than click and collect. It has evolved from Shntl as the early catalyst.

Food delivery is now explosive and adds to the integration of the other two sectors.

Parent company CitySprint Group.

Primary interview transcript.

Interviews – 1st August 2018

Telephone calls – 10th August 2018

Semi-formal questions, discussion and telephone conversations carried throughout the period August 2018

Primary interview transcript

TW – Tracey Worth with interviewee I3

The meeting was carried out in the office of the interviewee. Introduction of his responsibilities led to a tour of the office and meeting some staff. More than the required time had been allocated to the meeting. Drinks were available. Any statistical information required to back up any answer was on hand and presented.

The interview technique used was open discussion followed by semi formal questions. TW asking specific questions and SS would clarify the answer and offer supporting statistical information.

TW: How do you ‘value’ the service CitySprint offers. Are you Just Delivery?

I3: CitySprint (On the Dot) Innovates. On the Dot. OTD. Should be at the heart of every business. Continuously, always transforming. The value of any business is the ability to transform. (Technology) Has to be at the heart of that.

TW: How do you value your service identifying the cost-effective way to match demand v supply?

I3: With efficient mapping through manual supply. But this is not scalable, for that we need mass delivery points.

TW: Do you get involved in pricing and how are you influenced
Externally or internally by what

I3: Customers choose how to charge. i.e. discounting or subsidising.
Pricing is actually B2B2C. Business to Business to Customer.
Its consultative sales, reflecting on consumer behaviour.
The external elements are disrupters to pricing if imposed quickly and are unforeseen.

TW: Can you tell me the distinctive elements to your brand statement of ‘Delivering on your promise’?

I3: I measure it by Density Growth. This lowers the cost, the couriers have to do less but do more deliveries for the customer. The aim is to achieve mass delivery points.

I3: Q3 Open explanation

I have aspirations, to create a density of customers. Postcode by postcode, street by street, building by building. If our sales force can bring on more customers in one place the cost effectiveness for all clients increases. Costs come down but courier deliveries go up and the couriers are happy as well as the customer. The customer is the one who we need to keep happy, they’re the important one. Mass delivery points of density is key to the growth of the company.

TW: What external influences impact on your ‘business model’ delivering on your promise?

I3: Externally the retailer is the impact as they do not offer a precise service. They are always looking for a new idea. They use conventional investment models. Never making money.

Internally we have to be scalable, stickiness, data collection and globally.

I3: Q4 Open explanation

If our model is not scalable, we can’t grow and make better profit or better our systems. Whatever we use as a model it has to have stickiness. How to describe stickiness well; as it says it is really. The model has to stick. Stick for the board, for the operations and

the research. The model has to have stickiness. Data collection is paramount. Collecting data from all areas whether it's the customer knowledge, operations processes or individuals skill levels we have to analyse to understand to grow and be flexible to meet the customers ever changing demands.

TW: Do you recognise / describe the business model that CitySprint / On the Dot use?

I3: On Demand, Flexible driver supplies and 'enable' the service through technology. Traverses services. Over a fixed period of time.
(We live) In an 'On-demand economy' – You the consumer.
Customer led, not the supply chain but by Customer Chain led.

TW: Describe your understanding of CitySprint's Business Model or strategic model?

I3: Business Model. We run a business model. Two things are the focus.
More drivers 'on demand' that means flexible, different vehicles different shift times, different reasons for working.
And the Density increase. Without the density increase we won't find stickiness.
Strategic Outcomes from the business model.
This is to assist with customer growth, shareholder value equals net profitability.
Growth Density equals Courier Happiness comes from know-how.
Outcomes equal Strategic Value.
The business model continues to evolve so that we can match the customer demand but we make sure that the plan (business model) is what the business does, delivers on demand.

TW: How do you (OTD) create value to your company? added?

I3: Our value capture is the ability to 'stop losing customers and connecting our customers to the High Street'. We listen to make sure what we offer is what they need and that way, the added value is seen within their company as the delivery is completed.

TW: Do you (OTD) value capture or value add to the company?

I3: OTD creates value capture for the customer. Helps add value for the customer to the end consumer. We create value for the customer and technology plays a huge part in making this happen, flexibility, mobility is a must. We give added value to the customer and that adds value to our company.

TW: Do you think OTD follows a strategy or a business model?
Is it just the same word or does it have different meanings?

I3: Business model that leads to strategic outcomes. It's a business model that operationally has strategic outcomes.

TW: Company Interrelationship Activities: Describe the importance and relationship connection between the different elements that make-up the company CitySprint?

