

The attributes of value co-creation in service and its impact on customers' willingness to pay. Observations from three service industries.

Submitted by **Kwok Thye Yip (Student Number 560022869)** to the University of Exeter as a thesis for the degree of Doctor of Philosophy, March 2011.

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Abstract

Marketing literature has propagated “customer-participation” and “co-production” in the seller-buyer framework since the 1970s (Lovelock and Young 1979), yet marketing knowledge gaps exist in this area. Recent management research emphasise the need to re-evaluate how value is created for consumers and to consider the close nature of the interactions between buyers and sellers (Payne et al 2008). Vargo and Lusch’s (2004) proposed service-dominant logic reiterates this need, arguing that the “customer is always the co-creator of value”, as they are part of the system that delivers value.

Understanding value co-creation is then important to management research, as it uncovers new opportunities to create “value” for customers. This also enables firms to formulate better pricing strategies. This thesis examines value co-creation attributes and how they may impact on the customer’s willingness to pay.

Three studies utilising qualitative and quantitative methods have been conducted to address the research question. The first two studies employed qualitative methods to derive insights into value co-creation attributes from a comparative case study perspective under two different service contexts; the defence and healthcare industries. The third study, conducted under the higher education context, employed quantitative methods to gauge the impact of value co-creation attributes on the customers’ willingness to pay.

The qualitative studies found six generic value co-creation attributes, while the quantitative study empirically verified the importance of value co-creation attributes and the fact that they may impact on the customer’s willingness to pay for a service.

This thesis validates that value co-creation is important in service provision. As customers become increasingly informed and empowered, a deeper understanding of how customers co-create value with the firm is then central to marketing activities, specifically in how firms design and price their services. Therefore, this thesis contributes to marketing knowledge by proposing value co-creation attributes that have both theoretical and managerial implications.

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Chapter 1: Introduction

1.1 Introduction to the Research

Normann and Ramirez (1993) suggest that “*value creation*” in an industrial economy comprises various companies occupying a position on a value chain, each adding value. On top of the value chain are the suppliers providing inputs and subsequent companies down the chain add “*value to these inputs before passing them downstream to the next actor in the chain, the customer*” (Normann and Ramirez 1993). In this context, Wikstrom (1996) argues that customers being at the bottom of the value chain means there is “seldom much scope for (customer) pre-production interaction”. This in turn limits producer innovation as it does not take into consideration the customers’ inputs or needs. Furthermore, this situation gives the impression that customers are “favoured”, as they do not seem to add value to the value chain. Customers then appear to be the direct beneficiary of value creation that has been shaped higher up in the value chain. In this respect, it can be suggested that firms are concerned with producing efficiently to provide the consumer with cheaper prices, implying that the customer is assumed to be satisfied with the offered cheaper prices (Wikstrom 1996).

However, in today’s business environment where consumers are becoming increasingly sophisticated due largely to the information technology age (i.e. internet, advanced communications) and growing affluence, cheaper prices is not the only source of benefits of a purchase. Other tangible and intangible aspects of the customer’s needs such as features, status, security and satisfaction are imperative in delivering benefits to the customer (Barone et al. 2000; Chartrand 2005; Ji and Wood 2007). Evidently, in order to better appreciate the antecedents surrounding the customer’s benefits, it is necessary to understand the consumers’ needs (Woodruff 1997). Furthermore, as we enter the post-industrial era where the service sector accounts for almost 75% of the Gross Domestic Product (GDP) of industrialised nations, rapid development in innovative technology and increasing global competition are creating new opportunities for firms to create “value” for their customers (Normann and Ramirez 1993).

Given this orientation, knowledge appears to be the key advantage to the success of the firm. Literature in competitive rationality further suggests that firms which swiftly learn and adapt to their dynamic and evolving competitive environments are most likely to succeed (Dickson 1992). This same logic is further underlined in Ramirez’s (1999) argument that in an economy based on creating value, only two assets really matter;

“knowledge and relationships”, referring to the firm’s “competencies” and “customers” respectively. He recognises “competencies” to mean specialised expertise, business processes and techniques acquired by a company over the years that enable it to remain competitive. However as noted by Ramirez, a firm’s competencies are worthless if it does not have the customers’ support, suggesting that perhaps “managing” the customer is the next key asset for the firm.

Hence, one of the significant findings to emerge from management literature surrounding the concepts of knowledge and the value chain is the understanding that a much closer relationship exists between producers and consumers (Ramirez 1999; Wikstrom 1996). This understanding is consistent with the intuitive argument that the focus of today’s firms is shifting from “the activity of attracting customers” to securing customers and “taking care of them” (Ravald and Gronroos 1996).

In today’s expanding service economy, we are indeed seeing more businesses that have shifted their focus to concentrate on the customer. For example, companies like IKEA, Natwest Bank and Vodafone appear to be customer-oriented in their product/service offerings, and all of their transaction processes such as “product viewing”, “product selection”, “payments” and “after-sales enquiries” are customer-interactive. In short, these processes allow customers to create their own value and simultaneously be involved in the production of the service.

This has led management research to suggest that customers and firms are increasingly more interdependent of each other, to the extent where “co-production” exists between them (Brudney and England 1983). In firms such as IKEA, Vodafone and FIAT, their customers appear to choose “services” en-route to their purchases (self-selection) and in each of their selection, create value “for” themselves, resulting in the benefits “from” themselves. This further implies that both the firm and the customer have a role in the co-production of the product or service.

Along similar lines of management research, Prahalad and Ramaswamy (2004a, 2004b) discussed co-production and the creation of value from a more holistic perspective, suggesting that customers have transformed from ‘passive audiences’ to ‘active players’ in co-producing “unique value” and co-creating “experiences”, as value is embedded in the personalised experience, such as “value-in-use”.

Put simply, the term “value-in-use” refers to the value created by the consumer when consuming a good or a service (Bowman and Ambrosini 2000). For example, the

“value” achieved while watching a specific programme on television, enjoying an ice cream on a warm day or driving a car along the beach while taking in the scenery. In that respect, it appears that value in-use can only be achieved by the consumer as and when he or she chooses to utilise a product or a service.

This same argument underlies Vargo and Lusch’s (2004a) proposed “service-dominant logic” which hypothesises that “the customer is always the co-producer”. They contend that firms may only make “value propositions”, as value is perceived and determined by the consumer on the basis of “value-in-use”. Moreover, goods can be viewed as “distribution mechanisms for service provision”. Accordingly, the researchers term these “transactional processes” in the IKEA and FIAT examples as “value co-creation”, suggesting that the customer is partly or wholly responsible for creating value in the economic exchange.

Therefore, it is this author’s opinion that this fundamental shift in the customer’s role requires a comprehensive understanding of value co-creation. This is essential for firms competing in the 21st century where customers are becoming increasingly demanding, more empowered and faced with more choices than ever before.

Current research however shows a lack of value co-creation studies (Payne et al. 2008), and what little research that has been conducted tends to be theoretical. Therefore, this research thesis attempts to provide a better understanding of value co-creation by establishing its attributes and by looking at how they may impact on the pricing of a service.

The aims and structure of this thesis is mapped out in the next section.

1.2 Aims and the Structure of the Research

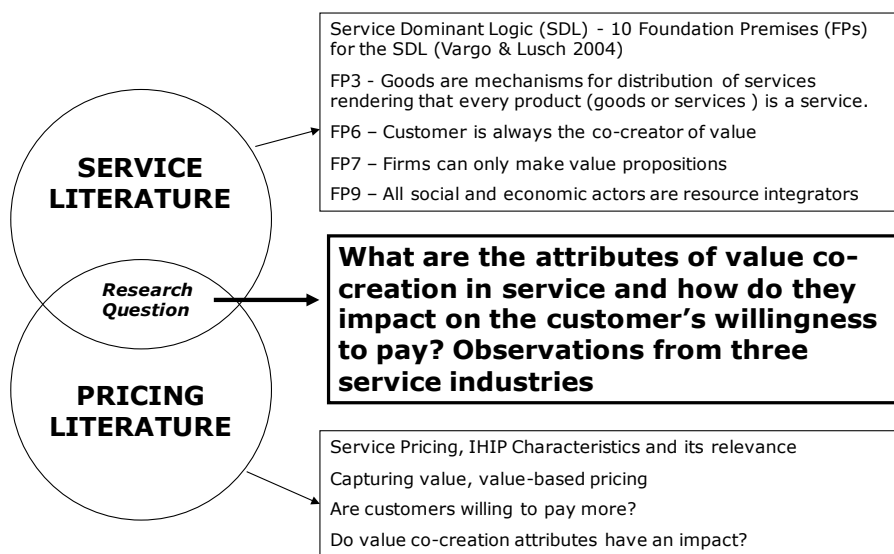
Marketing literature has propagated “customer-participation” and “co-production” in the seller-buyer framework since the 1970s (Lovelock and Young 1979; Mills and Morris 1986; Kelley et al. 1990). Yet, knowledge gaps exist in these areas, and marketing research has done little to identify where they lie. Management research has however begun to consider the close nature of the interactions between the buyer and the seller (Payne and Holt 2001; Prahalad and Ramaswamy 2000).

Vargo and Lusch’s (2004a) seminal work on the service-dominant logic further reiterates this close relationship with the proposition that the “customer is always the co-creator of value”, as the customer is part of the system that delivers value. Hence,

there is a need to then re-evaluate how value is created for modern consumers who are more informed of their choices (Payne et al. 2008; Vargo et al. 2008). In this respect, understanding value co-creation is important in management research, and a deeper appreciation of how value co-creation is attributed should uncover new opportunities to create “value” for customers. A better understanding of value co-creation will also enable firms to formulate better pricing strategies.

Following this broad argument, the purpose of this thesis is to study value co-creation attributes in service and how these attributes might influence the pricing of a service. A review of both service and pricing literature has prompted this author to ask the research question: **“What are the attributes of value co-creation in service, and how might they impact on the customers’ willingness to pay? Observations from three service industries”**. A summary of the conceptual development of this thesis is presented in figure 1.

Figure 1: Conceptual Development of Thesis



This doctoral research question is important as it contributes to knowledge on two levels. On the primary level, it examines further the concept of value co-creation by establishing aspects of value co-creation attributes, an area which has not been addressed. This will better inform both academia and industry on how value co-creation processes are experienced and desired, as well as help practitioners to make better informed decisions when planning and designing for future service provision.

On a secondary level, this research contributes to further understanding of pricing strategies with regards to value-based service pricing under a value co-creation framework.

This author believes that these contributions are significant, as current literature in service and pricing are fragmented and limited. For instance, research in both areas is rooted independently in different business disciplines and appears poorly connected. While these different studies have some virtues and appear to advance knowledge in their respective fields, for the most part they appear ad-hoc, highly contextual and therefore limit learning across industry and discipline. As a result, this thesis which is based on insights from three service industries provides a more generic approach to its investigation.

It is hoped that this research will provide a platform for better understanding of service provision from a value co-creation perspective and to inform future research in service, both from a cross-disciplinary and cross-industry viewpoint. Additionally, this thesis contributes to some understanding of service pricing strategies with regards to value co-creation attributes.

This thesis addresses the research questions by conducting three studies under different service contexts, and utilise both qualitative and quantitative methodologies. The study of the three different service contexts is to provide a platform to generate generic observations for service provision. The first two are comparative case studies where a qualitative method was employed to derive insights into value co-creation attributes under two different service contexts; the defence and the healthcare industries.

The third study, conducted under a higher education context, uses quantitative methods and follows from the qualitative case studies. It employs statistical tools in the form of factor analysis and conjoint analysis to gauge the impact of value co-creation attributes on the customers' willingness to pay by putting forward two propositions:

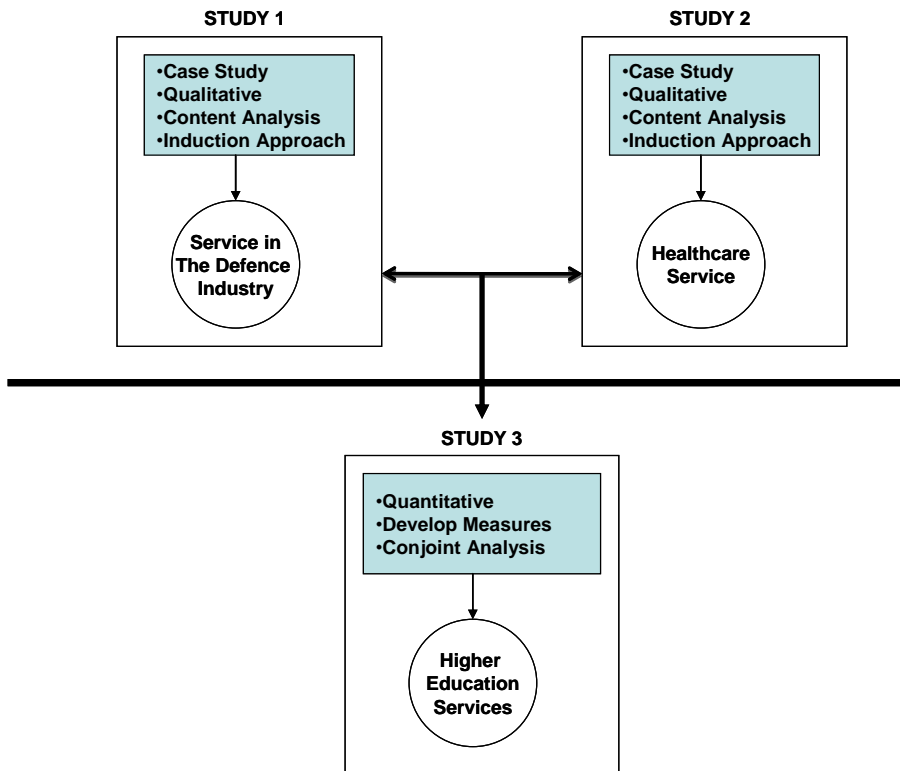
P1: Value co-creation attributes are important in supporting the student's university experience

and based on the importance of these value co-creation attributes,

P2: Value co-creation attributes are able to impact on the customers' willingness to pay for a service

An overview of the research process involving these three studies is presented in figure 2.

Figure 2: Research Process of Thesis



In summary, the qualitative research found that the challenges facing the service providers differed under the two different contexts that were examined. However, the analysis established six generic attributes of value co-creation across the two case studies. These are the congruence of expectations, complementary competencies, process alignment, behaviour transformation, perceived control and empowerment. The studies suggest that the explicit consideration of these generic value co-creation attributes in the design of service provision will enable the introduction of future service to be in a better and more informed position, and more importantly, is critical in ensuring better customer experiences.

Subsequently, the quantitative study under the higher education context found that the six value co-creation attributes were able to impact on the customers' willingness to pay for a service provision. These findings confirm that value co-creation attributes are indeed important aspects for consideration in service provision. This then implies that a strategic understanding of how customers co-create value may become more central to

marketing activities. Therefore, value co-creation attributes appear to be an excellent platform to engage with the customer's experience in advancing marketing knowledge. The remainder of this thesis is organised as follows; Chapter 2 provides a comprehensive literature review on service and pricing research before addressing the research's conceptual development. Second, the research philosophy and research methodology for all three studies are discussed in Chapter 3, followed by the analysis and findings in Chapter 4. Next, the discussion of the findings, contributions and limitations of the research is provided in Chapter 5.

Chapter 6 concludes this thesis with a summary of the research and possible directions for future research.

The next chapter focuses on the literature in service and pricing.

Chapter 2: Service and Pricing Literature Review

This chapter provides a review of “pricing” and “service” studies through an examination of relevant literature. The purpose of this literature review is to develop an overview of extant literature in these two areas to provide the reader with a broader understanding of current research.

2.1 Introduction

The general concept of price is intuitively familiar to most, with its research reflected in a large body of literature located in various disciplines, spanning several decades and covering a multitude of studies from a variety of research angles including pricing policies, pricing methods, price theory, competitive pricing and pricing psychology (Mazumdar et al. 2005; Monroe and Cox 2001; Morgenroth 1964; Nagle et al. 2010; Rao 1984). Its literature however, is distinctively characterised by two broad concepts of studies supporting its research. On one hand, pricing research is underlined by *price theory* which is mainly found within the economics domain (Pashigian 1998) while on the other hand, closely associated with the marketing discipline is *the study of pricing* which examines pricing from an individual firm’s perspective (Diamantopoulos and Mathews 1995; Nagle 1984; Ng 2008; Rao 1984). In comparison, while *price theory* is generally concerned with market equilibrium and economic stability, *the study of pricing* investigates an individual firm’s pricing decisions.

Current pricing research indicates that there are increasing interrelationships between these two concepts in working towards a more rigorous, balanced and complementary view of pricing research (Gould et al. 1980; Horsky and Sen 1980; Little 1984; Nagle 1984). Formulating a link between these two, Hauser (1984) noted that while “price theory in economics deals with how markets behave, price theory (study of pricing) in marketing science deals with how managers act”. Both these concepts underline much of pricing research that is found in other business disciplines. Understanding this basic distinction and the interrelationship between both concepts proves useful for readers in distinguishing the general directions among the large bodies of pricing research. More importantly, such an understanding provides a platform for academics and practitioners to recognise the significance attached to the varied research conducted in pricing.

Unlike the two distinctive but interrelated and established areas in pricing research, extant literature on service is at a youthful stage, yet it is burdened with a variety of meanings and usage in both the business and research communities. Much of this

confusion has been attributed to two factors. First, the word “service” is used extensively with multiple meanings in our daily conversations. Although terms such as “service industry”, “customer service”, “good or bad service”, “service charge” and “service centres” are common expressions, what exactly is meant by them is very much an intuitive interpretation by the user.

Second, there is a lack of an accepted definition of the word “service” amongst the service research community, which has resulted in numerous debates on the legitimacy of its research (Lovelock and Gummesson 2004; Minter 1982; Vargo and Lusch 2004a; Vargo and Lusch 2004b). These continuous debates have led Vargo and Lusch (2004b) to suggest that this difficult discussion on the definition of service has been “more abandoned than resolved”.

Hence, the objectives of this chapter are to locate and elucidate the different bodies of research conducted in the areas of pricing and services. To make for easier understanding, this chapter is organised as three main sections.

First, Section 2.2 addresses the various perspectives of service research. The discussion highlights the multi-faceted definition of service while considering its unique characteristics. Two major theoretical perspectives in service research are presented within the study of services marketing; the emerging concept of the “service-dominant logic” and “value co-creation” in service (Vargo and Lusch 2004a; Vargo and Lusch 2011; Vargo and Lusch 2008a).

Section 2.3 then briefly explains the concepts of “*price theory*” and the “*study of pricing*”. The differences and interrelationships between the two will be highlighted, followed by an examination of various pricing literature with an emphasis on research conducted within the marketing domain, particularly within the research area of “willingness to pay”. A discussion of these different aspects and directions of pricing research has resulted in the fragmented state of its research. While these different views have some virtues in their own areas, for the most part, they are highly context-driven, resulting frequently in the lack of relevant linkages between industry and academia (Bonoma et al. 1988; Diamantopoulos and Mathews 1995; Fleischmann et al. 2004; Monroe and Della-Bitta 1978; Oxenfeldt 1973; Rao 1984). As such, pricing research is considered an under-researched area and this is particularly true for research in the area of service pricing (Avlonitis and Indounas 2007; Hoffman et al. 2002; Mitra and Capella 1997; Schlissel and Chasin 1991; Tung and Capella 1997; Wilson et al. 2008).

Section 2.4 reintroduces the concept of value co-creation (Gronroos 2011; Payne et al. 2008) and how it may impact on the customers' willingness to pay. The section summarises the main findings from the literature review which then leads to the conceptual development of this thesis. Chapter 2 concludes by identifying a number of gaps in both pricing and service literature which underpin this thesis, and proposes three studies to investigate the impact of value co-creation attributes on the customers' willingness to pay for a service.

This next section begins the literature review on service research.

2.2 Service Literature

Although extant literature in service research is at a relatively youthful stage, with some work surfacing in the early 1960s (Fuchs 1965; Hill 1977; Judd 1964; Rathmell 1966; Regan 1963), when compared to studies on pricing, its literature is already burdened with a variety of concepts, theories and application by both the business and research communities. Much of this confusion has been attributed to two factors.

First, as mentioned earlier, the word "service" is so well-used with multiple meanings giving rise to terms that have become common everyday expressions, yet their actual meaning is very much an intuitive interpretation by the user. Terms such as "customer service", "service charges" and "service centres" are common everyday expressions, yet what exactly is meant by these expressions. For example, what is meant by the expression good "service" at a restaurant? Does the term "service" refer to the chair on which you are sitting or the food that you have eaten? Similarly, what is meant by bad "service" from an airline? Is it the check-in experience before you embark the aircraft or arriving late at the destination that makes it bad? These ambiguous yet intuitive meanings to the word "services" add to the confusion of services research.

Second, in an effort to unify the study of service, the lack of an accepted definition for the word "service" amongst its research community has resulted in numerous difficult debates and discussions on the legitimacy of its research (Heineke and Davis 2007; Martin 2000; Schlissel and Chasin 1991; Thomke 2003; Vargo and Lusch 2008b), prompting the notion that these continuous debates have not been resolved. This implies that despite the commendable and substantial amount of literature published on this subject over the last 30 years, very little is understood of service at an abstract level to encourage a common understanding of its research. Today, we find service research being pursued by various academic disciplines, with each examining and

highlighting different meanings within specific contexts. This ubiquitous nature of service research has to an extent, fragmented the service research community.

Therefore, the objectives of this literature review on service are arranged in four parts. The first is to establish a common understanding of the definition of the word “service”. Second, a brief overview of the various researches that have been conducted in service is provided. The last two parts of the review critically examines two major theoretical perspectives in service research that are presented within the study of services marketing; the emerging concept of the “service-dominant logic” and “co-creation of value” in the service encounter (Gronroos 2006; Vargo and Lusch 2004a; Vargo and Lusch 2008a).

2.2.1 What is service?

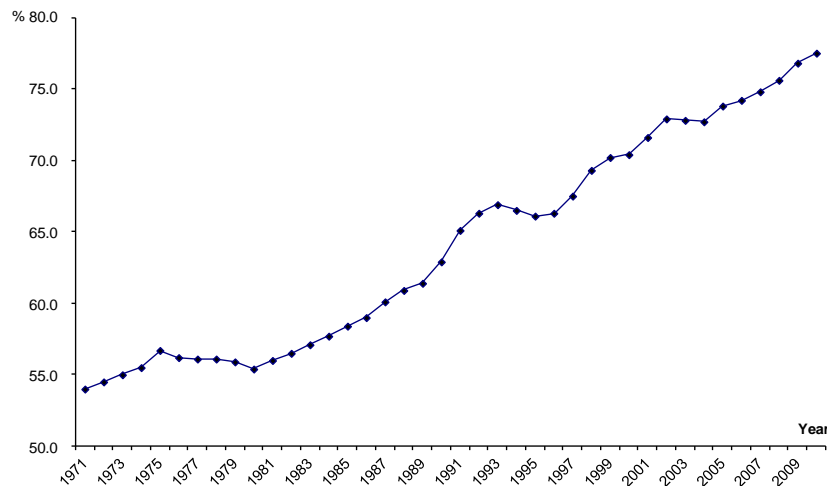
What exactly is a service? Intuitively, we are familiar with the word “service”. From haircuts to banking, cinema tickets to flight tickets, the after-sale service with the purchase of cars to the technical support with a computer purchase, consumers are exposed to different types of services. Furthermore and contrary to popular thought, services these days are not offered only by service firms; over the last 20 years we have witnessed the manufacturing sector expanding into areas of services. For example, KONE Corporation (manufacturers of elevators) claimed that for over the last two decades, half of its total revenue came from repair, maintenance and modernisation services (Gebauer et al. 2010). Similarly, it has been suggested that in most manufacturing industries, less than 10% of their workforce are engaged in manufacturing, with the rest in services (Gronroos 2007), while General Motors indicated that its services unit employment is closer to 80% of its workforce (Goldstein et al. 2002). Recently, the US Population Reference Bureau published its labour trends indicating that manufacturing jobs have declined to below 10% of its workforce compared to its service workers which have risen to 83% in 2007 (Lee and Mather 2008).

The World Bank’s official statistics show that in 1995, 65% of the world’s industrialised economies were based on services.¹ This number has since grown to approximately 77% and 73% for the US and European economies respectively in 2010 (IMF, World Economic Outlook Database April 2011).

¹ <http://www.worldbank.org/depweb/english/beyond/global/chapter9>

In the United Kingdom (figure 3), services alone accounted for approximately 77.5% of the country's GDP in 2010 (IMF World Economic Outlook Database April 2011) compared to 48.5% in 1961 and 54% in 1971 (Berry and Parasuraman 1993; Edgett and Parkinson 1993; Ng 2008). Hence, it is not surprising that in today's business environment of industrialised economies, service provision exists everywhere.

Figure 3: UK Service sector as a percentage of GDP (1971 - 2010)
Source: IMF, World Economic Outlook Database 2011



However, despite this expanding reliance on the services sector, current service literature seems to suggest that the term “service” still does not have a generally accepted definition (Lovelock and Gummesson 2004). Diverse reasons have been offered for this dilemma (Gummesson 1994; Laroche et al. 2001; Levitt 1981; Shostack 1977).

In early service literature, Judd (1964) argued that the definitive imprecision for the term “service” may lie in the different approaches to solidifying its meaning, while Shostack (1977) contended that business disciplines are overwhelmingly “product-oriented” and less concerned with services. For example, in microeconomics literature, there are no differences or relevance in distinguishing between goods or services as they are both regarded as products with inherent qualities such as Giffen or inferior goods (Upah 1980). Alternatively, Levitt (1981) cited the lack of need for such a definition for service, as “products” are neither goods nor services but rather, are “tangible or intangible”.

On the other hand, Gummesson (1994) proposed that customers do not buy goods or services in the traditional sense but rather, they buy an “offering”. It is the offering that comprised many components, some of them being “*activities (service) and some being*

things (goods)”, suggesting that the traditional division between goods and services is long outdated. Similarly, Prahalad and Ramaswamy (2000) noted that appliances are “artefacts around which customers have experiences”, implying that there are varying degrees on the definition of a service and hence adding further complexity to the quest for a generally accepted definition. This view appears to resonate with different studies in service management that suggest that in current service research, there is a “*blurring of the distinction between services and goods*” (Correa et al. 2007) and as such, adds to the confusion as to what are the definitive characteristics of a service (Gadrey 2000; Gronroos 2007; Schlissel and Chasin 1991; Tung and Capella 1997).

Notwithstanding, current service literature appear to disagree on distinguishing between goods and services but instead argue that “products” (be they goods or services) have inherent characteristics (Wilson et al. 2008) including perishability, intangibility, inseparability and heterogeneity which are more relevant to research. These arguments echo other studies which suggest that the importance of products lies “*not so much in owning them as in obtaining the services they render*” (Kotler and Keller 2006) and as a means for reaching “*end-states*” (Lovelock and Gummesson 2004). Recently, studies have also emerged arguing for less focus on pure ends of goods or services but rather, on “value packages” or “offerings” for the customers (Correa et al. 2007; Vargo and Lusch 2008c)

A more deeply-rooted cause for the lack of an accepted definition for service could possibly lie in the way a country’s GDP is calculated. Although most countries differentiate their production output between manufacturing and services, countries seem to vary in their interpretation of categorising policies for measuring their GDPs, particularly in their definition of services. Table 1 shows the different classification of services in the United Kingdom (UK) and the US.

This categorisation issue of services within the reporting of an economy has long been a debate amongst policy makers and academics alike. Early researchers in service have lamented the poor definition of “services” in a country’s production, and how it often falls into the category of the “invisible and second place behind the ever-important manufacturing activities” (Hill 1977; Thomas 1978).

Hill (1977) further contended that the neo-classical economic treatment of services as “immaterial” and “trivial” is unjustified. He implied that this poor regard of the service sector in the early stages of economic analysis has contributed to the differentiated manner in which we analyse the service sector today. Critics have similarly argued that these inappropriate measures and dissimilar treatment of labelling services among the

developed countries have led to problems in understanding the sources of growth and thus has damaging consequences for productivity analysis, particularly within the service sector which has seen tremendous growth in recent years (Cave and Varnojen 2004). Nonetheless, in an effort to promote a wider understanding of the service industry, the Organisation for Economic Co-operation and Development (OECD) is believed to have commissioned a project to regulate the definitions of service industry statistics to reflect common understanding.

Table 1: Comparison of production and services categories in the UK and US

UK*	US**
PRODUCTION	PRODUCTION
Manufacturing	Manufacturing
Construction	Agriculture, Mining and Construction
Electricity, gas and water supply	
Mining, quarrying, oil and gas extraction	
Agriculture, hunting, forestry and fishing	
SERVICES	SERVICES
Financial intermediation and Business Activities	Finance, Insurance & Real Estate
Transport, storage and communication	Transportation, Warehousing and Utilities
Distribution, hotels and catering	Education and Health
Wholesale and Retail Trade	Wholesale and Retail Trade
Government Services	Professional and Business Services
	Information, Entertainment and Others
	Government Services

Source: Adapted from the *UK Office for National Statistics and **US Bureau of Census

Given this “unresolved situation”, there appears to be a divergence in the conceptual understanding of the word “service” rather than in the meaning of the word.

Therefore, it is this author’s opinion that the lack of consensus in determining the behavioural nature of a “service” is an important issue that frames our inability to conceptually comprehend research in service. More importantly, the development of a precise and accurate understanding of the behavioural nature of a “service” will provide a more robust foundation for the building of theory in service research. As such, perhaps it is helpful to first study the different meanings of the word “service”.

The Collins English dictionary carries 27 listed entries for the word “service”, while the Oxford dictionary holds 19 entries. Comparing these entries, similar definitions of the word “service”, appearing as nouns and verbs include “*work done for others as an occupation or business*”, “*an act or a variety of work done for others, especially for pay*”, “*an act of help or assistance*”, “*the supply, installation or maintenance of goods carried out by a dealer*”, “*the act or manner of serving guests, customers*” and “a

periodic overhaul made on machinery. We can infer from these definitions that a service is somewhat an “act” that is performed by one party for the other in exchange for an agreed amount of monies or in some cases, for non-monetary returns.

However, the word “service” can also be used to imply different meanings in daily conversations. For example, service denotes organisations that “*meets the need of society*” (Fleischmann et al. 2004) as in “health services” or “public services” which is dissimilar from the industrial “service sector” which seems to suggest a commercial environment. We can also use the expression “out of service” to imply non-availability when a facility such as public telephones or toilets is not functioning. In sporting vocabulary used in racquet games, “service” means the right to serve the ball to indicate “control” of the game. Likewise, in the words “burial service” or “divine service”, one immediately thinks of some prescribed “religious ceremony”. In banking and financial terms however, to “service interest” means to meet the payments of a loan. Hence, it is clear that the word “service” can easily function as a noun, verb or an adjective.

There have also been several illustrative works on describing services. For example, the US Bureau of Census provides an illustrative but not exhaustive list of services by describing activities that are related to a specific service industry (see table 2).

Table 2: Illustrative list of services

Service	Activities related to the:
Wholesale and retail trade	Sale of goods
Transportation and warehousing	Distribution of goods
Information	Gathering and dissemination of written, audio or visual information, including films and records
Finance and insurance	Facilitation of financial transactions, including risk management
Real estate, rental and leasing	Temporary transfer of property and/or definitive transfer of real estate
Professional, scientific and technical	Provision of specialised, generally “knowledge-based”, expertise (e.g. legal, accountancy and engineering)
Management of companies and enterprises	Management of companies – such as holding companies
Administrative and support, and waste management	Day-to-day support of other organisations (e.g. clerical assistance agencies, travel agencies and personnel firms)
Education	Provision of instruction and training (e.g. schools and specialised training centres)
Healthcare and social assistance	Provision of health care and social assistance (e.g. doctors, hospitals, clinics)
Arts, entertainment and recreation	Provision of entertainment in a broad sense (e.g. museums, opera, theatre)
Accommodation and food services	Provision of lodging and meals, snacks, beverages
Public administration	Governing or administration of public entities and programmes
Other	Provision of personal services, repair, maintenance, professional societies, religious institutions

Source: Adapted from US Bureau of Census (1999)

Similarly, in an effort to promote the importance of service research, the company IBM describes service by listing the different types of occupations that are associated with the different service industries (see Table 3).

It is clear that these efforts by both the US Bureau of Census and IBM demonstrate the possible and different approaches in describing service. From that perspective, one can assume that the definition of a service is associated with an activity or an occupation.

Table 3: Different occupations within the service industries

Sector	Occupation
Government	Judges, Legislator, Researchers, Police, Firefighters, Army
Health and Education	Doctors, Nurses, Aid Workers, Professors, Lecturers, Teachers
Financial and Insurance	Brokers, Analyst, Underwriters, Bankers, Auditors
Professional and Business	Lawyers, Accountants, Architects, Managers, Executives
Information / Technology	Engineers, Technicians, Journalist, Media, Librarian, Electrician, Plumber
Retail and Wholesale	Sales, Inventory Assistants, Store Managers
Leisure and Hospitality	Actors, Performers, Maids, Waiters, Janitors, Gardiners
Transportation	Pilots, Engineers, Operators, Flight Attendant

Source: Adapted from IBM's Service Science website

Yet, if we consider the abstract meaning of a service, it may still differ. For example, in delivering a service, what is meant by “good service” at a restaurant? Does the term “service” refer to the chair on which you are sitting, the waiter attending to your needs, the music playing in the background, or does it simply refer to the food on your plate? Perhaps it refers to the entire experience starting with entering the restaurant or even before, when you are making the reservations? Similarly, at a petrol station, does ‘self-service’ at the pump constitute “good service”? And does the bank keeping your money safe while providing interest payments constitute “good service”?

Hence, these different definitions of service from an activity or occupation-based association appear to differ from an abstract perspective, and suggest that the meaning of the word “service” is rather broad and is conceptually complex. It appears then that these ambiguous yet intuitively familiar meanings to the word “service” further add to the complexity of service research. Efforts in trying to consolidate its meaning is proving significantly difficult for researchers who are studying the field (Gronroos 2006). Yet at the same time, understanding the word “service” in all its complexities is like trying to score a goal “amongst a forest of moving goal-posts” (Johns 1999), suggesting that there are a variety of possible research angles in the study of service.

Nonetheless, early academic studies on service research within the marketing domain show that the definition of service is linked to the notion that a service, as an offering for sale, is different from goods. For example, Rathmell (1966) suggested clear demarcations for services and described it as a “verb” as opposed to a good that is a

“noun”. Other service researchers like Regan (1963) preferred to associate the provision of services to “activities, benefits or satisfactions which are offered for sale, or are provided in connection with the sale of goods”. There are also definitions suggesting that services are often associated with “*processes that entails in the creation of the service itself*” (Chase 1978) or that the concept of a service refers to “*services produced as the outputs of processes of production*” (Hill 1977). These different definitions appear to further demonstrate that service is indeed complex and is also an “elusive” concept (Fuchs 1965; Judd 1964; Rathmell 1966; Regan 1963) that is intuitively necessary in advancing service knowledge.

Clearly, these early definitions do not encompass the concept of a “service”, as they lack accuracy and definitiveness because the use of the word “service” in service research can be a “noun” and not necessarily a “verb”. For example, we can infer from operations management literature that the main service of a hotel operation is the room (noun) provided. Likewise, we can argue that the services of a rail company are the seats (noun) on the train. Yet, we can infer logically that the services provided by the rail company does not begin or end with the train seat. There appears to be various components to the delivery of the service, such as the train conductor’s announcements or the café onboard. As such, there are numerous ways in which we can think of what services are, or more specifically, “what constitutes a service” rather than “what is a service”?

On its website, IBM offers several ways of thinking about service, with one way of describing it as a “*provider/client interaction that creates and captures value*”². IBM’s proposed definition of “service” resonates on two levels. First, it echoes Shostack’s (1977) arguments that goods and services sit on a cross-spectrum of tangibles and intangibles. Each of these, depending on the degree of tangibility or intangibility, provides value to the customer. This definition of service from a spectrum perspective helps distinguish the differences between goods and services (figure 4).

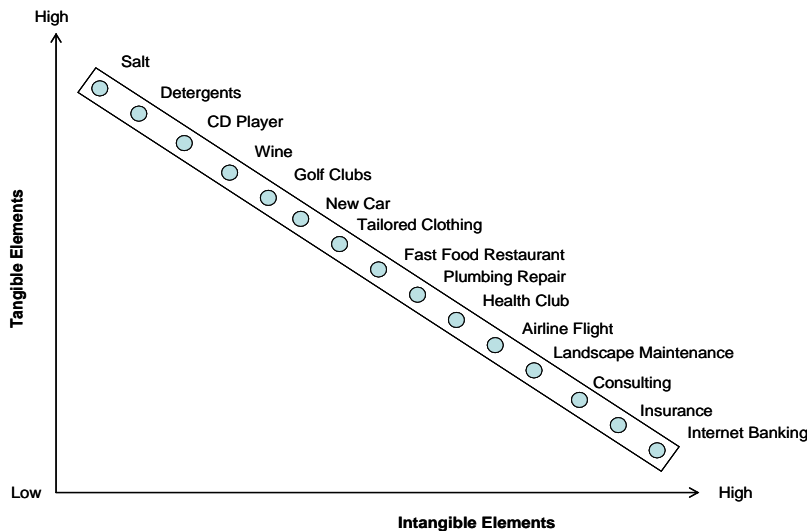
Second, this definition by IBM suggests that the study of service simply does not sit within one discipline. Terms such as provider/client and capturing value are intuitively linked with operations and marketing respectively. Recently, it has been reported that in its effort to promote research in service, IBM has coined the term “Service Science” to imply a more robust way of viewing service research. Its efforts call for an integration of multiple disciplines to study the different aspects of services. This resonates with

² <http://www.research.ibm.com/ssme/services.shtml>

some researchers who posit that the field of service research “is inherently interdisciplinary”, similar to that of computer science which has integrated mathematics and engineering. As such, there is a need for more multidisciplinary research into service (Edvardsson et al. 2005; Gummesson 2007; Rust 2004).

Figure 4: Value Added by Tangible and Intangible Elements

Source: Adapted from Shostack (1977)



Under this orientation, there has been an emergence of independent service literature that highlights the importance of service research from multiple angles including perception of service quality, delivery of service process, service characteristics and the marketing of services. These manifestations are particularly significant within the business disciplines and are reflected in the various services journals published under different business disciplines such as the International Journal of Service Industry Management, Journal of Services Marketing, Service Industries Journal, Journal of Service Research, Managing Service Quality (MSQ), Health Services Research, Journal of Financial Services Research, Manufacturing and Service Operations Management (MSOM) and Service Marketing Quarterly. Today, studies on subjects such as services marketing and service operations have emerged as independent academic disciplines, all with a myriad of approaches to the study of service.

It appears then, that service research is not entirely under the umbrella of one discipline but of multiple disciplines. Unfortunately, this multidisciplinary nature of service research has led to further ambiguity, where different concepts of service are used in different literature. For example, the word “service” can be used to determine the different service industries such as the tourism industry or the telecommunications industry, implying a service context. In operations management, a service is commonly

viewed as an output or a process (Chase and Apte 2007; Johnston and Clark 2001) while in marketing, service can be seen as an “offering” (Lovelock and Wirtz 2011), hence suggesting again that service has different meanings when studied under the various disciplines (Johns 1999). Similarly, the concept of “service quality” in operations management is often studied from the provider’s point of view in terms of ensuring efficiency in its service design and service delivery. However, in marketing studies, researchers argue that “service quality” is perceived by the customer and there is empirical evidence to support that “*the entire service encounter is evaluated by the customer and not just the interaction with the service provider*” (Brown and Swartz 1989). Therefore, it can be inferred that studies on service design from an operations management perspective is different to the approach from a marketing perspective. While one concentrates on the service provider and overlooks the customer’s view, the other focuses on the customer with little regard for cost or efficiency (Glusko 2010; Mager 2009; Patracio et al. 2008).

Likewise, these cross-disciplinary angles of service research has led to the view that “*the service concept is at the inseparable crossroad of service marketing and service operations that exists for most service organisations*”, referring to the different definition and research approach of the “service concept” as adopted by Edvarsson et al. (2005) and Johnson and Clark (2001). While Edvarsson et al. defined the service concept as being the “*detailed description of the customer needs to be satisfied, how they are to be satisfied, what is to be done for the customer, and how this is to be achieved*”, Johnston and Clark (2001) approached it from a four-angled description comprising the “*service operation, service experience, service outcome and value of the service*” with each reflecting the way in which the service is delivered, the customer’s direct experience of the service, the benefits and results of the service for the customer and the benefits the customer perceives as inherent in the service weighed against the cost of the service.

From the above observation, the inter-changeable manner in which the word “service” is considered and applied within these disciplines further suggest that it is constantly used as a modifier to coin other service-related concepts such as service quality, service value, service concept, service features, service characteristics, service description, service blueprint, service differences, service management, service operations, service innovation, service design, service delivery, service process, service scripts, new service development, service experience, service mapping, service portraits and service encounter. All these terminologies appear to add a certain amount of vagueness to the understanding of service.

This vagueness that surrounds the definition of service has, to an extent, contributed to the continued absence of an established definition that is internationally or academically accepted. Regrettably, this continued lack of a coherent definition of service has impeded the recognition of its importance and also its research in advancing our knowledge of the service economy which, as mentioned earlier, contributes to more than 75% of most industrialised nations' GDPs.

According to Ng (2007), one of the reasons supporting the fragmentation and ambiguity of service research is the fact that its research is saddled with multi-faceted diversity, as each service "*industry is still dominated by its own terms and language that is highly contextual*", resulting in little learning between industries. For example, prices in service industries have different terminology; while the cost of entrance to a theme park or enrolment for a gym membership is often referred to as "fees", in contrast we pay "premiums" and "interest" for insurance and mortgages respectively. At present, this "highly contextual" situation of the service industry is further underlined by a heterogeneous set of activities that displays unique characteristics, hence adding increased complexity to economies dominated by services.

Perhaps then, in order to better understand our analysis of research in service, we may need to distinguish between service as a context and service as a concept (Ng et al. 2008b), with the former referring to a bundle of services and goods in a continuum of tangibility and intangibility, perishability and durability, separability and inseparability, and lastly heterogeneity and homogeneity. Service as a context is often associated in contextual or industry terms such as when we refer to hospitality services, health care, banking, transportation, financial services, telecommunication, lawn care, and car repair services.

On the other hand, service as a concept comprises activities, deeds, performances and processes that exhibit characteristics of intangibility, heterogeneity, inseparability, and perishability that deliver some value to customers, consistent with extant literature and the American Marketing Association (AMA)'s definition.

This treatment of service as a "context" and as a "concept" resonates well with Edvardsson et al's (2005) findings on establishing a common platform for understanding service research. In their interviews with 16 leading academics on the definition of service, they found that the definitions of "service" altered constantly due to many factors but primarily differed in terms of viewpoints. For example, 'service' as

viewed by the provider is defined differently from 'service' as viewed by the customer. As such, they concluded that the definition of service should generally be seen from a specific perspective. At a lower abstraction, they concluded that a general service definition "*does not exist*", for the definition has to be determined at "*a specific time, in a specific company, for a specific service, from a specific perspective*".

Notwithstanding this lack of an accepted definition, it is only appropriate that for the purpose of this literature review, a services marketing slant is taken by referring to the AMA's official definition of service for clarification. The AMA provides two official definitions for service:

"Products, such as a bank loan or home security, that is intangible or at least substantially so. If totally intangible, they are exchanged directly from producer to user, cannot be transported or stored, and are almost instantly perishable. Service products are often difficult to identify, because they come into existence at the same time they are bought and consumed. They comprise intangible elements that are inseparable; they usually involve customer participation in some important way; they cannot be sold in the sense of ownership transfer; and they have no title. "Services, as a term, is also used to describe activities performed by sellers and others that accompany the sale of a product and aid in its exchange or its utilisation (e.g., shoe fitting, financing, an 800 number). Such services are either presale or post-sale and supplement the product, not comprise it. If performed during sale, they are considered to be intangible parts of the product."

These definitions show that the AMA places emphasis on two aspects of service. First, it associates service with "activities" or "processes" that are performed by the seller. This definition is similar to "deeds, acts or performances" as suggested by Berry (1993) and Wilson et al. (2008), and also echoed by Gronroos (2000), who describes service as "*an activity or series of activities provided as a solution to customer problems*".

Second, the AMA defined service by underlining its characteristics, such as the degree of intangibility, heterogeneity, perishability and inseparability (production and simultaneous consumption involving customer participation and non-ownership transfer). In services marketing textbooks, these characteristics are collectively and commonly known as "IHIP". Although services generally display the IHIP characteristics, there is literature that heavily critiques these characteristics. The following is a brief examination of these four characteristics and the countering arguments.

First, the **intangibility** of a service refers to the idea that customers are unable to see, touch, feel or taste the “process” that they are buying. This is in direct contrast to goods which are more tangible. According to Levitt (1981), the intangibility of a service is the critical distinction in the goods-services debate. Notwithstanding this argument, researchers have contended that the sale of most services is not purely intangible. For example, the sale of a holiday (experience) involves tangible items such as travel brochures and airline tickets while a banking service can include tangible items such as a savings passbook or credit card. Often under these circumstances, the sale of a service is accompanied by some form of tangibles. This then suggests that service production and delivery can operate within a tangibility spectrum (Wilson et al. 2008).

Next, the **heterogeneity** characteristic of a service concerns itself with the highly personalised nature of services. As service production (and delivery) can vary from producer to producer, it is assumed that its production can be inconsistent. Furthermore, the quality and essence of the delivered service can be perceived differently by different customers at different times. This characteristic is more inherent in labour-intensive services, where interaction between the producer and the customer is essential in the service delivery (Gronroos 2007). Examples of these services include customer service hotlines, medical check-ups, massages and over-the-counter-sales. However, one can argue that automated services are homogeneously produced and delivered. Automated services such as payment by telephones, securing information via the Internet and automatic teller machines are designed for consistency and efficiency in its production and delivery.

Third, the **inseparable** characteristic of service refers to the simultaneous production and consumption of a service. In the goods paradigm, the production of goods are usually produced and sold separately. The production and consumption of most services however require both producer and consumer to be present at the same time, for example, a haircut or a cruise holiday, failing which the service cannot be delivered. Given this, researchers argue that the inseparability of production and consumption forces the customer to interact with the producer (and seller), resulting in highly interactive environments. This critical component of service underlines the concept that both producer (seller) and customer are needed to unlock the value of a service (Prahalad and Ramaswamy 2004a; Vargo and Lusch 2004a). Nonetheless, there are situations where the service delivery can be separated, particularly in cases where the customer’s possessions are receiving the service. For example, the servicing of a car

or the interior decoration of an apartment do not require the customer to be present for consumption of the service.

Finally, service is said to be **perishable** because it cannot be stored. An airline seat, a hotel room or an empty restaurant table that has not been sold after it has been produced, usually on a specific date, has no value. Sellers cannot salvage that unsold capacity and this situation drives sellers to ensure that demand and supply are balanced in order to optimise its service production. This perishable quality of services has led researchers to better understand why service firms sell in advance to ensure the optimisation of their capacity. However, there are exceptions to the perishability of services as argued by Ng (2007); services such as concerts or lectures can be recorded and replayed. In that sense, not all service capacity is deemed perishable.

These four characteristics of service appear to provide some reference point to the definition of a service. Although not entirely definitive and with exceptions, they generally support the argument that services are different from goods and to that extent, require different business strategies.

Therefore, for the purpose of this literature review, this thesis maintains the definition of service as proposed by the AMA. This definition will enable the reader to better appreciate the various concepts and theories that have been examined in service literature. In the next section of this review, some different aspects of service literature will be explored to provide an overview of its current research and the various disciplines associated with it. Subsequently, the discussion will focus on services marketing, particularly the concepts of “service-dominant logic” and “value co-creation”.

2.2.2 The different areas of service research

In the previous section of this literature review, it is apparent that service research has attracted a whole range of business and non-business disciplines (Edvardsson et al. 2005; Pilkington and Chai 2008) and this research trend appears to continue with academics calling for greater multidisciplinary research (Edvardsson et al. 2005; Rust 2004). Furthermore, from the service industry’s perspective, organisations such as BAE Systems and IBM (Spohrer et al. 2007) have been actively promoting research that explores interdisciplinary studies that may provide meaningful insights into service.

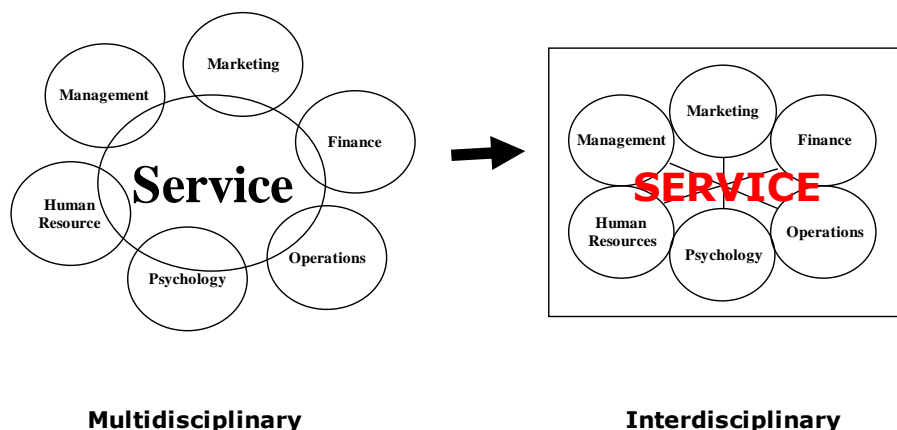
However, current trends in service research seem to suggest that its multidisciplinary nature has perhaps not been an ideal platform to encourage common understanding of

service research. In fact, its research has continued to be described as “existing in silos” (Wild et al. 2009). Also, there appears to be a dominance of service research by the marketing discipline (Knight 1999; Svensson et al. 2008) and increasing independent development of service research within each of the business disciplines, particularly in operations management (Heineke and Davis 2007) which is steeped in service delivery research.