I3: Q10 Open explanation. SS was referring to the OTD relationship with the customer more than the interrelationship with CitySprint.

Evolution.

(We have to) Continually innovate, you need people to do that. Drones, automations vehicle replacement, ai (automatic intelligence). Replacing the controller and we have this now. We have control over the ai system of allocation and routing. So automatic but manual override.

Fundamentally nothing has changed, the service is still working to predict what a customer wants. It is still a Hub and Spoke model.

Hub and spoke in real time, with drivers delivering to convenient time slots.

Relate this sector at this time to the Nanking industry in 1980 when digitalisation came to banking. It was a major shift in banking processes, and they thought they would never be able to do it but they have. Still can do better.

I read a lot, A* MBA in Strategy, I have vision, foreseeing (the future needs) looking to see how technology can adapt and be adapted for use in the sector.

In my heart I want to solve the consumer e-retail problem. To make them (both) more successful. Free, fast and precise delivery.

(We are) Driven by retailers like Amazon and Alibaba (China) on everything. They want to own everything in the supply chain.

It is important (for relationships) to understand and read g-mails (reports), last mile knowledge, store to home, supply chain and digitalisation.

10.16.4 Appendix 16.4 I4 – Senior Board Member, CitySprint.

Primary interview transcript.

Interviews – Wednesday 11th March 2015 / 3rd Feb 2017 / 7th Feb 2017

58-62 Scrutton Street EC2A 4HP

Semi-formal questions, discussion conversations carried out during the period March 2015 – Feb 2017

Primary interview transcript

Researcher – TW with I4

I4 opened up the conversation.

CitySprint is a national parcel delivery company, sameday, overnight and international. Utilising the most up to date technology to provide a timed parcel delivery throughout the UK.

We can only develop into more diverse areas like healthcare and e-retail. Being part of the delivery process for e-retail and integrated into the multi-delivery process from product brand to customer delivery.

We believe that there are only a few things that make the delivery great, firstly the people, then telling the customer their parcel has been delivered. Whatever happens in between; from placing the order to the package being delivered, the customer is not really interested in. So get the people right and the technology right brings the result the customer wants.

TW Q - CitySprint encourage an increase of electric vehicles. In the city centres like Nottingham and Birmingham, could you use electric vehicles better?

The infrastructure isn't in place and we would not consider this at this time. It should come though and the councils will benefit from businesses who understand that the electric vehicle will help to provide a cost efficient delivery vehicle for parcels.' CitySprints fleet at present is all diesel and under three years old. They expect all drivers to use modern vans so to meet with all the EU standards as well as current UK legislation requirements.

I4 Answers to specific questions.

TW Q. What shape is CitySprint in at this time?

We are looking very healthy at the moment, we have been very busy and that has brought us up to our target for the first quarter. Our calendar year is January to December and if you aren't on target for the first quarter then you are always trying to play catch up and it never works

TW Q. How do you think the industry has recovered from the City Link demise?

There is plenty of work to go around for all of us (our competitors large and small) Whilst we (CitySprint) have got a national footprint we are also growing in customer size, and this allows us to meet the larger customer demands for easily.

The customer only wants to know when his parcel is delivered not necessarily sameday or by a certain time. Innovation is a specialisation of the company, being flexible, adapting, having mobile processes to make it happen for the customer.

Within this year I believe we will see the larger brands raising their prices and the market will reach a new level where the delivery can be paid for more appropriately.

TW Q. How would you describe your business model?

It is the function that tells us what we do, what our business is. We Innovate, Create and deliver, that's what we do, what our business does. The means to be successful is the successful implementation of this. A business model for me, simply reflects what our aims are and that is to meet the customers demands.

The business model is the responsibility of the board to ensure or achieve a better strategy to be more successful than previously. It's my job to get that right.

TW Q. Where do you see the CitySprints Business model and strategy plan going?

Our strategy is our business model and vice versa. The business needs to develop, evolve and be stable for all stakeholders. We have a plan, and we carry out that plan. We can only develop into more diverse areas like healthcare and e-retail. Being part of the delivery process for e-retail and integrated into the multi-delivery process from product brand to customer delivery.

We believe that there are only a few things that make the delivery great, firstly the people, then telling the customer their parcel has been delivered. Whatever happens in between the customer from placing the order to the packaged being delivered, the customer is not really interested in. So get the people right and the technology right brings the result the customer wants.

Customers have come to prize convenience above almost everything else in the e-commerce experience. You can book a holiday or buy a new wardrobe from your

mobile. The brands, products and services that can save people time and make their lives easier are the most likely to succeed.

We need good technology everywhere, for us for our customers and absolutely for our drivers. The customer is driving the technology in delivery. Mobile apps, mobile alerts and email alerts are expected, the customer only calls on the phone when he is really upset. All other communication is done via remote technology.

Our service is let down by the road networks and the problems of pinch points. Magna park and other major distribution parks have narrow roadways or are congested by artic's waiting for loading bay time slots. It would be a great assistance for road networks to take into account of the types of vehicles that need to use the road to supply the businesses to keep the warehouse distribution centres working.

3rd Feb 2017 Interview continued with I4

TW. Which element is pivotal to a game changer for the company or the client?

The days of telling people when their order is likely to arrive are changing – customers now seek a personalised customer experience, from first browse to the final purchase in hand, we offer a one-hour time-slot delivery service for retailers, allowing the customer to track delivery from store to door, with email notifications along the way.

This kind of convenience (express delivery) is no longer just for retail giants like Argos or Amazon, who have large and expensive supply chain networks and distribution centres built into their business. Around 70% of CitySprints and On the dot's customers are small businesses.

One of On the dot's first customers was luxury homewares retailer Lords at Home. Lords started with a single store in Notting Hill and in 2015 decided to expand across the capital. It now has six stores in greater London. As part of its expansion, Lords knew that while it could not always compete with larger competitors on price, its differentiator was good customer experience. Lords became a retail partner of the On

the dot's consumer website and later moved to using a web portal designed for retailers, allowing them to arrange deliveries for customers in store and over the phone.

Putting the customer first in delivery is an integral part of this, from telling the customer when they can have a delivery to asking when they would like it. Putting the customer first and being able to offer a service that delivers for them and for us. We provide something that adds value to them, thereby creating value for us. Like specified hour delivery on our customers' terms. Customers can shop freely without having to worry about how or when they will get their purchases home.

Consumers may expect a brand to update them on delivery times, give them the option to leave the parcel with a neighbour, or offer the ability to reschedule a delivery for a different day.

The delivery supplier and retail business need to have the right communications mix in place that includes phone calls, email, SMS, apps and social media to ensure they engage with consumers on the right channels.

Feb 7th 2017

TW. Discussion with I4 regarding why a consumer would want to make use of a delivery service?

Working with retail clients our systems are integral to theirs. For example, with one of the toy suppliers, if an order is over a certain amount, it automatically triggers the checkout assistant to ask the customer if they'd like their purchases delivered at home in a chosen time slot. That's the essence of the On The Dot service, a delivery timed to the customer's convenience. The retailer is adding value to a purchase and the customers love it. Rather than carrying massive amounts of toys around, it leaves them free to continue their day and, at least in the customers eyes, the retailer provided a fantastic service. Behind the scenes though it's On The Dot providing the fulfilment.

As well as convenience whilst shopping in retail stores, it will almost become mandatory for online retailers to offer same day delivery. Next day is an essential, but

sometimes next day still isn't quick enough and while there's a cost involved, same day delivery is where ecommerce is heading for essential emergency purchases. Amazon are at it, Argos are at it, at some point in the near future a consumer in your locality will be searching for a product and if you can't delivery today, they'll go to someone that can.

On the dot cater to those who aren't necessarily time poor, but simply can't be bothered with shopping.

TW. How does the future look for our industry?

Sadly, nothing lasts forever but instead of panicking about these tougher, less predictable market conditions, retailers must see this as an opportunity to rediscover their strengths and optimise their offer. Now is the time to stand out from competitors, not get lost in a thinning crowd. So, what do retailers need to do to take matters into their own hands, attract sales and successfully retain customer loyalty? Don't lose sight of the customer.

You don't have to take my word for this. Industry behemoths like Amazon and Argos are already pioneering hyper-fast delivery to bolster the convenience they offer and become an indispensable part of day-to-day life for their customers. In light of this, retailers might be tempted to push for speed above all else. But speed does not necessarily equal convenience. The important thing is that retailers figure out what's best for each customer instead of spending unnecessary amounts of money and energy on the pursuit of speed.

To win over today's shoppers, retailers need to offer a diverse delivery suite that caters to their individual needs, whether that's same-day, next-day or a week in advance. This was the premise behind On the dot; to help retailers of all sizes offer the ultimate convenience at flexible prices.

Cutting back on the range of fulfilment options as times get harder would be unwise.

10.16.5 Appendix 16.5 I5 – Senior Board Member, APC.

Primary interview transcript.