According to Pilkington and Chai (2008), one underlying factor of this diversity in service research is that it reaches into various disciplines, each with its own research themes. For example, they show that common themes for service research between 1990 and 1995 were grouped into two core categories representing “service quality” and “customer satisfaction”. Today, these themes surrounding service research has expanded to include 13 core concepts including “service encounter”, “service recovery”, “service development”, “service blueprinting”, “customer perception”, “service relationship”, “service delivery” and “service profit chain”. These service research themes span across different disciplines including marketing, operations management, operations research, psychology, economics, human resources and general management. This “independent” yet “multidisciplinary” approach to service research by the various disciplines does not augur well for the common understanding of “service”, and neither does it advance knowledge for cross industry learning; for example, what can a mobile service provider learn from an airline?

Under this orientation, the following framework in figure 5 might be useful in conceptualising the impact of an interdisciplinary research platform for promoting a common understanding of service research.

Figure 5: Multidisciplinary to Interdisciplinary Service Research



Recently, in an effort to promote interdisciplinary rather than multidisciplinary research in service, IBM coined the term “Service Science” (Spohrer and Maglio 2005) to develop an “interdisciplinary and intercultural” approach to service research. Among the ideas surrounding service science are intentions to build bridges between disciplines through grand research challenges, establish service systems, focus on value propositions as foundational concepts, work with practitioners to create data sets to understand the nature and behaviour of service systems and to create modelling and simulation tools for service systems. On its website, IBM calls for an integration of four different schools; business management, engineering, social sciences and information systems. These schools represent a diverse set of academic disciplines such as marketing, operations management, accounting, operations research, information systems, engineering, economics and psychology. Table 4 frames IBM’s ideas and shows the different disciplines that are involved as well as the transformation of these disciplines in representing the “service science” concept.

Table 4: Academic disciplines involved in the service science concept by IBM

School	Discipline	Evolution & Revision	Selection & Aggregation	Transformation & Integration
School of Management	Marketing	Service Marketing	Service & Solutions Excellence Centres (Information Science & Technology Management)	Services Sciences, Management and Engineering SSME and Solutions Engineering
	Operations	Service Operations		
	Accounting	Service Accounting		
	Contracts and Negotiations	Service Sourcing		
	Management Science	Service Management		
	Management of Technology	Management of Innovation		
School of Engineering and Science	Operations Research	Service Operations		
	Industrial & Systems Engineering	Service Engineering		
	Computer Science	Service Computing, Web Services, SOA		
School of Social Sciences	Economics	Institutional Economics Experimental Economics		
	Psychology	Labour Psychology (Human Capital Mgmt)		
	Anthropology	Business Anthropology		
	Organisation Theory			
Other	Information Science and Systems Service Professional Schools			

It is clear from IBM’s efforts that in order for service research to move towards a common understanding from both academic and industry perspectives, the idea of promoting service as an independent discipline is necessary (Ng et al. 2011). This effort calls for an interdisciplinary approach rather than a multidisciplinary viewpoint, with the latter appearing to drive service research independently from the different disciplines.

Arising from these observations, service research appears to be at the intersection of various academic disciplines and this suggests the need for a strong interdisciplinary

approach. Furthermore, insights drawn from interdisciplinary theory proposes that complex systems and phenomena are necessary conditions for an interdisciplinary approach to the research problem, adding that the issues examined must be “multifaceted and coherent” to justify such an approach (Newell 2001). Klein (2004) also contends that complexity and interdisciplinarity are linked in a wide range of practices and because of the broad connectivity, the issues facing society today are mostly “emergent phenomena with nonlinear dynamics”, such as in service provision which may involve a multitude of actors (Klein 2004). It is clear then that the complexities associated with service research justify an interdisciplinary lens as proposed by IBM.

Under this orientation, three important themes that have emerged from service literature, that attempt to bridge the gap between the different disciplines for better understanding of its research, are the “service-dominant logic”, “co-production” and “value co-creation”. With the former, Vargo and Lusch (2004a and 2008a) argue for the need to shift research thinking from a goods paradigm to a service paradigm, while the latter two themes support the concept that a much closer relationship exists between the firm and the customer (Cova et al. 2011; Humphreys and Grayson 2008; Prahalad and Ramaswamy 2004a; Zwick et al. 2008). These research themes, in this author’s opinion, are central in understanding service research in marketing.

In the next section, the service-dominant logic is discussed.

2.2.3 Service-dominant logic

As early as the 1960s, critics have been arguing that business disciplines, and in particular the marketing discipline, appear to be overtly product-centric (Fuchs 1965; Judd 1964; Rathmell 1966; Regan 1963). Service sectors such as banking, insurance and transportation were simply to “aid in the marketing of products” (Converse 1921). Subsequently, in the great debate between the goods and services paradigm, there were arguments to suggest that the study of services marketing cannot be based upon the simple taxonomy that services are different from goods and therefore, “likely to be dysfunctional” (Wyckham et al. 1975).

However, with the emergence of the service sector as an important contributor to the GDP of industrialised nations, the need to understand service provision began to increase. In marketing studies, Shostack (1977) highlighted that in order for service to be understood succinctly, new concepts were essential in advancing understanding of service unlike the “*marketing discipline that offered no guidance, terminology or*

practical knowledge that are clearly relevant to services". Subsequent services marketing literature echoed support for establishing newer concepts to advance the knowledge of service, including Kotler's (1977) suggestion that the "*importance of physical products lies not so much in owning them as in obtaining the services they render*", Gutman's (1982) reference to products as only a means for reaching end-states, and Prahalad & Ramaswamy's (2000) argument that appliances are merely "*artefacts around which customers have experiences*". Following these debates, a significant argument to arise are the propositions by Vargo and Lusch (2004a, 2008a) that presented the case for a new marketing paradigm called the "service-dominant logic" (S-D Logic).

Vargo and Lusch's proposed study of eight foundational premises, subsequently refined to 10 premises (see table 5), underlined the concept that in general, firms provide "services" rather than goods in the economic exchange.

Table 5: Foundational Premises for the Service-Dominant Logic

No	Foundational premises for evolving to a S-D Logic
1	Service is the fundamental basis of exchange
2	Indirect exchange masks the fundamental basis of exchange
3	Goods are distribution mechanisms for service provision
4	Operant resources are the fundamental source of competitive advantage
5	All economies are service economies
6	The customer is always the co-creator of value
7	The enterprise cannot deliver value, but only offer value propositions
8	A service-centred view is inherently customer oriented and relational
9	All social and economic actors are resource integrators
10	Value is always uniquely and phenomenologically determined by the beneficiary

Source: Adapted from Vargo and Lusch (2008a)

In proposing the S-D Logic, the authors emphasised two key issues. First, they stressed that their proposed S-D Logic is not a "set of rules" but represent a developing and collaborative effort to create better grounded theories for understanding "value" and "exchange" (Vargo and Lusch 2008a) in marketing. The concept encourages the discipline to play an influential role in bringing value to the customer under today's complex and competitive markets.

Second, the authors make a distinction between the words "service" and "services". In the S-D Logic, service (singular form) is defined as "the application of specialised competences (operant resources - knowledge and skills), through deeds, processes, and performances for the benefit of another entity or the entity itself" (Vargo and Lusch 2008b). This singular distinction of the word "service" is necessary as it reflects the

process of doing something beneficial for and in conjunction with some entity. The central idea is that “*goods and service are not alternative forms of products*”.

On the other hand, “services” refers to the units of output, as implied by its plural form. In short, as the S-D Logic argues, goods are appliances (tools, distribution mechanisms) which serve as alternatives to direct service provision and when employed, serve as aids to the service-provision process. Consequently, service then represents the common denominator of the exchange process, suggesting that service is what is always exchanged.

To illustrate, the authors argue that consumers purchase goods to extract some form of service from the purchase. For example, the car is a means of transportation and a DVD player enables the consumer to watch movies. Likewise, a can of beer delivers the possible benefit of quenching thirst and relaxation in front of a football game. These observations suggest that all goods are platforms or appliances that assist in providing benefits to the consumer in some form of a “service”. As explained earlier, the car has provided the “service” of transporting the consumer from one point to another whilst the DVD player enabled the consumer to experience the “service” of watching a film. Under this orientation, Vargo and Lusch (2004a, 2008a) argue that goods (tangibles) are then merely “*distribution mechanisms for service provision*”.

Importantly, what appears to be of significance in the S-D Logic argument is that in delivering these goods (car, DVD player, can of beer) to the consumer, an array of resources are required in the marketplace. These resources, both tangibles such as equipment and intangibles such as people and information systems, are necessary in delivering benefits to the customer. These resources are referred to as operand and operant resources respectively (Constantin and Lusch 1994).

As such, goods, or the operand resource, can be included as a “resource” in the delivery of a service to the consumer. Furthermore, as argued by the S-D Logic, operant resources are equally crucial in the economic exchange. In that sense, these resources (both operand and operant) then work together to achieve the optimum benefit for the consumer, contingent upon how they function and interact together internally and externally between the firm and the customer. It can then be argued that by working together, “processes” are created in order for the firm to provide the “service” to enable the customer to obtain benefits. These processes can represent activities such as producing a can of beer (by the firm), display of the can at the retailers or even the customer knowing how to place the can into the refrigerator to

ensure that it will be cold for consumption later on. Ultimately, these processes function in the interest of both the firm and the consumer, and it is through these processes that value-in-use emerges for the customer.

This proposition appears to echo Holbrook's (2005) argument that all "*products (goods, services, people, places, events, ideas, etc.) are services*" and also Gronroos's (2006) suggestion that "service as a process supports the customer's value creation", and that goods as a resource alongside others (other physical products, people, information, etc.) in the process function "*contribute to the service that supports customers' value creation*". Extending his argument in support of the S-D Logic, Gronroos further examined the "*extended consumption concept*" where he proposed that consumption and production are simultaneous, reminiscent of the "inseparable" aspect of a service. As the consumer extracts a "service" from the goods (i.e. driving a car, watching a movie or listening to music) he/she participates in the production and consumption process and hence assumes the role of co-producer. This extended definition of consumption logic is important to the understanding of service, as "consumption" then is not only limited to the marketed goods but encompasses "*all elements such as goods, information, people-to-people encounters, encounters with systems and infrastructures and possible interactions with other customers that together have an impact on customers' value creation*" (Gronroos 2006).

Hence, the S-D Logic underpins the idea that both producer and consumer can interact from the production phase all the way to the consumption phase and this reiterates Vargo and Lusch's (2008a) argument that "*all social and economic actors are resource integrators*".

As with most academic research, the proposed S-D Logic is not without critics. It has been criticised for having similar "rationalistic assumptions as traditional goods-dominant view of marketing", for advancing marketing research (Schembri 2006). Schembri (2006) argues that this service-focused paradigm, although having virtue in its spirit for advancing marketing knowledge, is "inadequate and incomplete" as the focus of marketing should be on the customer's experience which therefore should be "central to the concept of marketing".

O'Shaughnessy and O'Shaughnessy (2009) have also criticised the S-D Logic for trying to incorporate too many marketing aspects, such as embracing "goods" into its service perspective to function as a "single perspective" and therefore assuming a "*one best way*". Alternatively, these authors argue that marketing research covers different

radical problems and that no single “general perspective captures all that is involved” (O’Shaughnessy and O’Shaughnessy 2009); rather, there should be a need for “multiple perspectives in marketing”.

Notwithstanding these criticisms, the S-D Logic has influenced some recent marketing insights. Examples include research in consumer culture theory (Penaloza and Mish 2011), place marketing (Warnaby 2009), resource-based (Baron and Warnaby 2011; Mele and Corte 2010), service encounters (Oliveros et al. 2010), value propositions (Kowalkowski 2011) and customer value (Iyanna et al. 2010).

The S-D Logic has also impacted on thinking outside the marketing circle, encouraging cross-disciplinary research. Some of these research include studies on viable systems (Polese and Di Nauta 2010), operations management of product-service transition (Smith et al. 2011) and systems thinking (Ng et al. 2009e).

Under this orientation, it appears that the S-D Logic champions a shift in marketing thought by focusing more on the customer’s “value” and the intangible resources, rather than on the product and the tangibles. **The challenge for marketing is not *what* value is created but rather, *how* value is created.** In that respect, an understanding of “value” appears to be imperative when considering value co-creation.

Therefore, the next section of this review examines the concept of “value” before proceeding to discuss co-production and value co-creation.

2.2.4 The concept of “value”

The meaning and concept of “value” appear to be easily defined and understood when communicated in daily exchanges, yet management literature has produced numerous definitions, as the concept of “value” appears diverse and fragmented (Mattsson 1997; Woodruff 1997). Also, the term “value” is said to carry different meanings in other academic disciplines that address “value”, including economics, psychology, sociology, semiotics, and law (Payne and Holt 2001).

To illustrate this, let’s consider this question: what is the value of a pound of potatoes from the supermarket compared to if it came from the corner grocery store? The answer will intuitively reflect a numerical difference; i.e. £0.20 if the former costs £1.00 and the latter £1.20. However, when a consumer is convinced that there is better “value” in buying organic potatoes compared to non-organic potatoes, the concept of

“value” shifts from numbers to perception as different people may have different views on organic food, whether positive or negative. In contrast to quantifying the difference in value for one pound of potatoes sold in different stores, measuring perceived value in organic potatoes is not as straightforward and in some cases, immeasurable.

Alternatively in management literature, when a firm is said to “create value for its customers”, it refers to the firm trying to bring costs down or to increase performance quality for the benefit of its consumer (Nault and Dexter 1995). These examples clearly show that “value” can be interpreted from different perspectives.

Given these perspectives, what then exactly, is “value”? According to the Oxford English dictionary, “value” can be defined in two ways. First, value is considered “the material or monetary worth of a thing; the amount at which it may be estimated in terms of some medium of exchange or other standard of a similar nature”. Second, it may be regarded as “the relative status of a thing, or the estimate in which it is held, according to its real or supposed worth, usefulness, or importance.”

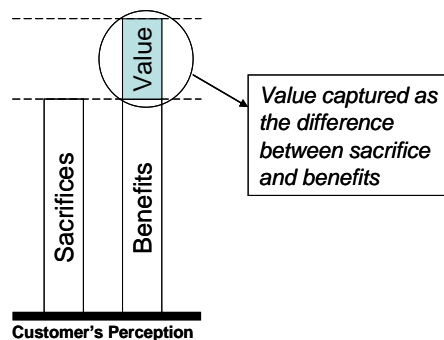
Both these definitions offer useful guidance in distinguishing between “use value” and “exchange value” which are often applied in management literature (Bowman and Ambrosini 2000; Khalifa 2004; Lindgreen and Wynstra 2005; Sanchez-Fernandez and Iniesta-Bonillo 2007). While “exchange value” refers to the price, such as in economics where a monetary amount is realised at a single point in time when the exchange of the good takes place and is normally associated with the measurement of utility, “use value” or sometimes referred to as “value-in-use” (Woodruff and Flint 2006) refers to the specific qualities of the product perceived by customers in relation to their needs, such that judgements about “use value” are subjective and pertain to the individual consumer. Hence, in value literature, it is extremely important to differentiate between “perceived value” and the “exchanged value”.

Yet these simplistic views of value are insufficient to capture its essence as we find many different definitions throughout its literature. For instance, value in business markets can be said to be “the perceived worth in monetary units of the set of economic, technical, service and social benefits received by a customer firm in exchange for the price paid for a product, taking into consideration the available suppliers' offerings and prices” (Anderson et al. 1993). It can also be described as the “consumer's overall assessment of the utility of a product based on perceptions of what is received and what is given” (Zeithaml 1988).

Hence, management literature suggests that “value” can be examined from various perspectives, each with its own contribution. For example, Mattsson (1997) argues that value can be formulated into three broad constructs; “emotions”, “practical things” and “abstractions”. Alternatively, Khalifa (2004) clarifies that value research can be clustered around three broad categories; (a) “shareholder” value which is advocated by finance, accounting and economics studies, (b) “stakeholder” value mainly conducted in strategic research and (c) “customer” value which is at the centre of marketing studies.

From a marketing perspective, value studies in marketing relates to three broad domains; “pricing”, “consumer behaviour” and “strategy” (de Chernatony et al. 2000). In pricing literature, value is described as the “trade-off between customers’ perceptions of benefits received and sacrifices incurred” (Leszinski and Marn 1997) or “market perceived quality adjusted for the relative price of a product” as shown in figure 6. In this respect, the value phenomenon is seen as “dynamic”, “not constant” and “changes over time” (Anderson et al. 2006).

Figure 6: Value as the difference between sacrifices and benefits



Source: Adapted from Leszinski and Marn (1997)

Similarly, Zeithaml (1988) considered three dimensions to “value” in the form of “low prices, attributes and quality”, representing trade-offs between sacrifices and benefits. These “value dimensions” suggest that trade-offs between benefits and sacrifices may not necessarily be confined to monetary value but may also incorporate non-monetary factors such as “time” and “effort”. In other words, the buyer’s value perception represents a trade-off between the quality or benefits they perceive in the product relative to the sacrifice they perceive by paying the price (Monroe 1990).

In contrast, consumer behaviour literature sees value often associated with customer needs and desires. This implies that consuming goods and services represent “a complex cluster of value satisfactions” (Levitt 1981; Normann and Ramirez 1993). For

example, some studies found that brands that fulfil a customer's practical needs deliver a "functional value", whereas brands that satisfy a customer's self-expression needs is closely related to "symbolic value" (Holbrook 2006). These value constructs are also deeply related to "emotional value" (Durgee et al. 1996) where emotional bonds are established between a customer and a producer after the customer has used a salient product for a period and is convinced of the product's performance and therefore is attached to the product (Butz 1996). Recently, in consumer research studies, value can be explored from experiential encounters such as in the consumption of photos (Holbrook 2005) or from movies (Wohlfeil 2008).

Summarising these different customer value constructs in consumer behaviour, Smith and Colgate (2007) suggest that there are four major types of customer value, each with its own sub-dimensions; "functional and instrumental", "experiential and hedonic", "symbolic and expressive" and "cost and sacrifice".

Table 6: Four major types of customer value

	Functional Instrumental	Experiential Hedonic	Symbolic Expressive	Cost Sacrifice
Value Aspects	Functional Value Use Value Utilitarian Value Practical Value Material Value	Sensory Value Emotional Value Social/Relational Epistemic	Self Identity Personal Meaning Self Expression Social Meaning Conditional	Economic Costs Psychological Costs Personal Investment Risk

Source: Table adapted from (Smith and Colgate 2007)

Notwithstanding these different marketing studies on value, Porter's proposed strategic framework instead defined value from a firm's perspective, and argues that value simply equates to "what buyers are willing to pay". As a result, firms, by adopting either a cost leadership or differentiation strategy, are able to create value for their customers by lowering costs or raising their performances (Porter 1985). This notion of value in "willingness to pay" is largely seen to advocate research in customer satisfaction (Homburg et al. 2005), healthcare (Shiroiwa et al. 2010) and environmental studies (Scarpa and Willis 2010).

Similarly, literature in strategy also suggests that value can be identified as being associated with "quality", "cost" and "schedule", and these characteristics have to be in harmony in order for value to be delivered to the customer. Interestingly, when seen from a strategic management perspective, "added value" literature proposes that value is created by a vertical chain of players where value is equalled to the buyer's "willingness-to-pay" minus the supplier's "opportunity cost" (de Chernatony et al. 2000), both of which depends on the characteristics of the firms and buyers.

Seen from these different perspectives, numerous researchers over the years have acknowledged the difficulties involved in defining value and the different concepts that it brings to academia (Anderson et al. 2007; de Chernatony et al. 2000; Gronroos 2008; Khalifa 2004; Nault and Dexter 1995; Woodruff 1997). This difficulty arises from the subjectivity of its meaning (Bowman and Ambrosini 2000), its perceived connotations (Sanchez-Fernandez and Iniesta-Bonillo 2007), variations between the firm and the customer's relationship (Ulaga and Eggert 2006), between cultures and different situations (Ravald and Gronroos 1996), between business markets and its customers (Lindgreen and Wynstra 2005) and between tangible and intangible offerings (Naumann 1995). This is further complicated by value being a dynamic concept that evolves over time (Woodruff 1997), applied differently under various context (Ruiz et al. 2008) and is inherently ambiguous. These difficult challenges in defining value has elicited Leszinski and Marn (1997) to consider value as "one of the most overused and misused terms in marketing and pricing today", and recently Arvidsson (2011) to suggest that "*value is one of the most difficult and contested concepts in the social sciences*".

Nonetheless, in order to capture some sufficient meaning to appreciate the complex concept of value and for the purpose of this study, a rich and overarching view from Payne and Holt's (2001) examination of nine aspects of "value" research (as summarised in table 7) is employed.

Table 7: Different value literature

	Different Value Research	Research Meaning
1	Consumer value/values	Trade-offs (sacrifices), Obtained from consumption, value-in-use
2	Augmented product concept	Customer expects a "cluster of value" attached to the product
3	Customer satisfaction and quality	Measuring dimensions of value through satisfaction and quality
4	Value chain (Process oriented)	Business system related, valued along a business activity cycle
5	Creating & delivering superior value	Linking customer value and organisation profitability (customer focus)
6	Customer's Values to the firm	Customer lifetime value, seen from firm's perspective
7	Customer-perceived value	"Value hierarchy model" determines perceived benefits/sacrifices
8	Customer / Shareholder value	Linking shareholder to customer value and also to stakeholder value
9	Relationship value	Measuring antecedents of quality relationship to value

Source: Adapted from Payne and Holt (2001)

Their study clearly shows a vast area of research associated with the theoretical meaning of value and its impact on the business environment. These meanings differ among the various research angles arising from the different disciplines. For example, in marketing literature, Kotler (2006) argues that "thing of value need not be limited to goods, services or money as they include other resources such as time, energy and

even feelings", hence suggesting that "value" is not necessarily tangible. Similarly, Woodruff (1997) associates value with "achieving the customer's goals and purposes" in use situations. Interestingly, while most marketing literature approaches value from a customer's perspective, general management literature tend to drive "value" research from a firm's perspective.

Significantly, in early marketing literature there is the argument that "perceived value" is a subjective assessment of the trade-off between benefits and sacrifices at a given point in time in a specific context as interpreted by the individual (Rokeach 1973). Woodruff (1997) further argued that it is critical for researchers to understand more fully "*what customers value in terms of which products and services help them achieve their organisational goals and purposes*". What is meaningful then is the concept of value-in-use, as "value attaches to an experience and pertains not to the acquisition of an object but rather to the consumption of its services" (Holbrook 2005). As such, value can be considered from a multi-state perspective as there is dependence on "how", "when" and "where" the benefit is extracted (Sanchez-Fernandez and Iniesta-Bonillo 2007). For example, the value attached to drinking cold juice in the middle of a hot day may perceivably be higher compared to the same activity on a cold day. Similarly, other literature in value suggest that perceived value is "contingent more than subjective" and that it does not necessarily reside in an "individual", "good" or "service" (Ramirez 1999).

Therefore, for the purpose of this thesis, this author has incorporated both Woodruff's (1997) as well as Payne and Holt's (2001) perspectives of "value" and defined it as:

"a perceived preference for and evaluation of product or service attributes, performances and consequences arising from use that facilitate achieving the customer's goals and purposes for in-use situations, and these perceived preferences can be measured by monetary or non-monetary exchange"

From this definition, "value" is then dependent on a set of beliefs held by the individual and is subjected to multi-states of consumption. In short, understanding "value" may be associated with "determining the context and outcome of the consumption event" (Payne and Holt 2001).

The next section examines the concept of value co-creation and co-production.

2.2.5 Co-production and value co-creation

Literature on customer and organisation interaction differentiates significantly between the concepts of “co-production” and “value co-creation” (Humphreys and Grayson 2008; Payne et al. 2008; Rowley et al. 2007). In management studies, the former suggests that customers and firms are becoming more interdependent of each other in the business relationship, so much so that both parties are considered to be co-producing “goods and services” together. Value co-creation however, refers to the customer as a “co-creator” in the economic exchange who is partly or wholly responsible for creating value. Underlining this concept of value co-creation is the idea that firms are only able to offer “value propositions” and it is dependent on the customer to unlock the value (Vargo and Lusch 2004a; Vargo and Lusch 2008a).

To provide further clarity on these two different terms, this section addresses these concepts individually.

2.2.5.1 Co-production

Co-production represents a central construct in service literature, where it is argued that the consumption of a service cannot be disconnected from its production, so much so that the customer plays an important role in the service offering. This is commonly known as the inseparable characteristic of service (Wilson et al. 2008). This conceptualisation, derived from the inseparability of a service provision also suggests that the production phase of a service cannot be disconnected from the consumption activity (Lovelock and Gummesson 2004). Inseparability therefore transforms the features of a service offering, which means it is not possible to deliver a service without the active participation of the customer.

This phenomenon is revealed in examples such a passenger missing a flight or a customer cancelling a hair appointment at the salon. In the former, the seat on the aircraft remains empty and no service has been provided while in the latter, the hairdresser is incapable of “producing” the service without the participation (presence) of the customer. Both examples require that the customer be present in order for the service to be rendered and in that sense, the customer’s role is one of co-production with the firm (Ordanini and Pasini 2008).

However, this does not mean that the customer is just “present” at the site where the service is delivered. In the case of the haircut and the airplane seat, the customer as a co-producer has to provide inputs such as “styling likes and dislikes” and “seating and

meal preferences” respectively. To that extent, the customer assists with the production of the service and as a result is considered a co-producer of the service.

Under this orientation, service literature in co-production suggests that customers are beginning to play a more important role in the production process (Humphreys and Grayson 2008). For example, car manufacturer FIAT invited 3,000 potential customers to its website to select attributes from an array of features (Kambil et al. 1999) or when clothing designer Threadless.com engaged its customers to vote for what they would like to see in their designs as well as to submit their own designs (Walker 2007). As a result, these firms were able to capture valuable insights into their potential customers’ likes and dislikes and likewise, the customer acquired offerings that were closer to what they actually wanted.

The concept of co-production is not particularly confined to services. Manufacturing companies such as IKEA, Volvo and Rolls-Royce are said to actively involve their customers in product development, and co-production can be seen as an aspect of identifying “customer-knowledge competence” for the benefit of customers and the firm (Rowley et al. 2007). These competencies translate into resources such as knowledge and experiences that the customer brings to the business relationship which are beneficial for production (Gibbert et al. 2002), hence entrusting the customer to be a co-producer. This line of argument has also lent knowledge to ethical marketing studies by outlining some implications for the successful management of customer-centric brands, where the consumers are directly involved in various processes of adding value (Arvidsson 2011).

Recently, management literature has begun to investigate new concepts of co-production in the area of “user-generated content” where consumers are referred to as active, engaged and creative contributors of content, as illustrated by new hybrid terms such as “*producers*” (van Dijck 2009). From this perspective, the consumer is seen as an active or passive volunteer participating in the building of the firm (Cook 2008). For example, the LEGO Corporation applies much of its user-generated contribution in formulation marketing strategies (Bughin et al. 2008).

As such, the concept of co-production challenges the traditional production model where the customer’s interaction with the firm remains “hierarchically determined by members of the producing firm” (Lengnick-Hall 1996) and seldom leaving much scope for (customer) pre-production and interaction (Wikstrom 1996). To illustrate further, in co-production, the customer is recognised as a key player in the production process.

Figures 7(a) and 7(b) contrast the concept of co-production with the traditional view of separation between the firm and the customer.

Figure 7: Framework on the concept of co-production or co-creation
 Source: Adapted from Brudney and England (1983)

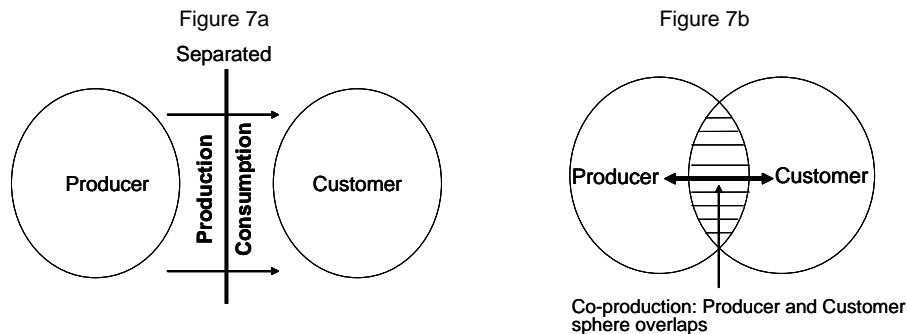


Figure 7(a) shows the traditional production model where the producer's and the customer's roles are separated. From this perspective, the critical assumption is that the firm is able to “act autonomously in designing products, developing production processes, crafting marketing messages” with little or no assistance from interaction with the customer (Prahalad and Ramaswamy 2004a). It is assumed that while the function of the firm is traditionally to produce, the customer's role is to consume.

In contrast, Figure 7(b) sees the interdependence of both the producer and the customer with the overlapping of the producer and the customer in terms of production (Brudney and England 1983). The proposed framework suggests that the roles of the producer and the customer are no longer separated but are instead interdependent on each other. According to Payne et al. (2008), there are five possible contexts (table 8) in which co-production occurs; (a) emotional engagement, (b) self-service, (c) experience, (d) self-selection and (e) customer feedback.

Table 8: Five types of customer participation in co-production

No	Type of Co-production	Description (Examples)
a	Emotional Engagement	Engagement of customers through advertising (Club Med, Holidays)
b	Self Service	Transfer of labour to customer (IKEA)
c	Experience	Firm provides an experience and the customer is part of the context (Disney)
d	Self Selection	Customer self selects to solve problems using internet or keypad (Citibank)
e	Customer Feedback	Firm engages customer in designing, improving products/services.

Source: Adapted from Payne et al (2008)

Therefore, for the purpose of this thesis, the concept of co-production refers to situations where “consumers collaborate with companies to produce goods or services” (Humphreys and Grayson 2008).

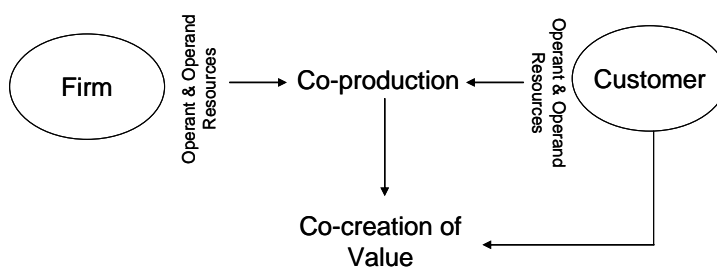
2.2.5.1 Value co-creation

Vargo and Lusch's (2004a, 2008a) proposed S-D Logic argues that the customer as a "co-producer" in the economic exchange is partly or wholly responsible for creating value. For example, the furniture store IKEA offers customers the opportunity to take on certain key tasks traditionally done by the manufacturers such as constructing a bed or a cupboard. This significantly changes the dynamics of the relationship between the firm and the customer as it requires the customer to be a co-producer in the production process, and as a result, value is created by both parties.

From an "exchange value" perspective, the firm is able to bring costs down and be more efficient in their production thus increasing revenues, while the customer enjoys cost savings. Importantly, there is increased "value-in-use" for the customer as they are able to receive increased benefits from the exchange through their own contributions, i.e. able to use the design more effectively such as where to place the bed or the cupboard and this is a direct result of the customer's inputs. Therefore, underlining this concept of value co-creation is the idea that firms are only able to offer "value propositions"; the customer has to unlock the value. As such, the customer is always the "co-creator of value" (Vargo and Lusch 2004a; Vargo and Lusch 2008a).

This argument resonates well with previous marketing literature on value creation which implies that the involvement and interaction of the customer is critical for the creation of value that is beneficial to both the firm and the consumer (Prahalad and Ramaswamy 2004a; Ramirez 1999). To illustrate this concept of value co-creation (as shown in figure 8), Ordanini and Pasini (2008) explain that both the firm and customer use operand and operant resources for co-production of the offerings and in the process, value is created for the customer.

Figure 8: Value co-creation according to the service-dominant logic
Source: Ordanini and Pasini (2008)



In the earlier FIAT example, if the customer chooses not to purchase the car, the consumption phase cannot happen although co-production activities may have already

occurred in the form of customer feedback and design inputs. In that respect, “value co-creation” refers to when the customer realises the “value” such as when a tennis racquet is used or a car is driven.

Therefore, the “value” in “value co-creation”, refers to “value-in-use” and is only realised in these instances when the customer uses the tennis racquet in order to retrieve a shot or when a car is driven for the benefit of transportation. Both these examples require the customer to be able to hold a racquet or drive a car to co-create value, and thus enabling “value-in-use”. Similarly, at the ATM machine, the customer must be able to perform the transactions on the key pad in order for value to be created from the service. In performing these actions, the customer is often considered a “working consumer” (Cova and Dalli 2009) able to create value for their own benefit.

In these examples, the customer as a co-creator of value must negotiate how to use the touch screens and key pads of the ATM machine and also take driving tests in order to unlock the value proposition offered by the firm. Hence, the S-D Logic argues that the customer is always a co-creator of value as there is no “value” obtained until an offering is used and experienced. Within such thinking, marketing researchers have begun to highlight that firms do not really provide value but merely value propositions (Smith et al. 2010). Ultimately, it is the customer who determines value and co-creates it with the firm and gains the benefit. Essentially, this implies that a firm’s product offering is merely value unrealised until the customer realises it through value co-creation.

Nonetheless, what is significant in this argument is that the customer’s perception of “value in-use” is critical in determining how the value is unlocked. This argument then leads to the idea that “*value is created by experiences rather than from goods or services*” (Prahalad and Ramaswamy 2004a). This is an important consideration because “value” is shown to be a perceived construct and as such, Vargo and Lusch (2008a) proposed that in value co-creation, “value is always uniquely and phenomenologically determined by the beneficiary”, a view significantly supported by consumer marketing researchers (Grewal et al. 2009; Holbrook 2006; Tynan and McKechnie 2009). This further implies that the idea of value co-creation may have an impact on the different business disciplines. However, current research suggests that relatively little is known about how firms and customers engage in the “co-creation of value” (Payne et al. 2008). To provide some understanding of value co-creation research, three studies that have been conducted in this area are briefly discussed.

First, Ordanini and Pasini (2008) presented the case for value co-creation under a service-oriented architecture (SOA) environment. SOA represents a set of services that improve the capability of the firm to conduct business with customers and suppliers. Under a SOA environment, value co-creation provides a new dimension in the understanding of the information technology (IT) outsourcing phenomenon. In the past, outsourcing the IT function refers to externalising the entire IT function to a third party to save costs and to leverage on the competencies of suppliers. However, IT outsourcing contracts often result in users losing control of technology applications and service providers tend to focus on standardised, rigid and broad solutions, leading to cost inefficiencies on the part of the client (Gunther et al. 2007).

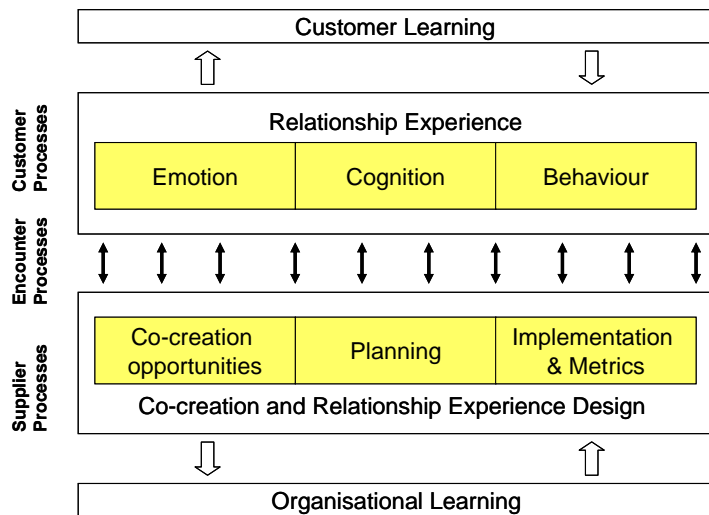
Conversely, under a SOA environment, customers maintain their own sense of business applications of the technology by planning the system, using and assembling different modules over time. There is only partial reliance on the provider for the service delivery. This key role played by the customer allows flexibility in the contract which business customers may exploit to respond to various business issues. Ordanini and Pasini (2008) argued that SOA provides an interesting case of value co-creation because it fits well with the idea of service co-production as demonstrated by the critical role that the customer plays in the planning of the system. This includes using and assembling different modules and how well they (customers) enhance their own set of resources and capabilities in working with the service provider. This further underpins the S-D Logic that suggests firms and customers utilise sets of operand and operant resources required in value co-creation under different conditions.

Second, Payne et al. (2008) suggested that under the value co-creation concept, customers could be partial employees and contributors to their own satisfaction and quality of the service, and that value is created when different players come together and transact. Hence, they modelled a value co-creation framework based on processes which they argued were central to the co-creation of value. Figure 9 illustrates their conceptual framework in establishing processes for value co-creation.

In their framework, three main processes form the basis of value co-creation; customer, encounters and supplier value-creating processes. These three elements illustrate an interconnected set of processes and the recursive nature of value co-creation. The arrows in the middle, which are bi-directional, represent different encounters and the interactive nature between the customer and the supplier which occur as a result of their respective value-creating processes. Also, learning on the part of the customer indicates that the customer engages in a learning process based on the experience

that the customer has during the relationship. This customer learning, in turn, has an impact on how the customer will engage in future value co-creation activities with the supplier. Similarly, the arrows between supplier processes and organisational learning indicate that as the supplier learns more about the customer, more opportunities become available for the supplier to further improve the design of the relationship experience and enhance co-creation with customers.

Figure 9: Conceptual framework for value co-creation
Source: Payne et al. (2008)



Finally, the “DART” model (table 9) presented by Prahalad and Ramaswamy (2004b) highlights that **Dialogue**, **Access**, **Risk assessment** and **Transparency** are important building blocks towards in understanding how value is co-created.

Table 9: “DART” framework for understanding value co-creation

DART	Meanings
Dialogue	Dialogue means interactivity, engagement, and a propensity to act on both sides. Dialogue is more than listening to customers: it implies shared learning and communication between two equal problem solvers.
Access	Access is associated with information and tools. Firms are recommended to give its customers access to data on its manufacturing processes, design, fabrication, libraries, and quality processes to ensure effective learning.
Risk Management	Risk under the DART model refers to the probability of harm to the consumer. If consumers are active co-creators, they will insist that businesses inform them fully about risks; not just providing data but appropriate methodologies for assessing the personal and societal risk associated with its offerings.
Transparency	Companies have traditionally benefited from information asymmetry between the consumer and the firm. That asymmetry is rapidly disappearing and firms can no longer assume opaqueness of prices, costs, and profit margins. And as information about offerings, technologies, and business systems becomes more accessible, creating new levels of transparency becomes increasingly desirable.

Source: Prahalad and Ramaswamy (2004b)

In their model, the authors argued that the role of the customer in modern management has changed from being “isolated to connected, from unaware to informed and from

passive to active". This is the result of dramatic changes to the business environment such as advanced communications in the form of the Internet which allows the customer to make better informed decisions by having greater, faster, more accurate access to information from a global perspective, networking among other customers, experimenting with their choices and being active in terms of feedback to the firm. This then impacts the firm as it can no longer function autonomously without the interference from the customer. As such, the firm-customer interaction becomes the central focus of value co-creation while dialogue, access, risk assessment and transparency are key elements to understanding how these interactions impact on value co-creation.

In all three frameworks discussed above, the authors critically underline the importance of the customer's role in attaining benefits for themselves. They advocate the notion of bi-directional thinking and reciprocity in joint value co-creation between both the service provider and the customer. However, what is clearly lacking in current research is the dynamics and specification of value co-creation. For example, early service research in value co-creation has studied themes such as interactions (Kotze and Plessis 2003), relationships (Harris and Baron 2004), experience (Prahalad and Ramaswamy 2004a) and organisations (Oliva and Kallenberg 2003) from specific contexts. Recently, there have also emerged value co-creation studies in bi-directional and reciprocity relationships (Woodruff and Flint 2006), customer orientation (Rowley et al. 2007) and "working consumers" (Cova and Dall'Aglio 2009; Zwick et al. 2008) all of which seemingly appear to lack knowledge in advancing the design of a service to enable value co-creation from the outset. Similarly, studies identifying value co-creation as "spontaneous, collaborative and dialogical interactions" (Ballantyne and Varey 2006) may well be useful for understanding its content but then, less useful for designing the service.

Alternatively, some value co-creation studies in marketing literature focused more on the complementarity of operant and operand resources (Mele and Corte 2010) but less on the symmetry of roles between the seller and the buyer in order to achieve benefits. Nonetheless, it can be argued that value co-creation may appear to be symmetric in power but may be asymmetric in tasks, resources and processes from each party (Woodruff and Flint 2006). For example, in deriving the benefit of dental care, a customer may only need to sit on a dentist chair with the dentist contributing more in terms of tasks and resources. Customers will also need to contribute their evaluation, expectations and needs but despite the asymmetry in contribution, the value co-created may result in a higher level of benefit.

Therefore, in a value co-creation environment, it is clear that the customer judges (determines) the value-in-use through consumption and confirmation (Gronroos 2008). This implies that while firms and customers have the power to co-create better value, they therefore also have the power to not do so. In this respect, while firms and consumers are able to co-create value, they are also capable of co-destroying value (Echeverri and Skalen 2011; Ple and Caceras 2010). For instance, if the dentist is not careful with his words and the customer is feeling particularly nervous, this may lead to reduced benefits and an un-optimal outcome.

Therefore under these circumstances, not all value co-creation processes result in the highest benefits and in some cases, may even result in benefits that are lower than what was expected or proposed. Bi-directional thinking, together with current thinking in relationship marketing, has to consider that the co-production towards mutual satisfaction (i.e. the relationship) does not always lead to optimal benefits for the customer and the firm, suggesting that relationships are important in co-production and value co-creation and must include incentive compatibility that are commonly aligned towards delivering outcomes.

It is clear then that literature on the concept of value co-creation is relatively new when compared to studies on service co-production. More importantly, it is meaningful to separate the focus of both “co-production” and “value co-creation” studies. While co-production studies focus on situations where consumers collaborate with companies or other consumers to produce goods/services (Humphreys and Grayson 2008), studies on value co-creation are more focused on how value is co-created in the economic exchange (Cova et al. 2011; Payne et al. 2008). Furthermore, according to Vargo and Lusch (2008c), the S-D Logic platform injects a more defined focus and discussion on the firm and customer exchange through value co-creation. They suggest that value co-creation transcends dyadic exchange between two parties, but requires an understanding that value is co-created within configurations that involve “*economic and social actors within networks interacting and exchanging across and through networks*”. Consequently, value co-creation takes place within and between systems at various levels of aggregation.

As such, the concept of value co-creation does not only impact two parties, it may extend to all entities that exchange to improve their own state such as individuals, families, firms, societies and nations (Vargo and Lusch 2008a). This represents a major strategic challenge, as transforming from a transaction-based business model to a

relationship-based model is critical to the competitiveness of the firm. Significantly, this transitioning requires a re-evaluation of organisational principles, structures, and processes, and consequently represents a major managerial challenge (Oliva and Kallenberg 2003). Recent research on value co-creation has also begun to discuss the examination of value co-creation studies from a “social construction approach” to determine how value-in-use can be influenced by social factors as determined by social structures and systems (Edvardsson et al. 2011).

These various arguments on value co-creation in management literature have prompted calls for academics and practitioners alike to discard the current marketing logic about the clear separation of buyers and sellers, and to redefine the value chain towards a ‘web’ model (Prahalad and Ramaswamy 2004b), ‘value constellations’ (Normann and Ramirez 1993; Ramirez 1999) and also service systems that could enable more effective value co-creation (Vargo et al. 2008).

Therefore, in service marketing literature, the notion of value co-creation cannot be ignored and there is clearly a need for service researchers to face the challenge of understanding customer consumption processes in co-creating value for benefits. However, despite this growing challenge, literature on the specification of value co-creation is scarce. Despite numerous calls, academics lament the slow development of knowledge to inform better organisation of service design, as there are very few authors offering “specific ways to translate customer-orientation words to customer-orientation deeds” (Glusko 2010; Patracio et al. 2008).

On one level, contentious issues such as “what facilitates value co-creation” and “what are the specifications that firms could use to design a service in order to achieve benefits for customers” are still broadly unanswered and under-researched (Gummesson et al. 2010). Although current marketing literature do emphasise relationship marketing which focuses largely on customer retention and customer satisfaction, there is still very little research on the service designs that could facilitate value co-creation relationships. What is critical in value co-creation research is the need to adopt a true S-D Logic where all operant and operand resources, be they processes, people or equipment, are considered resources that could be utilised and combined effectively and are substitutable between one another according to what is most effective to deliver benefits to the customer (Ng et al. 2011).

On a different level, much of research in value co-creation is geared towards the theoretical and conceptual domain, with very little empirical evidence of the

phenomenon supporting its research. For example, earlier works by Ordanini and Pasini (2008) on the “service-oriented architecture”, Prahalad and Ramaswamy’s (2004) DART model and Payne et al’s. (2008) framework on value co-creation resides very much at the theoretical level.

Therefore, the focus of this thesis on establishing the attributes of value co-creation is important as it confronts the different aspects of the economic exchange, not only between the service provider and the customer but also the role and impact of other social “actors” involved in the service delivery. And perhaps more important is the examination of the value co-creation relationship between these parties under a service system (Ng et al. 2009e; Vargo et al. 2008), and also the complexity involved in the delivery of the service which as a research topic has been strongly encouraged in service research (Gummesson et al. 2010).

Apart from addressing the location of value co-creation attributes, this thesis also aims to examine the impact of value co-creation on pricing strategies. In order to investigate this proposition, this author explores pricing literature in the area of marketing, particularly in the area of service pricing for value and the “customers’ willingness to pay” for service.

In the next section of this literature review, attention is focused on pricing studies.

2.3 Pricing Literature

The objective of this pricing literature review is to highlight the relevant pricing literature with regards to service pricing for value and the customers’ willingness to pay for service.

The review begins with the definition of price, which is an important construct in underlining a further understanding of value in this thesis. This is then followed by a discussion on pricing research which is underpinned mostly by economic “price theory” and “the study of pricing” in marketing. It considers the importance of pricing research and its multidisciplinary nature which has resulted in diverse research topics. The review continues by examining the study of pricing within marketing before exploring aspects of pricing studies in service research. In closing the section, attention is then drawn to service pricing for value and the customers’ willingness to pay for service.

2.3.1 Definition of “price”

In the Collins English dictionary, the word “price” has 13 listed entries including nouns, verbs and adjectives to describe its various meanings. The first of its entries familiarly defines price as a noun with the meaning “*the sum of money or goods for which anything is or may be bought or sold*”.

Alternatively, the AMA describes price as “*the formal ratio that indicates the quantities of money, goods or services needed to acquire a given quantity of goods or services*”.

More concisely, the Thesaurus dictionary describes price as the “*sum or amount of money at which a thing is valued, or the value (monetary) which a seller sets on his goods in the market; that for which something is bought or sold, or offered for sale; equivalent in money or other means of exchange; current value or rate paid or demanded in market or in barter; cost*”. This definition implies that price can be seen and defined from both a seller’s and a buyer’s perspective. For instance, from a seller’s standpoint, “to price” (verb) or “pricing” can be described as the process (or processes) of formulating the numerical value (price or prices) for the purpose of the goods or services being sold or traded in the market whereas from a buyer’s perspective, price can be seen as the value indicated or proposed by the seller at which they are willing to exchange monies in return for their goods or services.

If we examined everyday communicative expressions, we would find that the word “price” can also suggest different meanings. For instance, one can imply regret when saying “*for my lack of earlier training, I am paying the price now*”, or express ambition in the sentence “*he wanted success at any price*”. Additionally, one can say “*you would not get me to wear a dress at any price*” to suggest reluctance.

Hence, while the word “price” is an intuitively familiar concept, its meaning depends on the context in which it is applied. For example, on a theoretical level, the meaning of price is important for pricing researchers as it informs the different dimensions of the “price” construct. To illustrate in simple economic definitions, price is often expressed as a ratio (Pashigian 1998) derived from the equation that revenue is equal to price multiplied by quantity, hence rewriting the equation:

$$\text{Price } (p) = \frac{\text{Revenue } (qB)}{\text{Quantity } (qS)}$$

where (p) is the price, qB is the value of money given up by the buyer and qS is the value of money utilised by the seller to produce the goods or services for the buyer. In this simplistic model, price can be seen as a function of two variables; the quantity demanded by the buyer (qB) and quantity supplied by the seller (qS). An increase in one variable results in the decrease of the other. This basic ratio of “quantity demanded” and “quantity supplied” underlines most economic pricing models that define the abstract boundaries of price. Obviously in the real world, there are other variables that may influence price such as size, quality, time of payment, form of payment, discounts, allowances and premiums (Diamantopoulos 1991). Any changes in these variables will impact on price.

However, in financial studies and marketing psychology, price can assume different conceptual definitions. While price in financial studies can be defined as being equal to “expected loss” + “adjusted risk”³ (Tsanakas and Desli 2005), in the latter, price is considered by the buyer as “*what is sacrificed to obtain a product or service*” (Zeithaml 1988). These different conceptual definitions of price as “risks” (Jarrow and Turnbull 1995) or “sacrifice” (Lichtenstein et al. 1993; Mazumdar et al. 2005; Monroe 1973; Monroe and Mazumdar 1988) are extremely important to pricing researchers examining theoretical concepts as they inform and frame their research dimensions.

Examining these different definitions, price can be seen not only as the numerical value agreed between the buyer and the seller, “*but also upon a complicated group of understandings lying outside the formal ratio*” (Cox 1946). In essence, these complicated groups of understandings include the buyers’ perception of value that is received when paying a price (Zeithaml 1988).

For example, a customer who pays £5.00 for a salad in one restaurant and £2.00 for the same salad in another is making a statement regarding value perceptions (Schindehutte and Morris 2001). Similarly, the reasons for financial products (insurance, bonds or stocks) differing in terms of prices and why consumers are willing to pay at different levels (i.e. high risk, high returns) are due to the consumer’s perception of risk. Hence, changes in any variable, regardless of whether it is definitive (quantitative) such as costs⁴ (Diamantopoulos 1991) or abstract (qualitative) in the form of a buyer’s perception (Mazumdar et al. 2005) will impact price. This observation is significant in service pricing as it underlines the S-D Logic with regards to the notion

³ While “expected loss” can be a calculated variable and definitive (derived from probable distribution and interest rates), “adjusted risk” is mostly a perceived variable determined by levels of a customer’s risk aversion.