Interviews – 21st August 2018

Semi-formal questions, discussion carried throughout the period August 2018

Held at the boardroom Head office of APC HQ, Cannock

Primary interview transcript

Researcher – TW with I6

TW - Thank you for your time, great to see you. As you know I am looking at research of business models within the last mile, sameday, home delivery industry. I would like to ask you some questions. Feel free to open up, or go off-piste.

1) How many Employees / contracted personnel does APC have?

If I remember correctly should be 500+ Hub Network

That is we have 115 Depots but not spread evenly throughout about 1600 drivers

2) How many vehicles are on your vehicle fleet?

At the sortation depot we have 6 tractors but over 220 network trunks in and out of here

That's some are the APC depot trunking vehicles some are ours

3) How many warehouse personnel do you have at the sortation centre?

About 3 to 4 thousand, different shifts, mostly everyone on shift apart from admin but everyone goes through the academy

4) How many Depots do you have?

115 depots and only some our ours, mostly about 110 are owned and managed by a local company.

5) Can you tell me your parcel through put either Daily or weekly?

19 ¼ m consignment – delivery point – single address

Parcels 28.9m weekly.

6) Do you have a breakdown of stats for:

Packages through put per sector? Wrong delivery, returns or damaged parcels

Yes, we do but I am not giving them to you, too complex and private but we measure those stats

Do you know your through put by parcel size?

Most of our items, in fact I can tell you -34% of our parcels are single items less than 5 kilos

Failure of delivery by parcel size?

Mostly we find it is the heavy longer parcels that are damaged most, 30 kilos or more over 3mtrs. They are badly wrapped but also it is not our core product but we are asked to take them and the customer is always right so when we can we say yes.

7) Where do you place APC in the profession of Logistics?

It is last mile, we've known each other long enough to know that this industry has always been important but logistics covers too much of the supply chain. We are absolutely an overnight delivery company but that is in the last mile industry

8) Does Q7 represent your core business and what do you consider as peripheral business?

Core business is the trunking and overnight delivery but local depot sameday, last mile delivery is the secondary line of business for our depots

Most local courier businesses will look to provide locally, more than and definitely better than national post

9) What are your KPI's (Key Performance Indicators)?

Miles – fleet efficiency, sustainability

Volume month/year - Parcel through put

Quality service end to end – was the customer happy

Number of parcels per person per hour – how we measure parcel to personnel

Number of turned delivering – doesn't have a time – that's the specialist requests, oddballs.

10) Who do you perceive as the Customer / Client?

The booker, the customer whom you collect from, the customer you deliver to, the product brand?

We have three clients, the sender or the person we call the retainer

The depots that carry out our delivery to the end user and the consumer, the business that receives or uses the delivery.

It is not easy to say which one is the customer, we could even be our own customer in that if we are represented well, we will be used again by those using us.

11) How well does the company respond to client feedback?

Really well but again the feedback is not always from one particular customer. Remember my three customers. Depot feedback – owners of APC delivery network feedback to the APC HQ, then there's the measure through social media, that is endless and difficult as the customer expresses an emotion and not always an issue.

I would say local feedback from depots is the easiest to respond to.

12) Are you selling a service primarily based on...

Value – 2nd place

Speed – 3rd place – B-C market not key measure, more B2B

Reliability/Quality – 1st place

Always quality or reliability as that is what will bring you constant business

13) How do you measure that service?

1st time finding the consumer in nor returning

14) How would you describe your business model and operation?

We provide a service, the know how the intelligence and the systems for others to participate in. Its Hub Spoke, can't be anything else as we need the through put and we have another shed just waiting for peak so we are covered.

The business is born out of SME wanting to be part of the national capacity, you know you started it. The APC of today is the gateway to giving others the ability to scale up. A business model is about dreams, what can be achieved, operationally and strategically is how everyone makes it work. The hub and spoke is not just operational its strategical.

15) When are you ‘Peak Crisis Periods’

Bank holidays

Easter – late summer

Monday – Black Friday

Mid Nov – Mid Dec

Mondays

Most commonly but you can say almost all the time.

16) What policies are in place / or being adapted to deal with peaks?

We have a Strategy plan, one that is kept updated to ensure we know what if and how to solve

2nd hub on stream when needed – costly but worth it

It is not efficient to hold empty space but when we have it for peak we are absolutely overjoyed.

17) What solutions to Peak Crisis Periods do you have?

Yodel Black Friday Director! Now that's a solution. No really you should have and need Flexibility more drivers and more space. We need to flatten artificial peaks, stop making them difficult and be more flexible. The customer could do with providing us with more lead time but that's like believing in the tooth fairy.

18) How do you think the industry should deal with the perception of 'free delivery'?

Let me tell you and I am surprised you ask me such a question Tracey as well you know, there is no such thing as Free Delivery.

We should be more honest with the retailer or business, it is an artificial idea of cost to say there is free delivery. There needs to be more margin in the goods to support a proper and sensible delivery margin by the retailer. Items over £60 free delivery really should say £54 + £6 delivery

19) How do you APC manage client perception of 'free delivery'?

SME – connection is better understanding and know it is not free, no such thing as a free lunch

Culturally we still expect to pay due to royal mail, always having paid for a parcel or postage, Click & collect may change that, we maybe moving to it (click and collect) as free delivery but it is the retailers that are showcasing free

20) What cut off time do you have for next day delivery?

Geographical @ hub 1-2am

21) What do you consider to be 'client failure' in your service?

Time advised incorrectly

Loss or damage to the parcel

Did I like the bloke who delivered my parcel? Customer relationship

Any weekly complaints, get a complaint you have a failed service. The customer is always right

22) What is your 2020 Business Model?

Passion is not professionalism. Many of our depots, workforce are passionate about the business this does not mean they are professional. The business model is one of local depots ownership providing a service that is linked and trunked through APC. Hub and spoke you could say.

The model is not consistent enough and needs to share a) enhanced quality service, b) quicker recovery and then c) passion.

In 2020 APC business model must be scalable, the same journey for all depots and this has to happen within 5 years.

Our business is the art or science of moving things efficiently. It is what we do and do well. A business model should reflect what you do and the operations of that model, implementation is the success of doing that.

23) Do you think your future strategy can be based on a static business model?

No

If not; describe the business model that would best suit your company.

It has to be fluid, quick to react and constant for all parties

TW - Open Question - What would you like to happen in or for our sector?

We would like to see the industry lead by consumer, understanding consumer behaviour, less than 10% of second time delivery. Want a labour force in the future with a work/life balance. It would help to have a 'Standard for stats' across industry.

Primary interview transcript.

Telephone calls – 14TH August 2017, 9th January 2018 & 12th May 2020

Researcher – TW with I6

Semi-formal questions, discussion and telephone conversations carried throughout the period August 2017 – Jan 2018

Thank you for your time, please be comfortable to end the conversation at anytime, I appreciate your support in answering my questions for this research. I will start by asking some questions and you respond as you wish, happy for you to go off-piste or bring any topic into discussion as you wish.

TW - Do you use the phrase business model, and can you describe your business model or what your Co does?

I6 - We have aims:

1. Understand growth demand for customised delivery points
2. Listen to the demands by retailers to delivery point options
3. Identify external influences. Impact of choice made. [by the customer]

We consider the tensions and effects of last mile in our CDS policy (Courier Delivery Service)

TW – What do you consider the external influences on your strategy/business model- that impact on your choices

I6 - Legislation, staffing, fuel costs. Three major parts that affect everything and we have little choice in the matter. Legislation external, staffing union rights external, fuel costs set by OPEC external. These are the items on our strategic agenda that makes us focus on how to deal with all external influences or affects.

TW - Tell me about the bigger impact on your business?

I6 - FedEx is built up of the world, the country, the region and the calendar

We are international so governmental legislation, external influence rules everything we do

TW – How do you cope with workforce issues?

I6 - Brexit is a problem as we measure our financial health on GDP/ production levels

We see our direct competitors as UPS but our indirect competitors are the disrupters in the Last mile delivery (LML) as Ali BaBar and Amazon. They both have storage capacity and postal services with warehouses. This gives the advantage as SMEs needs to outsource warehouse needs. For SMEs that's a disadvantage. These disrupters are 'eye drop' product suppliers, they have store to delivery via warehouse to over 40 million users, depleting the warehousing away from the independent storage suppliers, initially [purchases would come] from the book providers whose supplies were in a warehouse. Like a warehouse in Manchester or Leeds making the Amazon delivery from their warehouse.

What the standards of resourcing achieved is, what the GDP and low employment rates are.

Culturally we have seen the millennials, those born after 2000 not wanting to drive, they want in cab technology, they want flexibility in working hours and processes. We need a cultural mix of youngsters to make driving sexy.

All of which has an effect on who is available and who we can employ.

TW – How does FedEx see the use of alternative fuelled vehicles?

I6 - (Laughing) Not a lot! Barrel of oil = battery 20,000 lbs - to project a vehicle the same distance. Not looking useful at the moment

We are trying to make better localised pickup's. We have barges in Venice, motor boats in the Middle East and automated trucks in the USA and Australia, that is guided vehicles. They travel closely together with gps, whilst maintaining aerodynamics, but is best used over long distance but over long distance it is very sustainable and economical and ecological.