⁴ For further illustrations, see Diamantopoulos (1991) on a list of variables that may affect price (Page 66).

that value is always “*uniquely and phenomenologically determined by the beneficiary*”. As such, one can argue that the perception of value and the co-created value may impact on the customer’s willingness to pay (Smith and Nagle 2005).

Contrastingly, under some circumstances in pricing research, the same words can mean entirely different theological concepts. For instance, the words “reference pricing” assumes a different understanding in consumer behaviour research when compared to pharmaceutical research. In the former, reference pricing is theoretically viewed as a “*predictive price expectation that is shaped by consumers’ prior experience and current purchase environment*” (Mazumdar et al. 2005) whereas the latter considers reference pricing as a system to control third-party expenditure on prescription of highly priced drugs in order to curb inappropriate use (López-Casasnovas and Puig-Junoy 2000).

Similarly, in service marketing, the terminology for the price of a service differs from industry to industry. For instance, the price of an entrance to a museum is called a “fee” compared to a “rate” for hotel accommodation. These diverse terminologies (table 10) are further compounded by different price references within the same industry for one product. In the case of an airline ticket, we are often confounded by the “airfare” which refers to the price of the ticket and “taxes” which refers to airport charges.

Table 10: The many different terms for price in services

What service are you buying?	Price
Visiting a museum	Entrance Fee
Getting an education	Tuition
Consulting a lawyer	Legal Fee / Retainer
Consulting a tax advisor	Consultant Fee
Getting Insurance	Insurance Premium
Getting a loan	Interest
Taking a flight	Airfare
Sending a letter	Stamp
Sending a courier	Courier charges
Withdrawing money	Surcharge
Making a call	Call Charges
Going to the gym	Subscription
Playing Golf	Green fee
Going to Disneyland	Park pass
Staying in a hotel	Room rate
Getting a job through a head hunter	Commission
Renting out your home	Agency Commission
Getting assistance or skilled help	Salary
Services rendered by government	Tax
Using a road	Toll
A night out at a dance club	Cover Charge
Utilities/Telecommunication	Tariff
Staying in an apartment	Rent

Source: Adapted from Ng (2007)

In this respect, discussions on the possible definitions of price render that its concept is not unambiguous, and suggest complexity in its functions. This then implies that significant considerations are needed to understand the ontological construct of price.

Furthermore, in order to fully appreciate the pricing research environment, both from a contextual and conceptual perspective, a definition is essential.

Therefore, for the purpose of this literature review, this thesis borrows the comprehensive definition of “price” from Cox (1946), which Diamantopoulos (1991) suggests is “*substantially superior to definitions that have appeared in the more recent pricing literature*”. He described price as:

“An agreement between seller and buyer concerning what each is to receive, embodied in a formal ratio between quantities of money and quantities of goods or services modified by formal and explicit or informal and implicit understanding as to:

- 1. The quality of the goods or services to be provided, or alternatively, the premiums and discounts to be applied to deliveries whose quality varies from a specified standard***
- 2. The times and places at which the privileges and responsibilities of (a) possession and (b) ownership are to pass from seller to buyer***
- 3. The particular form of money to be tendered in payment***
- 4. The times and places at which payments are to be made and accepted***
- 5. The services furnished by the seller without extra charge, such as advertising, serving the product and return privileges”***

Additionally, this thesis proposes an expansion to the meaning of the word “pricing” or “to price” (in the verb sense) to mean “the process or processes undertaken by the firm in deriving the price of a good, service or asset for sale to buyers”. This author believes that the above definitions by Cox (1946) and the refining of the verb form of the word “price” to “pricing” and “to price” are sufficient to facilitate understanding of the context of this thesis.

The next section examines the importance of pricing research and its multidisciplinary nature.

2.3.2 Importance of pricing research and its multidisciplinary nature

According to Hackett-Fischer, only one type of material spans the entire range of history and that is the record of prices. Some of the earliest known price records dating back to the 1700s B.C. are from ancient civilisations in Asia, Greece and Egypt (Hackett-Fischer 2006). From ancient Babylonian recordings on price series to Egyptian papyri documentation on the cost of living during the reign of pharaohs, to

price lists of grains and armour from the Middle Ages, scholars are able to compile and study price movements over periods of time (Clark 2004).

In today's environment, price is a highly visible concept that is intuitively understood by many. Price is the concern of almost all sectors of modern society including consumers, firms, traders, governments, non-governments, unions and academics. For example, school-going children are familiar with prices as they optimise (utilise) their limited pocket monies against their daily expenditures. Similarly, grocery shoppers are accustomed to knowing the current prices of food items to balance their household budgets, whereas firms and traders concern themselves with prices to ensure that their goods are sold in the market place at the highest prices.

As such, price remains one of the more important indicators of the business and economic environment (Economist 2006). Changing consumer price levels as recorded in consumer price indices (CPI) can broadly indicate the economic health of countries. Under these circumstances, attaining consumer price stability (Vickers 1999) is the desire of many countries because drastic fluctuation of consumer prices may cause economies to experience inflation or in some cases hyperinflation, signalling poorly run economies. This in turn influences its foreign investments, domestic trade and ultimately the well-being and behaviour of its society (Barr 2004).

From a marketing perspective, price importantly plays multiple roles. It is considered the only element of the marketing mix (the other elements being product, promotion and place) that generates revenue and not costs (Monroe 1990; Samiee 1987) and as such, according to some pricing researchers, a 1% improvement in price is able to generate up to 25% in operating income (Baker et al. 2010; Hinterhuber 2004). Furthermore, it is claimed that price is the most flexible element as pricing plans can be implemented relatively quickly and with a lower direct cost than other marketing decisions (Feldman 2005).

In that respect, price is able to serve as a means through which organisations can establish their position in the marketplace. Through its pricing activities, the firm is able to signal its intentions and strength. It also sets the platform for the firm to measure itself against its environment, seeking to use price as a means of controlling and establishing its role in an economy (Diamantopoulos and Mathews 1995).

Similarly, Myers (2004) contended that with the development of theoretical and applied research in management studies such as game theory, information economics,

industrial organisation, coupled with increasing sophistication in mathematical techniques, price also plays the role of “*a strategic decision variable*”. Hence, pricing represents an important, strategic and powerful tool in business activities (Nagle et al. 2010; Piercy et al. 2010; Roegner et al. 2005; Shipley and Jobber 2001).

These broad perspectives suggest that pricing research is of significant importance and interest to all business disciplines, and importance reflected in the large body of literature that can be found on the subject. Its extent literature is ubiquitous, varied and multidisciplinary in nature, and is located in most business disciplines including economics, marketing, operations management, operations research, accounting, finance and management.

This multidisciplinary nature of pricing research has led Smith (1995) to contend that pricing is a “*coveted piece of organisational territory*”, suggesting that pricing decisions are determined by multiple managers from multiple functions within an organisation, all with shared responsibility of determining the optimum price. For example, empirically-proven research contends that the pricing decisions of an organisation involve various divisions including marketing, accounting & finance, sales and the production team (Bergen et al. 2003). As such, the pricing process is said to be an “*extraordinarily complex*” procedure (Zbaracki et al. 2004) and that “*the price change process reveals a series of managerial activities of vast scope and complexity*” (Dutta et al. 2003). It is clear then that while the area of pricing research “*is usually un-owned territory, it certainly is not unclaimed territory*” and that its research “*gets caught between the cracks (where) everybody wants to be part of it (yet) nobody really owns it*” (Smith 1995).

Unsurprisingly then, due to its ubiquitous nature and as a result of this “finger in every pot”, there exist very little literature that concurrently addresses these different bodies of work in pricing research. Diamantopoulos (1991) considered a comprehensive review of all theoretical and empirical contributions on pricing as not only a task of “*Herculean proportions*” but the enormity and diversity of pricing literature “*make any attempt to objectively classify the subject matter into mutually exclusive and collectively exhaustive categories a futile exercise*”.

To illustrate, an advanced meta-search on the electronic database Science Direct for the key words “price” or “pricing” revealed 4,268 articles in 46 management journals over a period of 40 years. These diverse journals, including the Journal of Retailing, European Journal of Operations Research, International Journal of Research in

Marketing and the Journal of Economic and Finance attest to the observation that pricing research is indeed multidisciplinary.

These arguments support the notion that pricing research is indeed a difficult area to categorise due to its cross-disciplinary nature as well as its multi-functional role in practice. Yet this task is not entirely impossible as evidenced from available pricing literature reviews, taxonomies and typologies as shown in table 11.

Table 11: Cross-section of pricing research

Year	Author	Pricing Research
1973	Oxenfeldt	Review of decision making processes
1978	Monroe & Bitta	Reviews pricing models and its simplistic assumptions
1980	Laric	Review of pricing strategies in industrial markets
1986	Tellis	Taxonomy of pricing strategies
1987	Guiltinan	Review of price bundling
1988	Monroe & Mazumdar	Typology of pricing decision models
1993	Gijsbrechts	Review of pricing research in consumer marketing
1995	Diamantopoulos & Mathews	Review of pricing objectives
1997	Tung Cappella	Review of service pricing
1999	Noble & Gruca	Review of industrial pricing strategies
2000	Tzokas et al	Review of industrial export pricing practices in the United Kingdom
2001	Kannan & Kopalle	Review of dynamic internet pricing
2003	Bolton & Shankar	Taxonomy of retailer pricing and promotion strategies
2004	Hinterhuber	Review of value-based pricing
2004	Levy	Review of retail pricing practices
2005	Mazumdar et al	Review of reference pricing research
2006	Solberg et al	Taxonomy of pricing practices of exporting firms
2006	Avlonitis & Indounas	Review of service pricing practices
2007	Avlonitis & Indounas	Review of service pricing objectives
2008	Dixit	Taxonomy of IT related pricing strategies

Although not all these studies attach equal importance to the holistic aspects of pricing research and neither are they exhaustive of all pricing research, for the most part they appear to be comprehensive reviews within specific areas of pricing research.

Concurrent to this debate, there is also evidence to support the multidisciplinary nature of pricing research outside management disciplines such as psychology, engineering, medicine, law and computer science. Some illustrative examples include pricing discussions in cross-disciplinary journals such as the Journal of Applied Psychology (Darke et al. 1995), Journal of Management in Engineering (Sturts and Griffis 2005), Journal of Medical Marketing (Rao 2008; Turner et al. 2007), Journal of Law & Economics (Barkume and Ruser 2001) and MIS Quarterly (Nault and Dexter 1995; Wonseok and Lucas 2006).

This multidisciplinary orientation of pricing research further betrays its complexity (Gould and Sen 1984; Monroe and Cox 2001) and as a result, its research has different

approaches within the different disciplines that it embraces. In fact, any pricing issue is seldom simple. The pricing anatomy is unusually “non-systematic as they are diverse, intricate, and linked to many aspects of a business” (Marn and Rosiello 1992).

At an abstract level, questions such as (a) “how are prices determined?”, (b) “what are the processes involved in determining price?”, (c) “what are the causes of price changes”, (d) “how often do these prices fluctuate?”, (e) “do these fluctuations influence economies and can it influence the individual buyer or seller and if so, (f) how does it influence?” are but a few examples of important enquiries central to pricing research in academia.

However, when examining pricing research from an industry perspective (practice), detailed queries such as (i) how do I ensure that my pricing decisions support the long-term positioning of my product?, (ii) how can I develop price strategies to enhance overall profitability?, (iii) how do I determine the specific benefits for which customers are willing to pay more, (iv) what will be the impact of competitive responses to my pricing strategy and how would that change my optimal pricing decisions? are imperative for organisations to be successful in their pricing efforts (Feldman 2005). These different questions that arise in the general pricing research arena suggest that the questions in themselves present diverse meanings and significance when investigated under the different business and non-business contexts.

For instance, financial studies research in the movement of stock prices has different implications when compared to the movement of commodity prices in economics. While studies on stock prices generally indicate the financial health of companies (individual equities) or an economy (collective basket of stocks such as the FTSE 100 on the London Stock Exchange), the study of commodity prices in economics may help producers determine levels of demand and supply, resulting in the setting of optimal prices.

Similarly, pricing consumer products such as a bottle of shampoo is distinctively different from pricing financial products. In the former, firms may consider variables such as cost of production, competitor’s pricing, profit margins, customer’s perception of brands and the firm’s overall business strategy. However, in the pricing of a financial product such as insurance or bonds (risk)⁵, the firm needs to look at other variables such as risk adjustments, probability distribution, expected loss and interest rates

⁵ In financial studies, “price” can be simplistically expressed as “price = expected loss + adjusted risk”.

before deciding on an appropriate price (Tsanakas and Desli 2005). Under these circumstances, we find varied and complex approximations to what pricing research entails, although it appears intuitively clear that pricing a bottle of shampoo is within the confines of marketing whereas pricing bonds are within financial studies.

Critics have often argued that these diversities in pricing research have given rise to “a seemingly endless array of (pricing) theories, individually persuasive but often mutually contradictory” (Hawkins 1973) and that in pricing research “there is no one universally accepted theory of pricing behaviour” (Diamantopoulos 1991). However, this lack of a universally agreed pricing theory is not necessarily perceived negatively in view of the wide range of different industries, each operating with its own set of issues including costs, competition, internal organisational behaviour and state regulations.

Hawkins (1973) further argued that under such contradictory circumstances, “it would be surprising – not to say miraculous – if any simple (pricing) formula existed, even for one firm, which remained invariant over time. And even if it did, it is surely almost beyond belief that such a formula could also hold without modification for every other firm in the economy as well”. Additionally, Howe (1978) contended that these different pricing research have “value in its own right” if it offers useful guidance to solving price-related questions and advancing pricing knowledge in business behaviour, prompting a more pragmatic approach to its research (Cavaleri 2004; Shook 2005).

Interestingly, Hackett-Fischer (2006), observed that “at a higher level of abstraction, prices may be studied as clues to the nature of change itself, enlarging our understanding not only of prices in particular but also of change in general”, referring to the records of historical price movements of consumables occurring in England over a thousand years and how these changes may shed light on significant historical events.

As such, these different approaches suggest that there are countless but significant ways with regards to examining pricing research and the theories that have arisen, each with a myriad of considerations and virtues, both within and outside the business disciplines. This broad orientation in pricing research has led Mathews and Diamantopoulos (1995) to remark that in view of the extensive body of pricing research, “a mutually exclusive and collectively exhaustive listing of pricing topics is practically impossible to form”.

Nonetheless, for the purpose of this literature review, while the author intends to provide an overview of the various pricing research, the review does not assume a

priori that is exhaustive of all pricing literature. Rather, without any disregard for various aspects of pricing research examined in business and non-business disciplines, a broad summary of pricing topics mapped against the different disciplines involved in its research are shown in table 12. It is clear that although numerous pricing discussions appear within other business disciplines including operations research, finance and accounting, and non-business disciplines such as psychology, law and computer sciences, economics and marketing appear to be at the centre of most discussions on pricing literature as shown by its wider perspective in addressing pricing topics (Nagle 1984; Rao 1984). Nonetheless, it has been observed that while both economists and marketers have often examined similar phenomena in pricing research, they have done so by employing different perspectives and methods of analysis. This has resulted in two sets of literature that are different with regards to content, methodology and focus (Gould et al. 1980; Horsky and Sen 1980).

Table 12: Broad classification of pricing topics

No	Topic	Economics	Marketing	Law	Accounting and Finance	Psychology and Sociology	Management Science
1	Price Determination	x	x		x		x
2	Price/Marketing Mix	x	x				
3	Price/Buyer Behaviour	x	x			x	
4	Price/Industry Structure	x		x			
5	Pricing/Inflation	x	x		x		
6	Price Differentials	x	x			x	

Source: Adapted from Diamantopoulos (1991)

In terms of content, economists primarily study the effects of price while often excluding the influence of non-price variables (Seth and Thomas 1994) whereas in marketing literature, prices are considered with other non-price variables such as advertising, product and distribution channels (Rao 1984). This distinct separation of pricing research suggests that pricing research can be broadly considered from two perspectives: “price theory” and the “study of pricing” (Diamantopoulos and Mathews 1995; Hauser 1984; Rao 1984).

A similar view held by Little (1984) posits that pricing research can be categorised as descriptive and prescriptive, with economics literature leaning towards the descriptive, and marketing more towards the prescriptive. Likewise, Bonoma et al. (1988) described these two streams of pricing research on one hand as “*price-determination work occurring largely in economics literature*” and on the other as “*the pricing-process work that has appeared in the marketing journals*”. From a broader perspective, it is not uncommon to find crossovers between these two areas. For example, recent marketing research showed that sales and special promotions in marketing are influential in the

price changes of goods, ultimately effecting economic indicators such as price indices, interest rates and inflation (Nakamura 2007).

Nonetheless, for the purpose of this thesis, the next section of this chapter explores pricing concepts that underline “the study of pricing” in marketing.

2.3.3 Study of Pricing in Marketing

The “**study of pricing**” is closely associated with marketing studies and is commonly identified as “Price” being one of the 4 “P”s that sit within the marketing mix framework. Similar to the other elements of the marketing mix, pricing assists the firm in attaining its overall business objectives. More specifically, “pricing” is the “*decision a firm has to make on how much to charge for its goods and services*” (Ng 2008) and as suggested by Nagle et al. (2010), “*pricing is the moment of truth – when all of marketing comes to focus in the pricing decision*”.

Hence, the study of pricing relates to identifying and solving pricing issues that affect the firm’s decision in achieving its overall business objectives. Some aspects of these pricing challenges are summarised in table 13, and provides the reader with a flavour of the complexity involved in the study of pricing. These different perspectives give rise to multi-layered constructs involved in its research. For example, research under “price organisation” is concerned with the “responsibility” and “dynamics” of the pricing decision within the firm, and it answers questions such as who are the persons responsible for making these decisions and how these parties interacting have an impact on the pricing decision.

These numerous issues also involve an array of variables. For instance, factors such as profit maximisation, costs, demand and supply functions are often modelled to derive optimum pricing, whereas other critics contend that more important variables such as consumer’s perceived value (Hinterhuber 2008), advertising and promotions (Bolton and Shankar 2003), customer satisfaction (Homburg et al. 2005), distribution channels (Tyagi 2005; Webb 2002), market share and competitor reaction (Shankar and Bolton 2004), customer’s behaviour in perceived quality (Estelami and Maxwell 2003) and fairness (Kimes and Wirtz 2003) can also influence pricing.

Table 13: Related topics under the study of pricing in marketing

No	Issues	Related Works
1	Price Organisation	Pricing functions within the firm. Pricing responsibility. Sales vs. marketing.
2	Pricing Objectives	Aims of the firm. What it hopes to achieve through pricing. Quantifiable/Non-quantifiable.
3	Pricing Methods	Cost-plus, value-based, competition.
4	Price Administration	Price guarantees, flexible payment, credit. Conditions related to purchases price.
5	Price Changes	Adjustment of prices, frequency of changes.
6	Price-Volume Relationships	Discounts, bundling, coupons, promotions.
7	New Product Pricing	Market skimming versus market penetration.
8	Price & Marketing Mix	Relationship with other "Ps" product, promotions and place (channels and distribution).
9	Price & Industry Structure	Competition under the various market structures (i.e. monopoly, oligopoly).
10	Price Differentials	Segmentation, peak versus non-peak, students, senior citizens.

Source: Adapted from Diamantopoulos and Mathews (1995)

Additionally, when formulating pricing strategies, inputs from various parts of the organisation are also considered (Roegner et al. 2005). Among the many variables that the firm needs to consider when ascertaining its price include price levels, quantities of production, cost, brand, channels, customer's perception, firm's objectives, state regulations⁶ and competitors (Diamantopoulos and Mathews 1995; Dutta et al. 2003; Noble and Gruca 1999; Oxenfeldt 1983; Tellis 1986). In this respect, the study of pricing appears to be solely concentrated on assisting the firm's objective. Ng (2007) explained that the pricing expert's priority is only that of the firm and "*any societal or consumer considerations will be relevant only if they are useful and therefore form part of the firm's business objectives*".

The study of pricing is not without criticism and there appear two significant critiques of its research. First, its studies have often been accused of lacking any linkage between academia and practice (Bonoma et al. 1988; Cressman Jr 1999; Fleischmann et al. 2004; Oxenfeldt 1973).

Second, critics lament its lack of empirical rigour (Rao 1984) in the normative studies of pricing guides where their focus is centred on providing checklists, guidelines and pricing issues for better pricing decision-making. As such, Rao (1984) contended that these studies such as pricing based on predefined target of return (Oxenfeldt 1973), customer's perception of benefits and costs (Shapiro and Jackson 1978), , and bargaining by buyers' and sellers' strengths and weaknesses (Jain and Laric 1979) are "*too general, lack theoretical foundation and are hard to implement*". Furthermore, Feldman (2005) argued that although traditional marketing research has addressed different issues in pricing such as market acceptance of price changes on new

⁶ Recently, some European airlines were found guilty of price fixing in the US, costing them millions of Euros in penalties which suggests the complexity and importance of pricing practices within state regulations.

products and understanding the various trade-offs between brands, prices, features and channels for leveraging customer value propositions, this “*type of research does not do a good job of replicating the complexity of current market places and extracting the real impact of price and price sensitivity*”.

Notwithstanding these criticisms, research in the study of pricing within the marketing discipline has seen an increase in its empirical rigour (Horsky and Sen 1980; Rao 1984). Continued employment of cross-disciplinary concepts such as statistics (mathematics), economic modelling, game theory (economics), behavioural science (psychology) and optimisation techniques (operations research) has helped both pricing academics and practitioners alike to better appreciate the significant findings of pricing studies within the marketing discipline (Little 1984; Nagle 1984). Its research has introduced different pricing frameworks that offer useful guidance to the firm’s pricing decisions (table 14) and as a result, its research is considered important in informing pricing literature.

Table 14: Cross section of pricing frameworks over the years in the study of pricing

Year	Author	Pricing Framework
1960	Oxenfeldt	Introduces six successive stages; selecting market targets, choosing a brand "image", composing a marketing mix, selecting a pricing policy, determining a pricing strategy and arriving at a specific price.
1964	Morgenroth	Formulates a framework to identify price determinants and proposes 32 endogenous variables.
1978	Monroe & Bitta	Revisits mathematical pricing models and identifies its unrealistic and simplistic assumptions. Proposes way-forward by introducing “dynamism” into the pricing models such as consumer behaviour and competitor bids.
1983	Oxenfeldt	Proposes a four-stage pricing framework: objective, strategies, policies and methods. Suggest that pricing decisions should not be complicated.
1990	Cannon & Morgan	Introduced a strategic pricing framework with a “six rule”, “six methods” and “five pricing objectives”. This approach is guided by rules and pricing methods at each level and how the company’s prioritising of its pricing objectives.
1991	Garda	Considers information to inform pricing decisions and divide into two sections: inputs to predict likely competitive bids and inputs to assess price and profitability trade-offs. These inputs have four categories each to reflect upon.
1995	Smith	Introduce a “pricing orientation” framework at managerial level with four main components; (a) information gathering and processing, (b) pricing objectives, decision rules and beliefs, (c) organisational decision processes and (d) organisational responsiveness
2001	Shipley & Jobber	Proposes the “pricing wheel” in six stages and suggests that a gap exists between the “price ceiling and the operative price floor” where 10 interactive and influential variables have to be considered in an integrated pricing technique.

Hence, pricing research in marketing appears to have expanded to include more meaningful theoretical foundation for empirically-driven price theories, more accurate pricing models and better informed pricing strategies (Tellis 1986). For example, behavioural pricing research reflects how consumers actually perceive, evaluate, and

respond to price offers which contrasts significantly with the assumptions and traditions of neoclassical economic thinking. Variables such as knowledge of prices, price information and behavioural responses, while deviating from economic pricing models for rational predictions, have helped expand marketing research in more innovative modelling price-related buyer behaviour (Estelami 2003a). This is of particular interest in the field of service pricing.

The next section of this chapter examines the extent of service pricing literature.

2.3.3.1 Service pricing in marketing

Literature in the study of service pricing, not unlike service literature, is indeed varied, diverse and multidisciplinary in nature. Its literature is located in various business disciplines (table 15) including marketing, economics and operations research (Crompton 1981; Dranove and Ludwick 1999; Schlissel and Chasin 1991) as well as non-business disciplines such as engineering (Sturts and Griffis 2005), law (Barkume and Ruser 2001) and medicine (Rao 2008; Turner et al. 2007).

Table 15: A selection of published articles on service pricing in different industries

	Author	Year	Title	Industry	Journal
1	Crompton	1981	Role of Pricing in the Delivery of Community Service	Community Serv.	Community Development
2	Guiltinan J P	1987	The price bundling of services: A normative framework	Multiple	Journal of Marketing
3	Nault & Dexter	1995	Added Value and Pricing With Information Technology	Computing	MIS Quarterly
4	Jarrow & Turnbull	1995	Pricing Derivatives on Financial Securities	Financial Services	Industrial Mktg Mgmt
5	Agarwal	2002	Asymmetric price effects in telecommunications	Communication	Transportation Science
6	Hoffman et al	2002	Pricing Retail Services	Retail	J. Business Research
7	Kimes et al	2004	Revenue Management at the Restaurant	Restaurant	Decision Science
8	Sturts et al	2005	Pricing Engineering Services	Engineering	J. Mgmt in Engineering
9	Dror et al	2007	Willingness to pay for health insurance among rural and poor persons: Field evidence from seven micro health insurance units in India,	Healthcare	Health Policy
10	Belobaba, P.	2011	Did LCCs save airline revenue management	Airline	Revenue and Pricing M.

Historically, early service pricing research emerged in the field of economics which mainly investigated pricing in public services, and was mostly confined to areas of welfare economics (Lewis 1941; Steiner 1957). For instance, Lewis (1941) discussed the merits of a two-part tariff that encouraged different rate charges in public utilities. In the model, he addressed challenges faced by utility firms that were subjected “*to some degree of regular fluctuation in the demand for their limited products*”. By optimising prices in the wake of limited capacity and the fluctuation of demand through a given period, he highlighted two important characteristics displayed by the firm’s offering.

First, the firm is unable to store its inventory, implying that the product is intangible and second, the product is highly perishable; this suggests that if the offering is unsold by a

given period, the firm loses it. These different characteristics of the service allowed the firm to “price discriminate” in order to achieve higher revenues. More importantly, these observations are relevant to current research in service pricing, as they form basic assumptions that stress the uniqueness of the service offering as well as its pricing.

In contrast, early service pricing research in marketing was mainly dominated by descriptive studies rather than empirical modelling (Behling 1942). It focused more on the public’s welfare in the face of price discrimination rather than deriving optimal prices stipulated by profit maximisation which were favoured by economic studies. For instance, Behling (1942) critically reflected on the state of public utility services and the consequences of price discrimination when faced with limited capacity and fluctuating demand periods. He challenged the use of price discrimination and argued on its “ethical” application across the different public service industries, suggesting that public interest should be at the heart of any firm intending to price discriminate.

These early observations in service pricing appear to have initiated current service pricing research today. It is this author’s opinion that these empirical and descriptive works highlight four significant boundaries associated with our understanding of service pricing in today’s markets. First, it is noted that service firms have demand and non-demand periods and these are mainly experienced by service firms such as restaurants, telecommunication providers and hotels. Second, during high demand periods, service firms have insufficient inventory as demand outweighs supply. Next, in contrast to the peak periods, service firms may experience over-capacity during periods of weaker demand. And finally, service firms are unable to store their inventory as they are highly perishable.

Today, these observations and perspectives in service pricing are discussed more broadly in different business disciplines. For example, revenue management studies in operations research address the need for the service firm to maximise revenue by optimising the price of its inventory against fluctuating demand. The offering of different prices in revenue management, commonly known as dynamic pricing has shown that various revenue management techniques have enabled airlines to increase revenue by as much as 5% (Boyd and Bilegan 2003).

Unsurprisingly then that we find revenue management practices penetrating not only other service firms with similar challenges such as perishable inventory, limited capacity and high fixed costs, but also manufacturing industries (Barut and Sridharan 2005; Caldentey and Wein 2006). For example, retailers are able to market individually

to their customers, based on their shopping patterns at supermarkets (Bain 2008) and also on the internet (Shen and Su 2007). This is achieved through the electronic collection of information pertaining to browsing patterns and items purchased from a historical perspective. Hence, with the advancement of technology and wider internet usage, companies today have developed the ability to gauge consumer preferences, demand patterns and their willingness to pay for goods and services. Increasingly powerful electronic information processing has further assisted firms in measuring more accurate price changes, their effect on sales volume, cost of production and other variables that might assist pricing managers in their duties.

Notwithstanding such quantitative research in revenue management, studies in service pricing within the marketing discipline similarly highlight the different characteristics of a service such as intangibility, heterogeneity, inseparability and perishability, and how they may impact on price and pricing strategies (Schlissel and Chasin 1991; Tung and Capella 1997). Other concepts arising from these marketing studies in service pricing include advanced sales of service (Lovelock and Wirtz 2011; Xie and Shugan 2001), service capacity (Lee and Ng 2001) and refunds (Ng 2008). As such, it can be argued that pricing research in service to a large extent is closely associated with consumer behaviour in relation to issues such as perceived value in purchased intentions (Chen and Dubinsky 2003; Lin et al. 2005; Sanchez et al. 2006) and customer value (Danaher 2002; Dixit et al. 2008; Docters et al. 2004; Gunther et al. 2007).

From this perspective, pricing can be viewed as an interactive phenomenon based on the value propositions of the firm (Kowalkowski 2011) and the customers' willingness to pay for the service. The pricing process is then not solely dependent on the seller setting a price and expecting the customer to pay the amount, as customers can be seen to be involved in the interaction with the firm, and over time, the interdependence between the parties and price can become an issue of value co-creation. Therefore, if one considers perceived value as being the "*trade-off between the customer's perception of benefits and sacrifices incurred*" (Leszinski and Marn 1997), it is not difficult to consider how these two constructs – "price" and "value" – are interconnected.

As such, in Payne et al (2008)' value co-creation framework, there exists possibilities for the pricing of a service to be included in the "planning and implementation" from the firm's perspective. Therefore, understanding value in a buyer-seller relationship cannot be said to be only about cost reduction, but might include pricing as an interactive issue based on the customer's value perception. Such interactive pricing processes are

increasingly being practiced on the internet between sellers and buyers through bids and auctions (Lovelock and Wirtz 2011), where buyers reveal their perceived value of a product or service through a price they are willing to pay.

From that perspective, “value” in a seller-buyer relationship context appears to be a complex trade-off between issues that are perceived either as sacrifices or benefits, suggesting that customers are more likely willing to pay higher prices for perceived higher value in the service offering. As such, capturing the monetary worth of the customer’s perceived value will enable better pricing strategies for increasing revenues.

In marketing research, one pricing method often associated with capturing the customer’s perceived value and their willingness to pay for service is value-based pricing. Marketing researchers in pricing emphasise its superiority compared to other pricing strategies (Ingenbeek et al. 2003). Additionally, Hinterhuber (2008) reiterated that *“the increasing endorsement of customer value-based strategies among academics and practitioners is based on a general recognition that the keys to sustained profitability lie in the essential features of customer value-based pricing, including understanding the sources of value for customers; designing products, services, and solutions that meet customers’ needs; setting prices as a function of value; and implementing consistent pricing policies”*.

Yet, despite the notion of technological ease in changing prices as well as the accessibility of decision-support tools in service pricing for analysing demand-related data such as historical trends, service pricing literature appears to suggest that little is understood about its theoretical application, particularly in the area of value-based pricing (Hinterhuber 2004) which in this author’s opinion is important in value co-creation studies. However, according to a study by Avlonitis and Indounas (2006) on the pricing practices of 1,495 service organisations, most firms employed cost-based pricing methods. This implies that covering costs is more important for service firms although estimating service costs is a more difficult and often inaccurate exercise.

Interestingly, this observation reaffirms Zeithaml et al’s. (1985) earlier study showing cost-oriented pricing strategies as being more favoured among service firms compared to value-based strategies. Despite the 20-year gap, cost-based pricing strategies for service firms are still important in practice compared to other pricing methods, undermining any advancement for expertise in the pricing of services, where understanding the source of value creation for the customer is an important aspect.

Under this orientation, it appears that service pricing is indeed an area of research that is not well understood and is clearly lacking in expertise (Hoffman et al. 2002; Matanovich 2003).

The following sections examine aspects of value-based pricing and willingness to pay in the area of service pricing, which underpins part of this thesis for evaluating the impact of value co-creation attributes on the customers' willingness to pay.

2.3.3.2 Value-based pricing

Pricing studies in marketing state that there are three basic pricing methods available to the firm; cost-based (Lucas 2003), competitive-based (Sudhir 2001) and value-based (Hinterhuber 2008). Of these three pricing methods, value-based methods are seen to be the most appropriate in capturing the customer's perceived value as its approach to service pricing "*leverages the benefits of the service offering in order to match the buyer's willingness to pay with the value received*" (Ding 2007). Furthermore, research shows that firms employing these value-based strategies earn 31% higher revenues compared to cost or competitor-based pricing (Nagle et al. 2010).

Definitively, value-based pricing is the concept of setting the price of a service according to the "value" or "worth" received by the customer. The method takes customer-perceived value as the focal point and is often seen as a mid- to long-term strategic marketing tool. In some contexts, value pricing can also refer to the firm underlining the "monetary worth" of the customer's perceived value. This results in situations when a fairly low price can be charged for a high-quality service offering or vice-versa.

In order to incorporate profitable value-based pricing strategies, the process requires insightful knowledge of the service value (Smith and Nagle 2005). As such, service pricing literature advocates different methods to elicit the total service value (numerical worth) received by the customer from the service. However, determining this value is hardly considered as a simple exercise and as a result, most service companies do not adopt value-based pricing methods, citing reasons such as difficulties with "*the subjectivity of value*" (Berry and Yadav 1996), "*communicating perceived value*" (Hinterhuber 2008), "*measuring value and credibility*" (Anderson et al. 2007), the perception of "*too expensive and time consuming to collect data*" (Harmon et al. 2009), and "*uncertain about the association between price and value*" (Lovelock and Wirtz 2011). In most cases, firms tend to conclude that their principal function is to "cover

costs and generate a reasonable rate of return”, therefore constraining their ability to use “*value-based strategies*” as a strategic weapon and resulting in them over-relying on simplistic “*rule of the thumb cost-based formulas*” (Schindehutte and Morris 2001).

Under this orientation, it is clear that pricing “value” is a complex process. However, although there are numerous studies on value research with respect to its definition, constructs and theoretical foundations, it is clear that pricing value can be addressed from multiple perspectives (Blocker 2010; Piercy et al. 2010). Value-based research has revealed a number of value frameworks surrounding the concept of customer value and how it should be captured and measured in order to implement the optimum pricing strategy.

For example, Ulaga and Eggert (2006) employed a “benefits and costs” framework to study the relationship value between buyers and sellers. Alternatively, Smith and Colgate (2007) argued for a source of value approach in framing four types of value; “*functional and instrumental*”, “*experiential and hedonic*”, “*symbolic and expressive*” and “*cost and sacrifice*” to determine customer value creation. Recently, Blocker (2010) addressed the need to incorporate both formal and reflective measures when incorporating customer value using constructs relating to costs, satisfaction, interaction and quality.

Interestingly, Hinterhuber’s five-point framework (2008) discussed the importance of expert interviews, focus group assessment of value, conjoint analysis (trade-off), assessment of value-in-use and important ratings in establishing the worth of the customer’s net value. He argued that these proposed methodologies are essential as they combine both formal and reflective evaluations in capturing value, as “value” is a dynamic phenomenon and would change over time. As such, continuously repeated assessment employing these different methodologies will enable firms to re-evaluate the “inter-connectedness” of both buyer and seller.

On a different level, Smith and Nagle (2005) cautioned not on the measuring of value but more importantly, on what type of value is being measured. In their proposed framework, (table 16), the authors highlighted the differences between value-in-use, economic value (exchange value), perceived value (market value) and willingness to pay, and how each of these value constructs have to be captured accurately in order to develop sound pricing strategies. For instance, failure to recognise the difference between value-in-use and exchange-value may result in poor marketing if addressing poor sales is to reduce price, a common practice prevalent among sales strategies,

when increasing “perceived value” (educating the consumers about the superior service) would be a better option if the price is justified by its exchange value.

Table 16: Sources of value

Value Construct	Source
Use Value (Value-in-use)	This is the monetary worth of a product’s set of benefits actually received by the customer as a result of using the product or service. Economists call this use value, or the utility gained from the product. Use value for a cold bottle of coke on a hot day maybe different from a cold day. Contextual and dynamic.
Economic Value (Value-in-exchange)	A product’s objective monetary worth to a customer adjusted for the availability of competitive substitute products. To calculate economic value, one must first determine the reference price of competitive substitutes in the marketplace and then determine the incremental use value that the product delivers over and above that of competitive substitutes. Economic Value = Reference Price + Commodity Value + Differentiation Value (t-ve/ or –ve)
Perceived Value (Market Value)	The value buyers perceive the product/service to be worth.
Willingness to Pay	This refers to the price buyers are willing to pay to obtain the value buyers perceive the product to be worth. Despite buyers’ perceptions of value, they may be either unable or unwilling to pay this due to price sensitivity.

Source: Smith and Nagle (2005)

In this respect, it appears critical that the firm understands not only perceived value but to “*understand it separately from actual value so that marketers can compare, diagnose, understand, and recommend strategies to manage the gap between the different value constructs*” (Smith and Nagle 2005)

One interesting topic manifesting in these different value-based studies and also underlining some aspects of this thesis is “willingness to pay” (WTP). In marketing literature, WTP is commonly used as a tool to capture the perceived value of the customer’s intentions with regards to paying for a product/service. This is normally employed through the use of choice modelling or contingent valuation.

The next section of this chapter addresses some aspects of “willingness to pay” literature relevant to this thesis.

2.3.3.3 Willingness to pay

Willingness to pay (WTP) is generally regarded as a “characteristic of buyers” and it displays “*how much value, measured in terms of money, that an individual customer places on a product or service* (Orme 2006)”. WTP is also sometimes referred to as the customer’s “reservation price” and is mainly used as a tool to elicit information on their perceived value of a product or service in monetary terms. Studies related to WTP are

often underscored by the need to understand how consumers determine the value of a service and to what extent they are willing to pay for them, particularly when the new service often changes the nature of exchange in the marketplace. On a broader and strategic level, the information generated from WTP is also employed to determine potential market demand, viability of new service or product innovation, and this is important for it impacts on the firms' pricing decisions and subsequently, setting pricing strategies.

WTP literature is commonly found in economics and marketing studies. Early studies in these areas stem from economic research that attempted to measure customer utility through the modelling of "choices made" by the customer when faced with a set of options. The aim was to develop a system to predict customer behaviour in terms of their preferred choice, given a better understanding of their revealed utilities (Becker et al. 1964). Research using this understanding of WTP has since emerged in multiple areas of health and environmental economics including studies on the customers' willingness to pay for health care (Ryan et al. 2004), health insurance (Dror et al. 2007), quality of life (Shiroiwa et al. 2010), energy saving measures (Banfi et al. 2008), hydropower (Kataria 2009) and renewable energy (Scarpa and Willis 2010). The wide use of WTP in these different industries demonstrates its attractiveness in capturing how consumers reflect the perceived value of service.

In marketing, WTP research is mostly underlined by quantitative studies linked to the design of choice experiments. While some of its studies are linked to consumer behaviour and pricing with regards to "customer satisfaction" (Homburg et al. 2005) and "preference for bundling of attributes" (Jedidi et al. 2003) respectively, much of its studies are centred on establishing optimum methods in order to elicit an accurate evaluation of the customer's willingness to pay. Under this orientation, it appears essential that the precision in extracting WTP information is important for firms, as it enables them to identify market segments that are often willing to pay a higher price for perceived higher values and benefits (Wertenbroch and Skiera 2002).

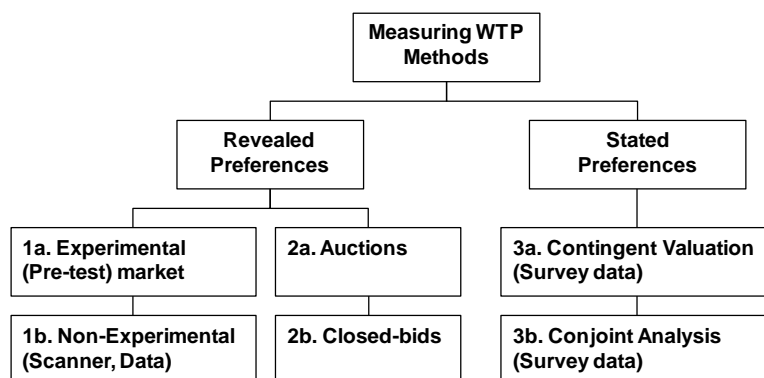
Therefore, debates concerning the accuracy and legitimacy of WTP estimates are common in WTP marketing literature. According to some critics, these debates have laboured on for well over two decades, both in economics (Spash 2008) and marketing studies (Sichtmann and Stingel 2007), with each citing several challenging issues for undermining the use of WTP.

On one hand, critics argue that WTP estimates are generally limited by “upward response bias” and “embedding effects” that raise the issues of reliability and validity (Diamond and Hausman 1994) leading to critical questions on the dichotomy of “hypothetical WTP” and “real WTP” (Voelckner 2006). While there exists a debate between these two cases, further questions have also been raised about the significant differences between these two measurements (Sichtmann and Stingel 2007).

On the other hand, marketing advocates argue that careful study design and implementation together with the approach of rigorous contingent valuation and conjoint analysis can overcome these problematic issues (Miller et al. 2011). For example, Orme (2006) confirmed how market simulations using “adaptive conjoint” methods are able to measure and re-measure the utilities of respondents at each step of the enquiry to better understand the customer’s willingness to pay. Additionally, Tang et al. (2009) demonstrated how “adaptive” valuation is increasingly accurate in measuring consumer’s choice sensitivity which in turn would probably lead to more realistic WTP figures.

In order to better understand the dichotomy of WTP research, this author feels that it is important in this thesis to identify the various methods employed in measuring WTP. Current literature proposes three possible ways to measure WTP; (a) observation of prices being paid or revealed, (b) offers to buy in auctions or bidding and (c) asking customers what they are willing to pay for goods/services in the future. While the first two can be categorised as “revealed preference”, the third method is considered a “stated preference”. A summary of these methods is illustrated in figure 10.

Figure 10: Methods for Measuring WTP



In essence, these different ways to measure WTP can be differentiated on whether or not it measures the consumers’ “actual” or “hypothetical” willingness to pay for a product or a service. Critics of WTP however do caution its use on two levels; first on

the difference between “willingness to pay” and “willingness to accept (WTA)” (Simonson and Drolet 2004) as customer intentions are not necessarily translated to actions (Ajzen et al. 2004) and second, both WTP and WTA often show gaps between the two measures, signalling an “endowment effect” where people demand “*more to part with an object*” compared to how much they are “*willing to spend in obtaining it*” (Huck et al. 2005).

Notwithstanding the different studies on WTP, recent research has shown that both actual and hypothetical approaches to measuring WTP generated “estimates that are not significantly different” (Miller et al. 2011). In this respect, it appears then that WTP can be broadly employed as a tool to measure customers’ perceived value. Its wide usage in marketing research for informing governmental policies on health and environmental issues is testimony to its reliability and validity. It is therefore not surprising that WTP can be used as a tool for firms to capture the customer’s perceived value of service, and to improve their pricing strategies for increasing revenues.

Under this orientation, the next section introduces the conceptual development and identifies the knowledge gaps in service and pricing literature that underpins this thesis before raising the research question.

2.4 Conceptual Development

Concepts of co-production and co-creation are not entirely new in management research, with early studies appearing in the 1970s. Brudney and England (1983) showed that research in this area alerted “*researchers to the involvement of citizens in the actual delivery*” of public services. They argued that the definition of “co-production” should reflect usefulness rather than validity for the common benefit of the public, and therefore should capture dimensions (figure 11) that are meaningful for both policy makers who are interested in implementation, and academics concerned with “*operationalising the concept in actual service delivery situations*”.

Figure 11: Dimensions of co-production in early management literature

DIMENSIONS		EXPLANATION
Participation ←→ Responsiveness		<i>Willingness</i>
Positive ←→ Negative		<i>Effects and Impact</i>
Corporate ←→ Compliance		<i>Legality</i>
Active ←→ Passive		<i>Behaviours</i>
Individual ←→ Collective		<i>Citizens</i>

While parts of co-production literature were aligned to management studies, marketing research on co-production were more commonly associated with the idea of customer participation in production (Bendapudi and Leone 2003). It is clear from these studies (summarised in table 17) that marketing research embraced concepts of co-production from a slightly different perspective. Its research highlighted the importance of customers and their roles in the buyer-seller relationship including managing customer roles (Kelley et al. 1990; Mills and Moberg 1982), customers as partial employees (Mills and Morris 1986), reversal of consumption roles (Firat and Venkatesh 1993) and customer-centric perspectives (Prahalad and Ramaswamy 2000).

In that respect, these studies demonstrate how value and the creation of value for the benefit of the customer are central to the buyer-seller framework, which is essential in marketing philosophy. Subsequent studies by Woodruff (1997), Payne (2001), Wilkstrom (1996) and Prahalad and Ramasamy (2000) on value, value creation and customer interaction also highlighted how firms may attain competitive advantage by

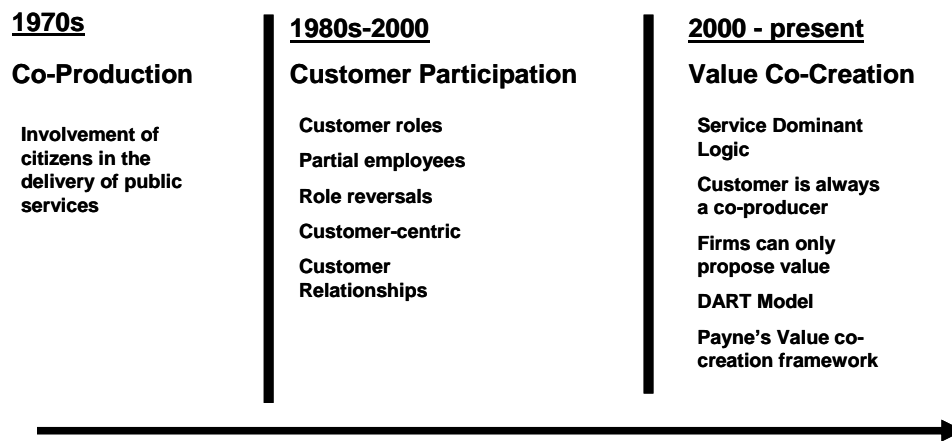
leveraging on the customer’s competencies through identifying and understanding the customer’s role in the buyer-seller relationship as a “co-creator of experience”.

Table 17: Selected studies on “customer participation” research in marketing

Authors	Focus	Study
(Lovelock and Young 1979)	Consequences of customer participation in production of services.	Customers can be a source of productivity gains.
(Mills and Moberg 1982)	The organisational technology needed to manage the services sector as opposed to the goods sector.	One key difference between the two sectors is the customer/client's role in the production process. Customer contributions to services are described as information and effort.
(Mills and Morris 1986)	Managing the customer/client as a partial employee to increase system productivity.	Greater customer involvement in the production process can be a source of productivity gains. Customers' input needs to be monitored and assessed the same way as regular employees' input.
(Fitzsimmons 1985)	Consequences of customer participation on service sector productivity.	Customer participation through substitution of customer labour for provider labour, smoothing of demand, and use of technology in place of personal interaction may yield greater service sector productivity.
(Goodwin 1988)	Training the customer to contribute to service quality.	Customers' sources of training and willingness to be trained are a function of their commitment to the provider and the presence of other customers. When customers are committed to the provider, they are more willing to invest in learning how to contribute. Customers may be trained by both the provider and other customers.
(Bowen 1990)	Taxonomy of services based on customer participation.	Participation is a meaningful construct for customers describing various services. It may be possible to segment customers on the basis of their willingness to participate in the creation of services.
(Kelley et al. 1990)	Managing customer roles when customers participate in service production and delivery.	Customers may be managed as partial employees when participating in service production and delivery by focusing on customers' technical and functional quality input to the process. Suggests that customer participation may affect overall quality and productivity, employee performance, and employees' emotional responses.
(Firat and Venkatesh 1993)	Argues for the reversal of roles of consumption and production.	Among the postmodern conditions discussed is the reversal of consumption and production as customers take on more active roles in production.
(Van Raaij and Pruyn 1998)	Customer control and its impact on judgments of service validity and reliability.	Customers may perceive more or less sense of control in three stages in the service relationship: input, throughput, and output. The greater the sense of control, the more customers will feel responsibility for and satisfaction with the service.
(Pralhad and Ramaswamy 2000)	Co-opting customer competence.	The changing roles of customer from passive audience to active co-creators of experience. Companies can achieve a competitive advantage by leveraging customer competence.
(Wind and Rangaswamy 2001)	Customerisation: The next revolution in mass customisation.	In the digital marketplace, customers are becoming active participants in product development, purchase, and consumption. Firms must become customer-centric and adopt "customerisation" to add value.

Lately, research in co-production has begun to evolve significantly with the proposed S-D Logic that argues for a paradigm shift in how businesses should consider the customer’s role as co-creators of value. Figure 12 provides a broad illustration of how co-production and value co-creation studies have evolved from the 1970s to present day.

Figure 12: Evolving studies of co-production and value co-creation in Marketing



This author argues that recent developments in service research and the proposed S-D Logic by Vargo and Lusch (2004a, 2008a) have made an impact on marketing strategy at various levels.

First, if goods are “mechanisms for distribution of services” and value is created by both operand and operant resources, it is obvious that previous marketing theories which emphasised the difference between goods and services may prove to be irrelevant and ineffective. In that respect, a service-centred perspective disposes of the limitations of marketing thought in terms of goods taken to the market, and instead provides opportunities for expanding marketing strategy to include the customer’s capability with regards to value co-creation.

Second, firms are only able to make value propositions and therefore need to re-evaluate their position with regards to optimising the benefits for the customer. Of significance in the buyer-seller relationship is the firm’s absolute understanding of “customer value”. In essence, value from the customer’s perspective is dynamic and constantly changes, and therefore can occur at different times under different circumstances. As such, customer value needs to be understood better as it involves different aspects of what Ramirez (1999) described as “*value constellations*”.

Next, as customers are always co-producers, there is a need to recognise the significance of optimising consumer involvement. The traditional concept that the customer is separated from production no longer offers useful guidance, as the customer’s cooperation in the co-production and value co-creation process is important for unlocking benefits.

And finally, the foundational premises of the S-D Logic offer marketers an opportunity to rethink pricing strategies. In the wake of customers being more informed of their choices and playing a more significant role in the buyer-seller relationship, firms must identify the customer's capability in justifying higher prices. This is particularly significant in the service industry when purchases are mainly concluded in advance of consumption (Ng 2008; Xie and Shugan 2001) and where variables such as risks, uncertainties and consequences are carefully considered by the customer before payment is made.

It is clear from the above discussion that service and pricing research are considered important in marketing studies. Based on its literature review however, it appears that despite a wealth of knowledge within these two research areas, service and pricing research still remains fragmented, with little cross-industry learning. One key reason cited is that both the areas of service and pricing are multidisciplinary in nature, and this has resulted in its research being contextual in its approach, mostly seen through the lens of one discipline and perhaps ignoring contributions from other disciplines (Nagle et al. 2010; Wild et al. 2009)

Therefore, this thesis intends to bridge some of these gaps by initiating better understanding of value co-creation in service provision, which in turn may facilitate how service firms approach some aspects of their pricing strategies. The next sections examine gaps in the service and pricing literature that is central to this thesis.

2.4.1 Knowledge gaps in service literature

Although the service sector has become an important contributor to the GDPs of industrialised nations, it appears that its research is clearly lacking in understanding better the dynamics and specification of value co-creation (Gronroos 2008). For example, some early service research in value co-creation has studied broad themes such as interactions (Kotze and Plessis 2003), customer conversations (Harris and Baron 2004), co-creating experiences (Prahalad and Ramaswamy 2004a) and relationship life-cycles (Eggert et al. 2006) under specific contexts. Although these studies have their virtues, for the most part they are considered ad-hoc, contextual and mainly theoretical, with little cross-industry and applied learning.

Recently, value co-creation studies have also been on the increase, with studies on bi-directional and reciprocity relationships (Woodruff and Flint 2006), customer orientation (Rowley et al. 2007) and "working consumers" (Cova and Dall'Aglio 2009; Zwick et al. 2008), yet these studies seemingly appear to disregard knowledge in advancing

theories for enabling value co-creation from the outset. Similarly, studies identifying value co-creation as “*spontaneous, collaborative and dialogical interactions*” (Ballantyne and Varey 2006) may well be useful for understanding its content, but less useful for designing the service.

Alternatively, some value co-creation studies in marketing literature have focused more on the complementarity of operant and operand resources (Mele and Corte 2010) but less on the symmetry of roles between the seller and the buyer in order to achieve benefits. This distinction is critical, as it can be argued that while value co-creation may appear to be symmetric in power it may be asymmetric in tasks, resources and processes from each party (Woodruff and Flint 2006). Hence, understanding the balance of these roles is equally important in the service design, and this focus is also lacking in current service research.

Further underlining this argument, Vargo and Lusch (2008c) argued that value co-creation transcends dyadic exchange between two parties and requires an understanding that value is co-created within configurations that involve “*economic and social actors within networks interacting and exchanging across and through networks*”. Consequently, value co-creation takes place within and between systems at various levels of aggregation. As such, the concept of value co-creation does not only impact two parties; it may extend to all entities that exchange to improve their own state, such as individuals, families, firms, societies and nations (Vargo and Lusch 2008a). This represents a major strategic challenge, as transforming from a transaction-based business model to a relationship-based model is critical to the competitiveness of the firm. Significantly, this transitioning requires a re-evaluation of organisational principles, structures and processes, and consequently represents a major managerial challenge which is also clearly lacking in service research. However, current research in value co-creation suggests that relatively little is known about how firms and customers engage in value co-creation. According to Payne et al. (2008), management literature has “*revealed a surprising lack of work directed at providing frameworks to help organisations manage the co-creation process*”.

It is clear then that service literature on how value is co-created appears to be lacking on different levels. On one level, contentious issues such as “*what facilitates value co-creation*” and “*what are the specifications that firms could use to design a service in order to achieve benefits for customers*” are still broadly unanswered and under-researched (Gummesson et al. 2010). Although current marketing literature do emphasise relationship marketing which focuses largely on customer retention and

customer satisfaction, there is still very little research on the service designs that could facilitate value co-creation relationships. What is critical in value co-creation research is the need to adopt a true S-D Logic where all operant and operand resources, be they processes, people or equipment, are considered resources that could be utilised and combined effectively, and are substitutable between one another according to what is most effective to deliver benefits to the customer (Ng et al. 2011).

On a different level, much research in value co-creation is geared towards the theoretical and conceptual domain with very little empirical evidence of the phenomenon supporting its research. For example, earlier works by Ordanini and Pasini (2008) on the “service-oriented architecture”, Prahalad and Ramaswamy’s (2004) DART model and Payne et al’s. (2008) framework on value co-creation reside mainly at the theoretical level.

This oversight is supported by marketing literature, which have called for academics and practitioners alike to discard the current marketing logic about the clear separation of buyers and sellers, and to redefine the value chain towards a service system that could enable more effective value co-creation. Therefore, in service marketing literature, the notion of value co-creation cannot be ignored and there is clearly a need for service researchers to face the challenge of understanding customer experiences and consumption processes in co-creating value for benefits (Patraccio et al. 2008). However, despite this growing challenge and numerous calls by academics, literature on the specification of value co-creation is scarce. Academics lament the slow development of knowledge to inform better organisation of service management, as there are very few authors offering “specific ways to translate customer-orientation words to customer-orientation deeds” (Glusko 2010).

As such, there appears a need for a more defined focus on the firm and customer exchange through value co-creation to assist the firm in understanding better how value is co-created. Therefore, the focus of this thesis on establishing the attributes of value co-creation is important as it confronts the different aspects of the economic exchange, not only between the service provider and the customer, but also the role and impact of other social “actors” involved in the service delivery.

What is perhaps more important is the examination of the value co-creation relationship between these parties under a service system (Ng et al. 2009e; Vargo et al. 2008), and also the complexity involved in the delivery of the service which as a research topic has

been strongly encouraged in service research (Gummesson et al. 2010), as it is able to address some of the gaps in service literature.

2.4.2 Knowledge gaps in service pricing literature

It has been argued that pricing research is a neglected area within the marketing domain (Myers et al. 2002; Rao 1990). A study on marketing journals show that less than 2% of their articles cover the subject of pricing (Malhotra 1996). A 2004 report on the website amazon.com found 3,594 books on advertising, 2,371 books on promotion, 1,077 books on distribution, 619 books on product management, but only 65 books on “price” and “pricing” albeit with more than 50 of the 65 titles listed as out-of-print (Hinterhuber 2004). This evidence that pricing is an under-researched area is extremely disappointing when pricing is considered an important and seemingly powerful tool in the business environment (Shipley and Jobber 2001).

It is therefore not surprising that service pricing is an even less researched area. Current pricing literature has very little to offer to facilitate a better understanding of service pricing and this is partly due to the ubiquitous concept of “service”. Although it has been argued that the concept of “service” has great richness and diversity to its meaning, its usage has led to considerable ambiguity when the concept is used in different literature due to its multidisciplinary nature (Johns 1999), and this has had a severe impact on service pricing research (Matanovich 2003). A 2007 analysis revealed that only 6.7% of pricing articles (table 18) were related to the pricing of services (Ng and Yip 2007).

Table 18: Analysis on service pricing articles

Journals	Inception Year	Keywords Price / Pricing	Keywords Price/Pricing Service/Services	%
American Economic Review	1911	978	30	3.1
Econometrica	1933	179	19	10.6
Quarterly Journal of Economics	1886	289	8	2.8
Management Science	1954	205	21	10.2
Operations Research	1955	152	32	21.1
Journal of Business Research	1928	89	17	19.1
Journal of Marketing	1937	478	27	5.6
Marketing Science	1982	98	10	10.2
European Journal of Marketing	1967	63	12	19
Journal of Marketing Research	1964	235	10	4.3
		2,766	186	6.7

Source: Ng and Yip 2007

For the few service pricing articles that are available, the studies appear to be varied in their research approach. They exist in different business disciplines and extend to a

wide range of industries including public utilities (Banfi et al. 2008), telecommunications (Agarwal 2002), engineering (Sturts and Griffis 2005), financial services (Wonseok and Lucas 2006), groceries and retail (Sprott et al. 2003; Vanhuele and Drazze 2002), airlines (Belobaba 2011), information systems (Harmon et al. 2009), restaurants (Kimes and Thompson 2004) and healthcare (Dror et al. 2007).

Hoffman et al. (2002) offered three reasons for the dearth in service pricing research. First, they implied that literature in service pricing appear to be advancing independently of each other and tend to be “*highly specific, fragmented and at times seemingly unrelated*”, suggesting that perhaps these divergences are likely drivers for the limited attention.

Second, in their examination of the Journal of Retailing, they found that research into the pricing of retail services is more focused on the pricing of tangible goods and as a result, reduces attention to service pricing. And finally, the authors cited that both academia and industry have a poor understanding of service pricing (intangibles) as its understanding directly “*relates to how consumers purchase, experience, and benefit from retail services*”. They felt that this lack of expertise of both parties limits the extent of research conducted in service pricing.

Under this orientation, most marketing academics generally believe that there is little incentive to study the effects of pricing as it is mostly “*routine, intuitive, informally derived*” (Oxenfeldt 1983) and is likened to an “*art form and mostly irrational*” (Rao 1984). Even within large organisations, the pricing decisions are “*concluded in an intuitive fashion*” (Dutta et al. 2003). In some instances, pricing is considered to be “*perplexing*” and “*sometimes mystifying*” (Hoffman et al. 2002) for both academia and industry, and for others, pricing is driven in parts by rational reasoning, established practice, and partly by “*black magic*” (Paleologo 2004).

Similarly, Hinterhuber (2004) highlighted two observations on pricing practices; first, pricing managers perceive that conflict is extremely strong in the field of pricing as it is assumed that “*what is gained by the firm is lost by the customer and vice versa, and that pricing is, in the end, a zero-sum game*”. Second, pricing experts lack confidence in their ability to significantly influence their industry’s pricing structure for they believe that “*prices are mostly dictated by the market*”, hence their pricing strategies are focused on cost and volume rather than “*value*” or “*competitor*” based methods. This orientation further discourages marketing academics from advancing pricing research,

and indicates a possible gap between theoretical pricing research and industry application of pricing theories.

Given Hoffman's and Hinterhuber's arguments, it is evident that service pricing research gaps exist on multiple levels. This author discusses three significant gaps relevant to this thesis.

The first knowledge gap in this area relates to value-based pricing. According to Avlonitis and Indounas's study (2006) on the pricing practices of 1,495 service organisations, most firms employ cost-based pricing methods, citing "cost recovery to generate a reasonable rate of return" as their main pricing objective.

Using a cost-based view to determine the pricing of services appears ineffective; estimating the unit cost of a service is relatively hard as the majority of its costs is fixed. Any attempts to allocate variable costs to a service provision is often considered as "implied costs" (Horngren and Harrison 2008) and as such, the true unit cost is never reflected. This is undeniably more complicated for firms offering multiple services.

Furthermore, cost-based approaches do not consider service characteristics such as inseparability (the producer and consumer relationship) which require an understanding of the processes associated with the purchase of a service. Also, as most services are highly perishable, pricing of advance sales is essential and necessitates a deep understanding of consumer's risk aversion against the selling of the service firm's capacity (Lee and Ng 2001; Ng 2008). This in turn leads to a need to reconsider consumer behaviour in the wake of advancing service pricing research and more importantly, the customer's perceived value of service at the time of the purchase.

This author feels that for the most part, the discussion of service pricing has neglected the understanding of the customer's value proposition. For instance, service pricing studies in operations management focus on the quantitative side of optimising inventory and revenue, while marketing studies focus mainly on the prescriptive side rather than capture the value dynamics between the buyer and the seller. Despite the obvious benefits of customer value-based approaches to pricing, these methods still hold a relatively minor role in service pricing research.

The second knowledge gap in service pricing research stems from the lack of a unified platform for advancing cross-industry knowledge. This is supported by the fact that its literature covers a wide array of topics and different industries which, similar to service

literature, is symptomatic of a divergence of interest within its research community. Furthermore, its research is highly dependent on different perspectives covered in a multitude of pricing topics discussed across various disciplines, including price determination, perceived fairness in pricing, reference pricing, optimal and dynamic pricing in advanced sales, pricing competition, pricing models and optimal pricing in capacity management. This has made service pricing research an area that is “*extraordinarily complex*” (Dutta et al. 2003).

It is this author’s opinion that two research implications arise from these divergences: first, the multidisciplinary nature of service pricing research continues to encourage independent and fragmented studies and second, little attention has been paid to the impact of these fragmented agendas on cross-industry learning. As a result, efforts to unite service pricing research has been very limited, and a more satisfying approach to greater integration of both academic and industry research is much needed to fill this gap (Fleischmann et al. 2004).

Finally, there appears to be literature gaps in service pricing research from the value co-creation perspective. Although service pricing research has addressed issues with regards to service characteristics such as intangibility (Danaher 2002), inseparability (Elmaghraby and Keskinocak 2003) and perishability (Kimes and Thompson 2004), there has been no research conducted on pricing strategies in a value co-creation environment.

In essence, research in service pricing appears to be limited yet varied and diverse. Its multidisciplinary and somewhat ubiquitous nature suggests that although each study has its virtues, very little learning is extracted at an abstract level for advancing cross-industry pricing knowledge. Nagle and Holden (2010) have accused early marketing academics of ignoring the area while focusing much of their attention on customer satisfaction, believing that “*high profitability would somehow follow*”. Under this orientation, it is therefore not surprising that both academia and industry lack an understanding of the variables surrounding the pricing of a service which relates to how consumers might purchase, experience, and benefit from the service consumption. Questions on “how consumers experience” rather than “what experiences” might impact on pricing strategies remains unanswered under the value co-creation platform.

It is clear that marketing researchers have paid little attention to the pricing enquiry (Ng and Yip 2007) particularly within service pricing, and this review shows that despite the

ubiquitous nature of pricing literature, there are knowledge gaps in capturing service pricing at an abstract level.

The next section of this thesis proposes three studies to investigate the impact of value co-creation on willingness to pay and provides justification for these studies.

2.4.3 Research question

Technological advances in electronic information systems such as the internet and mobile communication have given consumers much better access to information. With the click of a button, relevant information such as prices, features and alternatives are readily available to help consumers make their purchase decisions. As 21st century consumers become more informed of their choices, an understanding of this modern consumer appears to be key to the success of the firm. Today, this reasoning is increasingly manifesting itself in management literature with regards to value, and how value is created for this modern consumer (Payne and Holt 2001; Ueda et al. 2008).

Similarly, Prahalad and Ramasamy's (2004b) insights on the interactions between sellers and buyers suggest that firms relying on traditional "customer-centric" value creation now need to re-evaluate how value is created under the new environment for the consumer. Firms can no longer expect to function autonomously without the customer's involvement. The authors argued that this "*emerging reality of the modern consumer*" is one that is informed of his or her choices. With the assistance of technology for example, banks have engaged consumers to perform multiple banking transactions in the comfort of their own homes, while supermarket retailers have enabled customers to shop for their groceries online from supermarket websites and have their purchases delivered whenever they want them.

Under this orientation, Vargo and Lusch's (2004a, 2008a) seminal work on the S-D Logic appears to support these arguments for the close interaction between the seller and the buyer, specifically from a marketing perspective which has long been accused of being overtly product-centric (Lovelock and Gummesson 2004; Shostack 1977). They contended that there is a need for a paradigm shift in the way business and academia think about the offerings that firms provide customers.

Primarily, they argued that "*service is the fundamental basis of exchange*". In all economic exchange, both operand and operant resources are employed in order to bring offerings to the consumer. The authors posited that consumers purchase goods

to extract some form of service from the purchase. For instance, an airline seat is a means of transportation to travel from one point to another while a radio enables the consumer to listen to music and the news. Likewise, a tennis racquet allows the customer to enjoy the sport and subsequently the benefits of a workout.

Their argument then suggests that all goods are platforms or appliances that assist in providing benefits to the consumer. Put simply, customers buy goods/services that offer them benefits. Hence, in delivering these goods or services to the consumer, an array of resources is required in the production. These resources include people, systems, infrastructures and information and in that sense, physical goods are part of that “resource” which are then combined in a systematic process to achieve the optimum benefit for the consumer, contingent upon how these resources function and interact together internally and externally with the customer.

In essence, these processes exist because the firms provide the “service” to enable the processes to function in the interests of both the firm and the consumer. It is through these processes that value emerges for the customer and this implies that “service as a process” supports the creation of value for the customer, and that goods as a resource alongside other resources (products, people, information, etc.) in the process function “*contribute to the service that supports customers’ value creation*” (Gronroos 2008).

Under this orientation, the same principles underline Vargo and Lusch’s proposition that the “*customer is always the co-creator of value*”. If the customer is part of the system that delivers value, the customer can therefore be seen not only as a co-producer, but also as a co-creator of value. In the earlier IKEA example, the firm offers customers the opportunity to take on certain key tasks traditionally done by the manufacturers. This changes the dynamics and the relationship between the firm and the customer as it requires the customer to not only be a co-producer of the offering, but also to create value through costs savings from performing tasks such as the assembling of the furniture.

What is therefore significant in this relationship is that “value” is created by both parties. For the firm, they are able to bring costs down and be more efficient in their production thus increasing revenues while for the customer, there are cost saving benefits from the exchange as well as in some instances, the benefit of enjoyment from assembling furniture. Vargo and Lusch (2004a) termed these processes in the IKEA example as “value co-creation”, suggesting that the customer, as a “co-producer” in the economic exchange is always partly or wholly responsible for creating value.

To further illustrate value co-creation, passengers who purchase tickets for flights are required to remember to bring their passports, air-ticket and get to the airport on time. Additionally, they have to locate the check-in counter, find the immigration sections and proceed to the boarding gate. Essentially, the customer has to co-produce the service and also to create value for themselves, i.e. by finding the most economical way of getting to the airport, packing the luggage optimally to avoid excess baggage charges. All these actions performed by the customer ultimately contribute towards benefitting the customer and in doing so, co-create value for themselves. In this example, the airport or the airline is unable to provide that part of the service on behalf of the passenger. If the customer is unable to perform the required actions on that day, the service offered by the firm is not rendered.

In that sense, the firm can only provide a “value proposition” to the customer (Vargo and Lusch 2008a). Hence, there is a need to recognise that the consumer is a co-producer in the firm-buyer relationship and there is strategic significance in optimising customer involvement. The traditional concept that the customer is separate from production may no longer offer useful guidance as the customer’s cooperation in the co-production process is important for unlocking benefits. In simplistic terms, a customer who does not know how to operate the most technologically advanced mobile phone would find little or no value from the phone.

Therefore, underpinning the concept of value co-creation as proposed by Vargo and Lusch (2008a) is the idea that firms are only able to offer “value propositions” and it is dependent on the customer to unlock the value. In that respect, “*the enterprise cannot deliver value, but only offer value propositions*” and under these circumstances, a firm’s offering is merely “*value unrealised*” until the customer realises it through value co-creation and gains the benefits.

From a marketing standpoint, this argument challenges product marketing strategies which ceases at the point of purchase. With the concept of value co-creation where the boundaries between the firm and the customer are blurred, resulting in more interactive exchanges, new marketing challenges arise. Therefore, thinking about the customer’s capability in value co-creation is critical if firms are to address these challenges. By the overlapping of the customer’s roles in the firm’s processes, organisations are slowly beginning to recognise their interdependence with the customer as these situations sometimes appear to blur the traditional roles of ‘producer’ and ‘consumer’.

Interestingly, Humphreys et al. (2008) noted that what is challenging under the concept of value co-creation is the distinction between fundamental changes in the economic role of the consumer. They argued that if a consumer “performs tasks normally handled by the company”, it does not necessarily represent a fundamental change in the economic environment. Instead, when consumers who traditionally represent the “buyer”, are able to produce value for companies through a co-creation process, this gives rise to a fundamental change in the economic role of the consumer.

To that extent, if the customer is involved in the production of the service and is part of the value creation process, this implies that the customer is able to influence the manner in which the service is rendered. For example, if the consumer forgets to chill the can of beer before the football match or incorrectly charges the mobile phone battery at a crucial time, less value has been added to the product through no fault of the manufacturer and the customer creates less value for themselves.

Therefore, in an increasingly competitive economic environment that is largely dominated by service, with innovative technology boosting consumer knowledge through easier access to information, a deeper appreciation of value co-creation should then pave the way for new opportunities for firms to create “value” for their customers. Also, firms can then be better informed of pricing opportunities.

In underlining this debate and building these arguments from service and pricing literature and their respective knowledge gaps, this author feels that it is important to understand the factors influencing the concept of value co-creation. In that respect, this thesis asks the question “what are the attributes of value co-creation and how may they impact on the customers’ willingness to pay”?

The term “impact” can be defined in various contexts. The Oxford English Dictionary defines the term as ‘to have a (pronounced) effect on’. Hence, this definition provides various forms and extents of “impact” which can be identified. The more common forms of “impact” often evaluated by researchers include studies on environment, politics, economics, social, direct and indirect, primary and secondary, and short- and long-term. However, in social science, the term “impact” is often defined as “*the consequences to human populations of any public or private actions that alter the ways in which people live, work, play, relate to one another, organise to meet their needs*”

*and generally cope as members of society*⁷. As such, this thesis uses the term “impact” to simply mean “having an influence”.

In the next section, the justification and importance of the research question is provided.

2.4.4 Justification and importance of the research

The research questions for this thesis are raised from two sets of literature review as illustrated in figure 1 (page 91, re-produced from page 10). From service literature, this author uncovered knowledge gaps with regards to how buyers and sellers view the process of value co-creation.

Applying four theoretical foundational premises from the S-D Logic; “*goods are mechanisms for the distribution of service*”, “*firms are only able to make value propositions*”, “*customer is always a co-producer*” and “*all social and economic actors are resource integrators*”, this thesis argues that value co-creation is an important concept for marketers to consider. Although there have been frameworks introduced to study value co-creation such as the DART model by Prahalad and Ramasamy (2004) and Payne’s (2008) process-based framework on value co-creation, there has been no detailed examination on the attributes of value co-creation.

Similarly, the literature review on the study of pricing found limited understanding of service pricing from a “value” perspective, and no studies on pricing under a value co-creation platform. As such, this author found it meaningful to raise the question of how attributes of value co-creation impact on the customers’ willingness to pay.

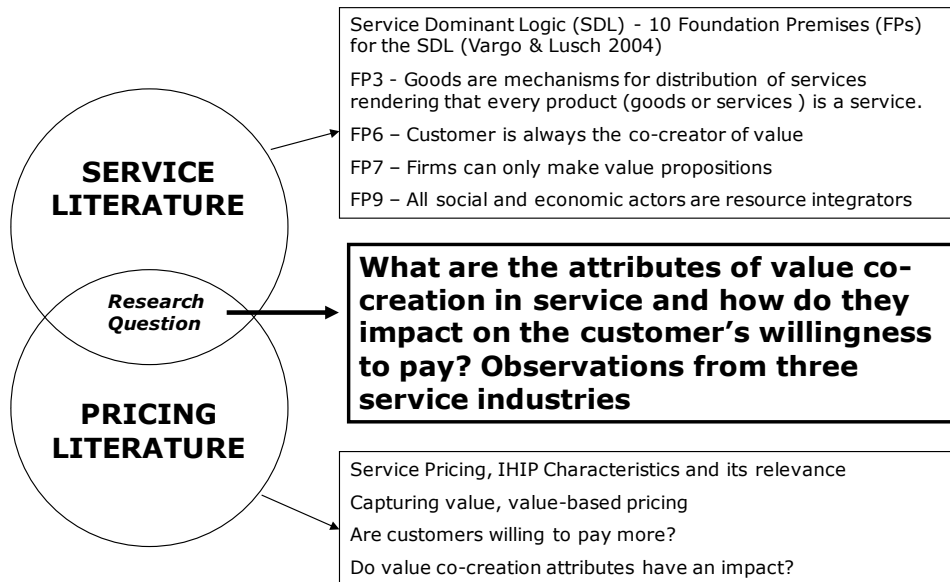
Furthermore, both service and pricing literature reviews identified knowledge gaps in cross-industry learning. For that purpose, this thesis has chosen to examine three service industries – defence, healthcare and higher education – for a more generic approach to encourage cross-industry learning. All three contexts employed for this thesis are significantly different in their service provision.

In the case of the defence industry, the service provision involved the maintenance of equipment for deployment in warfare whereas in the healthcare industry, it centred on the treatment of the eye for elderly patients. In higher education, the service surrounds the provision of an experience for the student over a period which culminates in a

⁷ Inter-organizational committee on guidelines and principles for social impact assessment. *Impact Assessment* 1994;12:107–52.

degree. It is clear that these three service providers differed in terms of the challenges they face under a value co-creation platform.

Figure 1: Conceptual development (reproduced from page 10)



For instance, the customer is different in all three industries. While the customer in healthcare and higher education can be the “patient” and “student” respectively, the customer in the defence industry involves multiple players. Similarly, all three industries would need to employ different sets of operand and operant resources in delivering their service. It can then be argued that in the different service industries examined, the firm’s value proposition to the customer is varied and this would prove challenging under a value co-creation platform.

Therefore, it is important in this thesis to examine value co-creation attributes under the different service context, to draw generic conclusions and therefore narrow knowledge gaps as well as advance knowledge in cross-industry learning.

This doctoral thesis aims to contribute to knowledge on two levels. On the primary level, its research examines further the concept of value co-creation by establishing aspects of value co-creation attributes. This is significant as it informs both academia and industry to enable better understanding of how value co-creation processes are experienced and desired, as well as helping practitioners to make better informed decisions when planning and designing for future service provision.

On the secondary level, this research contributes to further understanding of pricing strategies with regards to service pricing under a co-production and value co-creation framework, instead of cost-based methods. This is an important contribution as there has been no research in service pricing on the impact of value co-creation for informing pricing strategies.

This thesis also highlights the multidisciplinary nature of service and pricing research. It demonstrates its fragmented research and how it appears poorly connected through the different disciplines, as each has its own strategic focus. While these different studies have some virtues and appear to advance the understanding of service and pricing, for the most part they are ad-hoc, highly contextual and therefore limit learning across discipline and industry. From a theoretical perspective, this thesis suggests that incorporating a cross-disciplinary and multidisciplinary approach to understanding the complexity of service through simultaneous studies of different service contexts has advantages in advancing knowledge for both academia and industry.

In the spirit of this thesis, both these broad contributions are significant as current literature in both these areas is limited from a value co-creation and value-based pricing perspective.

In closing this chapter, this author draws the reader's attention to reports that some large corporations are now emphasising the importance of service research. IBM Inc., Hewlett Packard, SIEMENS, General Electric and BAE Systems have reportedly made advances in service research to support the marketing of their service division which is indicative that revenues from their service provision are increasing (Sawhney et al. 2004).

This is an interesting development in services marketing research as historically, the marketing of one's technical services was viewed as "unprofessional" (Sturts and Griffis 2005); engineering firms relied mainly upon their ethical and technical reputations as well as the technically challenging aspects of their design. Therefore, the author feels that this doctoral thesis can provide important contribution towards an area that is relatively new but critical for better understanding of service provision under a value co-creation environment.

The next chapter of this thesis outlines the research methodology for answering the proposed research question.

Chapter 3: Research Methodology

“A far more profitable way to approach things, and one which is far more in tune with the mood of social research as we enter the 21st century, is to recognise that each method provides its own distinctive perspective. Each method approaches the collection of data with a certain set of assumptions and produces a kind of data which needs to be recognised as having certain inherent strengths and certain inherent weaknesses in relation to the aims of the particular research and the practical constraints (time, resources, access) faced by the researcher. A new and exciting possibility is opened up. Different methods can be used to collect data on the same thing. Each can look at the thing from a different angle – from its own distinct perspective – and these perspectives can be used by the researcher as a means of comparison and contrast”

(Desencombe 2001)

Although research is central to both business and academia, a clear definition of the term “research” and what its characteristics entail is still unclear in literature today (Collis and Hussey 2003). Its research appears to differ in terms of what it emphasises and encompasses by the different stakeholders involved (Bryman and Bell 2003), particularly in the areas of business and management studies. While some authors believe that business and academia have equal importance in contribution to knowledge of business and management through research (Gummesson 2000), others have argued that *“application is not the primary objective to which management research should be directed or dictated by non-academic interest such as professional associations and government agencies”* who may have alternative agendas (Clegg 2002) that may not necessarily be aligned in the interest of the general public. For instance, the UK’s Financial Times recently reported that we are living in “the age of bogus survey” aided by publicists eager to design research for the purpose of generating spurious news in attracting “eye-catching answers that displaces serious thought and analysis”. These activities that some have termed as “thought leadership”, reflects a world that appears to support research that *“aids the publicists but not the public”* resulting in ambiguity of the “true meaning” of the word “research” (Kay 2007).

In an attempt to define proper “research”, Saunders et al (2008) argue that research is not about *“collecting facts or information without purpose”*, nor is it reassembling information without interpretation or a *“term to get your product noticed or respected”*. Instead, research should represent studies that researchers undertake in order to advance knowledge in a systematic way where data are collected and interpreted in a

systematic and logical way underlined by clear research objectives. In that sense, management research has to be clearly defined to inspire significant information to emerge for meaningful knowledge to be created. As such, there is a need to attach credibility to the research work. One way of ensuring credibility is to structure the research process in a manner that is systematic and contains enough rigour to reflect quality on the part of the study. This process requires an understanding of the various research philosophies and approaches that a researcher needs to adopt in management research.

Table 17 summarises some aspects of thinking involved in research philosophy. Among the issues facing most researchers include having to decide on their philosophical position as well as the methodological approach and strategy needed to answer the proposed research question. In answering these challenges, it allows researchers to reflect upon the meaning and rigour attached to the research.

Table 19: Elements of research

Issues	Types
Philosophy	Positivism, Interpretivism, Pragmatism
Approach	Inductive, Deductive
Strategy	Survey, Case Study, Grounded Theory, Ethnography, Interviews, Focus Groups, Archival
Choices	Mono-method, Mixed-method, Multi-method
Time Horizons	Cross Sectional, Longitudinal

Table 17 adapted from "The Research Onion", Saunders et al (2008)

In the next sections of this chapter, I map out my research philosophy and the overall research methodology in addressing my proposed research question.

3.1 Research Philosophy

“A substantial body of evidence suggests that executives typically do not turn to academics or academic research findings in developing management strategies and practices. Similarly, researchers rarely turn to practitioners for inspiration in setting their research questions or for insight in interpreting their results. Given this state of affairs, it is hardly surprising that considerable gaps often exist between the normative recommendations of organizational researchers and actual management practices in organizations”

(Rynes et al. 2001)

Having been in industry for almost 20 years and before embarking on the doctoral journey, this author has often felt intuitively as a practitioner that there was little learning transpiring between academia and management practice. The situation was uninspiring and this author frequently questioned the role of academia in advancing business and management knowledge. Undoubtedly, this is clear from Rynes et al's (2001) observation that this suspicion is not unfounded.

Current management literature continues to reflect these academic discussions of the divide between industry and academia (Cary 2004; Fleischmann et al. 2004). Reflecting on his personal experience with academics, this author has occasionally been informed that academic journals are written for a different set of audience. Therefore, practitioners seeking knowledge from the research of academics have to refer to main-stream periodic such as “The Economists” or “Business Week”. At a recent academic conference, the editor of an academic journal cautioned that academic journals “are not written for practitioners” as academic research requires “accuracy” and “rigour” both of which are of less importance to industry that is more concerned with its day-to-day issues and solutions. This further implies that there is indeed a gap between academia and industry.

Rynes et al (2001) suggests that this divergence appear to manifest at different levels in the research-practice gaps and these divergences occurs for various reasons. For example, different types of information believed to constitute valid bases for action and the ways in which it is arranged for "sense-making" are perceived differently by academics and practitioners with varying frameworks (Shrivastava and Mitroff 1984). Similarly, the focus of their research can differ with respect to the “goals they seek to influence” and the “variables they attempt to manipulate” (Rynes et al. 2001). As such, this author felt that his rich and broad industry experience combined with an academic

lens might help comprehend better the academic-industry divide, and hopefully be able to bridge some aspects of the gap.

Therefore, underpinning this author's management research philosophy with regards to narrowing this gap between academia and industry is a "pragmatism" approach. Pragmatism as a branch of philosophical study is associated with C. S. Pierce and W. James with the ideology that "*a proposition is true if it works satisfactorily and that the meaning of a proposition is to be found in the practical consequences of accepting it*" (Fontrodona 2002). From its early conceptualisation, pragmatism as debated in management studies does not reflect philosophy in its classical sense of inquiry into the ultimate nature of things. Instead, it refers to the correct use of knowledge for achieving a definite, practical purpose and to support the advancement of a business enterprise (Litzinger and Schaefer 1966). Concisely, what enables knowledge to be pragmatic is its situational nature that allows the researcher to construct a platform for achieving a specific objective.

For example, to most people, the knowledge that Halley's comet visits Earth every 76 years would not be pragmatic because there is little opportunities to apply it for purposeful action in achieving a goal. However, if you were a young astronomy student hoping to capture a photographic image of a comet, and you knew that Halley's comet last appeared near Earth in 1986, you will seek out alternate measures. In that sense, this implies that knowledge is pragmatic from a situational perspective and it enables us to re-act in order to achieve a specific purpose. It also suggests that pragmatic knowledge is not confined to "just knowing" and taking effective actions in fulfilling an aim but that it enables us to take effective action based on a situation that is subjectively defined by the researcher.

This argument underlines the pragmatists F.C Schiller's view that "*truth is relative to specific problems*". He reasoned from that if a person wants to know how to return home safely, the "*true answer will be whatever is useful to solving that problem*". However, at a later stage when faced with a different problem, it may be that what is "*believed earlier may now be false*". As a result, it appears that when problems change, and "as the most useful way to solve a problem shifts, so does the property of truth" (Shook 2005). In essence then, pragmatic knowledge can be seen as "*that which serves a practical purpose by virtue of its capacity to reliably facilitate the taking of effective action, is subjective, customized, ad-hoc and seen from the researcher's perspective*" (Cavaleri 2004).

Consequently, and from a management philosophical perspective, Johnson and Clark (2006) proposed three possible research paradigms that an academic researcher in management can adopt; positivism, interpretivism and pragmatism (table 20).

Table 20: Comparison of three research philosophies in management research

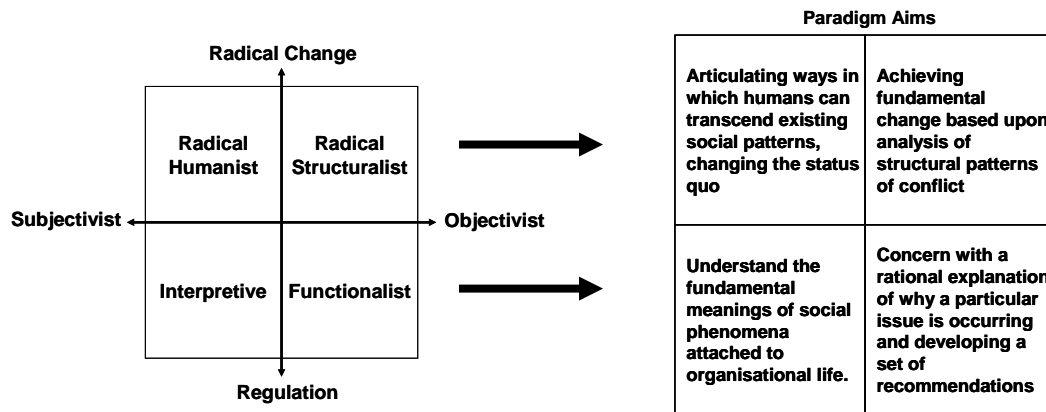
Research Philosophies	Epistemology (Knowledge Validity)	Ontology (Nature of Reality)	Axiology (Researcher's Beliefs)
Positivism	Only observable phenomena can provide credible data, facts. Focus on causality and law like generalisations, reducing phenomena to simplest elements.	External, objective and independent of social actors.	Research is undertaken in a value-free way, the researcher is independent of the data and maintains an objective stance.
Interpretivism	Subjective meanings and social phenomena. Focus upon the details of the situation, a reality behind these details, subjective meanings motivating actions.	Socially constructed, subjective, may change, multiple.	Research is value bound, the researcher is part of what is being researched, cannot be separated and so will be subjective.
Pragmatism	Either or both observable phenomena and subjective meanings can provide acceptable knowledge dependent upon the research question. Focus on practical applied research, integrating different perspectives to help interpret data.	External, multiple, view chosen to best enable answering the research question.	Values play a large role in interpreting results, the researcher adopting both objective and subjective points of view.

Table 22 adapted from Bryman and Bell (2003) and Saunders et al (2008)

Not unlike the views of Peirce or Schiller, the authors contend that pragmatism in management research philosophy supports the notion that the most important determinant of the paradigm that we engage in as researchers lie not so much in the debate between a positivistic or interpretivistic view but the research question itself (Johnson and Clark 2006). It is essential that the approach one takes in answering the research question be meaningful and able to create as well as contribute knowledge in the practical business world. This is paramount as the primary reason for business research is to ultimately inform practice and certainly not to impede the utilization of empirical findings through debates of epistemology, ontology and axiology. Interestingly, Tashakkori and Teddlie (1998) argue that it is most “*appropriate for a researcher in a particular study to think of the philosophy adopted as a continuum rather than opposite positions*”.

Under this orientation, this author finds Burrell and Morgan’s (1982) model for examining social theory most useful in bringing meaning to his own research paradigm and the adopted pragmatic approach. In their model (figure 13), they propose four paradigms that are arranged as quadrants to correspond to four conceptual dimensions as a related continuum in management research. The dimensions are paired as subjectivist and objectivist on one end with regulatory and radical change on the other end. In principle, these dimensions assist the researcher in better clarifying their assumptions about knowledge creation in management research and more importantly to “*plot their own route through their research and to understand where it is possible to and where they are going*” (Burrell and Morgan 1982)

Figure 13: Four paradigms for the analysis of social theory



While dimensions of subjectivism and objectivism are familiar terms in philosophy and mainly concern itself with the nature of reality as we define it, dimensions of “radical change” and “regulation”, as suggested by Burrell and Morgan (1982) are concepts on opposite ends that are associated with organisational issues in management. These ends represent two different sociological paradigms and the authors proposed that in solving management issues, the researcher is required to adopt one or two positions; “*overturning the state of affairs*” or “*working within the state of affairs*”. In the former, a critical perspective is necessary to make fundamental changes to the normal order of things in order to create knowledge for the purpose of advancing management theory. On the other hand, research under a “regulation” dimension requires the researcher to be “less judgemental and critical” with the aim of seeking to explain how organisational affairs are regulated and to inform of ways to improve within the framework of the way things are done at the present. From a pragmatic approach, these opposite ends are not extremes but rather function as a continuum for the researcher to reflect on the context that they are studying (Saunders et al. 2008).

In that respect, this thesis’s pragmatic approach allows this author the flexibility to adopt or alternate between any of the paradigms as it would provide a platform to understand better the issues surrounding the proposed research question and overcome some of the challenges faced. Also, this agility permits this author to better frame the methodology required to answer the research questions and as a result be able to advance knowledge in business and management studies.

In the next section of this chapter, the research methodology for answering the proposed research question is mapped out.

3.2 Methodology and Data Collection

The research question of this thesis is addressed through three studies that utilise both qualitative and quantitative methods. This mix method in my approach is well suited from a pragmatic viewpoint (Johnson and Onwuegbuzie 2004) and underlines my research philosophy.

Study 1 and **Study 2** are case-study based where qualitative methods were employed to derive insights into the value co-creation attributes under two different contexts; the defence and the healthcare industries. Although case study methods are perceived to lack precision (quantification), objectivity and rigour (Yin 2003), this approach was elected for a few reasons.

First, the two cases examined are unique in its service provision practices and this provided an opportunity to study the distinct characteristics of the cases in contrast to the significant theory (Eisenhardt 1991; Eisenhardt 1989) located in value co-creation literature.

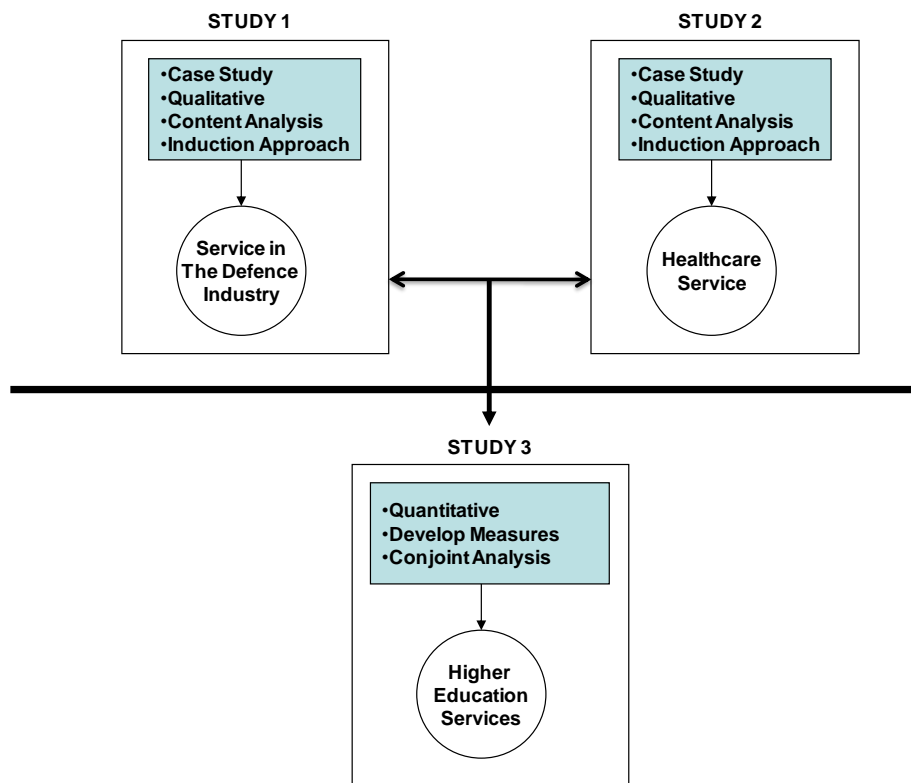
Second, the objective of the two research projects was to identify and verify emergent themes and patterns, and to provide a more rigorous understanding of the dynamics underlying the theoretical relationships between them. Next, as in all applied social science research, the usefulness of case studies would depend on their analytic generalisability and whether or not they shed new light on phenomena of interest. Furthermore, the data collection and analysis pertaining to these two cases were extremely complex and sensitive as they both relate to studies conducted as part of larger research projects.

And finally, the results of the case analyses were used to compare with extant literature in value co-creation and in that respect, enhance the analytic generalisability to theory of the research findings (Eisenhardt and Graebner 2007) and subsequently to support the third study in generating hypotheses (Flyvbjerg 2006).

Study 3 of my thesis then feeds from Study 1 and 2. It is a quantitative study employing the use of statistical analysis and conjoint analysis to gauge the impact of value co-creation attributes on customers' willingness to pay for services. Applying the findings from the earlier studies on value co-creation attributes, both studies support Study 3's development of measures to examine these attributes under the context of service provision in higher education.

The overall research methodology for all three studies is summarised in figure 2 below.

Figure 2: Research process of thesis (reproduced from page 12)



The following sections explain in greater detail the research methodology chosen for addressing each of the three studies in this thesis.

3.3 Methodology and Data Collection for Case Study 1

The first case study is a collaborative project between the Engineering and Physical Sciences Research Council (EPSRC)⁸ and a defence equipment company which looked at developing research thinking to underpin the transformation of the UK defence industry towards more efficient and integrated “service oriented” support solutions for its complex engineering assets.

This project comprised six work packages and this author was part of a team comprising three researchers representing the University of Exeter in one of the work package studying the “risk and cost assessments for service and support contracts”. Our project looked at two aspects of the service contracts; relationship management and value co-creation. This author’s specific role in the project was to examine these service contracts and how value co-creation may impact on the associated risks and costs.

Being part of a larger research team has its advantages. In this instance, this author found that the collaborative effort strengthened the design of the study. The collaboration not only assisted the purpose of overall consensus but it also served to supplement and contest each other’s research findings. The multiple and diverse observations of the researchers enriched the description of the phenomenon that we were studying. Additionally, by working together and sharing resources with other researchers, this author found that given the finite period to conduct the research, the team was more efficient in terms of data collection for the analyses.

Conversely, the collaborative efforts of this project also resulted in some limitations. For example, while we may have been more efficient in our approach to data collection, the team may have been ineffective with regards to the focus of the overall project. In that respect, this author found that occasionally, the diverse meanings to the data created tensions among the team and we had to be extremely cautious that we captured accurately the meaning of the conversations within the interview data. Furthermore, as each researcher is required to contribute different aspects of their findings to the study, the researcher’s background and position will affect what they choose to investigate and also their angle of investigation. Therefore, the careful triangulation of the data at the analysis stage and the documentation of the end results were important for a project involving multiple researchers.

⁸ EPSRC is the UK government agency for funding research and training in engineering and the physical sciences, investing more than £850 million a year.

3.3.1 Background to case study 1

The first study of this thesis centres on the defence industry and examines the contracts of maintenance, repair and overhaul (MRO) services provided by the defence equipment company (the firm) to the government (the customer). The firm delivers a full range of products and services for air, land and naval forces, as well as advanced electronics, security, information technology solutions and customer support services. These MRO contracts with the customer underpinned the firm's obligation to provide service to support the defence equipment according to its customer's needs.

In this study, the team examined performance-based contracts or sometimes known as outcome-based contracts (OBC) to understand better the risks associated with such a strategic change. Briefly, traditional MRO contracts are contracted under a service level agreement where the cost of spares could be excluded or included in the price (Van Weele 2002). The contractor could also provide a cost-plus contract where detailed costs structures such as cost of spares and scheduled maintenance, are presented to the customer to determine reimbursements. A pre-determined profit percentage is then added to reveal the total costs to the customer (Kim et al. 2007).

Conversely, performance-based contracts are about contracting on performance, rather than tasks or inputs by the service provider. For example, Rolls Royce which provides engine maintenance services for the engines it sells are remunerated on the basis of how many hours the engine is in the air; a concept known as 'power by the hour'. It has been debated that these types of performance-based contracts are becoming increasingly popular with service firms keen on "*significant decreases in costs, significant increases in customer satisfaction and the reduction of financial audits*" (Gordon 2001).

From a service provision perspective, a critical element of performance-based contracting is the clear separation between the customer's expectations of service or known as the "performance goal" and the firm's implementation of how the service is achieved (Kim et al. 2007). In short, the contract explicitly states the outcome of the service without specifying how it is to be achieved. The service provider then determines how to achieve that outcome, usually with less intervention from the customer. As a result of this flexibility in the arrangement, performance-based contracting is considered to promote new and improved ways to manage tangible and intangible resources by the firm to achieve outcomes that are of benefit to both the customer and the firm. Although there has been numerous studies conducted on traditional contracting, little is still understood about the characteristics of performance-

based contracting, suggesting that academic literature offers little guidance with respect to how such service contracts should be executed.

Under this orientation, the Study 1 provided a platform for studying the nature of value co-creation and how performance-based contracts are executed with the aim of achieving optimum benefits for both the service supplier and the customer.

3.3.2 Research Methodology for case study 1

Case study 1 employs a qualitative approach. Qualitative research is generally characterised by the use of multiple methods, often referred to as triangulation. There are a number of different methods used in qualitative research such as interviews, participant observation, analysis of texts and documents, recording and transcribing (Dooley 2001). The rationale behind using multiple methods in qualitative studies is to secure an in-depth understanding of the phenomenon in question.

In that respect, this qualitative methodology was necessary for Study 1 in order to understand the hierarchy of the service provision and the dynamics arising from the service contracts. This was particularly important for the study of value co-creation because within performance based contracting, it can be argued that outcomes and benefits are mainly the result of a close working relationship between the firm and the customer. There is then a need to understand the role of the customer in the firm's processes and systems, and the role of the firm in the customer's processes and systems (Woodruff and Flint 2006). As such, it is clear that customer involvement, interactions and behavioural issues in co-creating value are critical in this highly complex relationship between the firm and the customer

Therefore, applying a qualitative approach allows for the meaning of this relationship between the firm and the customer to be mutually and interpretively constructed by the interviewer and the interviewee, rather than being accurate depictions of facts or experiences. This further suggests that one's understanding of the qualitative data as a whole is established by reference to the individual parts and concurrently, one's understanding of each individual part is by reference to the whole. In essence, the individual part cannot be understood without reference to the whole, and vice versa (Bryman and Bell 2003).

Under these circumstances, one is then required to continually modify observations and understandings from earlier readings, and this continuous repetition is critical as later findings may inform initial readings and this allows the researcher some flexibility

to identify undiscovered patterns. The significance of this qualitative interpretive methodology is that the meaning of a conversation is found within a broader context and is suitable for a case study (Eisenhardt and Graebner 2007; Yin 2003).

Additionally, the analysis of the interview transcripts and the interpretation of meaning in this first study required some understanding of a “theory-in-use approach” methodology which assists in the interpretation of “informal theory”, a concept closely linked to practitioners (Bryman and Bell 2003). This is an important consideration because the day-to-day use of language in the “explanations of the contracts” and the “jargon” by the participants in itself provided invaluable sets of qualitative data.