The USA are all for fuel, the Americans are strategic thinkers but battery power is not sufficient for industry

Driverless vehicles are for motorway use only. The Tesla is too new at \$100,000 too expensive but it does have 50% of the ev market geographically so there is interest.

TW - Describe the business/drivers for FedEx- internally or externally?

I6 - The source of the customer. We have an organisation structure stability of 60 billion people. The customer drives every one of them (well they should be). The customer is both the external driver and the internal motivator that our business delivers for.

TW - Business model is value creation and value capture which does FedEx follow?

I6 - We have some 50 global executives and we all put the strategic model first and it lasts longer.

TW - Business model requires its definition to be challenged: What is the market development and who is the client, means as a business model – where can we be?

I6 - FedEx are value created. Building organization that fits that need, we are definitely “not me too”. Business models are shorter term, we use them quarterly, they represent the tactical implication of the strategic outboard. Business model is investment equals revenue or revenue with a steal on investment and we, at the board are responsible for that’

TW - What maybe are the tipping points for the Company to make a change in strategy or business model?

I6 - The customer must lead, the business model is a failure if it doesn't follow the customer lead. External elements that influence strategy impacts your choice of business model and reflects on pricing structure, the customer understandings pricing, how much it costs them.

TW – Describe your business model?

MH - The strategic process is more important to us, as it lasts longer. That is the purpose of what we want to provide, the wider global aims. The business plan is

to stay ahead of the customer and make sure we can keep up with them if not one step ahead of their demands. The service provision is the business plan, what market do we want to be in.

TW - Understanding the customer. Does FedEx say we want this customer, or do you listen to the customer and adapt and change.

I6 - B to C speed demands development. This is really important.

Tracking algorithms can block visions of the customers, [within] the logistics industry

APPS synthesis those values, overlap then understands the ‘realms of profitability’ and makes a yes or no call on the customer.

But we converse with the customer, even Fred- still goes out to customers even Apple goes to see Fred. (Fredrick W Smith Founder of FedEx) Communicating with the customer is important to understand your customer.

TW – What does good look like. Is it kpi 's – a contract ticked – or a customer smile?

I6 - We need to know our customer has to be successful as well as the [our] delivery

We feel good when our net service levels (our deliveries) are at 96/ 97/ 98%

The sales system has to matter, it has to match the delivery and the customer demand's and this is important for our partnership arrangements, good open relationship equals nice products. The customer works with you and the product works for you both.

TW - When/at what point does FedEx change strategy due to customer demand

I6 - We have our USPs, our Unique selling points is FedEx - last mile is who we are

and what we want to do. This is the customer demand and our strategy follows the customer. There are many culturally differences in different countries but we always pick-up and delivery everyday. Business to Business is relentless we (possibly are) will become 24/7 365, 52 weeks a year

Easter, Christmas, whenever, we will go. Tesco are 24/7 and we will be 24/ 7/ 365 days a year for business and residential deliveries before long, 52 weeks no margin, constant. It really doesn't bother me.

I6 Review of the new LML Business Model – 12th May 2020

‘This is interesting, very innovative to bring operational functions into the business model. The framework incorporates the most important of communication, to the customer, supplier, provider and anyone who intercepts the process, like returns or not at home. The model, yes in theory should provide an improved process for the board to lead on. Giving the service provider the tools to improve and adapt for the future is necessary. I will be able to use this for the challenges that my company has to overcome. It is a good starting point for any board to review, refresh or revitalise their business model assessment.’

10.16.7 Appendix 16.7 I7 – Senior Manager, Transportation Policy, Amazon.

Primary interview transcript.

Interview – 4th Feb 2019 & 21st May 2020

Informal questions and discussion carried out face to face & by telephone

Researcher – TW. I7 – Senior Manager Amazon

TW – Can you tell me about Amazon?

I7 – Amazon is First Mile which is Customer order and Fulfilment. Middle mile which is Transportation and Last mile which is Delivery and Customer.

E commerce has helped to make distribution equal. The same selection rural or city. The customer experience is core. It's essential.

Ecommerce generates traffic, and we want to sell more at Amazon. More traffic means innovation, equalling lower prices. Sounds simple but hard and difficult to achieve

TW – What strategy has Amazon used to be where they are today?

I7 - 21 years ago we launched in the EU/UK. We have 5 marketplaces and nine languages in the EU. We sell but we started with using 3rd party sellers and now 50% of Amazon sales are through using 3rd party sellers.