In this environment, everyday casual observations appeared significant when compared to empirically testable phenomenon. For example, practitioners are not too concerned with controlled and rigorously tested experiments; rather, they relate intuitively to their surroundings and have less than precise concepts of theory (Gummesson 2000). This represents an important source of insight for the researcher concerned with formal theory in addressing informal theory built and maintained by practitioners in what can be termed as “daily fire-fighting” to solve immediate problems that arise with quick solutions. By being aware of these informal theories, a researcher may gain a more informed view of the explored phenomena which might otherwise not be obtained.

Under this orientation, it appeared that quantitative methodologies were deemed as unable to capture meaningfully the interactions and relationships between the firm and the customer, and perhaps inappropriate for Study 1.

For that purpose, the team employed multiple qualitative methods including interviews, observations, analysis of texts and documents related to the nature of the service provision to extract data for the purpose of understanding the experiences of the employees from both the firm and the customer in their respective work environment. While the team used interviews and observations to study the interactions between the respondents, the use of texts and documents such as logs were used to validate the actions of the respondents in relation to what was said during their interviews. This triangulation of the different sets of data was necessary to ensure that the research team captured accurately the meanings of the interview conversations and its corresponding source.

3.3.3 Data collection for case study 1

Primarily, data was collected over a six-month period through **in-depth interviews** with the relevant personnel involved in the provision of the MRO service. Apart from the interviews, this author attended some of the firm's training sessions to gain a deeper and more holistic view of the firm's overall management of its service provision operations.

Due to the sensitive nature of the project, potential participants for the study were selected according to availability and also sequential recommendation by those who had participated earlier. Personnel from both organisations (firm and customer) were selected and interviews were conducted with 32 members. The aim was not to compare between size and structure of both teams but to ensure personnel representation at each level from both sides.

The participants represented all levels of the joint delivery teams including project directors (senior executives), project managers, business managers (mid-level executives), engineers and technicians (staff) as summarised in table 21. They were mainly recommended and selected based on their involvement in the day-to-day and strategic running of the service provision as well as their significant interpersonal interactions with the counterparty involved in their work at these levels.

Table 21: Cross section of personnel interviewed

Service Provider	Client
Head, Service Integration	Director, Defence Logistics
Head, Business	Project Manager
Head, Service Management	Manager, Supply Chain
Director, Projects	Programmes Executive
General Manager	Supply Manager
Equipment Support Manager	Commercial Manager
	Technical Lead
	Group Captain
	Sponsored Reserve
	Officer Support, Commander Wing

The interviews lasted between 50 and 120 minutes. All participants were asked for their consent before the interviews took place, and assured of their anonymity and confidentiality with regards to the interview texts and any other materials provided. The purpose of the study was described to each participant as "an exploration of the service contracts they were working on". The interview began with gathering general background information of the participant such as position, employment history, and the length of time working on the contract. It then moved on to more specific topics

such as opinions on “relationships” with the use of more probing questions. Table 22 illustrates some of the sample questions asked.

Table 22: Examples of interview questions

Types of questions	Examples
Opening questions	Why don't we start by you telling me what do you do, and who you are? Maybe you could start with sort of explaining what you do.
Specific questions	How was (the contract) going on? So how would you (do something) like that? What was the relationship like? Did the communication improve? Why?

Each interview was audio recorded and subsequently transcribed. This procedure resulted in approximately 470 single-spaced pages of interview data. The average transcript was 25 pages.

Apart from interviewing, the team also attended project meetings, presentations and visited the service sites several times to observe and study the interactions between the firm and the customer. Supplemental materials such as project briefing brochures and contracting documents (although not released to be reported in this thesis) were also collected. Other related documents central to this research project included minutes of meetings between the employees from both sides. These were collected and analysed together with an analysis of presentations, reports and other text-based documents such as maintenance logs. Additionally, as part of the study, the team had the opportunity to accompany key employees in walking around the bases and sites to observe, take notes and record their audio interactions with one another.

The next section explains the research methodology chosen for addressing Study 2 of this thesis.

3.4 Methodology and Data Collection for Case Study 2

Study 2 stems from a research project in the healthcare industry which examined the provision of an age-related eye treatment service. This author was a co-investigator of this research project and believed that it complemented this thesis as it provided a platform for cross-industry examination of value co-creation attributes.

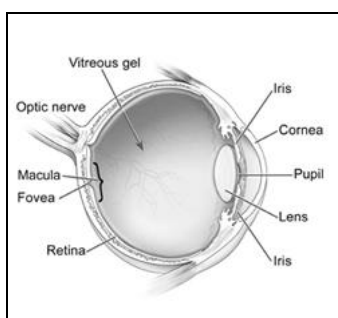
In this study, this author recognised that managing changes in service provision was becoming an important aspect of everyday life. Therefore, insights of how “services” are consumed and the interactions between the customer and the service provider

were crucial in advancing research of value co-creation under the healthcare context. This study also provided a platform for advancing knowledge on how the management of these eye-related patients could potentially linked to other research that could be implemented for the benefit of the community. This study was justified as it had the potential to inform similar projects from a multitude of angles including process, costs, risk and value for the public. More importantly, it showcased how different service industries faced different sets of challenges yet these challenges could provide insights into lessons for other service industries. In that respect, study 2 is important for underlining this thesis's observation of the different service industries.

3.4.1 Background to case study 2

The second study of this thesis explores value co-creation under the healthcare industry. This research project evaluated the service provision of an eye treatment at a hospital's ophthalmology department. The condition known as age-related macular degeneration (AMD) relates to the deterioration of central vision, where abnormal blood vessels behind the retina start to grow under the macula resulting in damage through the leaking of blood and fluid (figure 14). The treatment for AMD is the injection of relevant drugs into the eye. The UK's National Institute for Health and Clinical Excellence (NICE) regulates the guidance for the use of the AMD treatment. Concurrently, the local Primary Care Trust (PCT), which receives an allocation of NHS money from the government each year decides on the healthcare priorities for their local population as well as funding for public's use of the related AMD drugs.

Figure 14: Cross section of the eye where the macular degeneration occurs



The ophthalmology department of the hospital provided the AMD service since 2004 when they were given capital funding to extend their eye department and the opportunity to appoint additional staff. With the additional funding, the number of patients increased over the years. The hospital is also known to be at the leading edge of both the treatment of AMD and its related medical research. This has resulted in the AMD treatment evolving from the complicated laser surgery and photodynamic therapy

to straightforward injections into the eye. Hence, from an initial small scale pilot initiated to provide the AMD service to a small community, the service provision has grown to provide treatment for five counties.

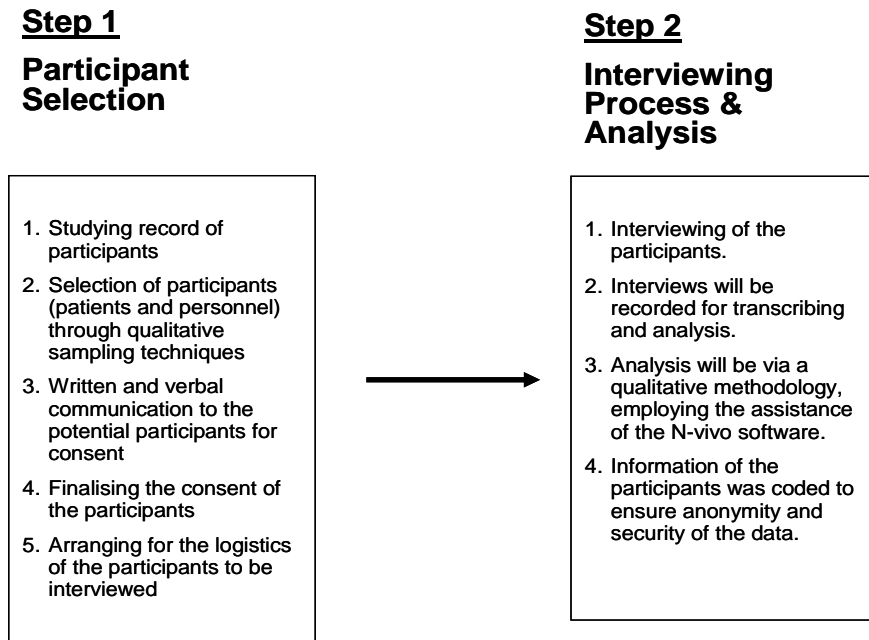
In the early stages of development for the service provision, a number of technical, ethical and management issues had to be overcome. As the scope of the opportunity increased, the scale of its operation had to increase and in addition to the set-up and expanding issues faced by the management, other issues such as communications and reputation management became critical factors. In order to circumvent these circumstances, the ophthalmology department had to develop a number of new approaches to manage the expansion and introduction of the new service.

As the provision for the AMD treatment expanded, it became apparent that if the hospital wanted to move towards its new ambition of providing the best healthcare system in Europe, evaluating what has been learnt will guide future action for the AMD service. Hence, the introduction of the change in services for patients with AMD seemed like a useful example of how issues could be overcome by moving upstream to very early adoption of new techniques, not only for the AMD service but for introducing other types of healthcare service provision.

Against this AMD service provision background, the project recognised that research in the area of services management suggest that one of the critical factors in service provision is the concept of value co-creation. Therefore, understanding how medical services are consumed and the interactions between the customer and the service provider is crucial in advancing the understanding of healthcare service provision. More importantly, the study allowed the researchers to explore how value co-creation is experienced within the delivery of services for patients within the healthcare environment.

Therefore, the primary aim of the project was to describe the key interactions and issues faced in the value co-creation process of the AMD service at the different phases of the service implementation by the ophthalmology department. These key interactions were crucial in informing how value co-creation is experienced by both the patient and the service provider in the healthcare industry and this would help further value co-creation knowledge. Figure 15 summarises the research design for Study 2.

Figure 15: Two-step process of Study 2



3.4.2 Research methodology for case study 2

For the purpose of this second study, a combination of multiple qualitative methods including in-depth interviews, observations, analysis of texts and documents was employed. Qualitative methodology was adopted as there was a need to study the interactions between the customer and the service provider which quantitative methods were unable to capture. Furthermore, given a required time frame for the completion of the study, the research team felt that in-depth interviews were a more effective methodology of detailing the interactions between the various stakeholders as well as its ability to access the data directly for the purpose of understanding the individual's experiences in their environment.

According to Bryman and Bell (2003), qualitative interviewing is a useful research method for accessing individuals' "attitudes and values in order to achieve a level of depth and complexity, things that cannot necessarily be observed or accommodated in a formal questionnaire". By applying this methodology, this author felt more equipped to answer the research questions compared to using other qualitative methods such as covert/overt ethnography or focused groups. While covert/overt ethnography may have provided an opportunity to raise a more detailed account of the interactions, the study would have taken more time and resources to complete. On the other hand, it was felt that a focused-group methodology, although requiring less time and resources, would not have surfaced complex observations compared to one-to-one in-depth interviews.

The main approach used in the interviews for this second study focused significantly on the open-ended interview method which is commonly used in life experience discussions and aims to describe and understand “the language and culture of the respondents” (Fontana and Frey 2000). These open-ended and flexible questions are more likely to get a considered response than closed questions and therefore provide better access to interviewees’ views, interpretation of events, understandings, experiences and opinions. At the same time, the method encourages active listening in which the interviewer allows the interviewee “the freedom to talk and ascribe meanings’ while bearing in mind the broader aims of the project (Bryman and Bell 2003). This is achieved through a dialogue principally set by the participant as the interviewer’s questions were formulated together with the participants’ reflections and were directed at bringing about more thorough descriptions of specific experiences. This then allows the participants to articulate their own system of personalised meanings and meaning-based categories that constitute the “individual’s understanding” of the role in the AMD service delivery (Thompson et al. 1989).

3.4.3 Data collection for case study 2

Data for the second case study was collected over an eight week period through **in-depth interviews** with the relevant people involved in the delivery of the AMD service. Similar to the first case study, the research team wanted representation from all levels involved with the delivery of the AMD service. These included patients, doctors, clinicians, healthcare assistants, administrators and other stakeholders

With respect to the selection of the participants and due to the sensitivity of patient records and hospital personnel, potential participants had to be initially screened by the hospital’s authorities. In essence, the potential participants for Study 2 included patients who had undergone the AMD treatment either as part of the NHS service, self-funded or within the framework of a multicentre research programme treatment. Others potential participants included administrators (technical and non-technical) of the treatment, those involved in the complex commissioning of the service and those clinicians required to deal with the hospital’s ophthalmic service as a whole.

To that extent, Study 2 employed a combination of “convenience” and “judgement” sampling (also known as purposeful sampling) which are common practices among qualitative studies (Marshall 1966). The sampling techniques involved in this study were necessary as the study required a degree of flexibility and pragmatism due to the

resources involved and the ophthalmologist's practical knowledge of the researched area in the AMD service provision.

Under these circumstances, the potential participants from the patient category were selected from a population that was generated within the criteria suitable for the study. These criteria included patients of the AMD service in the last three years who either had funding from the relevant authorities or had self-funded their own treatment, were over 50 years old (the mean age for the AMD patients is 79.3 years) and finally, spoke the English language.

These criteria were imposed for various reasons. First, it was assumed that the more recent the AMD service was administered to the patient, the more lucid the recall of the patient and therefore a higher probability for an increased chance of accurate recall of the services rendered to the patients. Second, the average age of the patients dictated that the majority of the recipients are within a certain age category. And finally, as the research was conducted in English, there was a requirement that the participants were able to speak the language. Although it was the project's original intention to also involve non-English speaking patients, limited resources prevented this wider scope. Moreover, the research project was guided by "judgement sampling" which required the researcher (in his/her professional capacity) to actively select the most recent "productive sample to aid" in answering the study's research questions.

From these criteria, the study generated a population of about 300 patients. Letters explaining the study and inviting them to participate were sent out. We received over 20 responses and managed to interview 14 patients. This represented a response rate of 3%-5% which is acceptable in qualitative sampling techniques (Dooley 2001).

As Study 2 also involved participants from the administrators of the AMD service, a similar process was adopted to select potential participants from the administrators which included medical and non-medical personnel of the service operating within and outside the hospital. In this instance, the ophthalmologist assisting with this study pre-selected a population of potential relevant stakeholders involved with the project. Subsequently, a combination of "convenience and judgemental" sampling was employed using the following set of criteria; (a) medical or non-medical employees of the NHS who has had experience working with the provision of the AMD service from the pre-treatment to the post-treatment, (b) other medical or non-medical stakeholders who may or may not be employees of the hospital but who have had experience working with the provision of the AMD service from the pre-treatment to the post-

treatment and (c) personnel or stakeholders who have had at least two years' experience with the provision of the AMD service.

The selection process generated about 200 stakeholders. A similar “judgement sampling” technique was employed to select the participants. From the responses received, we managed to interview 22 non-patient stakeholders of the AMD service provision. This represented a response rate of slightly more than 10% which was encouraging. In total, 36 participants (table 23) from all stakeholders were interviewed with the interviews lasting between 45 – 90 minutes.

Table 23: Interview Groups for Study 2

	Interview Groupings	No
A	Administrators	8
B	Doctors/Clinicians	4
C	Nurses	4
D	Healthcare Assistants	3
E	Patients	14
F	Other Stakeholders	3
	Total	36

In collecting the data, effort was made to provide participants with an interview environment in which they found most comfortable to relate their experiences. With the participant's permission, all the interviews were audio recorded for the purpose of analysis and transcribing. Furthermore, due to the inductive nature of the study, the interviews took an unstructured to semi-structured form with some pre-determined questions as suggested in table 24.

Table 24: Sample questions for the participants

	For patients	For other stakeholders
1	How have you benefited from the service?	What do you think are the major challenges in the provision of the service?
2	What are the support activities performed by the administrators of the service that are most important, and why?	How do you feel about being part of this service provision?
3	Does the importance shift under different environments?	What do you think are the necessary resources (tangible and intangible) for the provision of the service?
4	How do you generally feel about confiding with the support staff and doctors of the service?	Why do you think they are important?
5	If participating in the trials how you feel about contributing to these trials?	How do you think the service has responded to the challenges faced with emerging new therapies?
6	Do you think it will benefit to the individual or society as a whole for future generations? How will it benefit then?	How do you feel about participating in research into new therapies and the approach taken to compare therapies?

The next section, presents the research methodology and data collection for Study 3.

3.5 Methodology and Data Collection for Study 3

Study 3 which is a quantitative study stems from the findings of Study 1 and Study 2 and it is conducted on students from two universities by way of a questionnaire. The study focused on the UK higher education context and addressed the research question on the impact of value co-creation attributes on the customers' willingness to pay.

This author has focused on the higher education context because he has often felt strongly about the issues surrounding the commercialisation of higher education (Paton 2010) and the impact of the research assessment exercises on tuition fees paid by both home and international students (Willmott 2003). This directly presented an opportunity to investigate further some theoretical insights into student's willingness to pay for their higher education with regards to value co-creation attributes and the risks associated from purchasing a service in advance. Second, the study provided a platform for cross-industry examination of value co-creation attributes with the objectives of comparing and validating some empirical observations across the different service industries examined. In that respect, similar to both study 1 and study 2, study 3, is important for underlining this thesis's observation of the different service industries.

In the next section, some relevant literature in higher education and education marketing are discussed with regards to value co-creation.

3.5.1 Background to Study 3: Value co-creation in higher education

Research in higher education has begun to suggest that students could be seen as "*primary customers*" who are increasingly aware of their customer rights while lecturers and administrators can be framed as "service providers" (Pitman 2000; Redding 2005), a view that has long been advocated by marketing literature in higher education (Cuthbert 1996; Hill 1995; Janice 2004; McCollough and Gremler 1999; McGrath 2002). Furthermore, with proposed fee increments for enrolling in UK higher education courses, a move seen by most universities as a solution to offset decreasing government funding, there is even more reason for students to perceive themselves as "clients" (Ramsden 2005).

However, according to some academics, this marketing idea that students should be treated as customers does not mean that students are able to purchase their degrees, rather there is a need to find a balance between fulfilling "their needs as customers and stretching them intellectually" (Lipsett 2005). In this author's opinion, the student as a

customer does not buy their degree but perhaps purchasing the rights to taking exams and the evaluation for a degree.

In that respect, universities as a service provider comprises many various stakeholders including students, teaching and non teaching staff, government and its funding agencies, auditors, assessors and the community at large. These different stakeholders need to engage and interact with each other in order to design and deliver their “education service” in a “balanced manner” (Telford and Masson 2005). Intuitively, this required interaction of the different stake holders at institutions of higher learning implies a service system (Hennig-Thurau et al. 2001; Voss et al. 2007) involving “multiple-levelled transactions” (Brown 2005) with each stakeholder engaging in multiple roles in delivering a rather complex service (Lengnick-Hall and Sanders 1997). These arguments have prompted both education and marketing research to suggest that students can then be viewed not only as customers, but also as “co-producers” of their own education (Cook-Sather 2002; Kotze and Plessis 2003; McCulloch 2009; McWilliam 2003). This thinking is consistent with both the “S-D Logic” and “value co-creation” literature that views the firm as being able to only make value propositions while the customer is required to co-produce and co-create value in the service transaction (Payne et al. 2008; Vargo and Lusch 2004a). Accordingly, the university as a firm is able to offer different degree courses for students to select, yet students need to have inputs by means of studying and working hard in order to achieve their degrees.

As such, in service literature, the role of the customer in the co-production and value co-creation of a service is crucial. Without the inputs of the customer, a service cannot be delivered to the individual (Zeithaml et al. 2006). Similarly, education research has begun to focus its view on the vital role of the student as a co-producer of their own education and how this new role impacts on the commercialisation of higher education (McGrath 2002; Newman 2002; Schibrowsky et al. 2002; Willmott 2003). For example, studies have shown that in order for learning to occur, high levels of student-participation and intellectual effort by the students, in and outside their classes, are required (Syson 2008).

Recently, this has led to some studies in higher education examining the student’s perspective in the co-production of their own education and as a result able to view themselves and their role as a ‘consumer’ or as a ‘co-creator’ of the education service (Kotze and Plessis 2003). These studies are essential as it informs universities on the students’ overall perception of themselves, their intellectual inputs and commitment to

their studies for obtaining their respective degrees. Additionally, this area of research appears to provide insights into the students' level of expectations of the university (Lizzio et al. 2002; Voss et al. 2007) and the services that universities provide in order to support active student participation and interaction as an important element in the student's overall experience at the university (Cook-Sather 2002; Picciano 2002). As such, these studies provide a critical link for university administrators as it impacts on overall students' satisfaction; a key influence on both the students' and parents' views when applying for places at universities (Douglas et al. 2006) as well as an area that is increasingly being focused on by universities to re-engineer their organisations to not only adapt to student needs, but also allows them to develop a system for continuously monitoring how effectively they meet or exceed student needs in order to remain competitive (Elliott and Shin 2002).

Arising from these arguments, it appears that a cross-disciplinary perspective from the different disciplines of marketing and higher education literature might offer an insight into value co-creation under a higher education context. These education studies include areas in relation to the students' perspective on "perceived quality" of their university experience (Lizzio et al. 2002; Picciano 2002), "expectations" of the different stakeholders within the university (Sander et al. 2000; Telford and Masson 2005), the relevant "information and processes" needed to assist in their university experience (Eisenberg and Small 1993), the perceived level of confidence required to fulfil their objectives in co-creating their education (Sander and Sanders 2003), the impact of social activities on the student experience (Le Blanc and Nguyen 1999), the perceived different "learning processes" that encourages students' intellectual growth and the "authority" and "empowerment" necessary to aid students in facing the challenges of a university education (Cook-Sather 2002; Kotze and Plessis 2003; Redding 2005).

Under this orientation, these areas of education and marketing research appears to suggest that value co-creation is indeed an important element in assisting the student to achieve success in their education. Therefore based on the above review and the earlier two case studies on the generic value co-creation attributes, this study proposes that:

P1: Value co-creation attributes are important in supporting the student's university experience.

and furthermore, based on the importance of these value co-creation attributes,

P2: Value co-creation attributes are able to impact on the customers' willingness to pay for a service.

The next section discusses the research methodology in formulating hypotheses to support these two propositions.

3.5.2 Research Methodology for Study 3

“A great deal of market research today is descriptive in nature rather than predictive. Descriptive information is useful to characterise demographics, using patterns and attitudes of individuals. Beyond descriptive information, managers need survey research tools that can predict what consumers will buy when faced with a variety of brands available and product characteristics. It is precisely due to this focus that conjoint or trade-off analysis has become so popular over the last three decades.”

(Orme 2006)

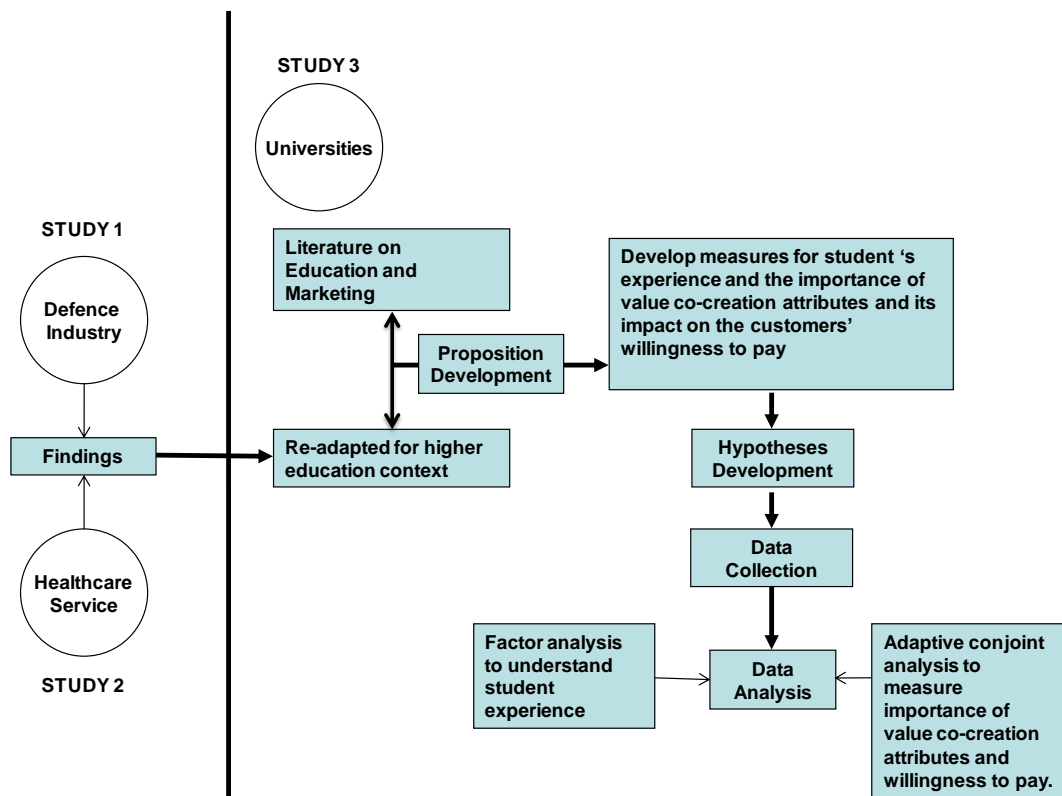
In order to facilitate empirical support for the propositions on value co-creation attributes, the findings obtained from the initial qualitative case study 1 and 2 were employed with respect to the operationalised constructs of value co-creation attributes.

This quantitative study employs two main statistical tools; factor analysis and conjoint analysis. While factor analysis was used to assist with understanding the student's perspective of their experiences in co-producing their own education, conjoint analysis was applied to study the perceived importance of value co-creation attributes from the student's perspective and its impact of on the students' willingness to pay in trading off the different attributes. The study process is summarised in figure 16.

Primarily, factor analysis was used to initiate the study to determine the possible dimensions comprising the student's experience with regards to co-creating their own education. This initial exercise was important for the study as it provides the platform to validate the students' perception of value co-creation in supporting their education and their role in fulfilling their university experience. For this purpose, factor analysis was applied to define the underlying structure of the examined variables. Furthermore, as there were limited studies conducted on value co-creation in institutions of higher learning, no measurements were available to gauge these students' perspectives and therefore measure had to be established.

As such, the study referred and adapted mainly from education and marketing journals with regards to measures of students' expectations of university life, their perceived value of a university education and student satisfaction. This cross-disciplinary link was necessary in order to locate relevant knowledge on the possible dimensions involved in a student's perspective of their time at university, and perhaps provide some deeper understanding to the roles that they and other stake holders might play in co-producing their education.

Figure 16: Process summary for Study 3



The second statistical tool utilised for this study is conjoint analysis. The tool attempts to establish the relative importance consumers attach to salient attributes and the utilities they attach to the levels of attributes. For instance, while “colour” is an attribute, the attribute level can be represented by “blue” or “red”. Respondents are asked to evaluate their preferences given several scenarios with each scenario comprising different attributes at different levels. Conjoint procedures assign values to these choices that the respondents make so that the resulting values attached to the attribute levels match, as closely as possible, to the respondent's input evaluations.

The technical term employed in describing the “value” assigned to the preferences of the attribute and its levels is “part-worth utilities”. The basic assumption to “part-worth

utilities” is that if its value ≥ 0 (indication of positive utility), it implies that the attribute level is considered important by the respondent. Conversely, a utility value ≤ 0 (negative utility) suggests that the attribute is regarded as unimportant.

However in order to compare across attributes, there are ongoing discussions in conjoint analysis literature to standardise utility scores for comparison purposes across multiple attributes and its respective levels. One method of standardising these scores is to recalculate the beta coefficients (β) of the respective individual utility scores following a multinomial logit (Ding et al. 2007). This method is associated with “discrete choice model” in trading off attributes where “price” is normally part of the attribute shown to the respondent. Another recommended method in literature suggest “factor importance” or “market share” in predicting preference of attributes (Hair et al. 2006). This method requires a redistribution of ranking scores at the individual level before redistributing on an aggregate to determine the market share of the individual attribute. This method, which is similar to the average importance scores, may be suitable if the researcher is attempting to establish preferences across attributes but not necessarily across multiple attribute levels.

A proposed third method to standardise the utility scores, which is adopted in this study, is by calculating the distance between the utility scores (De Pelsmacker et al. 2005; Orme 2006; Pathak and Dikshit 2006). This method, also known as “relative importance” measures the distance between the maximum and minimum utility scores within a single attribute for each respondent and then aggregated across the number of respondents. The relative importance is then expressed as a ratio over the total of the other attributes as follows

$$O_p = \frac{(\max u_p - \min u_p)}{\sum_{p=1}^t (\max u_p - \min u_p)}$$

where O_p is the relative importance of the attribute, $\max u_p$ is the utility of the attributes most preferred level, $\min u_p$ is the utility of the least preferred utility of the attribute and t is the number of attributes being observed (Korti 2006). This approach subscribes to the notion that consumers sometimes purchase products that are not necessarily their most preferred. For example, while a consumer may prefer beer, they may occasionally buy wine or a non-alcoholic drink. This “logit share model” specifies that the total utility indicates the proportion of the time that the respondent will select that option in the specified competitive context and is also commonly addressed as “share preference” or

“market preference” (Bakken and Frazier 2006). This observation on relative importance ratio of a particular attribute’s utility to the sum of all the attributes’ utility is often used to reveal the preferences across multiple attributes (Danaher 1997). Hence, in this type of calibration, a higher ratio will imply that a particular attribute is preferred over a lower ratio attribute.

In marketing research, conjoint analysis has been used for various purposes such as determining the relative importance of attributes in consumer choices, estimating market shares of different brands, examining attribute preferences of the consumer, market segmentation and price sensitivity.

Study 3 employed the use of “adaptive conjoint analysis” because the methodology seems the most appropriate for work in choice-modelling and pricing for various reasons. First, the approach appears better than “choice-based” at helping respondents reveal how they actually make complex decisions than the standard conjoint which emphasises preference. With standard choice-based formulation, utilities are estimated at the end of the experiment. As such, the questionnaire may create enough temptation for respondents to simplify and develop quick heuristics for speeding through the choice tasks (Orme 2006).

However, with adaptive choice-based questionnaires, design in the flow of enquiry at each step allows respondents to deal better with multiple attribute decision space. This is the direct result of the “adaptive conjoint” tool that measures and re-measures the utilities of the respondent and adjusts itself in order to better understand the respondent’s choices at each step of the enquiry (King et al. 2004).

Therefore, as each question is revealed to the respondent in this study, the tool’s computerised procedure is better equipped to ensure that only relevant questions are asked of the respondent with regards to their choices which then impacts on the utility scores and its associated perceived importance. For example, it is possible to ask respondents ahead of the adaptive conjoint section whether some of the attributes matter or do not matter to them and therefore these attributes could be dropped from further consideration in the next stage of the enquiry, hence reducing the respondent’s burden and improving accuracy (Toubia et al. 2003).

Second, with an estimated sample size of 150, adaptive choice-based performs better than standard conjoint at stabilising utility estimates and developing accurate share preference readings. And finally, recent research further suggests that adaptive choice-

based are increasingly better at measuring price sensitivity, leading to probably more realistic “willingness-to-pay” figures which is relevant to studying the propositions (Tang et al. 2009).

For that purpose in studying “willingness-to-pay”, this conjoint study builds three hypothetical cases in the form of the worse case (least preferred attributes), best case (most preferred attributes) and a middle case (a combination of least and most preferred attributes) based on the respondent’s choices in terms of their indicated importance of value co-creation attributes. In each of the three scenarios, the respondents were asked to consider how likely they would buy (willingness to buy) the service and also the extent they were willing to pay (willingness to pay) for the “education service” based on the associated “attributes of value co-creation”. In the former question, the student had to choose a number from “0” to “100” and in the latter, between -100% to +100%.

The “willingness to pay” data is then analysed by comparing the self reported score of the respondents against the purchase likelihood score in each of the scenarios for each respondent. The purchase likelihood score is calculated through the “purchase likelihood simulation” (PLS) model which transforms the part-worth utility scores of the respondents to reflect “purchase likelihood” scores and is expressed as:

$$P_i = (100) \frac{e^{U_i}}{(1 + e^{U_i})}$$

where P_i is the purchase likelihood for the service “i”, “e” is the exponential constant and U_i is the utility for the service (Orme 2006). This model validates the consistency for the respondent’s willingness to pay relative to their preferred choices of value co-creation attributes. For example, in the case of sports cars, a respondent may indicate a preference for Ferrari cars but will not be willing to buy for reasons such as affordability. Therefore, under this model the likelihood purchase score for each respondent based on their worst case, mid case and best case is estimated and then compared to their self reported score in all three cases to validate the respondent’s overall willingness to pay.

In summary these conjoint instruments will assist in analysing the proposition that “value co-creation attributes may impact on the customers’ willingness to pay for a service”.

3.5.2.1 Developing scale and hypotheses for value co-creation in HE

In order to study value co-creation attributes in higher education, the study first developed an instrument to measure the possible dimensions of the student's experience with regards to value co-creation in their education. For this purpose, a cross-disciplinary approach from literature in both marketing and education was used.

The instrument employed the use of a 5-point "Likert" scale statements with 1 being "Strongly Disagree" and 5 as "Strongly Agree". The measures were adapted from previous theoretical research in education covering broad aspects such as learning processes (academic success), interactions, engagements, information gathering (administrative actions such as registration, library), building relationships, social activities and confidence such as discussed earlier in **section 3.5.1**. In total, 18 perceptual measures were adapted to assist with understanding the student's perspective of their university experience with regards to value co-creation. These perceptual measures and its associated literature are summarised in Table 25.

Subsequent to developing measures for determining the underlying structure for value co-creation in higher education, the aim of the conjoint study was to facilitate affirmation for the thesis's propositions on the importance of value co-creation attributes in supporting the student's university experience and its impact on the customers' willingness to pay.

To ensure that these measures were appropriate, the professional opinions of two higher education academics were consulted to check for content validity of the items and scales (Bryman and Bell 2003) used to measure the student's university experience from a value co-creation perspective. Both experts had similar consensus that the source of literature and the measures were appropriate and valid.

Subsequent to developing measures for determining the underlying structure for value co-creation in higher education, the aim of the conjoint study was to facilitate affirmation for the thesis's propositions on the importance of value co-creation attributes in supporting the student's university experience and its impact on the customers' willingness to pay.

Table 25: Proposed measures for value co-creation in education

Measures	Associated Literature
My current university experience is about engaging with academics.	Telford and Mason (2005); “then significant amongst these stakeholders must be the active participants in higher education, namely the university students, the university teaching staff and the university management as these are the stakeholders who are principally responsible for, and participate in, the design and delivery of the university education process.” .
My current university experience is about engaging with the university’s support staff.	
My current university experience is about engaging with other students.	
My current university experience is about attending social activities and interacting with other students.	Hill (1995); the perceived importance of student unions in organising social activities as part of overall student satisfaction.
My current university experience is about attending social activities and interacting with academics.	LeBlanc and Hguyen (1999); “Social activities at my business school make my studies more interesting.”
My current university experience is about attending social activities and interacting with the university’s support staff.	Kotze and Plessis (2003); student participation outside the classroom is important in co-producing their own education.
My current university experience is about gaining knowledge by interacting with academics.	Lizzio et al. (2002): “student’s perceptions of their learning environment, in light of motivations and expectations which determine how situational factors influence approaches to learning and learning outcomes.”
My current university experience is about gaining knowledge by interacting with other students.	
My current university experience is about gaining knowledge by interacting with the university’s support staff.	
My current university experience is about gaining knowledge through independent self study.	McCulloch, Alistair (2009); “Co-production requires active engagement with the entire learning process on the part of the student, and sees the student as an active participant in the development of knowledge. This type of engagement is widely recognised as one of the requirements of successful learning, and is also believed to be a key factor in the retention of students.”
My current university experience is about being able to challenge the people at the university on issues that are important to me.	Cook-Sather (2002); When students are taken seriously and attended to as knowledgeable participants in important conversations, they feel empowered and motivated to participate constructively in their education.
My current university experience is about recognising the changes I see in myself through learning.	Kotze and Plessis (2003); “Student needs to understand and realise that they in fact “co-produce” their own educational experiences and related outcomes.”
My current university experience is about understanding my internal processes (i.e. learning, studying) through interaction with people at the university.	Eisenberg and Small (1993); In the information-based approach to better understanding “educational situation”, and what is actually taking place, information processes are important. The key is to establish the relationships among the elements that are the “quantity and the diversity of resources and systems, information sharing between the teacher and the student.
My current university experience is about sharing my resources with people at the university.	
My current university experience is about people at the university sharing resources with me.	
My current university experience is about influencing issues that are important to me.	Cook-Sather (2002); We need “to count students among those who have the knowledge and the position to shape what counts as education, to reconfigure power dynamics and discourse practices within existing realms of conversation about education, and to create new forums within which students can embrace the political potential of speaking out on their own behalf”
My current university experience is about working towards getting a degree.	Ledden et al (2007); My degree will allow me to earn a good/better salary My degree will allow me to achieve my career goals My degree will lead to promotion in my current/future job My degree is a good investment in my future <input type="checkbox"/>
My current university experience is about enabling my abilities to secure a job in the future.	

Therefore, for these purposes, based on the “part-worth utilities” assumption from the conjoint tool and in support of the first proposition that “**value co-creation attributes**

are important in supporting the student's university experience", study 3 hypothesises the following:

H1: Students perceive that the value co-creation attribute "complementary competencies" is important (utilities > 0) in supporting the student's university experience.

H2: Students perceive that the value co-creation attribute "perceived control" is important (utilities > 0) in supporting the student's university experience.

H3: Students perceive that the value co-creation attribute "behavioural transformation" is important (utilities > 0) in supporting the student's university experience.

H4: Students perceive that the value co-creation attribute "process alignment" is important (utilities > 0) in supporting the student's university experience.

H5: Students perceive that the value co-creation attribute "congruence of my expectations of the university" is important (utilities > 0) in supporting the student's university experience.

H6: Students perceive that the value co-creation attribute "congruence of the university's expectations of the student" is important (utilities > 0) in supporting the student's university experience.

H7: Students perceive that the value co-creation attribute "empowerment" is important (utilities > 0) in supporting the student's university experience.

And in support of the second proposition and based on the three hypothetical cases for preferred value co-creation attributes, study 3 hypothesises that:

H8: Presence of value co-creation attributes positively impacts the customer's willingness to pay for a service.

H9: Absence of value co-creation attributes negatively impacts on the customer's willingness to pay for a service.

To test these proposed hypotheses, references were made from case study 1 and case study 2 in order to operationalise the constructs of value co-creation attributes. The constructs were adapted to suit the study under a higher education context. However, in adapting these constructs, it was felt that some decisions were necessary to support the development of an instrument capable of validating the qualitative findings and measuring the value co-creation attributes. First, the units of analyses were clearly different for each of the attribute and therefore it was operationalised into perceptual measures. This means that the “developed measures” were constructs from the perceptions of the attributes by the individuals of the qualitative study. This was important from a strategic approach in understanding value co-creation.

Second, the perceptual measures had to be perceptual measures of the appropriate unit of analysis, which is ‘the space in between’ the customer and the firm. This study acknowledges that it does not capture the reality of the interaction, but the perceived reality. In that sense, one can argue that value co-creation could be driven by both the “reality of the interaction” and the “perceived reality”, such as may be experienced by students undergoing a 3 year programme at university.

Under this orientation, Study 3 adapted the findings of Study 1 and Study 2 for the context of higher education with the purpose of studying the propositions with regards to the student’s perceived importance of the attributes and its impact on the price students were willing to pay. In total, study 3 presented seven instead of six attributes of value co-creation as presented in Table 26. The additional value co-creation attribute was the two perspectives formed from the congruence of expectations; one from the perspective of the firm (university) and the other from the customer (student).

To assist the student when responding to the questionnaire, explanations were provided to the respondents on what these attributes represented.

Table 26: Attributes of Value Co-creation for Study 3

No	Attribute of Value Co-creation	Measure	Explanation
1	Complementary Competencies	The university has the capability to complement my ability to make my university experience a good one.	In diverse university environments, individuals have different capabilities. It is critical that these capabilities are recognised and complemented. For example, if a student is not comfortable in a particular language, a lecturer with a different set of capabilities, i.e. such as speaking slower or applying simpler technical terms may be able to complement the student's university experience.
2	Perceived Control	I am in control of my university experience.	Control is a principal human driving force and people are motivated to demonstrate their competencies and superiority over their environment. In universities where people interact with each other on a daily basis, perceived control is important in assisting the individual in facilitating their university experience. For example, if a student feels that they lack control of a situation, i.e. in their learning or social abilities, they may not fully realise their potential in enabling their university experience.
3	Behaviour Transformation	The university is able to transform me through our interactions.	The university is able to transform me through our interactions. Learning in higher education is about transforming oneself. In a university environment, this transformation occurs through multiple interactions between the student and the university. It is through these interactions that the student gains knowledge and undergoes the transformation as part of the university experience. For example, through interactions with academics at lectures, the student may learn about a particular subject and therefore be more knowledgeable in that area. Likewise, course work and presentations would also result in transformational learning.
4	Process Alignment	The university understands my internal processes and does its best to accommodate them (i.e. learning, studying).	The university understands my internal processes and does its best to accommodate them (i.e. learning, studying). As individuals we have different internal processes such as our learning methods and information processing, as well as the way we interact with others. It is important that these processes are understood and aligned in order to facilitate the university experience.
5	Congruence of Expectations of the university	The university and I share the same expectations of what is expected of the university .	In the production of an education, there is a need for interactions between students and the university. As such, the student's expectations of the university must match the university's understanding of the student's expectations of the university. A lack of congruence will result in the perceived lower quality of the delivered service.
6	Congruence of Expectations of me	The university and I share the same expectations of what is expected of me .	Conversely, the university's expectations of the student must match the student's understanding of the university's expectations of the student. Similarly, a lack of congruence results in the perceived lower quality of the service delivery.
7	Empowerment	I am empowered to make my university experience a good one.	Empowered means that you are pro-active in challenging and changing your environment in order to better facilitate your university experience. For example, if you believe that you are not performing well in your studies, you will take charge and change things to improve your situation.

These measures were then categorised into three levels per attribute to test for the student's consideration on the importance of value co-creation attributes in supporting their education as presented in Table 27.

Table 27: Levels for the Attributes of Co-creation

No	Attributes of Value Co-creation	Attribute Level
1	Complementary Competencies	<p>The university is fully capable of complementing my abilities make my university experience a good one.</p> <p>The university is partially capable of complementing my abilities make my university experience a good one.</p> <p>The university is not capable of complementing my abilities make my university experience a good one.</p>
2	Perceived Control	<p>I am fully in control of my university experience.</p> <p>I am partially in control of my university experience.</p> <p>I am not in control of my university experience.</p>
3	Behaviour Transformation	<p>In the way the university delivers its curriculum (i.e. teaching, coursework), it is fully able to transform me through our interactions.</p> <p>In the way the university delivers its curriculum (i.e. teaching, coursework), it is partially able to transform me through our interactions.</p> <p>In the way the university delivers its curriculum (i.e. teaching, coursework), it is not able to transform me through our interactions.</p>
4	Process Alignment	<p>The university is fully able to adapt their processes to suit the way I study, learn and interact (i.e. my internal processes).</p> <p>The university is partially able to adapt their processes to suit the way I study, learn and interact (i.e. my internal processes).</p> <p>The university is not able to adapt their processes to suit the way I study, learn and interact (i.e. my internal processes).</p>
5	Congruence of Expectations of the university	<p>The university and I fully share the same expectations on what is expected of the university.</p> <p>The university and I partially share the same expectations on what is expected of the university.</p> <p>The university and I do not share the same expectations on what is expected of the university.</p>
6	Congruence of Expectations of me	<p>The university and I fully share the same expectations on what is expected of me.</p> <p>The university and I partially share the same expectations on what is expected of me.</p> <p>The university and I do not share the same expectations on what is expected of me.</p>
7	Empowerment	<p>I feel fully empowered to make the most of my university experience.</p> <p>I feel partially empowered to make the most of my university experience.</p> <p>I feel not empowered to make the most of my university experience.</p>

The next section discusses the questionnaire design and data collection.

3.5.2.2 Questionnaire design for study 3

The questionnaire was designed and formatted using the “adaptive choice based conjoint” function available from Sawtooth. The software application allowed the customisation of questions for bringing greater clarity and less abstraction to the questionnaire through a substantiated introduction to the survey as well as assisted

tools such as “roll-over” boxes to help the respondents with information (Simsek and Veiga 2000). The system also prevented respondents from referring back at responses that they had given earlier and this reduces common variance problems that could result in inflated reliability measures (Stanton 1998).

The questionnaire underwent two separate rounds of pre-testing. The first round was pre-tested among management academics who were asked to comment on the clarity and structure of the questionnaire. The second pre-test was conducted among 30 undergraduate and postgraduate business students including MBA and PhD students. There was valuable feedback from the respective parties pertaining to terminology, flow and structure and these were then taken into account and subsequently rectified to strengthen the rigour of the questionnaire.

One occurring concern from the pre-test of the questionnaire was the perceived lengthiness in the latter part of the survey. Initially, the questionnaire presented 15 cases for consideration as guided by the orthogonal design. However, orthogonal design has been known to be inflexible with regards to the number of questions presented to the respondent (Williams and Kilroy 2000). Therefore, in order to create a less strenuous process for the respondents in selecting the preferred cases, the study presented a series of 12 cases for consideration. In each case, the students were presented two sets of value co-creation attributes with each set containing three different attributes at different levels.

Reducing the proposed selection to 12 cases for the study was verified by conjoint analysis experts based at SKIM⁹, an organisation who represents the Sawtooth software in Rotterdam, Netherlands, who had similar experiences from previous work dealing with complex and subjective attributes. They confirmed that given the seven attributes and the three levels per attribute, the 12 cases presented to the respondents was appropriate in teasing out the importance rating and the preferences of the respondents via the part-worth utilities calculation. They also confirmed that the decision to remove “price” as an attribute will ease the selection process of the respondents as they are then not burdened with price considerations against the value co-creation attributes. Furthermore, literature suggests that including a “price” attribute in adaptive conjoint will understate its importance and research has shown that the degree of understatement increases as more attributes are included in the study.

⁹ <http://www.skimgroup.com/acbc>

Figure 17 illustrates a sample case that was presented to the respondents. These cases were presented to the respondent based on their earlier selections and as each case is selected, prior information dictates the following relevant questions presented to the respondent.

Figure 17: Sample preference question

If the following two group of attributes were identical in all other ways, which group would you prefer?

<p>The university and I fully share the same expectations on what is expected of the university.</p> <p>I am not in control of my university experience.</p> <p>The university is only partially capable of complementing my abilities to make my university experience a good one.</p>	OR	<p>The university and I partly share the same expectations on what is expected of the university.</p> <p>I am fully in control of my university experience.</p> <p>The university is not capable of complementing my abilities to make my university experience a good one.</p>
<input type="radio"/>		<input type="radio"/>
Strongly Prefer Left	<input type="radio"/>	Neutral
Somewhat Prefer Left	<input type="radio"/>	Somewhat Prefer Right
	<input type="radio"/>	Strongly Prefer Right

At the end of the questionnaire, based on the student’s choices from the 12 cases, three hypothetical cases in the form of the worse case (their least preferred attributes), best case (their most preferred attributes) and a middle case (a combination of least and most preferred attributes) were presented to them. The students were then asked to consider how likely they would pay (willingness to pay) for the service and the extent they would pay for it.

In each of the three scenarios, the respondent was then asked to indicate the extent that they were willing to buy the given “education service” based on the associated “attributes of value co-creation” **and** also how much more were they willing to pay for that service? In the former question, the student had to choose a number from “0” to “100” and in the latter, between -100% to +100%. A sample of this question is illustrated in figure 18.

Figure 18: Sample “willingness to pay” question

Based on your earlier responses, how likely are you to buy your university education if the following options were available. Please type a number between 0 - 100 where "0" means definitely would not buy and "100" means definitely would buy.

The university and I do not share the same expectations on what is expected of the university.

I am fully in control of my university experience.

The university is only partially capable of complementing my abilities to make my university experience a good one.

Given these similar options, please indicate if you are willing to pay more, pay less or indifferent with regards to the fees that you are currently paying by using a scale of -100 to +100, For example, if you are willing to pay 30% more, indicate 30 whereas if you are willing to pay 20% less, indicate -20.

3.5.3 Data Collection for Study 3

Data collection for Study 3 was conducted using a web-based survey tool and sent to an estimated 2,300 business school students across two universities.

The study employed the assistance of the respective university administrators to ensure that all students within the business schools were informed. Participants were then asked to link electronically to a secured website in order to participate in the survey. The data was then tabulated using the Sawtooth software and updated on a daily basis. The survey was conducted over a period of two weeks and a reminder was subsequently sent out three days before the close of the survey. Each participant has a unique IP address and steps were taken to ensure that there was no collection of double data sets.

Chapter 4: Analysis and Findings

This chapter contains the analyses of Study 1, Study 2 and Study 3, which aim to investigate the attributes of value co-creation and its impact on customers' willingness to pay. This chapter begins with the analysis and findings of Study 1 and Study 2 and this is followed by a comparative analysis of both case studies in proposing value co-creation attributes. The chapter then concludes with the analysis and findings of Study 3 on the impact value co-creation attributes on the customers' willingness to pay for a service.

4.1 Analysis and Findings for Case Study 1

As part of the research team in study 1, this author was involved in analysing the interview data and the examination of related documents, including the contracts between the customer and the service provider as well as internal literature and supplemental materials such as project briefing brochures and contracting documents related to the project.

Applying a qualitative content analysis approach, the data was first coded and categorised to form common themes using the NVivo-7 qualitative software. The coding was conducted on the transcripts of the interviews in order to identify key words and phrases that would give insights and meaning to what was happening in the data. The codes were first assigned to a "free node" where coding was unstructured and hundreds of codes had been identified, before they were collated into the "tree node" to form generated themes in search of patterns that may suggest relationships or common themes.

Next, the team employed "axial coding" which clustered the coded nodes in terms of their dynamic inter-relationships, bringing together similar ideas, concepts and themes, and subsequently piling the coded data into individual topics. Each of these was then labelled with a word or phrase that captures the gist of what was going on in that pile. These categories were then re-evaluated and gradually subsumed into higher order categories which suggested the emergent conceptual schema.