TW – What is the most worrying economic issue at the moment for Amazon

I7 - How we deal with UK cross border traffic across the EU, this has significant share of sales for us.

TW – tell me about the Amazon business model?

I7 – We want to minimise the delivery touch. Traditionally we have five points, five steps in the process from product order to customer delivery. We want a new process. If we go from delivery hub to customer, we knock out two points. The new way is to make sure the touch points are minimised.

TW – How has this changed from your original business model?

I7 – It's the customer, I haven't met the customer who wants it slower. The Customer promise is the important core of the business model and to meet that 100% of the time. You have to have a process to intercept. Timely tracking, to have the opportunity to intercept if we think the delivery is going to go wrong. Unattended delivery, this is more common in EU than USA, so photo the parcel delivery point or use gps and pass that on to the customer.

The key is knowing what segment will respond to your unique offering. Who your product appeals to is just as important as the product itself.

Standard expectation 365 days a year. Peaks are thrills, the customer gets excited but this changes or raises customer expectations. The UK needs 24-hour accessible delivery options. This needs to be communicated

A business model simply for us is -

'Innovate for the customer and we don't need to think about the competitor. We put the customer first.'

I7 - Review of proposed new business model for the LML Industry – 21st May 2020

Innovation is the key to winning the customer, we have only one model and that is to innovate. So I am very familiar with your suggestion of a multi-sided platform, this offers innovative communication to meet the needs of the customer, the LML industry needs to be capable of adapting and communicating what the customer demands and this model represents that. It works for me.'

Primary interview transcript.

Interview – 4th Feb 2019

Informal questions and discussion carried out face to face

Researcher – TW. I8 – Senior Board Member Amazon

TW – What is driving Amazon at board level, business models, strategic policy, what is the motivation for Amazon?

I8: This is our starting point, understanding what the solution for the customer is, and then in a way going backwards from there, and that that is driving our strategy. And so, while others might go outwards, we are going backwards, I think that is probably the key difference. You might find in several of the Amazon depots that this is how it works best.

TW: And do you think that was the original way that Amazon looked at, how they did their strategy, and business?

I8: So, I'm not that long with Amazon, so I cannot refer to that, but the walking backwards piece, and you can also find it the literature. It's an absolute key element. How Amazon builds a strategy, not just for delivery, but in all of the areas we work in.

TW: Okay. Thank you very much. It's a pleasure. Thank you.

10.17

Appendix 17 Service Level Agreement.

Service Level Agreement statement for CitySprint.

The Service Level Agreement (SLA) between ‘LML Company’ and its client has three levels: Pearl, Gold and Platinum. This choice of branding was made to ensure that each level of service agreement was not obvious in a hierarchy scale. Using the branding of Bronze, Silver and Gold automatically shows the customer how far up the scale of importance they are with the company.

The SLA is not in place to put customers in order of importance, but to agree the level of service to be offered to the client (CitySprint Group, 2018; I3, 2018). This level of service is the agreement of the speed of delivery. I2 (2018) confirms that 20 years ago, the customer’s perception of the speed of delivery was how long it took for the express delivery company to make the collection. Commonly known in the sector as Parcel on Board (POB), it was important that the last mile express delivery company could confirm for the customer that the parcel was POB (collected).

The customer was not as concerned about the time it took to be delivered, as long as this was within the pre-agreed SLA.

10.18 Appendix 18 DPD Job Advert.

Unprecedented number of new jobs advertised to meet the growth of the sector.



STRICTLY EMBARGOED UNTIL 00:01 THURSDAY 18 APRIL 2020

6,000 new UK jobs as DPD scales-up to meet 'new normal' demand from online retailers

- £200m of new investment includes vehicles and 15 new regional depots,
- 2,500 new full-time jobs including depot, hub and management positions,
- 3,500 new drivers being recruited nationwide,

Leading parcel delivery firm DPD has announced 6,000 new UK jobs and a major infrastructure investment in response to the unprecedented boom in online shopping caused by Covid-19.

The firm, which delivers for many of the UK's leading retailers, will invest £200m this year to expand its next-day parcel capacity, including £100m on vehicles, £60m on 15 new regional depots (10 more than originally planned in 2020) and the remainder on technology.

The new jobs will include delivery and HGV drivers, warehouse staff, management positions and support staff, including mechanics.

Even before lockdown restrictions were announced in March, demand for DPD's seven day a week, nationwide next-day delivery service had risen significantly as people

started increasing their reliance on online shopping. The trend has continued, with existing retail customers experiencing an online sales boom and new customers developing online propositions to maintain sales during lockdown.