These generated themes were then triangulated by two other researchers through discussions to provide authenticity to the findings. The coding and categorisation centred on distilling and reducing the data to generic sets of categories that were crucial in describing the phenomenon. The researchers' brief was to code and

categorise the findings into attributes for the purpose of theory building and knowledge transferability. The attributes discovered had to be of a sufficiently high degree of abstraction so as to be useful for the purpose of calibration in the next stage of the study. The data were then revisited and scrutinised for any new information until the researchers felt that no new concepts emerged and that the significance of those identified were reinforced and strengthened with further examples in different contexts. Finally, these concepts were compared with extant theory and literature.

4.1.1 Contextual dynamics in the defence industry

Case study 1 looked at two MRO contracts awarded to the firm on the basis of the “availability of defence equipment”, namely fighter jets and missiles. These availability-based contracts which were collectively valued at more than \$800 million, are somewhat considered a step below a full performance-based contract as they are contracted based on part of a performance which is the “availability” of the equipment.

Within performance based contracting, it can be argued that outcomes and benefits are mainly the result of a close working relationship between the supplier and the customer. As a result, there is a need to understand the role of the customer in the firm’s processes and systems, and the role of the firm in customer’s processes and systems. It is then clear that customer involvement and behavioural issues in co-creating value are critical in this relationship and have to be considered and factored into the design and delivery of service contracts. Therefore, this study examines aspects of value co-creation within these performance-based contracts by utilising the project to assist with unravelling the attributes associated with co-creating value between the service provider and the client.

As a prime contractor in the defence industry, the firm provides maintenance, repair and overhaul (MRO) service for defence equipment including fighter jets, helicopters, radar systems and missiles. Interestingly, under the firm’s MRO contracts with the customer, the customer maintained a big role in the partnership which is to provide Government Furnished Materials (GF-X), including supplying physical facilities, material, data, IT and manpower to facilitate the company in achieving its outcomes. In the acronym GF-X, the “X” denotes both operant and operand resources.

Upon the examination of the two contracts, the study found several aspects of the firm’s value proposition to the customer and this is exemplified in the table 28 to give the reader a better understanding of the firm’s obligations as a service provider.

Table 28: The firm's value proposition to the customer

Value Proposition	Description
Professional Assessment of Serviceability of Spares	The firm is responsible for serviceable spares provision
Assurance	Activities that ensure equipment availability
Competency	The capability at firm level to pool expertise from within the firm as a wider corporate body
Continuity and Stability	Permanent full-time postings that ensure service consistency
Coordinate both User and Contractor	Management expertise
Expertise	Technical expertise on equipment and usage
Flexibility with Resources	Allows the customer to free up manpower and other resources
Freeing up Resources	Military personnel is able to focus on core competency
Higher Availability & Readiness	Activities that provide better equipment performance
Instruction and Training	The provision of onsite training by the firm to the customer
Knowledge that is Valuable	Knowledge transfer from the firm to the customer
Lower Cost of Delivering Availability	The firm will be providing availability at lower cost
Lower Cost of Ownership	The cost will be cheaper by transferring the ownership of support service to the firm
Obsolescence Management	The provision of through life capability management
Pre-emptive in Maintenance	The firm is proactive in equipment maintenance
Protecting Troops	Activities that are able to protect the army during war time
Re-design if not Suitable for Use	Activities that improve the equipment design
Reliability of Equipment	The firm is motivated to provide consistent availability
Speed	Activities that provide quicker support service
Tailor the Equipment for How it would be Used	Being the design authority, the firm provides expertise on how the equipment could be used more effectively
Taking away the Stress of MRO	Activities that remove operational risks from the customer

According to the contracts, these proposed outcomes were delivered on various levels. First, strategic decisions were made between the firm and the customer at the corporate level. Second, maintenance and repair services occurred for the defence equipment at the operational level and finally, and perhaps the most important level, was at the tactical level where frontline warfare (combat) took place involving the usage of equipment.

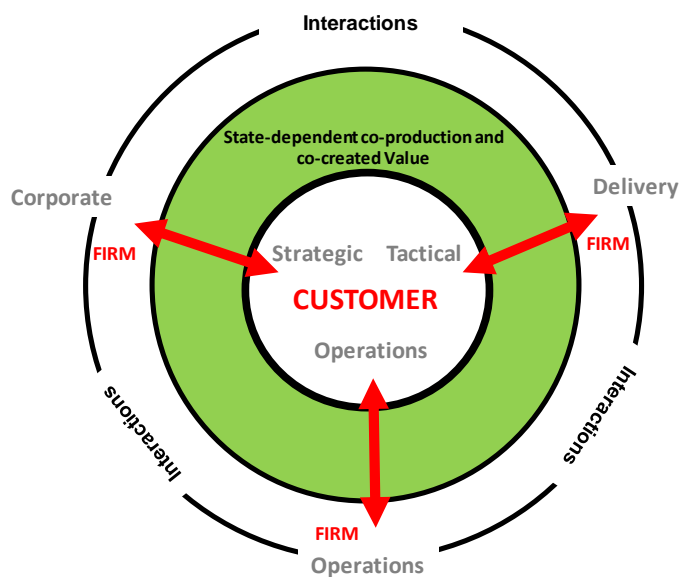
Conversely, in our examination of the contracts, the customer's value proposition to the firm comprises the sum total of government furnished assets (GF-X, where X could denote manpower, resources) that the customer promises the firm will receive in order to achieve the availability of the defence equipment. Under this orientation, both parties must endeavour to ensure that their obligations are fulfilled in order to achieve, on the part of firm the availability of the defence equipment and on the part of the customer, the delivery of necessary equipment and manpower to assist with the firm's availability targets.

From these perspectives, the way the services are delivered in the contracts requires the cooperation of different parties from both the firm and the customer. This implies

that value co-creation occurs at all levels, through a complex ‘web’ of interactions and to some extent, with a lack of boundaries. The study found that relationships developed between firm and customer employees at all levels and this may occur as “five-minute phone calls” to technical call centres, to joint firm-customer meetings. These interactions between firm and customer were varied in terms of its mode (emails, phone calls, meetings) as well as content (communication, information sharing).

This suggests that the delivery of the service involves a service system that engages with a multitude of players . From the firm, in terms of its corporate office to the soldiers using the defence equipment, and from the engineers servicing the fighter jets to the suppliers of spares, the interactions between all parties were critical to the delivery of the contract. The framework in figure 19 captures simplistically the different possible interactions in the delivery of the service and it illustrates the different players involved in the customer’s circle that play crucial roles in the delivery of the maintenance, repair and operations service.

Figure 19: The firm and customer’s interactions in the delivery of the service



Hence, it appears that relationships and interactions between the firm and its customers are critical for these contracts to be fulfilled. Moreover, the outcomes of the contracts are measured on the basis of key performance indicators (KPIs) of both parties and payments to the firm are made on the achievements of such outcomes with “pain-share” and “gain-share” mechanisms in place. Clearly there are huge implications when contracting on “availability” outcomes under such an environment.

First, from a value co-creation perspective, the usage of the equipment can now have an impact on the way the firm delivers the outcome. For example, military equipment by its very nature is used in high stress circumstances and can easily be damaged, and this would have an impact on the availability of the fighter jets (or missile).

Second, while the MRO service is outsourced, the customer had a big role in the partnership which is to provide Government Furnished Materials (GFX) including supplying physical facilities, material, data, IT and manpower to facilitate the firm in achieving its outcomes.

Third, although these service contracts were operating under complex relationships with clients and service providers, they relied heavily on both operand (tangible equipment) and operant resources (intangibles such as knowledge and experiences) to deliver the outcome of the contract. As a result, both parties are to some extent responsible for the outcomes but more importantly, this contractual arrangement implies that the firm alone cannot deliver on the outcomes without the cooperation of the customer.

Under this orientation, the delivery of these contracts served as an opportunity for a closer examination on value co-creation as both parties are focused on achieving outcomes such as the availability of missiles and the bank of flying hours for the fighter jets. In the initial analysis of the interviews, the qualitative study found six challenges arising from the MRO contracts which provide a platform for understanding better value co-creation interactions and its attributes. While these challenges may differ in terms of degree and intensity across the two contracts, they do exist to some form in both contracts.

4.1.1.1 Complexity and Unpredictability in Costs

One of the main challenges arising from the qualitative data was the difficulty experienced by the employees in calculating costs under two broad situations. First, under the MRO contracts, the firm aims to be innovative and pre-emptive in order to reduce the spares used in an attempt to reduce the overall costs of the contract for the mutual benefit of both parties. However, this innovative and pre-emptive measures leads to less predictability in the system, and this in turn would make cost estimation and forecasting difficult. Second, the analysis found this tension to be a real challenge to the employees delivering the service. This is reflected in some of the comments made by the respondents:

“Yeah. I am sat in here now knowing that I’ve got one or two of my team doing something that I need for Monday I have totally empowered them to do it, I’ve told them roughly what I want I haven’t got a clue what I’m going to get but if I didn’t do that I would end up getting nothing and I’d be trying to do it myself or I’ve told them to do it in a way that’s probably not the right way anyway”.

“If you detach yourself from your team and empower it that is one hell of a scary thing to do because you are actually trusting them to deliver something and it might not deliver it the way you want it to, it might not be totally what you want it to but is it going to be a million miles away from what you want and if you were to tell them they probably all sit down and do nothing because you are telling them to do it anyway and they don’t believe in it”.

Therefore, while on one hand there is a need for predictability to report to headquarters and to forecast costs so that the service can be delivered economically and below the price, yet on the other, there is also the need to manage and change usage and provide more innovative solutions so that overall acquisition of spares can be reduced. This constant negotiation is clearly not sustainable over the longer term, and causes tension within the firm. Compared to the traditional MRO contracting where activities, processes and resources are on the basis of requisitions from the customer, this performance-based contracting creates a discontinuity within the system that does not join up smoothly.

4.1.1.2 Cultural change and traditional contracting

The analysis show that many of the firm’s employees adapt differently to the new MRO contracts. While some find the transition easier, some do grapple with their own place within the organisation. The qualitative data reveal that most of the employees negotiate within themselves on what their contribution to value is within the company as the organisation moves towards delivering the service instead of just being a manufacturing firm. As such, identity issues abound as company personnel adjust to the new business model and some of the statements made include demonstrates this conflict:

Having the credibility in engineering as a very senior person erm design authority, big team, a secretary to coming to a new contract, I mean the grade wasn’t changed the money wasn’t changed erm but it was a quantum change erm, a sense of status, yeah, yeah. Oh that must have hurt, yeah, yeah.

“Undoubtedly yeah. I think that’s just a, I think that that’s a cultural erm I think that associated with a change in contracting method there’s a huge cultural change er both for (the firm) and for the customer and I think that we would be kidding ourselves if we felt we were any more than on step 3 or 4 of out of about 10 or 20 steps process really so I think it’s quite early days”.

Additionally, the concept of delivering value to the customer has changed through the “gain share” and “pain share” environment and the qualitative evidence illustrates that some employees do struggle to reconcile these conflicts yet trying to remain effective in their role.

“I used to make money out of the Royal Air Force when [the firm]... they were doing it at all costs. It didn't, all they had to do was to make sure that aircraft was ...so if that meant having 5 times the inventory they needed if that meant sending a repair back to industry that had cost five times as much in industry because they couldn't do it here. They would just do it and I was a recipient, seriously they used to send some repairs back to me that was a fixed price and I would think bloody hell thanks very much. But now, now we've got together and the whole rules have changed so where, where the strategists that have got it right pulling us together and giving us the remit of doing it quicker less cost and more efficiently is spot on. So to answer your question the Royal Air Force would have always done it at all costs we wouldn't so you've got two extremes together”.

“within the company you will get everybody you will get everything from people who either think it's absolutely brilliant and it's not it's not brilliant etc that they think and people think it's absolute rubbish and clearly it's not and then you have people who sit right in the middle and you get those people who know absolutely nothing about it who will start an opinion”.

4.1.1.3 Distrust, hostility and communication challenges

To some extent, arising from the cultural change the existence of employees from both the service provider and the customer on various sites has caused discomfort amongst the armed forces personnel. Those who struggle to adapt to the new environment and are not inclined to accept the change have found the need to ‘guard their turf’ by distorting the truth. Furthermore, the qualitative data point towards resentment of the company as the result of a reduction in resource due to the new performance-based contract.

“So to all intents and purposes for the user the only thing that's changed is you've added a civilian and so it must be the civilian's problem, it must be the civilian's fault, it must be (the firm's) fault, it must be their fault because he's turned up and he's done that”

“One of the problems we've had is that by doing the two simultaneously where people have had problems implementing the lean changes it's been too easy for them to go, that's the company's fault because we've partnered with the company, because we are now working for a civilian organisation and to confuse the issues we would have had changing to lean and pulse production with the issues and problems we would inevitably have changing our mindset to work with a civilian organisation, erm so that's caused challenges”.

This has led to a level of distrust between the operational and tactical teams of the customer and that of the firm due to cultural barriers and also due to perceived asymmetry in rewards and failures. From the customer's perspective, the cost of failure to deliver may be an operational risk or a loss of life and this is perceived to be a higher

cost than that experienced by the firm (which is perceived to only suffer financial loss). The qualitative findings suggest that the customer would see this asymmetry in penalties as a sign that the firm is less committed to delivery than the customer would be.

“It’s, it’s this whole, there’s too many people, within the military there’s too many people that can’t communicate with civilians. Erm they to some extent you know in some of the basic training whatever they get is you know I am not a civvie you know a stinking civvie or whatever, whatever they will say erm and there’s some people that just can’t communicate with it so they think that what level of service the civilians provide will be a lower level, which is all wrong, erm and the key part of this is communication, people can’t actually talk to civilian organisations”.

“there’s now much more erm trust between the company and us, whereas previously it was very much a them and us reaction. We even had erm I will give you an example of that assigned through (the customer) one of those, someone had crossed out (the customer) and put (the firm, you know or changed ,so there was, there was a lot of animosity on the (customer’s) side to this apparent invasion of, of well what previously was known as British Waste of Space you know all these old adversarial habits die very slowly erm and a lot of people you know there is a lot of fear on (the customer’s) side as to what (the firm) were going to do”.

“nobody felt comfortable saying right actually now we really need to sit down there was a perception of arrogance that we felt from the company..... in that don’t come to us we are here to do business differently so you know.....and going they know Jack and so there was a bit of that”.

In addition, the customer’s employee contracts are different from commercial employee contracts, and the differences in work ethic on both sides create communication challenges in delivering the service. At the corporate level, contracting with the customer on platforms that are multi-nation poses challenges in terms of coordination. In addition, the customer being a government entity, is subjected to more rigorous government regulations, resulting in challenges of value co-production and this again is reflected in the qualitative data;

One of them was the assumption we made that they could go into Europe which they can’t, the other one was a Treasury ruling that although we would pass the inventory i.e. bits to industry to manage we would still own them and by owning them there’s a link back to the national audit office and therefore a requirement to put some kind of quality process in place to make sure that our accounts are in order because that’s the other responsibility, have to account for every piece of Tornado equipment there is in our inventory which is a pretty damn big job and so any fluctuations or any changes [have to be explained] why they have happened or be able to explain it to the management accountant who then has to explain it to the National Audit Office with me there as well so they were two major changes where we had originally assumed we could either get rid of the responsibility or pass the responsibility over and therefore reduce our risk just didn’t happen.

4.1.1.4 Loss of perceived control by the customer and by the firm

Under the new business model, our analysis found that there appears to be some form of loss in perceived control by both the customer and the firm. For the customer, these

changes manifested in areas where they were previously in charge but have now come under an outsourced facility. This perceived loss of control, as a result of role change caused discomfort and disruptions to the operations and the delivery of the service as shown by some aspect of the following qualitative evidence;

“Erm but what we are trying to do is we are trying on a working level on a day to day working level to integrate the (firm’s) people. So actually where I get involved is like the planning and strategies so as we move forward erm we bring both sides if you like into the planning activity. So in terms of day to day management effectively we’ve got the (firm’s) people doing some of the work, not integrating and providing input into the meetings that are held and then what I am trying to do is to get some joint strategy in place so we can move forward with minimal pain. It’s very difficult, it takes years to even get anything decided.

How have I behaved badly, I think it erm, let’s just try and think, err I think I had erm behaving badly I had a tendency erm to whatever conversation or meeting I was in to end it with something like – of course if you had left in house this wouldn’t have happened.

On the part of the firm, the complexity and lack of predictability of the new business model had strategic and tactical impact on the organisation which led to increased lack of control and security. For some of these employees, they felt that it was harder to monitor transactions and the progress of their work. In some sense, they felt that under the new business model, they had lost some control in the operations and this perceived loss of control is exemplified in the following qualitative data;

“I’ve spent half my day to day wasted in my view because somebody feeling uncomfortable because this is right in the limelight now and, and they feel, they feel exposed, insecure because they are not close to it, why do they need to feel like that and don’t worry about it. You’ve put a team, well when I say that you’ve put a team of people in there, you know you’ve got some senior people in here and trust them, empower them, don’t kill them, help them”

“So much of this is not understood, and not measured”

4.1.1.5 Lack of boundaries (rigidities and fluidities)

In our analysis of the data, we also found qualitative evidence to suggest that while both parties are required for co-producing the service to ensure availability and benefits for the end-user, the nature of the performance-based contract allows for the lack of boundaries as to what is ‘acceptable’ under the contract. In some cases, the study found instances where boundaries were held rigidly (“this is their problem”) and also instances where boundaries have been fluid, with out-of-contract requests being accommodated so as to build better relationships. This is clearly viewed differently by different people within the organisation. Those who are more understanding and accommodating may be viewed by others as having ‘gone native’. These findings are reflective in some of the respondents;

“I think we are trying to deliver to the benefits of a contract is because I have known of a couple of instances in the last few months where we could of turned round and said hang on a minute this is outside the bounds of the contract, this is, this equipment isn’t as per the assumptions of the contract, therefore outside the bounds, therefore it’s going to cost you more. But to the credit and I will place the credit at this point to the likes of [PERSON] and that is that they’ve turned round and they are accommodating it in the contract at the moment”.

“They just thought that looks like a useful spanner we’ll order that and we’ll go back, say no that’s just for Rapier specific use and has been designed specifically for this weapons system so we are not going to deliver because that wasn’t our customer, wasn’t the IPT’s customer otherwise we would have been spending Rapier money on Sea wolf or Rapier money on a different weapons system”.

“I think if you got a good relationship then you can get you know if you’ve got a task to do then you can work on it. If you get on it makes it easier because you, you are happy to give what the other person needs there’s no sort of confrontation erm and they might bend the rules a bit and you might bend the rules a bit or cut corners to, to you know to meet their needs”.

“there was some cooperation it’s more when you get down to the working level we’ve still got a little bit of a culture err I am not doing that it’s not in the contract but actually what we should be doing is right it’s not in the contract push that to one side but what we need to do is resolve it and if there are some contract issues then we’ll sort them out afterwards”.

“at this point in time we are establishing a service and service, no actually anything is more down to perception than anything else and despite the fact that we could probably, up to this point we have not failed on anything on the contract. But if we started to turn around and saying right that’s outside the bounds, that’s outside the bounds the customer will say well no it’s inside the bounds you have an argument about it someone would win, don’t know who you know but someone would win that argument but at the end of the day perception would be ah (the firm) has err taken a hard line approach to it, it’s taken a hard line commercial approach to it”.

On the other hand, some have adopted a stance of distancing themselves from any problems encountered, and instead ‘blaming’ the other party for them. This culture of blame was particularly inherent in the start-up of the contracts and appeared to be detrimental in supporting the new business model. The following extract of some qualitative data demonstrates this notion of the “blame culture”.

“the culture of blame is alive and well within err the partnership and if they can blame it on the customer that’s perfect because then they themselves are not at fault and so there’s a bit of a tendency to fold their arms and say well, look if you don’t produce the service then of course we are not going to produce the output. Now we’ve taken that away and we’ve taken away the err supply of spares as being an excuse, they are now applying their excellent business acumen to solving the very real problems of managing the business more efficiently which they hadn’t got around to doing because they could hide behind us”.

“The other measure we use is the GFX measure which is where we are providing services in that also at the minute being used to measure failure rather than being used to actually make things better”.

4.1.1.6 Coordination with suppliers

Performance-based contracting also poses a huge challenge in terms of how to reconcile and align contracts with sub-contractors. Under the new business model, our findings show that it is unclear what the role of sub-contractors are and how they fit into the value co-produced by the firm with the customer. The clarification of their roles is important as the provision of the service is delivered under a service system involving multiple players with both tangible and intangible resources. As a result of the poor coordination, the qualitative data suggests that wastage might be inevitable;

It's quite difficult because you can't, it's almost impossible to have one number that sits under the other. To achieve an 85% availability of the weapons system we might not have to achieve an 85% availability of the spares.

Arising from the analysis of these challenges, the researchers re-analysed the evidence collected and categorised the findings into four meaningful levels in order to extract the attributes surrounding value co-creation. In the next section, these categorical findings are presented in relation to value co-creation in the defence study.

4.1.2: Value co-creation in the defence industry

From the study on the numerous challenges facing the firm under the performance-based contracting, it was clear that if the firm's performance depended on the value co-creation between the firm and the customer, both parties would need to fully understand their own value proposition to the other. This is important as contracts are constantly re-negotiated over time and consistent reduction in benefits for whatever reason may result in a re-negotiated price that is lower than the optimal benefits, even if the firm is highly efficient in its own value proposition. This implies that both parties need to come together to achieve an effective co-production and value co-creation model (rather than individually efficient models) and in turn, the appropriate contractual mechanisms to achieve consistently high benefits that are financially viable.

Under this orientation, the research team reanalysed the data to categorise the challenges into four categorical findings with regards to value co-creation which underlines issues facing the firm. These findings are highlighted in the next sections.

4.1.2.1: Understanding "value-in-use" and "benefits"

First, the firm needs to understand "value-in-use" and "benefits" in performance-based contracting (PBC). This is crucial because of the way value in use benefits and impacts on customer satisfaction, costs and delivery of the service. One of the key areas in

understanding value-in-use lies in the understanding of “usage” by the customer. From the analysis of the PBC contract documents, usage of equipment was brought into the agreement based on historical use and this was ascertained from historical data to inform the way the contracts were priced and cost estimated. However, the analysis shows that the past may not be a good reflection of the future. Understanding usage, and more specifically changing usage, could bring about more efficient and effective support solutions that result in increased benefits to both the customer and the firm.

Furthermore, the qualitative data shows that a multi-environmental state of “value-in-use” results in different interpretation of “benefits”. For example, the benefits of having the missile system in use can be different in various states such as training in the barracks or hangar, training off-site and also in the operating theatre (front line). From the interview data, the customer considers the benefit of the service to be different at different states. This means that even if the same outcomes (i.e. availability) are achieved, the benefit to the customer may be different at the different states that value in-use is employed. Therefore, understanding the “value-in-use” and “benefits” to the customer on different levels is critical to how the service is delivered in the first place, and this may impact on relationships and innovation as our following qualitative evidence suggests.

First, usage changes benefits and therefore impacts on the value-in-use of the service. Our interviews revealed several instances where usage changes the way the customer value the service. For example, during frontline operations or in training, the troops could be using the equipment in a certain manner which could highlight the need to tailor or re-design the equipment so that it could be used more effectively. This is reflected in some qualitative evidence which expresses the manner in which equipment if properly used, has a cost saving impact for both parties;

“we hope that they would have more confidence in the equipment, that they have more respect for the equipment because it is more reliable and it doesn’t let them down and if something is broken it’s fixed quickly”.

“they are very good soldiers okay but they would use this technical and very expensive equipment just as they would use their boots right they would abuse it to get what they want. So the analogy I’ve give you is if you give them a lump of lead and put them in a padded cell and go back an hour later they’ve either lost it or broken it”.

Furthermore, employees of the firm who have a better appreciation of customer usage have better ability to deliver to the customer, the different ways to achieve the benefits that would result in higher satisfaction.

“quite often they come up and ask us a question that they err which is going to help them to diagnose problems, they might say erm you know because when you’ve done the course it doesn’t make you an expert. Okay you can do a seven week course and yes you’ve got a certificate but you’ve got no experience and you will find it takes a lot longer for you to arrive at the correct conclusion than it would do if somebody said ah I’ve seen that before I know what that is and it’s not doing this properly and it’s not doing that you don’t need to look at the books I know exactly what that is”.

Second, usage changes costs of service (impact on costs). In both the contracts that were examined, the pricing of the MRO service is based on a fixed sum, subject to performance measurements. This is an extension of the “gain-share” and “pain-share” of performance-based contracting which is measured on pre-determined key performance index (KPIs) of both parties. The qualitative evidence also found some examples of usage impacting on the costs of the service delivery;

“favourite classic is the erm the pilot’s head up display. It’s made from a piece of glass that erm there’s only so much of this glass left and erm and then it’s going to be obsolete. What happens is when the pilot stands up out of his seat he has a communications plug that he plugs into the seat into the aircraft and as he stands up it’s on like a spiral thing like a telephone cable thing it comes out and it hits this piece of glass and it shatters this piece well it chips it and because he looks that’s his windscreen basically as soon as you chip it you get distortion in what you can see so we had to take them off. They are £18,000 a piece these pieces of glass”.

“I am not sure but I know we have had this influence they wouldn’t just take a rudder off because in the past they just oh it’s broke thrown it in the sand I need a new one now got it put it on flew off and left that in the desert lost forever not on records and could probably be repaired for £1000 rather than buying a new one for £22K”.

“Tornado has thrust reverse on it which are the buckets that come out of the aircraft to direct the jet flow forward when it’s braking on the ground. The pilot selects those out, he rocks the throttle outboard and the buckets deploy. If you leave those buckets still in that position when you start to go slowly along the runway what happens is, is the jet flow are going round like that it kicks up stones that then go into the intake and they can ruin the engine. Erm, so we have an education process to let the aircrew know okay below 50 knots below this speed you don’t have the buckets out otherwise you will increase foderising we call it rejections of engines”.

Last, the data also revealed that usage may change the way the value is co-produced (impact on delivery) due to the state-contingent nature of value-in-use. Some of the analysed qualitative data found examples where the understanding of usage of equipment would vary and this has an impact on how the service was being delivered to ensure the most effective usage;

“an example would be a cable that he’s using as a foot rest, well it’s the wrong place for the cable move it. Erm so it isn’t necessarily to say stop doing that we might say we can see why you do that we’ll put a guard over it and sort it that way”.

so what tends to happen is obviously the windscreen the glass on the windscreen is made up of layers, water gets in, causes err the layers to de-laminate erm the company in the past would have told us the perfect way of repairing them they would have taken care of repairing them they would have charged us however many thousands every

time we gave them a windscreen to repair and they would have sent it back to us. Erm what the company did fairly recently last year was they came up with the idea of okay well actually if we put a rubber compound around the outside of the windscreen water won't get in, it won't de-laminate you won't have to take it off the aircraft so instant success so putting rubber around the outside of the err, I will try not to turn that off, of the erm windscreen cost ten/twenty pounds but it's saving thousands of pounds. A very simple idea and it's a very simplistic example but it shows a desire on the company's side to do that. Now they are doing it for financial reasons. Where it benefits us is not just financially which we can share on the finance side of it but if we've now got an aircraft that doesn't need to be grounded that doesn't need work doing on it so we don't have to take the windscreen off and then wait until another windscreen comes along or fit another windscreen test it and then fly it again that's hours that the aircraft is sitting there ready to fly serviceable so the availability for us has gone up. So that's not measured financially the driver for the company was well they were now responsible for paying for fixing the windscreens they didn't want to do that so now they are not having to pay for fix windscreens. That's the financial advantage. So we've got to be a little bit smarter in the future over well hang on from an Air Force point of view yes we want to save money but actually what we also want is availability particularly in combat areas.

From a “benefits” perspective, our study found that not many company employees had a comprehensive understanding of all the benefits derived from the delivery of availability in all environmental states. Within the firm, some consider their responsibility towards the customer to have ended once availability is delivered, and thus they are less interested in what the customer does with it. Hence, there is a belief that the benefit of the contract to the customer is the availability itself, rather than what the availability is able to do for the customer. While the responsibility of the contract is to only to deliver availability, the usage of equipment and systems availability by the customer would have an impact on the availability delivery as exemplified by the earlier qualitative evidence. Hence, a lack of customer orientation and a full understanding of customer usage and benefits impacts on the contract delivery and future contracts capability.

For example, our findings showed that the most common understanding of the benefits under the contract was that the customer benefitted from ‘lower costs’. ‘Lower costs’ can only be perceived as a benefit because the person assumes that the value delivered remains the same. This is a flawed assumption for services because the service delivered isn't tangible, is often inconsistent and most importantly, has definitely changed under a performance-based contract where the cooperation of the customer is essential.

When ‘lower cost’ is seen as a benefit, it shows that employees have an implicit and assumed understanding of the service value that is unchanging. Such a service value could be different for different people, and this has an impact on the service delivery. In the interview data, the analysis finds that the most common ‘benefits’ perceived by the firm's staff is often equated with the repair of spares and equipment at a stipulated time

(which are the outcomes measured), but most employees place less importance on the value that is co-created with the customer for the activities that serve to achieve those outcomes.

In one interview, a respondent clarified that '***we are here to deliver the same outcomes***' which implicitly assumes that the service delivery is about outcomes and not what is needed to achieve them. These differing views within the organisation on what the service is was quite apparent. In some cases, the respondents would say "outcomes" while some would suggest "relationships", and some others would say "processes". There does not seem to be any agreement or understanding on what the value of the service is that is aligned towards achieving benefits for the customer.

However, the study found qualitative evidence to suggest that several employees from both parties who were aware of the benefits of the contract to the customer, and they would strive to achieve them. However, their knowledge and understanding of the benefits are largely tacit and there is a lack of systematic support from the organisations to attain the understanding (as part of organisational learning) or to communicate it. Our findings showed that some employees consider what they do as 'beyond their responsibility' but they 'do it anyway' as it makes their jobs easier. They do not realise that what they do is in effect delivering a service to plug the gaps in the system to help the organisations achieve higher service levels. This would have an impact on future service capability as well as the transferability and scalability of the service.

Finally, the study found that there is a focus by the company to reduce costs and thereby increasing margins, since the price of the contract has been broadly agreed upon at the outset. This by itself is rational behaviour and is certainly not problematic even to the customer, as the contracts have "gain-share" and "pain-share" mechanisms built in and cost savings would be of benefit to both. However, reducing cost without understanding the value co-created may impact on the value of the contract to the customer. In other words, moving one goal post without an explicit focus to maintain the other could result in a reduction in the net value of the contract to the customer.

4.1.2.2: Service behaviours and service skills

Second, the study finds that the organisations do not sufficiently emphasise the role of people in delivering value. As the performance of the contracts is dependent on the co-creation between the firm and the customer, both parties would need to fully understand their own value proposition to the other. Hence, the firm's value proposition in service co-production with the customer lies in an array of resources (operand and

operant) performed by the firm. Among these are tasks may include transporting the spares, storing and managing equipment, diagnostics etc. In the analysis of the data, the study found that successful delivery of these resources (and in turn achievement of the measured availability) in co-production with the customer requires a significant amount of human resources and indeed, the delivery of many attributes requires suitable behaviours within the organisation as well as within the customer organisation.

Yet, our findings suggest that the firm does not explicitly and systematically focus on human factors within the attributes such as cultivating the right behaviours within the organisation towards co-production. There is a high dependency on processes and activities that are equipment-focused, without much attention given to the behaviours required to achieve them. For example, the study found that both customers and company employees learn during the contract delivery, but there seem to be inadequate provision to capture the learning into the organisation as exemplified in the following qualitative data;

“One of the pieces of equipment is the surveillance err radar and it has a dome which is very heavy and it is possible for two people to take that off okay but the way to do it is to use four people to do the top two and two down at the bottom that you pass it to because all the components underneath that radar are very expensive and they can be damaged relatively easily. But you will find quite often that the customer, well take those domes off and they don’t have four people simply because they don’t have four people. Err and so you find that they do things in a slightly different way and then that’s when we get problems because things get damaged and it will be safer and look whatever happens you must do things this way and you know, and there is a reason for it”.

There are also skills involved in coordinating people, changing or leading different situations, developing relationships, learning to think as a team, reducing distortions and misinformation, establishing trust and projecting a good image of the company. However, much of these seem to be tacitly attributed to individuals and personalities and while individuals will always be important, they would need systematic support within the design of the system so that the service delivered could be better replicated. This is clearly the case from the qualitative evidence;

If you’ve had a supplier that’s going to deliver you something to your house you wouldn’t, you wouldn’t, you wouldn’t disown the responsibility of managing that supplier to make sure that he delivers what you need. So if we sit back and do nothing and don’t get involved with GFX the customer will just carry on the way he is now and not deliver any of it because at the moment on GFX he probably hasn’t got his head around that he is a key supplier.

So it’s no good waiting for things to go wrong before we do something about it, we’ve got to be knowing, we’ve got to know what’s going on all the time so that we can be ahead of the game in making sure that the user’s always got available to do the

job that he needs to do and we have readiness and availability criteria set out in the contract which are very clear about what we need to achieve.

On the contrary, this does not mean that human factors and behaviours are ignored within the organisations. Indeed, for both the firm and the customer, such factors are recognised and individual managers go through considerable effort to ensure that people do have the right attitudes and behaviours. However, our data shows that such efforts to instil suitable attitudes and behaviours depended on individual and team initiatives, rather than having it explicitly and systematically designed into the system and structure in concert with other activities;

we are going to try and introduce to say right you know we sit down with the [officers] and the [officers] and you say right okay guys look you know we are here to make your life easier and we would like you to make our lives easier so there must be some mutual understanding about how we can best achieve this. And I'll tell you what, we'll donate a football strip, something you know just trying to, trying to engage them and get them to take the responsibility of looking after the kit and try to establish it and say look guys if the, you know when push comes to shove and you take this off and you are going to fight with it, you want it to work don't you and it's up to you and me or us and you to make sure it performs how it's supposed to perform and it will only perform that way if you look after it.

4.1.2.3: Capacity in service value proposition

Next, our analysis of the qualitative data suggests that the firm is not clear in their approach to where and how value is created within the service contracts with regards to the contribution of components and resources. This lack of understanding appears to place inadequate focus on the combination, importance and interaction of both people and their behaviours and also equipment support as part of value co-creation between the parties involved.

In the case of the firm's performance-based contracts, the service capacity of the contract becomes important. The qualitative data show that such a systematic analysis is lacking.

“are expected to inspect and repair the equipment however, they can't carry out the inspection and repair because there are various loopholes in military erm, documentation or military procedures that don't allow them to actually carry out the inspection or repair, there's anomalies within the military system that people don't understand. There is fundamental communication problem you know”

Additionally, from the understanding of existing systems and processes within the companies, the study found that there is inadequate understanding of the degree of

importance of human and equipment factors within the system when delivering the service. This understanding of human and equipment factors are important as they would impact on the capacity of the firm to deliver. Furthermore, the optimisation of resources is important from a revenue management perspective as firms have developed the ability to forecast consumption patterns and their willingness to pay for services at given periods.

However, what is lacking for service firms is the ability to gauge their optimum capacity and in the process maximise their revenues.

Therefore, with regards to this study, there appeared an inequitable focus on both equipment capability as well as embedded human capability in understanding the capacity for delivering the service. To some extent, this creates inefficiencies within the contract that may lead to non-optimum usage of resources and cost increases resulting in lower benefits for both parties in the co-creation process.

4.1.2.4: Value co-creation and co-production

Finally, the study found that the firm is focused on its value proposition but is less focused on the co-produced value proposition between them and their customer. This reflects very much the traditional value proposition of the firm where there is a distinct separation between the firm and the customer with the firm's obligations fulfilled upon the delivery of the itemised propositions.

However in the case of performance -based contracts, there is a need to consider the customer's value proposition in the value co-creation of the contracts as they are agreed on the basis that the firm alone cannot deliver on the outcomes without the cooperation of the customer. In order for both the firm and customer to achieve mutual outcomes, both parties would need to align their value propositions with regards to their operant and operand resources.

To a great extent, the business model of the organisation has changed with the introduction of these performance-based contracts. Where the traditional business model was fulfilled upon delivery of the firm's value proposition, contracting for performance also demands that the firm takes responsibility of the customer's value proposition in the contract. In the case of the firm's performance-based contracts with the customer, while the customer allows the firm to abdicate some of its responsibilities in co-production (i.e. supplies from the government), it does not change the fact that

the firm has chosen to contract on performance , and with that choice comes the responsibility. Under this orientation, the customer's value proposition such as its systems, processes, structures, behaviours and design to co-produce value should be well understood by the firm.

However, our analysis of the interview data saw very little evidence of this being an important factor in the organisation's systems and processes. Some employees understood the customer value proposition much better and they often do a good job of co-production but the knowledge is largely tacit and driven by individual initiatives. There is no explicit and systematic effort organisation-wide to bring in the customer value proposition in the co-production effort. Much of the organisation's systems and activities revolved around its own value proposition, rather than the combined co-production activity and this evidence were found at different levels.

On one level, the study found that the people involved in co-production at service delivery sites come from different employers (the firm's organisation or the customer's organisation) and different service contracts but conducting similar work. In these differences, the roles that they represent, firm or the customer, results in various tensions at the sites. The relationships between people from both sides of the contract have been inconsistent. While in some cases, the relationship has been good;

“Very good. Excellent. Yeah, it's quite good. It's quite interesting really I think as an observation really you know you can hardly distinguish you know when they are on the shop floor doing work you can hardly distinguish between the two but their relationships aren't around the contract their relationships are about getting the job done you know the tasks in the same way they are operating in the same environment with the same constraints so there's no differentiation”.

in others rather acrimonious;

the relationship was very much of boyfriend, girlfriend but well in fact husband, wife that are divorced acrimoniously and were now fighting over the record collection.

We also found qualitative evidence to suggest that individual personnel were doing their best to reduce tensions between service delivery personnel from both sides, but they face little systematic support in the way the service is designed and implemented;

“have a view if you can get that amount of passion, one team, one goal delivering the end product you, the fall out will be that it will come cheaper and it will come quicker anyway is a view, so stop worrying about it. You corporates stop worrying about it empower these people, trust them and let them get on with it to a certain extent”.

On another level, it is clear that contract implementation has been a challenge for both sides and this has given rise to certain behavioural traits. For example there were occasions when the customer had difficulties in delivering on its GFX (particularly in manpower and hangar availability) for one of the contracts, resulting in the inability of

the firm, although not its fault, to achieve the performance measure targets. In this situation, there was evidence to suggest that there was greater enthusiasm from the firm's employees to seek out GFX failures to ensure that they were not blamed for any failure to deliver. However, these behaviours were inconsistent as some had good relationships to manage the overall contract with the customers;

“Because they are more aware that it doesn't matter why you fail you fail, fail is not a good idea but at the end of the day it's our company's reputation that's at stake. Forget the management, forget the commercials, forget whose fault it was if something goes wrong and we get the blame and we will be on the front page of the newspapers and it's no use saying oh well it wasn't our fault they didn't give me this particular thing over here nobody cares”.

while others were antagonistic as various people within the company seem to perceive the problems as those due to the setting up of the contract rather than the contract implementation itself. In other words, they do not perceive 'setting up' as part of the service delivered;

“That's not to say they are doing them worse they are just doing them differently but they hadn't communicated that that's how they were going to do business. So therefore we were scratching our heads and not understanding why they were making some of the decisions that they were making but it was because they hadn't told us that their philosophy was that way or this way. So we were still looking at it down the traditional, out traditional philosophy as how we would do business and so we were seeing exceptions to that without understanding why they were making those decisions”.

Next, the study found instances where the customer makes out-of-contract demands, some of which are of an unreasonable nature. In such cases, the responses have been inconsistent. Where the demands are deemed to be unreasonable but were seen as part of and 'building relationships', they have been met. These demands were labelled as 'scope creep' and could be tolerated as a one-off exercise. However, in instances where demands were deemed far too unreasonable the firm would not engage and these requests were either reported or ignored. It is fair to say that such interactions that require “out of scope” engagement would require better service design in collaboration with the customer to embed the learning in a more systematic decision support system as well as to reduce tensions;

“my engineering people have still got a little way to go because they are, they are not that close to the customer okay and the contract is a service which is erm I am trying to think of the word it's a bit contradiction with engineering. As you said it's engineering, it's design it's manufacture it's drawings it's config control it's obsolescence whereas the contract is what else can I do for you sir and a curtsey and scope creep again”.

Our interview data further shows that while the responsibility of delivering to availability is contractual, the responsibility appears to have been taken on by the customer. Indeed, the customer seems intent on ensuring that the service co-production activity is

effective and efficient because in some situations, the penalty for failure in delivery to availability is fatalistic. For example, failure to deliver “missile availability” would result in monetary loss for the firm whereas for the customer, this would result in diminished tactical capabilities which may lead to loss of lives, a penalty far more serious than monetary loss to the firm.

“They’ll lose money and walk away right. We’ll lose blokes. There’ll be people’s lives lost in operations this is a, err security assurance confidence measure that if we, had to take back on or the first element would be that we could regenerate these items in theatre, keep the availability up. Secondly if they did lose money and, because there’s really no, err, , it’s brilliant at the moment where everything is rosy in the garden and we will deliver but if we ever did walk away from the contract and we had this kit in an operational theatre we would need to be able to revert to supporting”.

Thus, the qualitative evidence suggests of a highly involved government entity providing leadership in ensuring smooth co-production. However, this asymmetric relationship may not bode well for the service capability of the organisation as it misses the opportunity to build technologies and skills in co-production and winning future availability-based contracts.

Finally, the study found examples of benefits from managing service co-production as a whole rather than allowing a system where both the firm and the customer optimise their own value propositions. In some instances, the analysis found that when the employees of the firm actively engage the customer in their behaviours and their technologies, the result was a lower overall cost of repairs, thus reducing the costs of delivering under the contract;

“I think that’s the work in progress ...when you think what are the most pressing challenges as well as what have been. Er cultural erm cultural challenges have been big and, and this is all associated with transition really in terms of er getting the organisation mobilised, getting the organisation integrated, understanding the business ‘cos we don’t really understand the business in an integrated fashion yet, developing the right relationships with key stakeholders and getting them to understand what the contract’s doing, erm some of the cultural issues are quite big actually even within (the firm)”.

“Price is driven by cost is cost and their price is given by what commercial arrangement which is prepared to take and share and we needed to get that price down so the commercial arrangement, that was a very complicated commercial arrangement in terms of risk, reward, retention, guaranteed minimum all that kind of gain share pain share sort of more complicated than it needs to be in that context to make it work financially for both sides erm and it’s then quite difficult to then operate that month in month out. There is quite a lot of work to maintain that commercially”.

This is important for both contracts as they are drawn up on the basis of historical system-wide data and are priced accordingly. If value co-creation and co-production can be effectively managed, the contract costs would come down, resulting in higher margins and effectiveness.

In summary, these four findings exemplify the different levels of focus by the firm on the value proposition of the customer. While the firm is keenly focused on its own value proposition to deliver “availability” in the contract, it is less focused on the customer’s value proposition. This lack of focus is detrimental from a value co-creation and co-production perspective as the contract can only be delivered with the cooperation of the customer and its value proposition. As such, the firm’s future ability to deliver future contracts would depend on how it is able to manage the customer’s value proposition and understanding “value co-creation” and “co-production” together with the customer.

The next section presents the analysis and findings for the second case study on value co-creation in the healthcare industry.

4.2 Analysis and Findings for Case Study 2

As a co-researcher in the case study under the healthcare industry, this author was involved in analysing the interview data and the examination of internal literature and supplemental materials such as websites and news articles related to the project.

Similar to study 1, this study also applied a qualitative content analysis approach with the assistance of the NVivo-7 qualitative software. The data was first transcribed independently from the researchers and subsequently coded. The coding was conducted on the transcripts of the interviews in order to identify key words and phrases that would give insights and meaning to what was happening in the data.

This method of coding assisted with forming common themes through the use of the “free node” functions within the N-Vivo software. Initially, the coding was unstructured before they were collated into the “tree node” to form generated themes in search of patterns that may suggest relationships or common themes.

In line with the first case study on value co-creation, the second case study employed a common clustering of coded nodes in terms of identifying the dynamic inter-relationships between the various stakeholders of the Age-related Macular Degeneration (AMD) service provision. Each of these themes was then labelled with a word or phrase that represented the spirit of the analysis. These categories were then re-evaluated in relation to value co-creation literature. The underline aim of the analysis was also to bring together similar ideas, concepts and themes which would be used for comparative analysis with the case study on the defence industry.

Finally, the results of the second study were then triangulated by another researcher independently. Authenticity to the findings was provided through discussions with the researcher with respect to the attributes discovered under the healthcare context.

4.2.1 Contextual dynamics in the healthcare industry

The initial analysis in case study 2 found that the delivery of the AMD service involved an intricate combination of interactions between different people representing the different stakeholders of the AMD service provision. This service delivery requires a multitude of players including doctors (consultants), clinicians, nurses, administrators, healthcare assistants, healthcare governing bodies, patients and even patients’ friends and relatives.

In providing the AMD service, both tangible and intangible resources were utilised by the hospital. While tangible resources include the different types of machineries, equipment and treatment rooms, the intangibles resources include the doctors, nurses and healthcare assistants who provide the technical knowledge of assessing the patient's condition through a series of medical examinations. There are also administrators who support the AMD service by providing logistics with regards to managing the schedules of doctors and nurses, and fixing appointments for the patients.

From a patient's perspective, the AMD service is an important treatment for them as it means saving their vision which has a significant impact on their quality of life. Through the qualitative data, the study found that a majority of the patients have had to endure long waits for their treatment which includes eye-tests and other examinations of their eye. The waiting time may take up to eight hours and these waits are taxing on the patients whose average age is approximately 80 years.

Yet, these examinations are necessary as it allows the doctors to study the condition of the patient's eye and this is repeated every time they visit the hospital which can vary from four to six weeks between visits. However, the qualitative feedback from the patients appears to show they understand that these long waits are necessary for their treatment and that it is part of the "value" that they receive;

"I value the treatment very much, I value the care and attention I am getting from the people here."

"Oh the service here has been marvellous apart from the waiting which can't be helped."

Consequently, these different interactions between the various stakeholders demonstrate an intricate service system that supports the delivery of the AMD service. This service system is not unlike the service system as proposed in the first case study on the defence industry. This illustrates possible interactions between the various stakeholders in the AMD service delivery model as shown in figure 20.

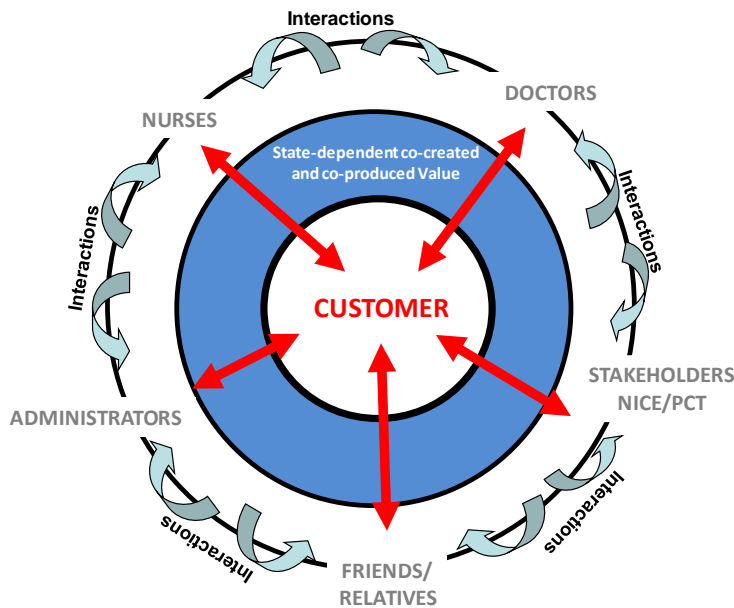
This framework shows that the different stakeholders within the patient's circle play crucial roles in the delivery of the AMD service. For example, in some of the qualitative data, evidence revealed that relatives and friends of patients were called to assist with transportation to the hospital for treatment or simply for personal accompaniment throughout the patient's experience of the AMD treatment, with some treatment lasting up to 8 hours including the waiting time:+

"My son brought me. He lives at Okehampton and of course it's quite a long ride to go from Okehampton to Bovey to pick me up I always come with a friend simply because, several reasons really it's nice to have somebody with you to talk to and then if I do have an injection and I can't drive myself here."

"It's probably worse for my husband who has to wait, than it is for me."

"when I am ready to go home I give him (husband) a, I ring him and he comes and picks me."

Figure 20: Possible AMD stakeholder interactions



Similarly, other stakeholders such as healthcare assistants, nurses and eye clinic administrative personnel all contribute to the systematic delivery of the AMD treatment. While nurses and healthcare assistants provide a series of clinical pre-treatments for the eye to the patients prior to them seeing the consultants as exemplified in the following data;

"I can do the logmars in the morning and I have my own list of patients and they go off and have their OCTs and they are seen by the consultant and they go and have their injections and I will be in the room with the consultant giving the injections supporting the patient, holding their hand, making the packs for the consultant.."

"We take colour photographs and, erm, of the back of the retina, and that is specifically for AMD "

administrative personnel are instrumental in ensuring that patients are given the appropriate appointment times as the AMD condition requires patients to be treated at specific time intervals;

"the patients have to have two appointments in the one session like for the nurses to do the OCTs and logmars and things like that before they see the consultant so they have two appointments one with the nurses and one with the optician and then later with the consultant."

Without these interactions among the different stakeholders, patients were unable to receive adequately the AMD treatment.

These observations suggest that the Eye Department's delivery of the AMD treatment for its patients requires constant interactions by different stakeholders in order for the treatment to be delivered effectively to the patients, suggesting that the delivery of the AMD treatment functions as a "service system" as reflected by one of the internal administrative personnel;

"And so I have brought that manufacturing system science knowledge into the, the service industry in which we find ourselves erm, to try and apply therefore both the, the human dynamics and the process and to bring them together to get the teams themselves to understand the way they work and to think about how they can redesign their own systems to make it a better one so that we can deliver better care for patients."

Against this backdrop, the key interactions between the different stakeholders that form the basis of an intricate service system are central to this study as it has an impact on the concept of value co-creation between the various stakeholders. These multiple key interactions appear to have led to common practice issues associated with the provision of the AMD service in the healthcare service. In essence, the case study found four emerging themes that highlight value co-creation practices which are discussed in the next section.