DPD is forecasting the growth to continue this year, despite shops reopening, as households continue to rely on online deliveries for a greater proportion of their shopping, including food and drink.

The new infrastructure investments and recruitment will be in place before Black Friday as the firm prepares for what it predicts will be the busiest Cyber Weekend and Christmas period, in its history.

Dwain McDonald, DPD's CEO commented, "We are experiencing the biggest boom in online retailing in the UK's history and we are making this unprecedented investment in our infrastructure and people to ensure we can continue to meet the high levels of demand for our services.

"DPD has been one of the fastest growing major companies in the UK in the last 10 years, due to the growth in e-commerce. But what we have seen in recent months is potentially a much more significant shift in behaviour, and we believe elements of it will be permanent. As a company, we've been dealing with rapid growth and ongoing investment cycles for a long time, but this is a very significant moment.

"I do think the High Street will bounce back from where things are now, but we have to base our modelling on our conversations with retailers and their projections. It looks like there will remain a much greater reliance on e-commerce in the future - that's going to be our 'new normal'. This investment and expansion mean that we will continue to be right there for our retail customers, alongside them, with the capacity to cope with the demand they are seeing online.

"Since this began, we have been handling parcel volumes more akin to the festive seasonal peak than this time of year. For example, volumes over Easter were double last year. The business has performed incredibly well, with service standards at record high levels, as more people have been at home to receive parcels and the roads have been quieter. All this while the operation has had to start scaling-up and adapt to social distancing and contactless deliveries.

"I'm incredibly proud of what our team has delivered during this crisis, including our work with the NHS and food retailers, and I have no doubt that they will continue to provide our customers with a market leading service." **-ends**

10.19 Appendix 19 Research Ethics Feedback Form (SHUREC3).

Please find below the feedback from your Research Ethics application

RESEARCH ETHICS REVIEWER'S FEEDBACK FORM (SHUREC3)

Principal investigator : Tracey Worth

Reference number: SBS-180

Title of project: Business modelling: implications of courier delivery strategy within home, workplace logistics

The Committee agreed the application should be (tick one box):

Approved with attention to the items listed below (1). Please email the details of how the issues have been addressed to the FREC and provide confirmation from the supervisor that the issues have been addressed for student projects.

1. The following issues need to be addressed:

- a) Please clarify that the NDA is worded to prevent the use of the data to publication purposes.
- b) Please also provide participant information sheet for interviews. What commitment is being promised with regard to data confidentiality?

We confirm that we do not have a conflict of interest with the project application.

Signature : Dr John Nicholson Date : 10/2/17

On behalf of SBS Research Ethics Committee

Claire

Claire Bennehan

Senior Administrator | PA to:

Professor Bradley Barnes | Assistant Dean Research

Dr Emma Martin | Head of Department – Service Sector Management

Dr Nicola Palmer | Head of Research Programmes

Sheffield Business School | TSK BEC | Stoddart Building | City Campus | Sheffield | S1 1WB

 Tel: 0114 225 5014 | Email: c.bennehan@shu.ac.uk

10.20 Appendix 20 ‘Definition of Last mile Logistics’.

Definition of Last Mile Logistics in no more than five words.

Examples from two survey results.

Survey No 1
Definition of Last mile Logistics, in no more than five words.
On time – things I ordered.
Profit and trust
First time, on time.
Service as expected.
Safe secure and efficient.
On-time, within my time-slot.
Truly and without fail.
Consistent and frequent.
Timed delivery.
Consistent on time supply.
On time and intact.
Successful, first time, every time.
Getting my package on time.
Right place, right time.
Consistent, right first time.
Efficient, punctual, customer satisfaction.
Goods received when customer expects.
Within limits, customer happiness, efficient.
What you were expecting, told.
On time as expected.
The opportunity to not fail.
Delivered in promised time slot.
Arriving on time, every time.
Delivered when you say.

Survey No 9

Definition of Last mile Logistics, in no more than five words.

Historically better than 2 nd class
Fast efficient, reliable, and delivered.
Speedy, urgent, critical, priority.
on-time, whenever, wherever, whatever, however.
Fulfilled out of hours.
Capturing the retail moment.
Short lead time delivery expectation.
Certainty and speed of delivery.
The food mile aspect delivered.
The rule of the right. - 'Right item, time and place'
Quick, convenient, reliable, flexible delivery.
Speed, expert movement, distance, reliable.
Accuracy, on-time, quality, dependability, value.
Delivery service within 4 hours
Timely, accurate and cost effective.
On-demand, responsive and fast.
Fast, available, consistent and trustworthy.
On-time, safe, reliable, well presented.