4.2.3: Value co-creation in the healthcare industry

In line with the study set out by the second case study's research question, the analysis of the interview data uncovered some emerging themes associated with practice issues that were associated with the AMD service. The study found four themes on the AMD service practice issues as manifestation of the service system in value co-creation between the various stakeholders. These are;

1. Taking the lead in the provision of the AMD service through research and development of the treatment.
2. The ophthalmology department's ability to treat an increased number of AMD patients despite limited planned resources.

3. The ophthalmology department's capability as a team working together to provide care in the interest of the patients.
4. Negotiating conflicts through tacit knowledge.

These themes were supported by the earlier observation on the AMD "service system". Observations from a cross-disciplinary platform between value co-creation concepts in marketing studies and social identity theory in psychology studies provided a better informed understanding to the key interactions and issues facing the AMD service provision. These findings are discussed in the next section.

4.2.3.1 Taking the lead in the provision of the AMD service

First, the analysis of the data found that one of the key practices of the ophthalmology department is their ability to take leading roles in advancing research in the treatment of age-related macular disease.

In analysing public documents such as in medical journals as well as internal NHS documentation such as recruitment forms for AMD research patients, the study found that the ophthalmology department of the hospital is recognised as a leader in the research of the age-related macular disease. Furthermore, according to the NHS website, this ophthalmology department is recognised to be at the forefront of AMD research, both from a knowledge based perspective and also for the treatment of the condition and therefore acknowledge them as a "specialist centre for treating macular degeneration" resulting in multiple awards including the "Excellence in Clinical Services" reinforcing their position as a leader in the AMD field.

Additionally, our interview data also reveals that the various administrative stakeholders of the AMD service perceive the ophthalmology department to be "cutting edge", "researching new drugs" and "innovative" in advancing the AMD treatment;

"Yeah, oh there's reputational stuff, for the team that are doing it, there is papers, there's involvement in reading at research and you know, so it's quite cutting edge, it's quite."

"I think it's more than quite good it's very good I think we run it very good. Yeah I think we've got some dedicated staff erm and erm if you've got a good staff mix I think we provide a really good service."

"This hospital, erm particularly within its eye-unit, it's always been perceived as an innovative organisation."

"I might be a bit biased but they most, overall most people think it's an extremely good unit."

Consequently, there were many instances of AMD patients that were interviewed who believed that they were getting the best care that is available for the treatment of their condition;

"excellent I mean once it was in the hands of the hospital, the doctor and the GP the GP was very watchful and it just that was immediate you know and then within two days I had the injection.."

"they are always very pleasant and welcoming and reassuring they are they are very good. I feel they are very confident and efficient and enjoy their work."

"I mean the equipment that this hospital is second to none really."

"this (department) is a very good eye clinic."

"I think it's first class to be quite honest with you. I think it's a pleasure to come down here. It really is."

"they are very good you know, I find them all very helpful."

"I mean the staff are excellent I admit, they are brilliant I mean it."

These perceptions helped in building the hospital's reputation as a leading service provider of the AMD treatment as reflected in the following quote;

"what's beneficial for the patients of the area and what's good for the organisation and actually to extend people's vision and not just you know their mindset beyond err what is current today into you know these are new opportunities that we have to learn about."

Underlying this ability of leading the scientific field in AMD research, our data suggests that doctors and consultants at the department were able to co-create value with the respective stakeholders. They were able to perform certain functions effectively for the benefit of society. First, they were able to match society needs with their research and development policies with regards to the AMD treatment as implied in the following data;

"my mindset is that we will go out and try move up the, up the tree in terms of the level of innovation that we are trying to err tackle and the level of risk so you know we've gone from being average to late adopters to being quite early adopters in a number of fields."

"we've got to deliver the best possible value out of the resources we have and err you know where there's a new opportunity and big breakthrough we should be trying to get that err into our community as fast as possible."

Furthermore, in the interviews, a recurring theme among the different stakeholders within the AMD service system is the need for innovation in their research and to stay at the forefront of the AMD treatment for the purpose of assisting AMD patients;

"challenge is to make sure that we don't by constantly innovating change and trying to stay ahead of the pack."

"I think we are constantly looking and re-evaluating erm and trying to, to look at how we can improve efficiency."

"It's up to date they are using the most up to date err treatment and they are doing research on new drugs."

"trying to set up a research project to see if an additional drop makes a difference but that is an issue that we are trying to, we are thinking of better ways of doing it at the moment."

"I think the current situation is err improving and one of the things that drive this was because we pioneered and we passionately believed it needed to happen "

"So rather than working in isolation just treating the odd one patient every now and again and getting no useful data we pooled our, all our information together and tried to get some published outcomes."

"we were actually being extremely pro-active much more pro-active than I think the rest of the UK."

To some extent, although their efforts to innovate and advance knowledge in the AMD treatment were met with resistance, it was perceived that the eye department was innovating change and continued to negotiate the challenges facing them.

"So you know this is fairly err leading edge therapeutics but what's interesting is then the exploration of you know new approaches, so probably it's been something that's been stable in technology terms for many years, where in the last five years there's been rapid progress and you know we've got in very early on so we are involved in quite a lot of research activity from a technical perspective. What we also want to do is to think through to re-live the service perspective."

As such, they were successful in identifying the strategies and the tactics that were critical in bringing AMD research forward as well as seizing opportunities for growth in ophthalmology treatments;

"So rather than working in isolation just treating the odd one patient every now and again and getting no useful data we pooled our, all our information together and tried to get some published outcomes."

Therefore, through the use of research papers, attracting funding and the technological know-how, they were able to bring the most advanced AMD treatment to the public, and this has benefitted both society and governing bodies such as the PCT and NICE and the team was able to see that the treatment of the macular disease, although stabilising, had potential and therefore took the opportunity to be at the forefront of its research.

"what's beneficial for the patients of the area and what's good for the organisation and actually to extend people's vision and not just you know their mindset beyond err what is current today into you know these are new opportunities that we have to learn about."

"I mean Torbay Hospital's got a very good reputation with its local population and so, to know that we are doing a good service, a pioneering service, you know, in terms of,

well it's not pioneering but you know being head of other units in the region in setting up the service you know, some of that knowledge is going to filter out into the local population I think. So that's, that's good."

"it's good for the department, it's good for our application, it's good for the local community erm, it is needs to be done anyway whether it's good or not because there's a local you know provision that has to be done. Erm you know, it's been good for the hospital as well, it's been good for our relationship with the Primary Care Trusts, there's lots of positives about it."

This ability to lead AMD research has augured well for the ophthalmology department and the reputation of the Torbay Hospital. The qualitative data demonstrates that in the AMD service system, value co-creation with the different stakeholders is an important element in delivering benefits to the public;

"we've learnt some things from this and it's given us an opportunity to erm demonstrate to management for example what the problem is. So although we know what the problem is, it has given us a way of illustrating what the problem is."

4.2.3.2 Ability to innovate and treat increased number of patients

Next, the analysis revealed that over the period between 2007 and 2009, there were sudden increases in the number of referrals for the AMD treatment to the hospital's ophthalmology department as shown in the following interview data;

"like a tidal wave there was going to be whole lot of patients to start with but we couldn't set up a service to provide with that level of demand."

"we went a considerable period of time after that, basically from a managerial perspective not, not worrying too much about it and seeing how things evolved and of course, then of course when things did get going they evolved very, very rapidly. Err to the point where I think in and round between 2007 / 2008 the number of err referrals tripled."

"oh my goodness we've got 20 patients, my goodness we've got 30 patients, oh 40 patients have come this week, what are we going to do?"

"I think one of the things that we have to try and accommodate which caused a lot of pressure within the department was dealing with the referrals out of area from Cornwall, from Barnstaple and North Devon."

This sudden increase resulted in the eye department being required to undertake more patients than they had planned for in their resources and consequently, this situation put the AMD service under a lot pressure to deliver to standards which they believed should be maintained yet unachievable due to the resources available to them. This situation created a sense of immense pressure on the AMD team;

"eventhough I feel staff are doing their best, the ratio of patients, the demand is high and it's quite pressured it's quite busy."

"think they are coping very well but I think it's quite difficult it's under quite a lot of pressure."

"it added to the demand on top of, you know, for a service that couldn't already cope."

"it's really very difficult, it's like trying to turn over a super tanker."

In addition, the ophthalmology department as a whole felt that the AMD service was pulling resources away from other ophthalmological services causing the perception that their other service provision within the department such as glaucoma and cataract treatments suffered as a consequence and this impacted on the morale of some of the staff.

"other areas have suffered as a result of trying to support and accommodate the macular service".

"So it has, you know it's like having all these balls in the air and keeping them up and you know thinking well which one's got to fall down to keep the macular service going."

However, evidence found through the qualitative data suggests that the ophthalmology department was able to treat this sudden increased in AMD patients despite being severely limited in planned resources although the pressure of dealing with these increases were felt across the department;

"I am very conscious of the pressures it's erm put upon, erm the department because it's just grown since it first started."

"it's not only the macular service that it's implementing the use of it it's also the cataracts, the casualty doctor. So you could have a number of casualties and say general clinic err OCTs to do in the middle and we are waiting for our macular to be done as well and it has a knock on effect with time."

Under these circumstances, our findings suggest that a few critical practices exist within the ophthalmology department that dealt with these increases in an effective manner and in that sense, allowed the AMD service provision to be scalable in the face of limited resources. First, the department demonstrated willingness to increase resources into the service system to ensure that all patients that were referred to the hospital were treated. These resources were not limited to increasing the tangibles such as providing new AMD service facilities in other areas towns (Newton Abbot) or refurbishing a new clean air room but more critically, the analysis found that the nurses and healthcare assistants from the different service provision units within the eye clinic were willing to share workload in order to treat the increasing number of patients.

Second, through a heightened sense of customer advocacy, the department personnel were willing to personally increase their workload without remuneration to attend to these patients and there were instances to demonstrate these phenomena;

"put extra, erm you know resources into it you know, to try, try and look at accommodating all the demands."

"Because the funding isn't forthcoming, the clinicians still accept to do the work, so the patients flood in."

"The department provides other services it's not just AMD we provide other services so many people are sucked to the macular service because there are so many high demand so many patients."

The interviews also found examples of perceived innovation on the department's part to cope with the increased number of patients in simplistic form. In some cases, the innovation was simply to highlight the resource pressures facing the AMD service provision to senior management, and as a result, force them to take notice and therefore take necessary steps to ease the situation;

"we've got all these patients, what are we going to do and then that, that forces the management into action."

"So it can be done. And I think it took them a little while to get round to doing to it."

Alternatively, the department practiced a "just managed" attitude by becoming more effective in the face of more patients coming through the system, not by choice, but by coping with the issues through increased personal workload as and when the challenges presented itself as exemplified in the following conversations;

"from the outset, you know, we have to, we didn't know what was going, what the challenges were going to be but we were probably going to meet them as we went along and we were going to have to deal with them as and when they presented themselves."

"things have developed and they have you know improved and the efficiency has improved but it's still, you know, tends to be a real err pressure on the service."

"I think we've become more effective, because we have had to do, to be able to accommodate the demand from the service."

Accordingly, these findings demonstrate that the ophthalmology department has the ability to scale their capacity despite limited planned resources through innovative practices. These practices within the department suggested that the team as a whole, most likely felt that the patients' benefits and welfare were paramount. These beliefs were demonstrated in their willingness to adjust and compromise with their own personal workload in order to cope with added responsibilities;

"I think it takes, it drains a lot away from, from, staff from everywhere else because we are all concentrating on getting that through although we have employed a lot of staff on the strength of the research that we are doing because that takes a lot of time and you know we do have the staff to deal with the service as well as other clinics."

"I worked 52 hours and they pay me for thirty-seven and a half because I don't get paid overtime, I still enjoy".

"I enjoy being part of it the macular service."

"Because of the amount of people coming through since we've become a Foundation Trust, more and more people are coming through and we haven't got the staff sometimes and it puts the pressure on people it puts demands on the service and it puts demands on the nursing staff and I am sure it puts demands on our consultants and the doctors' team."

Additionally, innovation and the ability to treat sudden increases in patients within the service were further spurred by two major drivers. First, there was a sense of empowerment by staff to make changes, believing that they were 'doing the right thing', even when it wasn't the 'usual' and second, the leadership capability of the doctors that allowed the staff to behave differently and think creatively. The doctors were able to provide a 'buffer' for the team to reduce outside criticism which helped increase a sense of empowerment amongst staff, leading to our next finding. In summary, the different stakeholders were able to innovate and therefore co-create value for all parties with the service system.

4.2.3.3 Capability as a dedicated team working together

Third, the study revealed that the practice at the centre of the ophthalmology team's efforts in their ability to lead advanced AMD research and their ability to scale their resources to meet sudden increased demand, is the eye department's capability to work together coherently in order to provide the best medical care in the interests of its patients.

Through the qualitative data, the study was able to identify many instances where the commitment of the staff surpasses what is expected of them in their delivery of the AMD service. As a result, all the patients interviewed believed that they have been accorded with excellent healthcare while receiving the AMD service and there is evidence to show that they prefer to return to this hospital for the AMD treatment despite having the opportunity to have the treatment nearer to their residences.

"just feel it's been an absolute privilege to have been able to come here to this particular eye clinic and to receive the treatment that I have."

"I am so very grateful. Everybody here has been simply wonderful and so kind, and so gentle which helps a great deal."

"They are absolutely gorgeous and kind and we laugh and we have a joke and they are friendly and they are lovely. I feel at home here, you know, it's, it's a really lovely atmosphere in this hospital, really, well at least in the eye department."

"I do, I do look forward I do look forward to seeing the people because they are really nice."

"You could not have a better group of persons dealing with this you know I don't know what other hospitals are like this is my one experience and I shall leave this programme feeling they have done their very best. ."

"I value the treatment very much, I value the care and attention I am getting from the people here."

"the staff are very good, they don't , they don't stress you or make you feel it's anything terrible in fact they do everything."

"The staff here are very good erm yes."

"I couldn't fault them anyway and the nurses are, they're, erh, they really, really are gentle you know brilliant and, and they put you at ease and, and that and, and that's, so it makes a big difference.."

"Oh the service here has been marvellous apart from the waiting which can't be helped."

"the courtesy and consideration I receive from everybody is superb."

"I do find that the experience at this hospital is very good, very efficient and I wouldn't say there's any fault at all."

The patients' collective experiences do not reflect an ophthalmology department that has neglected their patients in the wake of increased demand. Instead, the study finds that despite a majority of patients having had major challenges leading to their AMD treatment such as being denied funding;

"I was told, I could apply for it to be paid for but they turned me down, so we started a campaign. I put my house up for sale to pay for my treatment. That sparked off a national campaign, television and all the dailies and some international. I had people come from America to, to interview us about it."

travelling long distances,

"it's reaching the stage now err I won't be able to come because of the expense. In as much as I've come here the night before, staying in a hotel, having the treatment, staying the next night in the hotel and then going home the following day because after drops I couldn't drive."

and being mindful that they are made to wait hours for their treatment,

"sometimes, it more or less starts flowing along once you've seen, sometimes there can be quite long delays in between various things but other times it just flows along, you can't say ah this always happens or that always happens."

the patients are nonetheless extremely satisfied with the ophthalmology team and the provision of the AMD service.

It appears that these positive views of the ophthalmology department by the patients imply that the service providers are able to function dedicatedly as one unit to ensure that their patients' benefits are met. It also provides evidence of patient's attribution of challenges as they attributed challenges not to the delivery team, but to outside forces (such as government) even though the delivery team were actual proxies of government.

Under this orientation, the analysis of the interview data further reveals three premises to support the eye department's capability. First, the analysis show that the majority of the personnel involved across the AMD service system appear to be concerned with the patient's welfare. When these personnel were asked "what part of their occupation that they enjoyed most", the study found many instances where the personnel interviewed claimed that they are mostly driven by the patient's wellbeing. This single minded customer advocacy is a recurring theme throughout the qualitative data;

"I like the fact that in a way you help people and in a way they like to see your friendly face and in a way the hospital service you can have that continuity of care. And I like the fact that I like to give them encouragement I like to see them perform well I like to let them know that they have performed well so that's what makes it for me I like the interaction I like to know about my patients and I do know a lot about my patients "

"I am very passionate but then I've seen people that don't have any vision so you know I've done no vision clinics you know giving them some sort of vision is just always very, very gratifying as an occupation so I chose very consciously what I did in my life "

"helping the patients achieve something so in a way it's like I am providing a service for them but it's just helping them to have a better life and to maintain their independence."

"you know, to know they are not going to go totally blind and somebody is doing something about it.."

"It makes you feel as though you are doing an important, giving an important service you know and also you have a, you build a relationship."

"I like the ability to make a difference. Erm, I think I bring with it experience. I spent eight years across the road in the DTH. I, I've come from Torbay Hospital. So, I understand from a provider perspective, so I enjoy from a commissioning perspective how we've helped, shape, work and develop as a health community. ."

"the statement is we must be right for the patient that's always the first thing on our minds and how do we balance."

Second, the findings suggest that within the NHS service system there exist tensions between the various stakeholders. For example, some stakeholders were not entirely convinced of conducting further AMD research due to reasons such as limited resources in the face on increased patients. They were of the opinion that the

department's resources could be better utilised in supporting patient care rather than research which may not necessarily produce the desired or expected outcomes as seen in the following data;

"we are a DGH, let somebody else do the research and we will come along behind them. But the nurses are dead keen to do this research and I won't stop them doing that."

"why should the AMD service be err more advantaged than the glaucoma service or, and certainly a couple of our nurses that always done glaucoma have now been taken away to the AMD service so our glaucoma follow ups have gone up through the roof."

"I hope to goodness that erm we are not going to have something else that is going to take this off the Merlow study that's going to take us off on another tangent that we are not going to have the staffing for."

"I think it's difficult for a DGH to take on big research projects and I know that the staff really want to do that and I think trying to juggle that is really, really hard in terms of what we should be providing with most of our patients. So our diabetic erm follow ups have gone up through the roof, our glaucoma follow ups have gone through the roof because staff are being taken away to do other things."

"there are other services that need those staff and that's been hard erm that's been difficult for me personally and that's been difficult for the staff because I don't think they know how hard it's been to get, for me to get to where we are now."

As such, there was a need to negotiate these tensions in order for the AMD service treatment to be administered effectively. However, in the interview data, the study found qualitative evidence to suggest that the doctors and consultants were able to shield the individual service providers from such tensions to allow the service personnel to carry out their duties effectively;

"It doesn't really matter what I think, it's where does this department want to go and that decision was made to take it on and I will work bloomin hard to make sure it works properly."

"I am aware of it but I don't really get to see it in terms of we don't ever hear of who gets funding and who doesn't we get, we see the patients at the point of care".

Finally, in negotiating such tension, there is qualitative evidence to demonstrate that strong leadership from the doctors and administrators also played a part in stabilising the AMD service provision. By providing strong and capable leadership, management was able to discourage personnel involvement in potential conflicts of running the AMD service and concurrently encourage the supporting service personnel in carrying out their collective responsibilities in the interest of the patients;

"One of the great pros of our ophthalmology department and one of the reasons it runs so well is that all the staff in the department do the bidding of the senior staff in the department."

"When you pass through the doors of the eye department and get into the eye department all the staff, the optoptists, the nurses, the healthcare assistants, reception staff, they do all work as a team and they all do help each other to some extent".

"what's nice down here is that the optician that we've got as Chair of the LOC works here and a couple of the LOC members work here as opticians so that information filters out very nicely which is great."

"the people involved are keen and want to be members of ophthalmology and I think that's ideal, I think that's important I think they feel part of the team."

"it's teamwork it's not just me it's about the entire process it's about the entire patient journey so yes my part runs well and it took us a while to get it to run well but it does run very well now"

It is evident from the qualitative data that the ophthalmology department is perceived as an excellent service provider by its patients. It is also clear that this positive feedback is not without the pressures of challenging issues such as increased demand, limited resources and negotiating conflicts in a large department consisting of different personnel with different stakeholders all within the AMD service system. Notwithstanding these challenges, the team was able to deliver the AMD service without much adverse effect and this is largely due to its ability to co-create value for the patients.

4.2.3.4 Negotiating conflicts through tacit knowledge

Finally, the study revealed that identifying the tacit knowledge embedded in the practices of the ophthalmology department in their delivery of the AMD service is critical. In the AMD service system, the study finds that the different stakeholders are able to co-create value using their tacit knowledge while negotiating conflicts. For example, doctors are shown to take dual roles in identifying with the individual patient's welfare on one hand and to formulate policy in the interest of society on the other hand. This is strongly reflected in the following qualitative evidence;

"They deal with, that's who, that then delivering news about you know how they're treated, how their particular issue might or might not get better. So, it's, it's an incredibly difficult job from a clinic, from a clinician's perspective but there is, you know, that's essentially why they go through that training is because it's very delicate."

"from the patient's point of view, I could see that it was a kind of highs and lows, kind of, and they are left feeling erm, in a, in a limbo situation because they, they, they know there's a possible treatment. Their consultant has said that they might benefit from it, they've, the consultant has said they'll, they'll make an application to the PCT. And then we say no you are not eligible so it just troubling."

As such, it is clear that within the AMD service system, conflicts exist not only between the different stakeholders as mentioned in the earlier findings but also within the individual. Among some of these conflicts that were coded and documented in the data

relate to issues such as the “distortion of truth”, “communication challenges”, “lost of perceived control by stakeholders” and the “rigidities and fluidities” or “lack of boundaries” of the service system as shown in the following interview data;

"And that's obviously the judgement call that the consultant has to make at the time and we're all different. We're all human and I can tell you from, because I, I see quite a wide picture of what's going on in different departments and the different consultants. Certain consultants are, are I would say over represented in the err, applications for funding outside the criteria."

"it's my view that people have only seen the money that's come in. What they haven't seen against that is how much its cost to deliver because nobody actually knows, I don't think? I've banged on about it for at least 18 months. Nobody knows what it's costing to deliver and nobody knows how much other work hasn't been done that would have brought us an income that we've lost because we haven't done it, against the income that's come in from the macular service."

"that's the whole thing in is it's, it's weighing up you know, not every cancer patient gets every drug, not you know, again, what about the advocacy groups that need things you know. So it, it was a weighing up and there was I, I feel there is really no respect."

"which was a huge shock because we believed we did the right thing for the population and we believed the consultants supported us. So it was a really hard lesson erm that he didn't support us, he didn't want to know what the process is, and basically he just used us."

"coz (name eliminated) would not see 19 patients, (name eliminated) wouldn't see 19 patients but you see, if (name eliminated) is seeing 20 patients the week before or a month ago and they need to come back in 30 days for their second injection and (name eliminated) isn't here, erm you know that's where you've got your problem."

Although these conflicts are highlighted as separate issues and seen from multiple perspectives, in most cases of the data that were analysed, these issues appear to be connected and interrelated. For example, the study found that doctors are determined to assist as many of their patients as possible in finding public funds for their AMD treatment despite some patients not meeting the criteria for the funds. In some cases, doctors are known to push their boundaries in assisting their patients by knowingly putting in applications that do not meet the requirements as seen in the following data;

"I could understand why they would still apply even if they, they could document that the patient didn't meet the criteria. I think one of the difficulties there is that that, it, it, it raises patients' expectations sometimes err, unjustifiably really."

"it's interesting because the patient might not be able to come for two, three or four weeks. So there's a lot of background work. So is it that what's really truly perceived by the patient or is it the consultant saying the patient, there are problems for the patient."

As a result, the study found that patients are sometimes unaware of their position with regards to funding and rely significantly on the doctor's recommendation and this may lead to a false sense of security on the patient's part. However, doctors are aware that

public funds are limited and therefore have to be selective in terms of the beneficiaries of those funds yet they are faced with communicating these issues to their patients, which in practice poses a challenge and our interview data found some instances of these conflicts;

"I think erm, with anything, the first principle is to first to understand, I think probably from a patient's perspective, they are there dealing with that issue and then get probably a significant amount of the understanding from the one person they are liaising with and that's their consultant. So, I think it might be a perception that they have gained from their link to the PCT which is via the consultant."

"there was a significant percentage of patients who we couldn't get funding based on the commissioning criteria we had brokered and erm we felt that we should be attempting to provide an NHS service for these patients even if they were actually, you know they had to pay for the treatment but they should be given that option okay and that was a very challenging, managerial and political erm process to engage with."

Another example of tacit knowledge in negotiating conflicts found in the qualitative data is the communication challenges between the doctors and the Primary Care Trust (PCT). In the interviews, the PCT expressed the opinion that in spite of their support for the AMD service provision for the south west population since its inception, they do not perceive that their efforts with the hospital's ophthalmology department have been reciprocated. Instead, they felt that their working relationship with the doctors and consultants on the AMD service moved to a stage where trust issues have crept up with regards to the use of AMD related drugs. In one conversation, a PCT administrator remarked that;

"I believe any time I gave information to help, it's used against me. And you know that, so there's a huge trust issue and it's how the Acute Trust handled the situation. I think the problem that happened with the AMD, we did not have the systems and processes in place to actually give it erm, we, we could go only so far with it. And then, we would said, no we can't go any further erm, the toys in the pram, the toys went out of the pram. I think it's a very tense relationship at the moment."

Additionally, the PCT also felt that the doctors were irresponsible in portraying them as insensitive to the needs of the public when in practice they felt that they were extremely mindful of their role and responsibility to the public with regards to healthcare as reflected in the following data;

"but to get railroaded into it erm, I think to emotionally blackmail the patients erm, to make us look bad is, is not the best way."

"that's why, that's our role is to have that strategic view but it's not only to help a local population, it's also to protect them as well which is why you have to have such rigorous governance processes and structures in place."

"This is about protecting our local population with, and, and that goes back to my earlier statement. You know, our role is to have that strategic view and to provide best health and social care for our local population but it's, it's not only

about providing the services but protecting the patients about the service that they are getting as well."

Under these circumstances, the PCT strongly perceived that it had lost some sense of control over the issues governing the AMD service to the point of being "betrayed" and some "loss of respect". This sense of betrayal is captured in the following conversation;

"it's easier to hit at organisations than at individual person. It's easier to say the PCT without knowing that people who work in the PCT actually have feelings and how to go forward. It's easier for erm, for the patient to go with their consultant because patients shouldn't have to understand all the back, back working of it all. You know, the, the patient has to have trust in their consultants."

"And so, the consultant also if they choose not to engage, can always blame the PCT. It's just not the consultant, it could also be GPs. I think the relationship within medicines, err, pharmacy, drugs err, and our GPs are, aren't quite robust."

"So we're the fall back, we're the ones that always have to take it on the chin to protect the consultants and the doctors."

From our observations above, it appears that while it is important to note the different roles within the AMD service system, it is critical to isolate its divergence in order to better understand the conflicts within the system and to that extent, how these conflicts may impact on the efficiency, effectiveness and the costs of the delivering the AMD service through value co-creation. Subsequently, these conflicts also then imply that stakeholders have to negotiate their tacit knowledge to tackle the different types of conflict and uncertainties that have crept into the AMD service system in order to ensure that the service is delivered effectively as suggested in some of the interview data;

"I think some additional nursing time, but not that compensates for the loss of nursing time erm that disappeared into this black hole that is the macular service."

"Some of it, it's research and research for me shouldn't get in the way of the service

"those figures are not going to be accurate but you can do sort of the best case / worst case scenarios or you do high volume / low volume whatever, generous criteria and restrictive criteria and look at the difference and then may be take a middle figure and then like that, to work out what the need will be. Erm so, and that process didn't really happen."

Under this orientation, it appears that the tacit knowledge and practices by its stakeholders in negotiating these conflicts under a value co-creation model within the AMD service system was instrumental in propelling the hospital's ophthalmology department to the front of the AMD service. Therefore, a further understanding of this knowledge was essential in order to gain more insights into recognising these practices.

Following the examination of both case study 1 and case study 2, the next section of this thesis collectively examines these case studies in order to draw similarities of value co-creation attributes.

4.3 The attributes of value co-creation

Subsequent to the analysis of both case studies with regards to value co-creation, the coded data was re-visited and re-analysed to seek out common emerging themes for value co-creation attributes under the two case studies.

In proposing these attributes, this author is mindful that the principle of co-created value implies that both customers and firms provide a value proposition (through their use of operant/operand resources and processes) and the resultant co-creation during the encounter provides benefits to both (benefit to the customer and revenue to the firm). The need to then link “co-created value” to “benefits” is paramount.

This argument then emphasises the benefits obtained for both parties from their relationship. This is the possible reason “service systems” considers both operant and operand resources to be integrated. Furthermore, as goods become progressively complicated to use (e.g. engineering equipment, medical treatment), the service required to achieve benefits become increasingly important. It is therefore not surprising that as technology advances, service provision becomes increasingly crucial, particularly when customers become more demanding and competition increases.

Furthermore, the qualitative evidence from both qualitative studies suggests that customer management for co-production and value co-creation is in itself a “service capability”. The ability to manage it well would result in more opportunities for the firm to effectively deliver on its service. Towards that end, this author conducted a further analysis of categorising these challenges. The data were then reanalysed and coded according to the practices that worked but were embedded within the tacit knowledge of the firm, the customers and other stakeholders within the service system.

The codes were then abstracted to form common themes and the data uncovered 6 generic co-creation attributes needed for successful service delivery under both the examined service context. These generated themes were then triangulated by two other researchers through discussions to provide authenticity to the findings. The coding and categorisation centred on distilling and reducing the data to generic sets of categories that were crucial in describing the phenomenon. Apart from describing the phenomenon, the attributes were categorised for the purpose of theory building and

these had to be sufficiently abstracted so as to be useful for the purpose of calibration in the next stage of the study.

In total, the analysis identified six generic attributes of value co-creation that were similar under the defence and healthcare contexts. These attributes; “congruence of expectations”, “complementary competencies”, “process alignment”, “behavioural transformation”, “perceived control” and “empowerment” were abstracted by focusing on two specific issues; first, what was the possible attribute that could have resulted in the challenges and the findings from both case studies and second, what attribute was possibly lacking in the environment that drove these challenges and its meanings in their respective context. Additionally, the analysis found that these attributes of value co-creation were tacitly embedded in the service provision and manifested within the system as a whole, rather than in component parts or individuals.

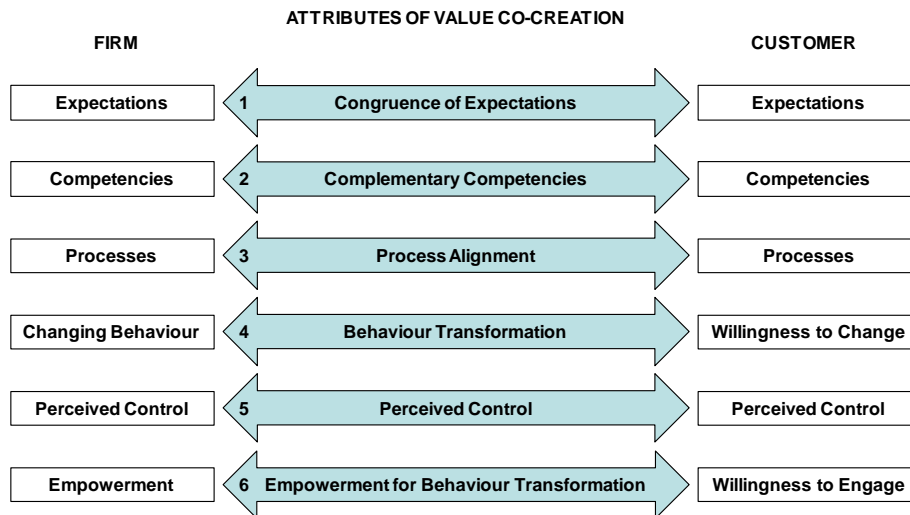
Using the N-Vivo software application to re-analyse the qualitative data from both cases, this thesis distinguished several sources and instances for categorising generic attributes for value co-creation as summarised in table 29.

Table 29: Summary of Qualitative Evidence for Case Study 1 and 2

Attribute	Case Study 1		Case Study 2	
	Sources	Instances	Sources	Instances
Congruence of Expectations	12	24	13	33
Complementary Competencies	9	16	11	29
Process Alignment	4	15	6	22
Behavioural Transformation	8	28	7	26
Perceived Control	10	32	12	32
Empowerment for Transformation	10	35	11	27

From this analysis, figure 21 presents a conceptual service framework model for the attributes of value co-creation.

Figure 21: Service Model of Generic Attributes of Value Co-creation



In the next section, these attributes are discussed collectively and comparatively from both case studies with its corresponding qualitative evidences.

4.3.1 Congruence of Expectations

From both case studies, the qualitative analysis suggests that in order to be successful in co-producing and co-creating value, expectations must be in congruence. This means that the customer expectations of the firm must match the firm's understanding of the customer's expectations of the firm. Conversely, the firm's expectations of the customer must match the customer's understanding of the firm's expectations of the customer. A lack of congruence results in 'boundary issues' as manifested in the challenges found in the qualitative data of case study 1;

“Yeah just again by talking to them and saying you know the role that [the firm] are playing we are forward facing with the customer, we have to be customer focused, we have to try and meet the customer's expectations or exceed those expectations where we can but knowing the fact that the customer will abuse that expectation at times because he is trying to get us to do a lot more than we are actually contracted to do”.

“Well ... awareness of other people's tasks and other people's roles and responsibilities. Everybody no matter who you are yourselves you are probably, particularly focused in that right you want to achieve this and you want to achieve this but you are not the only person”.

“They thought that the solution on the table was an engineering solution and in fact it's all about the joint supply chain which obviously now realises but it's too late”.

Similarly, in case study 2, congruence of expectations implies that the different stakeholder's expectations of each other's activities within the organisation must match. Where there is congruence, both parties stand to benefit. For example, a patient expecting to stay for long periods in the hospital for their

treatment and the hospital service personnel is sympathetic to their patients needs while waiting by being accommodating to their needs.

"I really wanted to do was send information out about how long they would have to wait so they were prepared because if you managed people's expectations about how long they are going to be there they are going to be much less stressed.."

"they understand that they are here all day and a lot of them bring sandwiches and drinks they are prepared but obviously new patients aren't always aware of that and it is a shame sometimes that they are here all day "

Conversely, a lack of congruence results in communication issues as manifested in some of the challenges reported earlier in this study;

"you don't manage to get all the different groupings erm to really truly want to do what you are trying to achieve. Erm, and that's because there are different erm values, different measures, different drivers for different individuals."

"which was a huge shock because we believed we did the right thing for the population and we believed the consultants supported us. So it was a really hard lesson erm that he didn't support us, he didn't want to know what the process is, and basically he just used us."

"we still never received ownership from the hospital. The hospital would say one thing and then they would do another thing even till today."

In another case, some stakeholders were not necessarily in agreement that the AMD research or service provision is more important than the rest of the eye-treatment services provided in the ophthalmology department. This may have led to tensions and therefore impact on the service delivery as suggested in the following conversation;

"But that's, that's purely because of the impact it's had on the rest of our work. For me every patient is important. And it is felt to me over the last couple of years that actually the macular patients are more important than everybody else because they've drawn, oh we need a nurse to do this, oh we need a nurse to do that, oh we need two opticians to do this and they've drawn resources in, without erm, looking at the impact on all the other patients who I think are just as important."

"I was told, I could apply for it to be paid for but they turned me down, so we started a campaign. I put my house up for sale to pay for my treatment. That sparked off a national campaign, television and all the dailies and some international. I had people come from America to, to interview us about it."

In essence, our study found that the personnel within the service system in both case studies have embedded many of the expectations into their conversations with the customer resulting in higher levels of satisfaction. These conversations were embedded in the personnel's sense of the achieving optimum results for the customer. This demonstrates that it is critical for these expectations to be in congruent in order for value co-creation to occur.

4.3.2 Complementary Competencies

In co-creating value, both the case studies found that the customer and the firm have to provide the right competencies, in terms of expertise and judgment. Interestingly, this is not to say that the competencies are the actual competencies per se, but rather the perception of complementary competencies. This perception of competencies is reflected in the following qualitative data found in case study 1;

“So it happens that you may have an individual that gets told right you liaise with [the firm], you liaise with [the firm] to actually carry out that contract. And it doesn’t necessarily know that that individual, his personality might not be right for a start, as I say he may not have this, this ability to build a rapport with somebody or anything like that, he may not have the technical expertise, he may not have the military expertise. Erm especially in a maintenance contract like this you need the technical expertise. You also need to know the military aspects you know can a sponsor’s reserve physically do that? You know are you allowed, is this civilian allowed to go and do this?”

“It’s a skill of judgement isn’t it because yes. you could make erm an extra 15% profit and still deliver to the contract. This could, I am not saying this is the situation. You could do that fine but the customer would turn around they are arseholes that they gonna think twice about coming to us with business in the future”.

“it’s all based on the fact that provided that [COMPANY] have recruited the right person who can communicate with civilians or communicate reciprocate you know communicate with the military, because as I say most of the civilians are going to be working here are going to be ex-military and it’s the, it’s that part of it because if you, you know what it’s like if you go to a hotel receptionist and you book in and she just turns round to you and says yeah okay then yeah you know get lost or whatever it is just you”

In the second case study, its qualitative data also showed that the various stakeholders within the AMD service have to provide the right competencies, in terms of expertise and judgement in order for value co-creation to excel. Complementary competencies are the essence of value co-creation, and both parties must contribute resource and skill competencies to enable value co-creation. From the interview data, some qualitative examples of competencies, both from the service personnel and the patients, were found to have assisted with value co-creation;

“they don’t have to pay an anaesthetist to do cataract surgery now so that’s how I got my job.”

“I think we’ve got some dedicated staff erm and erm if you’ve got a good staff mix I think we provide a really good service.”

“I’ve got to do is to negotiate because the times all wrong and I mean last, last week I was out so early that erm the person who was organising, who was organising it in the office, I need some transport and she got it, got it by running, erm before another taxi left.”

4.3.3 Process Alignment

Next, both case study 1 and case 2 found that in multi-environmental states, value-in-use changes dynamically and as such, co-production and value co-creation need to build in the alignment of processes whereby customer changes would flag up changes in the alignment. This was clear in case study 1 when situations where customer processes change and the firm discovers only later the impact on value co-creation is clearly untenable as exemplified in the following evidences;

“We should be have been sitting much closer to one another right from the very start working in a joint combined environment so that we can understand their thinking, understand their discussions. They could understand where we were coming from we can ask questions of each other going back and forth. At the moment you’ve got a company at [SITE] and we are with it. Processes are taking you know agreed processes are being emailed to one another and that’s taking time and then when you have got the agreed process to try and actually work your way through it and execute that process because you are not sat next to one another it’s taking time and it’s time that we don’t have either of us nowadays”.

“They thought that the solution on the table was an engineering solution and in fact it’s all about the joint supply chain which obviously now realises but it’s too late. Erm so erm very frustrating initially because I could see that I had a role to play but there wasn’t a door open for me to go in to play that role if you see what I mean. Erm the last couple of years that’s changed considerably they did realise that actually we’ve made this assumption that’s wrong come on Kim how do we get out of this and that, that is still happening today. In fact just before I came here erm somebody from [the firm] came to see me to ask me if I could help out because they’ve got a solution that they can’t deliver and they want to know if I can help them deliver it so it’s interesting isn’t it”.

“I have been basically like the regimental focal point for [contract] so I am like a conduit so something will come to me and I go to the commanding officer and tell him, I may get a lot of shouting at and things like that but I just, that’s just generally what I get and I’ll do that. With [the firm], [the firm] have got, they’ve got certain milestones, certain things to achieve by a particular time whether it be training, whether it be maintenance, whether it be supply support or anything like that. So you’ve probably got five running along at one point. But being the focal point for 36 one, for all of them people coming in and people tend to think right well I’ll phone [name omitted] up and he’ll do this. They’ll phone me up and go well look I’ve got the military aspect here to work with and I’ve got like you know a hundred odd soldiers to manage and I’ve got all these other things that I can’t physically can’t spend all my time doing this [contract]”.

Similarly, for multi environmental states such as the AMD service system, the data in case study 2 found that “alignment of processes” is critical for value co-creation. For example, when there was an unplanned increase in demand, the organisation was able to respond quickly. Hence, process alignment requires that the organisation thoroughly understands customer processes that brought them to the hospital, so that the system could co-create value jointly, instead of the hospital thinking of what it can do on its own. From the interview data, the study found instances where the perception was that the organisation’s work processes were not entirely aligned in the organisation, and in some cases the misalignment resulted in a lot of pressure on the system;

"those figures are not going to be accurate but you can do sort of the best case / worst case scenarios or you do high volume / low volume whatever, generous criteria and restrictive criteria and look at the difference and then may be take a middle figure and then like that, to work out what the need will be. Erm so, and that process didn't really happen."

"erm so I am not, my view is that there should have been a bit of business planning in the first, in the early stages."

"I think managers can't do that on their own because they don't know, they don't know about the patients, they don't know what has to happen to the patients erm, but they can help with the process changes that are necessary, they can help with the negotiations that have to happen in terms of ways of working across organisations."

"we haven't necessarily always got that perfectly designed for people to spend three to four hours in that process."

"I think because err you know may be the numbers on the clinics aren't always realistic erm but because of the pressures upon us to get these patients treated within the time constraints, it gives us that pressure erm so it's, you know, we, I, I think [name eliminated] has continually erm been looking at the process of how we throughout the patients to the macular service and there's no easy solution."

"I think possibly because of the numbers we have to see with the resources we've got causes these bottlenecks and people to be lingering around in the department all day and I think what makes it worse is that you've still got other services that are being run through the department on, at the same time.."

"The difficulty has been in the past is that two or three people have got engaged at different levels and you never get an answer."

"from an AMD service perspective, what we did badly when we set up the service is we didn't have the infrastructure behind it. So, for the first eighteen months we were just floundering."

"The problem is there most of what you were reading wasn't directly relevant, err it was never crystallised in an easily, easily digestible form. Then you might find out a week later that in fact well actually that was a draft version and that was you know, that had to be rethought err because of something. So it got to the point where you didn't actually necessarily believe or read thoroughly what you were sent."

4.3.4 Behaviour Transformation

From both the case studies, the qualitative analysis of the data suggested that in an environment of co-production and value co-creation where value-in-use changes and where usage has an impact on costs, satisfaction and delivery, the customer and firm have to ensure that their people have the skills and are able to transform each other's behaviours to achieve greater effectiveness and efficiencies. As such, both customer and firm have to ensure that the right behaviours are in place to ensure effective and efficient co-production and value co-creation. In that respect, not only do the stakeholders need appropriate behaviours, it is critical that relationships can be turned around by implementing corrective actions such as changes in the behaviour of personnel involved in the delivery of the service.

The data in case study 1 showed these corrective actions can also be viewed bi-directionally from the customer's perspective in influencing the behaviours and attitudes of the firm or its suppliers to improve efficiency and effectiveness in value co-creation as shown in the following qualitative data;

“So I sit with the Station Commander and his team once a week and we go through they tell me things erm which are military, we go through military issues and they, they ask me for my industrial erm opinion. So they’ll say erm we are thinking about closing the base next week ... for a day because we’ve had a really good erm ALC inspection how does that affect output for us? Erm I’ll say well you’ll lose a day’s production erm you know it’s, it’ll cost us X number thousands of pounds but I am consulted. The issue isn’t the answer, the issue is the consultation. Erm and as a result erm just recently erm only a couple of months ago I went on a, on a military field trip with them into Germany you know just another member of the team basically that’s how I get treated”.

“Yes. ‘Cos he is a key player. His behaviours have led others to behave in the right way and I am, what I don’t know is whether he naturally behaves like that whether he believes in that or whether he’s just adopted the right behaviours in order to achieve the outcome”.

“It’s cost benefit, technical expertise erm, training for the individuals in uniform, because the soldiers will learn from [the firm] technicians and vice versa on the military aspects because the MoD’s sponsored reserves will be expected to deploy with the military so they will have to deal with an element of training, they will learn from the military personnel”.

“And one of the fundamental things as well about this is the management of the change from, and it’s a change in behaviour, it’s a change of ethos and everything like that, that when you are walking around here you will see a civilian coming and fixing your vehicle or something like that, you won’t get military personnel. And these things are, all need to be sort of linked together”.

“I brought the [OFFSITE] guys here three days a week for three months erm and made them go and build a relationship with their counterparts which were all sat in these hangers well there was only one hanger at the time but erm and basically it was all about building the relationship, the trust, the confidence erm so that when we started to have the erm the debates around how we could see this working and bring in the cost dimension and say well the reason we’ve been asked to do this is because you are only going to have 50% of the budget. Oh well we didn’t realise that you know there was, they had not been informed, there was communication breakdown and erm and so as soon as that was all on the table and we started to have a meaningful debate very quickly the relationship well we are only people so it very quickly they were having drinks in the Officers’ Mess Bar, they were going out erm you know some people were socialising. So very much a more joined up, I would say erm in the first three of four months you know we had made big strides erm actually building the trust took a much longer period of time”.

In case study 2, similar findings of behavioural transformation were found. The qualitative data showed that even where processes are aligned, the different stakeholders within the organisation have had to ensure that the right behaviours were in place to ensure effective and efficient value co-creation. Examples of this qualitative evidence highlight patient and staff behaviour and transformation that helped in value co-creation;

"I think what we've done now is we've got more nurses and opticians who are accredited now to do logmars as part of the macular service, so that's, that's helped."

"I think it takes, it drains a lot away from, from, staff from everywhere else because we are all concentrating on getting that through although we have employed a lot of staff on the strength of the research that we are doing because that takes a lot of time and you know we do have the staff to deal with the service as well as other clinics."

"That's, that's fine it doesn't worry me because I am erm I love watching people and I am very interested in body language and I have met some very interesting people."

"And erm I think everywhere else all I take is the cod liver oil tablet in the morning and, and really that's it. Now I take an eye tablet at dinner time but that's it."

However, in the second case study, the analysis also revealed instances where group behaviour may impact on the AMD service. For example, some interviewees felt that within the NHS service system, there exist "tribes" and "groups" which behave independently with different agendas. As such, these behaviours do not augur well for the long term of the organisation as it does not work towards the common goal of the hospital. This shows the importance of aligned behaviour in order to support value co-creation;

"you don't manage to get all the different groupings erm to really truly want to do what you are trying to achieve. Erm, and that's because there are different erm values, different measures, different drivers for different individuals."

"in the NHS as a whole there's tribalism, tribal structure where you've got different managers, different hierarchies of control that exist almost independently. As a whole you have these different tribes like nursing tribe, management tribe, medicine tribe and there's more tension between the different tribes and less cooperation and it's hard to get the other tribe to do anything."

4.3.5 Perceived Control

Perceived control is a basic need and both literature in psychology (Ajzen 2002) and organisational behaviour (Smith et al. 1997) reiterates that control is a principal human driving force and people are motivated to demonstrate their competence and superiority over their environment. The analysis in both case studies showed that perceived control is a crucial dimension in interpersonal interactions and human-environment interactions as it is associated with positive outcomes in relation to their work performance. In service provision, perceived control is an important element of the service experience and this phenomenon was evidently apparent in the case study 1. Hence, in the co-production of the service and value co-creation, establishing a system that allows both parties to have a perception of control is essential as exemplified in the following qualitative data from case study 1;

"I've spent half my day to day wasted in my view because somebody is feeling uncomfortable because this is right in the limelight now and, and they feel, they feel exposed, insecure because they are not close to it, why do they need to feel like that and don't worry about it. You've put a team, well when I say that you've put a team of people in there, you know you've got some senior people in here and trust them, empower them don't kill them, help them"

"Do you know what we actually do? What we do is we collect risks we label things as risks we put them into a database and then we admire them".

Correspondingly, the data from case study 2 showed that in service provision, perceived control is an important element of the service experience. Therefore, in value co-creation, establishing a system that allows both parties to have a perception of control is essential. The analysis of the qualitative data in study 2 found examples of perceived control that exemplifies situations where administrators felt that they have control over aspects of their operations;

"I've got to a stage now err that I won't be bullied into making it because they are too short notice, I got to the stage when I got fed up of people being rude and getting their walking sticks and sort of trying to hit me with it."

"I have to interact with them to make sure the appointment times you know so this is the specific month when we are changing the time slots I've got to work it out for them and they are quite happy for that.."

"I think what we've done now is we've got more nurses and opticians who are accredited now to do logmars as part of the macular service, so that's, that's helped.."

"My influence is persuade, is persuasive influence and you know, challenging influence and you know asking the why questions type influence."

"increasingly in the world, people don't do what they won't, won't do. And erm it's very hard to make people say, see more patients than they think they are willing to see however much I might feel that they ought to be."

"I am but it may well be that that boils down to an absolute crisis and, and then I sit down with all of them and say fine okay, how do you want to handle this? Erm, what do you think is the solution?"

Case study 2 also found evidence that the AMD service provided control to customers as well, through giving advance information, and conversations to comfort and prepare the patient for what is to come, principally driven by staff advocacies;

"sometimes, it more or less starts flowing along once you've seen, sometimes there can be quite long delays in between various things but other times it just flows along, you can't say ah this always happens or that always happens."

"Oh, not really. Sometimes you wish that things could move along at a much more quickly, there wasn't so much waiting around but erm you know I think, I think this is almost inevitable, this hospital."

"I think I've got used to the system and I don't worry about it."

"And this lady said 'hello' and I don't really remember chatting to her at that time. Do you know what she'd done, she'd brought two books and gave me them and one of them was about the Jungle Bunnies out in Malaya."

"That's, that's fine it doesn't worry me because I am erm I love watching people and I am very interested in body language and I have met some very interesting people."

4.3.6 Empowerment

Finally, the analysis from the two case studies demonstrates that behavioural transformation must be preceded by a willingness and sense of empowerment to recognise a situation that needs to be changed, and willingness to change others for effective co-production. In the case study 1, this implies that teams from both parties must be pro-active in their engagement of others as this had an impact on value co-creation as the analysis of the qualitative data suggests;

"and we say what can we do to increase reliability and you know in some instances it's erm it's not a technical solution it's err the maintainer says oh well this always gets broken because that door there always drops on it when they maintainer takes it off. And you will say hang on a minute so we've been dropping this door on it for fifteen years.you sort of sit there and think oh you know how could that be but when you are in a, when you are in a situation where all you see is a purchase order from your customer you don't sort of sit there and say oh it's that door how did that happen you know they seem to be ordering a lot of these when that's your income generation stream you don't sort of question every order that comes through the door you just accept it".

"Yeah. I am sat in here now knowing that I've got one or two of my team doing something that I need for Monday I have totally empowered them to do it, I've told them roughly what I want I haven't got a clue what I'm going to get but if I didn't do that I would end up getting nothing and I'd be trying to do it myself or I've told them to do it in a way that's probably not the right way anyway".

"If you detach yourself from your team and empower it that is one hell of a scary thing to do because you are actually trusting them to deliver something and it might not deliver it the way you want it to, it might not be totally what you want it to but is it going to be a million miles away from what you want and if you were to tell them they probably all sit down and do nothing because you are telling them to do it anyway and they don't believe in it".

Similar to these qualitative evidences, case study also found evidence to suggest that the various stakeholders within the AMD service system recognised the importance of empowerment in the AMD service provision. This implies that the teams were pro-active in their engagement of others as reflected in the following data;

"my mindset is that we will go out and try move up the, up the tree in terms of the level of innovation that we are trying to err tackle and the level of risk so you know we've gone from being average to late adopters to being quite early adopters in a number of fields.."

"we've got to deliver the best possible value out of the resources we have and err you know where there's a new opportunity and big breakthrough we should be trying to get that err into our community as fast as possible."

"challenge is to make sure that we don't, by constantly innovating change and trying to stay ahead of the pack."

"I was doing it out of frustration because it's something that should have been done you know a year or two prior to me doing it. We got into such difficulties with it you know, and not being able to see the wood for the trees."

"I think the ophthalmology community in general feels cheated and that's why they are supporting this IVAN trial and a similar trial in the US, because people feel that the pharmaceutical company has taken us for a ride, and they only way out is to call its bluff but unfortunately it takes time."

"And the large number of volunteers who would come in and we're thankful to them for the coming and for the study, actually any research or study you do the patients who are in the study may or may not benefit but they will certainly advance because of science and for the future generations of patients so, in fact they are making the sacrifice."

However, there were instances in the interview data where stakeholders felt that they have no empowerment to change things. For example, some interviewees felt that the NHS with its tribal culture tends to limit the empowerment that is necessary for the improvement of the AMD service;

"actually the clinician isn't involved because they are not empowered within the management structure to change."

"They could do a lot within the NHS provided the managers empower them to make those changes, err but it tends not to happen because of this tribal structure and err, you find that you know even between say like clinicians and nurses."

4.4 Summary of case study 1 and case study 2

The earlier analysis of both case studies highlighted that value co-creation is an important aspect of the service delivery. The qualitative evidence in both studies finds six generic attributes of value co-creation; congruence of expectations, complementary competencies, process alignment, behaviour transformation, perceived control, and empowerment.

In essence, the analysis of the qualitative data suggests that the explicit consideration of these value co-creation attributes arising from these two studies in the design of service provision will enable the introduction of future services to be in a better and more informed position. This then implies that the understanding of how value is co-created through its attributes is important and therefore, incorporating these attributes into the service-system design, is critical in ensuring better customer experiences.

Moving from the analysis and findings of these two case studies, the next section addresses the analysis and findings of study 3 which investigates the impact of value co-creation attributes on the customers' willingness to pay.

4.5 Analysis and Findings for study 3

The analysis and findings for study 3 comes in two parts. The first part deals with the understanding of the student's perception of their university experience and the attributes of value co-creation. The second part of the analysis examines the perceived importance of value co-creation attributes and its impact on the students' willingness to pay.

4.5.1 The student's value co-creation university experience

In total, the survey was sent to approximately 2,300 students across the business schools of two universities in the United Kingdom. There were 369 replies but only 171 completed the questionnaires representing a 7.4% response rate.

A descriptive statistical analysis of the sample size of 171 respondents showed slightly more than 60% were female. A majority of the respondents were postgraduates and these included the MBA and doctoral students while only 35% of the respondents were undergraduates. There were almost an equal number of "Home/EU" students and "International" students and approximately 54% of these students spent more than 3 years at the university. The majority of the respondents were between 16-25 years old and these respondents totalled 106 making up nearly 62% of the sample size. We had 5 respondents aged above 50 years.

From the survey data, students who paid more than £7,000 for their education fees made up about 51% of the sample size with 49% paying less than that amount which reflects the data on the number of undergraduates surveyed. There were almost 30% of the students who paid more than £12,000 for their fees. Interestingly, 89% of the respondents funded their education via private means. These private funding comprised approximately 53% from family sources and 26% by way of loans which the students are expected to repay once they have begun earning an income.

A summary of these independent variables are listed in table 30.

Generally, these statistics on “fees” and “funding sources” imply that the business of higher education is an important revenue source for UK universities, particularly its foreign students.

Table 30: Summary of the Independent Variables

Gender	Frequency	%
<i>Male</i>	64	37.4
<i>Female</i>	107	62.6
Degree Level		
<i>Undergraduate</i>	59	34.5
<i>Postgraduate</i>	112	65.5
Studentship		
<i>Home/EU</i>	82	48.0
<i>International</i>	89	52.0
Duration of Study		
<i>3 years or more</i>	91	53.2
<i>Less than 3 years, more than 1 year</i>	30	17.5
<i>Less than 1 year</i>	50	29.2
Age Groups		
<i>16-25</i>	106	62.0
<i>26-35</i>	39	22.8
<i>36-50</i>	21	12.3
<i>Over 50</i>	5	2.9
Fees		
<i>Less than \$5,000</i>	67	39.2
<i>Between £5,001-£7,000</i>	17	9.9
<i>Between £7,001-£10,000</i>	18	10.5
<i>Between £10,001-£12,000</i>	23	13.5
<i>More than £12,000</i>	46	26.9
Funding		
<i>Family Funded</i>	91	53.2
<i>ESRC/EPSRC/Research Council</i>	5	2.9
<i>Government Scholarship</i>	13	7.6
<i>Loans (Personal)</i>	62	36.3

With regards to the perceptive measures of the student’s university experience, all variables were computed by their mean scores and summarised in table 31.

Table 31 : Mean Scores for the University Experience Measures

Descriptive Statistics					
No	My Current University Experience is about: (N = 171)	Min	Max	Mean	Std. Dev.
1	Engaging with academics.	1	5	3.80	1.0512
2	Engaging with the university's support staff.	1	5	2.77	0.9459
3	Engaging with other students.	1	5	3.89	1.1430
4	Attending social activities and interacting with other students.	1	5	3.42	1.1674
5	Attending social activities and interacting with academics.	1	5	3.12	1.1693
6	Attending social activities and interacting with the university's support staff.	1	5	2.41	0.9981
7	Gaining knowledge by interacting with academics.	1	5	3.98	1.0317
8	Gaining knowledge by interacting with other students.	1	5	3.88	1.0245
9	Gaining knowledge by interacting with the university's support staff.	1	5	2.69	0.9958
10	Gaining knowledge through independent self study.	1	5	4.21	1.0071
11	Being able to challenge the people at the university on issues that are important to me.	1	5	3.22	1.0615
12	Recognising the changes I see in myself through learning.	1	5	4.01	0.9610
13	Understanding my internal processes (i.e. learning, studying) through interaction with people at the university.	1	5	3.79	0.9653
14	Sharing my resources with people at the university.	1	5	3.47	1.0421
15	People at the university sharing resources with me.	1	5	3.55	0.9404
16	Influencing issues that are important to me.	1	5	3.33	0.9752
17	Working towards getting a degree.	1	5	4.39	0.9904
18	Enabling my abilities to secure a job in the future.	1	5	4.28	1.0074

From the mean scores, it appears that measures comprising “engaging with support staff”, “social activities with support staff”, and “gaining knowledge from interaction with support staff” all scored a mean 2.77, 2.41 and 2.69 (items 2, 6 & 9) respectively which is below the mean score of 3, implying that students tend not to associate “interaction with support staff” as part of their university experience. Conversely, measures with regards to “engaging with academics”, “gaining knowledge from interaction with academics”, “engaging with other students” and “gaining knowledge from interaction with other students” (items 1, 3, 7 & 8) respectively had mean scores of 3.80, 3.89, 3.98 and 3.88. Both these empirical observations suggest that in general, students perceive that their university experience is more closely associated with academics and other students compared to interaction with university support staff.

This reiterates the importance ranking by the students who were asked in the survey to rank the order of importance of six given stakeholders; namely academics, university support staff, department support staff, other students, the vice chancellor’s office and the government. In general, the majority surveyed ranked academics as the most important followed by other students at 54.4% and 26.3% respectively. Contrastingly,

most students ranked the government and the vice chancellor’s office as the least important with almost 60% saying that they didn’t believe that the government is important and 34.5% indicating the vice chancellor’s office as the least important in supporting their university experience (table 32).

Table 32: Importance ranking of university stakeholders

Stakeholders	Ranking						Importance %
	1	2	3	4	5	6	
Academics	54.4	31.6	5.8	3.5	0.6	4.1	24.93
Other Students	26.3	26.3	19.9	15.8	9.9	1.8	20.86
Department Staff	7.0	18.7	41.5	25.1	7.0	0.7	18.65
University Staff	4.7	17.0	26.9	40.9	10.5	-	17.36
Government	4.1	2.9	3.4	9.4	21.1	59.1	8.68
Vice Chancellor	3.5	3.5	2.3	5.3	50.9	34.5	9.52

Following the importance of ranking analysis, a principal component analysis (factor analysis) was applied to study factors that may represent the underlying relationships among the variables. A suitability of the data was assessed and revealed the presence of many coefficients of 0.3 and above. The Keiser-Meyer-Olkin value was at 0.85 exceeding the recommended value of 0.6 and the Bartlett’s Test of Sphericity reached statistical significance (<0.01), supporting the factorability of the co-relation matrix as summarised in table 33.

Table 33: KMO and Bartlett’s Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.850
Bartlett's Test of Sphericity	Approx. Chi-Square	1497.534
	df	153.000
	Sig.	.000

The initial principal component analysis extracted four components with eigenvalues exceeding 1, explaining 64.4% of the variance and represented 35.6%, 13.0%, 9.3% and 6.4% of the variance respectively. An inspection of the screeplot revealed a clear break after the third component which was retained for further investigation. Applying the Varimax rotation to interpret the components revealed the presence of strong loadings on all three retained factors. These factor solutions explained 57.98% of the variance represented by 47.7% for component 1, 16.1% for component 2 and 14.1% for component 3 as shown in the following table 34.

Table 34: Rotated component matrix for university experience measures

	Rotated Component		
	1	2	3
GetDegree	0.74607	0.32054	
SecureJob	0.74109		
KnowMyself	0.73094		
ChangeMyself	0.73026		
KnowAcad	0.70536		
Processes	0.65374		0.31985
EngageAcad	0.60016	0.34629	0.36537
ResourcesMe	0.59743	0.45070	- 0.31484
ResourcesUni	0.59140		0.32550
Influences	0.57943	0.32536	0.41553
Challenges	0.40111		
SocActStaff		0.84846	
SocActAcad		0.73195	
EngageStaff		0.66997	
KnowStaff		0.62392	
SocActStudent			0.78384
EngageStudent			0.74415
KnowStudent			0.66471

Total Variance Explained

Component	Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	4.990	27.724	27.724
2	2.905	16.140	43.865
3	2.542	14.120	57.985

Extraction Method: PCA. Rotation Method: Varimax with Kaiser Normalisation, Rotation converged in 5 iterations

All the three components' scale exhibited excellent internal consistency and reliability with a Cronbach's alpha value of $\alpha > 0.889$ (11 items), $\alpha > 0.752$ (4 items) and $\alpha > 0.757$ (3 items) for components 1, 2 and 3 respectively as shown in table 35.

The three components identified under the factor analysis showed fairly distinct groups. While components 2 and 3 are strongly associated with relationships between the student and "support staff" and the student and "other students" respectively, component 1 appears to be strongly associated with attributes of value co-creation as suggested from the earlier qualitative studies and higher education literature.

Table 35: Reliability Test (Cronbach Alpha)

Item-Total Statistics

Factor 1	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
GetDegree	37.6374	48.574	.599	.880
SecureJob	37.7485	48.260	.611	.879
KnowMyself	37.8187	49.290	.532	.884
ChangeMyself	38.0234	47.364	.721	.873
KnowAcad	38.0468	47.363	.662	.876
Processes	38.2398	47.960	.668	.876
EngageAcad	38.2339	49.663	.477	.888
ResourcesMe	38.4795	48.039	.683	.875
ResourcesUni	38.5556	47.013	.681	.875
Influences	38.7018	48.022	.655	.877
Challenges	38.8070	49.992	.447	.890

Reliability Statistics

Cronbach's Alpha	N Items
.889	11

Factor 2				
SocActStaff	8.5848	5.444	.710	.604
SocActAcad	7.8713	5.607	.501	.729
EngageStaff	8.2222	6.480	.493	.723
KnowStaff	8.3041	6.213	.512	.713

Reliability Statistics

Cronbach's Alpha	N Items
.752	4

Factor 3				
EngageStudent	7.2982	3.352	.681	.561
SocActStudent	7.7719	3.848	.502	.775
KnowStudent	7.3158	4.029	.591	.675

Reliability Statistics

Cronbach's Alpha	N Items
.757	3

Items in component 1 such as “enabling my abilities to secure a job in the future”, “gaining knowledge through independent self study”, “recognising the changes I see in myself through learning”, “gaining knowledge by interacting with academics”, and “understanding my internal processes through interaction with the people at the university” can be linked to attributes of value co-creation such as behavioural transformation, complementary competencies and processes alignment.

Similarly, other items such as “sharing my resources with people at the university”, “people at the university sharing resources with me” and “influencing issues that are important to me” reflect on other value co-creation attributes such as perceived control, empowerment and congruence of expectations.

Under this orientation, it is fair to assume that students are concerned with their education and distinctively associate their university experience with aspects of co-producing their education. They agree that interactions with academics, interactions with other students, self-learning, understanding processes and transformation are part of their university experience.

Furthermore, having some form of “control”, “empowerment” as well as being able to “manage their expectations”, support their university experience. Interestingly, earlier measures of the university experience with mean scores greater than 4 such as “gaining knowledge through independent self study”, “recognising the changes I see in

myself through learning”, “working towards getting a degree” and “enabling my abilities to secure a job in the future” also suggests that the majority of students feel that their university experience extends beyond interactions with academics, other students and support staff.

Intuitively, this empirical consideration implies that students are aware that there is a need for self-contribution towards their education as part of their university experience and this appears to be associated with self motivation concepts. Again, this observation relates back to the literature review on the debate that students are considered not only as “customers” in higher education but also as “co-producers” of their own education. Students co-create value by means of high levels of participation and intellectual effort, in and outside their classes, in order to achieve their degrees.

Following this analysis on the underlying dimensions of value co-creation in higher education, the next section proceeds to validate the proposed hypotheses on the importance of its attributes by using the adaptive conjoint analysis.

4.5.2 Part-worth utilities for the attributes of value co-creation

The primary aim of the conjoint study was centred on obtaining the average utility calculation of each respondent with regards to value co-creation attributes. This will assist with the testing of the hypotheses on the importance of the attributes. The average utility calculation for the attributes of value co-creation and its associated levels is determined by estimating the part-worth utilities in the choices that the respondents make. A summary of the results for these average utility scores for the individual value co-creation attributes are summarised in table 36.

In essence, the function of the average part-worth utility scores describes the preference of the various aspects of an attribute at the attribute level (Hair et al. 2006). This utility score is scaled to an arbitrary additive constant within each attribute and scaled to “zero-sum” within each attribute. This “zero-sum” scale indicates that a positive number will indicate positive utility and a negative number will signal negative utility. This then implies that respondents with positive utilities for an attribute would consider it important and the reverse for negative utilities.

Analysing the average utility scores from table 34, it is clear that the value co-creation attribute “complementary competencies” is perceived to be an important aspect of the student’s university experience. It has an average positive utility score of 49.8 at the “fully capable” level compared to a negative utility score of -51.9 at the “not capable”

level. This demonstrates that the proposed hypothesis (H1) “students perceive that the value co-creation attribute **complementary competencies** is important in supporting the student’s university experience” can be supported.

Table 36: Summary of utility scores for the attributes of value co-creation

Attributes	Average Utilities (Zero-Centered Diffs)	
	Attribute Levels	Average Utilities
Complementary Competencies	The university is fully capable of complementing my abilities to make my university experience a good one.	49.7816
	The university is only partially capable of complementing my abilities to make my university experience a good one.	2.1905
	The university is not capable of complementing my abilities to make my university experience a good one.	-51.9721
Perceived Control	I am fully in control of my university experience.	49.4825
	I am partly in control of my university experience.	3.8753
	I am not in control of my university experience.	-53.3579
Behavioural Transformation	In the way the university delivers its curriculum (i.e. teaching, coursework), it is fully able to transform me through our interactions.	50.6946
	In the way the university delivers its curriculum (i.e. teaching, coursework), it is only partially able to transform me through our interactions.	3.7322
	In the way the university delivers its curriculum (i.e. teaching, coursework) it is not able to transform me through our interactions.	-54.4268
Process Alignment	The university is fully able to adapt their processes to suit the way I study, learn and interact (i.e. my internal processes).	47.0559
	The university is only partially able to adapt their processes to suit the way I study, learn and interact (i.e. my internal processes).	4.0506
	The university is not able to adapt their processes to suit the way I study, learn and interact (i.e. my internal processes).	-51.1065
Congruence of My Expectations of the University	The university and I fully share the same expectations on what is expected of the university.	43.7552
	The university and I partly share the same expectations on what is expected of the university.	4.4379
	The university and I do not share the same expectations on what is expected of the university.	-48.1931
Congruence of the University's Expectations of Me.	The university and I fully share the same expectations on what is expected of me.	45.8129
	The university and I only partially share the same expectations on what is expected of me.	3.5045
	The university and I do not share the same expectations on what is expected of me.	-49.3174
Empowerment	I feel fully empowered to make the most of my university experience.	50.7316
	I feel only partially empowered to make the most of my university experience.	3.5803
	I feel not empowered to make the most of my university experience.	-54.3120

Second, the average utility scores for the value co-creation attribute “perceived control” is positive at the “fully in control” level at 49.5 compared to the negative utility of -53.3 at the “not in control” level. This evidence supports the proposed hypothesis (H2) “students perceive that the value co-creation attribute **perceived control** is important in supporting the student’s university experience.”

Similarly, both the value co-creation attributes “behavioural transformation” and “process alignment” in the proposed hypotheses, respectively scored positive utilities of 50.7 and 47.1 at the “fully able” level compared to the negative scores of -54.4 and -51.1 at the “not able” level. These empirical results again support both the proposed hypotheses (H3) “students perceive that the value co-creation attribute **behavioural transformation** is important in supporting the student’s university experience” and (H4) “students perceive that the value co-creation attribute **process alignment** is important in supporting the student’s university experience.”

Next, the value co-creation attributes “congruence of expectations” that was tested from two perspectives, one each from the student and the university, showed positive utilities. While the student’s expectations of the university scored 43.7 at the “fully shared” level, the university’s expectation of the student scored 45.8. On the other hand, both these value co-creation attributes showed negative utilities at the “not shared” level with the former scoring -48.1 and the latter -49.3. These readings support the proposed hypotheses (H5) “students perceive that the value co-creation attribute **congruence of my expectations** of the university is important in supporting the student’s university experience” and also that (H6) “students perceive that the value co-creation attribute **congruence of the university’s expectations** of the student is important in supporting the student’s university experience.”

Finally, the analysed data revealed that the value co-creation attribute “empowerment” also showed positive utilities and therefore supports the proposed hypothesis (H7) “students perceive that the value co-creation attribute **empowerment** is important in supporting the student’s university experience.” It scored positive utilities at the “fully empowered” level of 50.7 compared to the negative utility of -54.3 at the “not empowered” level.

One limitation to the above part-worth utility scores is that the scores for each attribute is calculated and describes the importance of the various aspects of an attribute only at the individual attribute level. Additionally, since these utility scores are scaled to an arbitrary additive constant and “zero-sum” within each attribute, it means that while we are able to compare importance within the levels of one attribute, we are unable to compare preferences across multiple attributes and their respective levels.

For example, we can conclude that students generally find it important that the university is “**fully capable**” of complementing their abilities (utility score 49.7) in

supporting their university experience compared to the university “**not capable**” of complementing their abilities (utility score -51.9).

Yet, we cannot confirm that students in general prefer the attribute of being “**fully empowered**” (utility score 50.7) to make the most of their university experience when compared to the attribute of the university being “**fully able**” to adapt their processes (utility score of 47.1) to suit the student’s learning. Similarly, we cannot assume that students prefer the attribute of the university being “**partially able**” to adapt their processes (utility score of 4.1) to suit the student’s learning when compared to the attribute of being “**partially empowered**” (utility score 3.5) to make the most of their university experience.

Under this orientation, it appeared important to examine if students differed with regards to their preferences for value co-creation attributes. Moreover, this is important to facilitate the testing of the hypothesis on the impact of value co-creation attributes on the customers’ willingness to pay for a service. For that purpose, the study used the “Relative Importance Model” (page 118) as discussed in the research methodology to standardise the utility scores across the attributes for comparison.

In standardising these utilities, the utility scores for seven attributes were calibrated on two respective levels; “fully capable” and “partially capable” and the results are summarised in table 37. For the “fully capable” ratio, the difference in utility scores between “fully capable” and “not capable” were applied while the difference in distance between “partially capable” and “fully capable” were used to obtain the “partially capable” ratios. The study omitted examining the attributes at the “not capable” attribute level as all the value co-creation attributes had initially registered negative part-worth utilities which suggest that students on the overall dislike the absence of these attributes.

Table 37: Relative importance ratio for value co-creation attributes

Attribute Level	ATTRIBUTES OF VALUE CO-CREATION: RELATIVE IMPORTANCE RATIO						
	Complementary Competencies	Perceived Control	Behavioural Transformation	Process Alignment	Congruence of My Expectations of the University	the University's Expectations of me	Empowerment
Fully Capable	0.1446	0.1478	0.1483	0.1388	0.1322	0.1367	0.1517
Partially Capable	0.1513	0.1469	0.1487	0.1360	0.1273	0.1368	0.1531

The analysis of the relative importance utility ratios find that students in general indicate a greater preference for attributes of value co-creation associated with full capability for “empowerment” and “behavioural transformation”. The relative importance

higher ratio of 0.151 and 0.148 respectively demonstrates the students' belief that universities having the ability to transform them and the empowerment given to them are preferable in supporting their university experience.

On the other hand, students showed that among the seven attributes presented to them in supporting their university experience, their least preferred value co-creation attribute is for "process alignment", "congruence of expectations" of the university by the student" and the "congruence of expectations of the student by the university". These least preferred attributes are represented by the relative important ratios that are lower at 0.138, 0.136 and 0.132 respectively.

Interestingly, if we compare the relative importance ratio at the "partially capable" level, students revealed that they would prefer the value co-creation attributes of "complementary competencies" over "behavioural transformation" with relatively higher important ratios of 0.151 and 0.148 respectively.

Generally, the overall relative importance ratios for all seven value co-creation attributes demonstrate that the students are marginally divisive in their preferences. The highest ratio at the "fully capable" level is at 0.151 and the lowest is 0.132 respectively, showing little variance. Yet it is clear from the individual utility data that there are some value co-creation attributes that are more preferred by the respondents than others.

Therefore, it appeared necessary to explore and identify these differences in the preference of value co-creation attributes among the respondents as recognising any distinction between the individuals is critical for the researcher to identify preferred value co-creation attributes within the respondents' choices. This will evidently advance knowledge on groups of consumers with differing preferences of attributes and how this may possibly impact on pricing.

For this purpose, the study employed the use of "cluster analysis" available in the Sawtooth software followed by the "relative importance" method which was applied earlier in the analysis to compare utilities across attributes (importance ratio by distance). While cluster analysis was used to identify groups within the respondents who share homogeneity traits such as similar preferences (Bryman and Bell 2003; Dooley 2001), the "relative importance" ratio analysis was initiated to gauge the importance of the different value co-creation attributes between these identified groups (Bakken and Frazier 2006).

The cluster analysis performed on the Sawtooth application grouped the respondents using multivariate scaling according to similar preferences of the respondents as measured by their utilities in the adaptive conjoint analysis (Hair et al. 2006). The results of the clustering revealed four possible groupings. In order to identify the optimal grouping from the four suggested clusters, the study applied the “Consistent Akaike Information Criterion” (CAIC) which is a widely accepted measure for deciding the optimal cluster composition (Ramaswamy et al. 1993).

In the CAIC application, the r-square is examined for the cut-off point where the acceleration decreases significantly. After careful consideration of the groupings, the study opted for the three-cluster solution as the r-square did not appear to accelerate significantly between the four-cluster and three-cluster solution. The three-cluster solution is named as group 1 (G1), group 2 (G2) and group 3 (G3) and these clusters were represented by 60 respondents (35%), 43 respondents (25%) and 68 respondents (40%) respectively.

The “relative importance” ratio was then estimated for the three groups in order to standardise the utility scores across the value co-creation attributes. The groups were then compared with regards to their preferences of the attributes and its respective levels at “fully capable” and “partially capable” as summarised in table 38.

The data shows that, at the attribute levels, both G1 and G2 are similar in their preference of value co-creation attributes. These two groups clearly prefer the value co-creation attributes of “empowerment” and “perceived control” over other attributes. Similarly, they are both least partial to the attributes of “congruence of expectations” differing slightly only between the congruence of “my expectations of the university”, (relative ratio 0.1342 against 0.1362 for G1) and of the “university’s expectations of me” (relative ratio of 0.1355 against 0.1266 for G2) at the fully capable level.

However, both these groups differ in their preferences for the attributes “complementary competencies” and “behavioural transformation” where G1 appears to prefer the former with a relative importance ratio of 0.1475 over the latter with a relative importance ratio of 0.1452. Conversely, G2 appears to prefer the attribute “behavioural transformation” with a relative importance ratio of 0.1525 compared to “complementary competencies” that has a ratio of 0.1457. This observation is again similar for both groups at the partially capable level where G1 again appears to prefer the value co-creation attribute “complementary competencies” (ratio 0.1457) compared to “behavioural transformation” (ratio 0.1419) whereas G2 prefers the reverse.

Table 38: Relative utilities ratio for groups of respondents

Attribute Level	Group	N	RELATIVE UTILITIES RATIO FOR ATTRIBUTES OF VALUE CO-CREATION						
			Complementary Competencies	Perceived Control	Behavioural Transformation	Process Alignment	Congruence of My Expectations of the University	Congruence of the University's Expectations of me	Empowerment
Fully Capable	G1	60	0.1475	0.1476	0.1452	0.1385	0.1342	0.1362	0.1508
Fully Capable	G2	43	0.1393	0.1510	0.1455	0.1381	0.1266	0.1355	0.1640
Fully Capable	G3	68	0.1457	0.1446	0.1525	0.1399	0.1342	0.1380	0.1451
Partially Capable	G1	60	0.1457	0.1466	0.1419	0.1403	0.1393	0.1382	0.1481
Partially Capable	G2	43	0.1356	0.1528	0.1491	0.1435	0.1247	0.1353	0.1591
Partially Capable	G3	68	0.1395	0.1436	0.1530	0.1404	0.1395	0.1407	0.1433

Interestingly, G3's value co-creation attribute preferences are significantly different from the preferences of G1 and G2. While G1 and G2 are more partial to the value co-creation attribute of "empowerment" and "perceived control", the respondent's from G3 clearly appeared to prefer the attribute "behavioural transformation" over the rest of the value co-creation attributes. Furthermore, depending on the attribute level, the relative ratios for respondents in G3 do not appear partial to one attribute consistently compared to respondents in G1 and G2.

For example, at the partially capable level, the G3 respondents show that their least preferred value co-creation attribute is "complementary competencies" (ratio 0.1394) whereas at the fully capable level, they list the same attribute as a preferred attribute (ratio 0.1457). This observation suggests that respondents in G3 view differently the importance of value co-creation attributes at the different levels of capability.

These observations for the respondents in G3 suggest that they are more concerned with the university's capability in transforming them through interactions and in the process, gain knowledge as part of their university experience compared to the respondents in G1 and G2 who are more inclined to value co-creation attributes of being empowered in enhancing their university experience.

Overall, these three clusters G1, G2 and G3 demonstrate empirically that students prefer different value co-creation attributes. While there were less differences between the clusters G1 and G2 which represented about 60% of the sample size, the cluster G3 which represented 40% of the sample size clearly preferred the value co-creation attribute "behavioural transformation" and "complementary competencies". On the other hand, both G1 and G2 were evidently partial to the value co-creation attributes of "empowerment" and "perceived control". However, all three clusters show little preference for the value co-creation attributes of "congruence of expectations" and "process alignment".

To summarise this section on the part-worth utilities of the value co-creation attributes, the empirical evidence generally supports the proposed hypotheses and therefore affirms the proposition that (P1) **“value co-creation attributes are important in supporting the student’s university experience.”**

Nonetheless, it is important to note that the cluster analysis suggests that there appears to be significant differences between the respondents with regards to their preferences of these value co-creation attributes. This observation is important as it demonstrates empirically that students place differing importance on the value co-creation attributes in supporting their university experience. As such, it is imperative that universities are aware that these different preferences may lead to prospects for profiling potential consumers and hence create marketing opportunities in attracting students to their institutions of higher education.

The next section of this thesis examines how value co-creation attributes may impact on the price customers are willing to pay.

4.5.3 Value co-creation attributes' impact on willingness to pay

Study 3 examines the impact of value co-creation attributes on pricing on two levels. The first level examines the “willingness to pay” on the part of the respondent and on the second level, it explores the extent the respondent will pay for the service with regards to the presence of value co-creation attributes.

In both situations, the respondents were presented with three scenarios comprising the worse case, the middle case and the best case of value co-creation attributes for supporting their university experience. These cases were presented according to the preferences as determined by the respondent’s choice of preferred value co-creation attributes and were derived from the respondent’s unique utility scores. As a result of these unique scores, each respondent will have their own sets of value co-creation attributes and levels presented in the worst case scenario (their least preferred attributes and levels), the mid case scenario (a mixture of the least and most preferred attributes) and the best case scenario (their most preferred attributes) to evaluate.

For the first level, the “willingness to pay” data is analysed by comparing the self reported score of the respondents against the purchase likelihood score (PLS), as discussed in the research methodology (page 120). These scores were calculated in each of the scenarios for each respondent.

These scores were then totalled individually and subsequently averaged for the 171 respondents. The average PLS score was then compared with the average self reported scores by the respondents for each scenario (worst, mid and best) to observe for discrepancies between the predicted and the self reported scores as summarised in table 39.

Table 39: Comparison of PLS and self reported scores

Item	Worse Case (%)	Mid Case (%)	Best Case (%)
PLS Model (Average Score) <i>predicted</i>	13.31	53.41	85.13
Self Reported (Average Score)	18.19	32.58	81.31
Variance	-4.88	20.83	3.82

The analysed data revealed that in the worst case scenario, the PLS model averaged the part-worth utility score as an expected 13.31% that the respondents will generally buy the service compared to the self reported average from the respondents at 18.19%. This shows a simple variance between these two scores as -4.88%.

In the best case scenario, the PLS model averaged the part-worth utility as an expected 85.13% that the respondents will generally buy the service compared with the self reported average from the respondents' willingness to pay at 81.31%. The difference between the scores reflects a simple variance of 3.82%.

Comparing the worst and best scenarios scores between the averaged PLS and self reported scores, the data revealed minimum differences in the variance. This observation suggests that in most cases, the PLS model validates that respondents generally expressed greater interest in buying the service when presented with their respective best case scenarios of value co-creation attributes. Conversely, most respondents showed that they were less interested in buying the education service when presented with the worst case scenarios of value co-creation attributes.

Interestingly, the PLS model average score for expected purchase in the middle case scenario showed a score of 53.41% compared to the self reported average score of 32.58%. This shows a variance of approximately 20.83% in favour of the respondents less interested in willingness to pay for the service when presented with a mixture of value co-creation attributes. This difference can imply that the respondents are not assured of their willingness to purchase given a scenario associated with mixtures of preferred and non-preferred attributes and its respective levels.

Overall, this comparison of average scores between the PLS model and the self reported scores with regards to the respondent's willingness to pay show little difference in their variance. This empirical observation suggests that respondents would consider their buying decision positively or negatively when presented with their respective scenarios of worst case, mid case and best case scenarios of value co-creation attributes. This in turn implies that value co-creation attributes are able to impact on the customer's decision to buy a service, and to that extent perhaps impact on their willingness to pay for the service.

The second level of the analysis on the impact of value co-creation attributes on the customer's willingness to pay examines the extent of the respondents' indication of the level they will pay when presented with attributes of value co-creation under three similar scenarios; the worst case (their least preferred attributes and levels), the mid case scenario (a mixture of the least and most preferred attributes) and the best case scenario (their most preferred attributes). For this purpose, the respondents were asked to evaluate these scenarios based on a between -100% to +100% of the current fees that they were paying. For example, if they were paying £5,000 currently and

would only pay £4,000 given the scenario, it would then be -20%. However, if they wanted to pay £6,000 they would have to input 20% .

The analysis showed that the mean score for all three scenarios of worst case, mid case and best case were -36.72%, -20.38% and 12.97% respectively as highlighted in Table 41. In that respect, a higher or lower mean may imply that the student is more partial to paying either higher or lower fees for their education service depending on the presented case. From the summary, the “trimmed mean”, which removes the top and bottom 5% of the data for recalculation of the mean, do not indicate any significant differences between the actual mean demonstrating that the extreme scores have no influence on the data. This observation reflects normal distribution of the data.

Table 40: Descriptive statistics on scenarios for value co-creation attributes

Scenario	Descriptives	Statistic
WorseCase	Mean	-36.7251
	95% Confidence Interval for Mean	Lower/Upper Bound -43.3781 -30.0722
	5% Trimmed Mean	-38.434
MidCase	Mean	-20.3801
	95% Confidence Interval for Mean	Lower/Upper Bound -26.4561 -14.3042
	5% Trimmed Mean	-20.5361
BestCase	Mean	12.97076
	95% Confidence Interval for Mean	Lower/Upper Bound 8.005885 17.93564
	5% Trimmed Mean	12.80052

Additionally, the Kolmorov-Smirnov statistic (table 39) shows a non significant result of 0.09, 0.12 and 0.15 (significant value at <0.05) respectively for the worst case, mid case and best case scenarios, similarly indicating a normality of distribution of the scores.

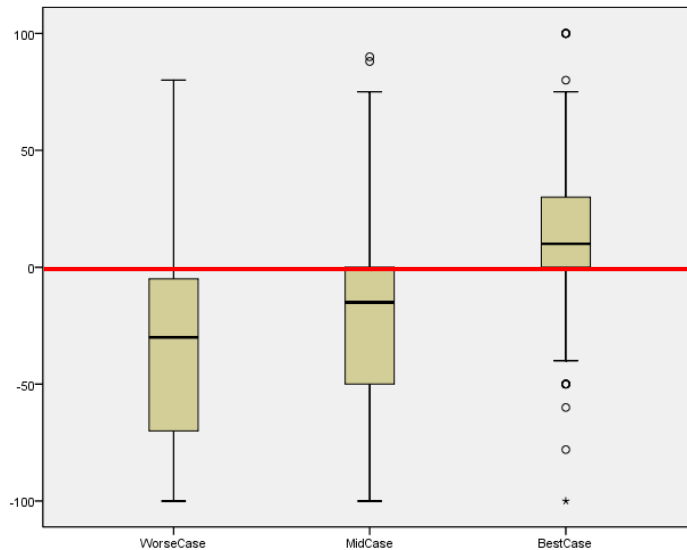
Table 41: Kolmorov-Smirnov test of normality

Scenarios	Tests of Normality	
	Kolmogorov-Smirnova	
	Statistic	df
WorseCase	0.094050201	171
MidCase	0.123650585	171
BestCase	0.153669492	171

Constructing a box plot, as illustrated in figure 22, the scores given by respondents in all three scenarios of the worst case, mid case and best case shows some outliers in the mid case and the best case. There appear two outliers in the mid case scenario and seven outliers in the best case scenario. However, the trimmed mean calculation show that these outliers have no significant impact on the mean. For instance, in the mid case the observed mean is -20.38 and the trimmed mean is -20.53 whereas the

observed mean and the trimmed mean for the best case is 12.97 and 12.80 respectively. In both cases, the variances are extremely small at 0.15 for the mid case and 0.17 in the best case.

Figure 22: Box plots respondent's "paying extent" in different scenarios



Interestingly, the box plots suggest that for the majority of the respondents when presented with attributes of value co-creation in the best case scenario indicated an increased willingness to pay for the service. This empirical evidence supports the hypothesis (H8) “presence of value co-creation attributes positively impacts the customers’ willingness to pay for a service.”

Conversely, in the worst case scenarios, the respondents showed a decrease in their willingness to pay for the service as evidenced by their average mean score of -36.72%. This empirical evidence supports the final hypothesis (H9) “absence of value co-creation attributes negatively impacts the customers’ willingness to pay for a service.”

These findings highlight two observations; first the support of the two hypotheses H8 and H9 affirms the proposition (P2) that “value co-creation attributes are able to impact on the customers’ willingness to pay for a service” and second, these attributes may have different impacts dependent on the different scenarios of the individual respondent. In general, the mean scores suggest that the presence of value co-creation attributes can impact the average price that students are willing to pay by four times, from -36.72% to 12.97%.

Expanding on the mean observations for the three cases with regards to the different independent variables such as “fees”, “funding” and “studentship”, we find that certain groups are more partial to paying either higher or lower fees for their education service when compared with others as summarised table 42. These observations are significant as it initiates another level of understanding how value co-creation attributes might impact on the price customers are willing to pay for a service.

Table 42: Mean scores for independent variables in different scenarios

DEGREE LEVEL	N		Scenarios		
			WorseCase	MidCase	BestCase
Undergraduate	59	Mean	-36.44068	-20.30508	15.89831
Postgraduate (M Sc.)	66	Mean	-34.01515	-13.66667	9.77273
MBA	15	Mean	-26.00000	-30.33333	9.33333
Doctorate	31	Mean	-48.22581	-30.00000	15.96774
Total	171	Mean	-36.72515	-20.38012	12.97076

STUDENTSHIP	N		Value Co-creation Attributes Scenarios		
			WorseCase	MidCase	BestCase
Home/EU	82	Mean	-46.95122	-27.36585	16.68293
International	89	Mean	-27.30337	-13.94382	9.55056
Total	171	Mean	-36.72515	-20.38012	12.97076

DURATION OF STUDY	N		Scenarios		
			WorseCase	MidCase	BestCase
3 years or more	91	Mean	-38.79121	-21.02198	17.67033
more than 1 year	30	Mean	-30.00000	-18.73333	8.50000
Less than 1year	50	Mean	-37.00000	-20.20000	7.10000
Total	171	Mean	-36.72515	-20.38012	12.97076

FEES	N		Value Co-creation Attributes Scenarios		
			WorseCase	MidCase	BestCase
Less than £5,000	67	Mean	-38.73134	-18.79104	20.53731
Between £5,001 - £7,000	17	Mean	-62.82353	-37.05882	13.05882
Between £7,001- £10,000	18	Mean	-45.11111	-23.88889	21.94444
Between £10,001 - £12,000	23	Mean	-24.56522	-15.43478	3.91304
Over £12,000	46	Mean	-26.95652	-17.63043	2.93478
Total	171	Mean	-36.72515	-20.38012	12.97076

FUNDING	N		Value Co-creation Attributes Scenarios		
			WorseCase	MidCase	BestCase
Family Funded	94	Mean	-32.41480	-20.00000	14.10638
ESRC / EPSRC	7	Mean	-35.71428	-22.85710	27.14286
Government Funded	12	Mean	-10.00000	-9.16667	15.00000
Loan (Personal)	58	Mean	-49.36207	-23.01724	9.00000
Total	171	Mean	-36.72515	-20.38012	12.97076

For example, in the fees variable, the data shows that in the best case scenario, students who pay less than £5,000 for their respective degrees have relatively higher mean scores at 20.5 compared to students who pay over £10,000 for their degrees at 3.9. This relatively huge variance implies that students who are currently paying a

lower fee structure are more likely to pay higher fees if presented with their most preferred value co-creation attributes.

This observation is similar for students who currently pay fees in the range of “£5,000-£7,000” and “£7,000-£10,000” in the best case scenario. These respondents have relatively higher mean scores at 13.5 and 21.9 respectively compared to students who pay more than £12,000 for their education with their mean score of 2.9. This significant difference in average means imply that students who are currently paying a higher fee structure (>£12,000) are less likely to pay more even when presented with their most preferred value co-creation attributes. It nonetheless reiterates the observation that students who are currently paying lower fees are more likely to pay higher fees when presented with their most preferred value co-creation attributes.

Conversely, in the worst case scenarios, students who are currently paying fees between “£5,000-£7,000” and “£7,000-£10,000” are likely to pay considerably less for their education when presented with their worst case value co-creation attributes. This observation is clearly reflected in their respective mean scores of -62.8 and -45.1 against the average mean of -36.7 further suggesting that the presence of value co-creation attributes can impact significantly on the price students are willing to pay for their education service.

Generally, these observations on “fees” imply that universities may have the potential to raise fees on their degree programmes by considering value co-creation attributes in relation to the fees that students are currently paying. Based on the evidence, it can be perceived that perhaps courses with a lower fee structure may present greater opportunities compared to courses with an existing higher fee structure. These considerations are increasingly important for universities in the wake of education budget cuts under the newly formed government.

Summarising this quantitative study, it is clear from the empirical evidence that students consider value co-creation as part of their university experience. The data collected from across two universities show empirically that students find value co-creation attributes important in supporting their university experience. However, students do differ in their preferences of value co-creation attributes. While some students are partial to being “empowered” and having “perceived control” over their university experience, others consider the university’s capability in “transforming their behaviours” and “complementing their competencies” to be more essential. This

observation confirms the first proposition (P1) that **“value co-creation attributes are important in supporting the student’s university experience.”**

Consequently, through observations of the mean variance the study found that there were significant differences in the students’ willingness to pay for their education service when presented with their preferred or least preferred value co-creation attributes. The evidence suggests that respondents were willing to pay higher fees for their most preferred value co-creation attributes and lower fees for their least preferred attributes. Empirically, both these quantitative observations confirm the second proposition (P2) that **“value co-creation attributes are able to impact on the customers’ willingness to pay for a service”**.

Therefore, establishing a quantitative framework was important in this thesis as the analyses demonstrates that the findings are significant on two levels. First, the respondents show that value co-creation attributes are perceived differently in terms of preference. Second, when presented with a choice of value co-creation attributes and its associated levels, students indicated that they will consider paying different fees. These observations then present both theoretical and managerial opportunities for advancing marketing knowledge in segmentation, bundling and pricing strategies.

Chapter 5: Discussion

Understanding value co-creation is important in today's economy where services are becoming easier to consume but increasingly more complex in their delivery (Ng et al. 2009e; Vargo et al. 2008). As shown in all three studies of this thesis, the delivery of a service often requires a multitude of stakeholders within a service system. In service literature, a service system can best be described as a "*co-production configuration of people, technology and shared information such as language, processes, metrics, prices, policies and laws*" (Spohrer et al. 2007).

Central to this service system is the "customer" who is ultimately responsible for unlocking value in the co-production process. In that respect, the customer is said to co-create value, and organisations need to critically understand how value co-creation transpires and the relationships between the various stakeholders if they are to compete successfully in the service economy.

This thesis uncovered six generic attributes of value co-creation; *congruence of expectations*, *complementary competencies*, *process alignment*, *perceived control*, *behaviour transformation*, and *empowerment*. It also demonstrates that in order to co-create value effectively, these attributes are critical for understanding better the service design for more effective service provision. Further evidence in the thesis also suggests that these attributes have an impact on customer's willingness to pay for a service.

The next section discusses these contributions, and implications of the research from a theoretical and managerial perspective. It also highlights the limitations of the research before concluding the thesis.

5.1 Theoretical Implications

It is clear from the empirical findings of the three studies that value co-creation is indeed an important concept in service marketing. Delivering a service requires more than managing resources or understanding processes to ensure that regulations are in place to meet the demands of the customer. Essentially, understanding consumers and their experiences is central to value co-creation. More importantly, firms need to recognise that the interactions between buyers and sellers are also critical in creating value for both parties. Therefore, on different levels, the findings in this thesis contribute further to informing theoretical understanding of value co-creation and on a

broader perspective, the S-D Logic. Its empirical evidence also provides a platform for advancing service and pricing knowledge.

First, in establishing the generic value co-creation attributes, the qualitative findings demonstrate how value co-creation impacts on the service delivery, both from a relational and behavioural aspect. It shows that value co-creation occurs under different circumstances involving psychological behaviours such as interdependence, and conflict. Attributes of value co-creation such as congruence of expectations and perceived control reveal theoretically what facilitates value co-creation and the specifications that firms could use to design a service to achieve benefits for customers, research that was previously missing from service literature (Gummesson et al. 2010).

In some cases, where behaviours such as advocacy and tolerance were necessary to facilitate value co-creation under complicated situations, an understanding of empowerment and behaviour transformation can theoretically assist with delivering complex benefits for the customer. Therefore, from a theoretical perspective, value co-creation attributes are important as they provide a platform for evaluating how understanding customer experiences and consumption processes may impact on the creation of value for all parties in the service system. These attributes contribute to better informing service literature from a “multi-service experience” which is currently lacking (Patraccio et al. 2008), as well as to a better understanding of value co-creation from a service design perspective which is only currently beginning to grow in service research (Mager 2009).

Additionally, in service management, academics have lamented the slow development of knowledge to inform better organisation of service management, as there are very few studies offering “*specific ways to translate customer-orientation words to customer-orientation deeds*” (Glusko 2010). This lack of research in specificity is made more apparent as service systems today have multiple components which combine interfaces such as person-to-person encounters, technology points, multi-device and multi-channel. The proposed attributes of value co-creation such as process alignment and complementary competencies demonstrate a unifying view to integrate how buyer-seller orientation deeds may be better built to ensure optimal benefits for all parties co-creating value within the service system.

Attributes of value co-creation also advances knowledge in service literature with respect to the different value co-creation frameworks developed in marketing, such as

the DART model (Prahalad and Ramaswamy 2004b) or the SOA model (Ordanini and Pasini 2008). For example, Payne et al. (2008) discussed an interactive framework between the customer and seller using “*emotion, cognition and behaviour*” and “*co-creation opportunities, planning and implementation and metrics*” respectively to enable value co-creation (figure 9, page 48). Although their framework illustrates an interconnected set of processes to show that both customer and seller should interact and learn from each other’s processes, there is no research to address how these processes might work or be improved to optimise benefits for the customer. The six generic proposed value co-creation attributes demonstrate that Payne et al’s framework can function more effectively if firms understand value co-creation from an attribute and design perspective. It implies that if firms are able to identify the extent to which value co-creation takes place within the service provision, it is able to adjust the levels of attributes to ensure that optimum benefits are delivered. This informs the model from an operational perspective and further advances the theoretical understanding of value co-creation, and hence contributes to service literature.

On a different level, the proposed generic value co-creation attributes also underpins service research from a S-D Logic perspective. Proponents of systems thinking have encouraged a need in value co-creation research to critically adopt a “true S-DLogic” approach where all operant and operand resources could be “*utilised, combined and substitutable between one another*” to effectively deliver benefits to the customer under a service system (Ng et al. 2011). However, current marketing literature emphasises more on relationship marketing (Edvardsson et al. 2008), which focuses largely on customer satisfaction for customer retention without considering that perhaps firms are only able to propose value and that customers are needed to unlock the value. As such, there appears limited research on the S-D Logic that could facilitate a more holistic view in unifying the S-D Logic’s foundational premises.

In that respect, the proposed six value co-creation attributes is able to inform literature within the S-D Logic framework. For example, comprehension of value co-creation attributes will assist with better theoretical justification for a “service” paradigm shift in the way marketing looks at relationship marketing, which tends to favour a mono-directional view (Gummesson 2002). Value co-creation attributes such as behavioural transformation emphasises the need for the customer to interact and change behaviour if necessary to ensure the unlocking of the customer’s optimum value. Similarly, attributes including complementary competencies, process alignment and congruence of expectations demonstrate that both social and economic actors are integrators of operand (tangible equipment) and operant resources (intangibles such as knowledge

and experiences), and this integration is necessary to deliver the optimum service. Additionally, the proposed value co-creation attributes to a large extent were found to be tacitly embedded in the service provision and manifested within the system as a whole, rather than in component parts or individuals. Therefore, the attributes of value co-creation underpin a systems thinking perspective for S-D Logic as it challenges theoretical thinking around designing the service holistically rather than in service parts.

On a broader level, approaching this thesis's research question from a multi-disciplinary and multi-contextual perspective has allowed insights into the interactions between the different stakeholders within a service system in different industries. This multi-case examination was intentionally designed to study the different contextual challenges facing each of the cases in order to establish common learning platforms between service industries. The different cases presented in the studies demonstrate that although the different contexts have their own unique issues, there was empirical evidence to draw generic conclusions. The process helped to transfer best practices and knowledge to other context and assisted in our theoretical understanding of the value co-creation phenomenon, therefore narrowing knowledge gaps as well as advancing knowledge in cross-industry learning. This author believes that these six generic value co-creation attributes will advance theoretical understanding of how different service industries might take learning from different contexts.

Last, from a pricing perspective, this study presents a theoretical platform to re-think marketing strategies. This thesis finds that the proposed value co-creation attributes are able to impact on the customers' willingness to pay for a service. Under this orientation, it is clear that customers place importance on perceived value. However, service pricing literature implies that very little is known about pricing methods used to capture the customer's perceived value (Harmon et al. 2009). Furthermore, value-based pricing appears to be a relatively unused method amongst service firms (Avlonitis and Indounas 2006), which does little to motivate its research, and service pricing literature has on numerous occasions suggested that little learning takes place between academia and industry with regards to pricing strategies.

This thesis offers an alternative understanding of consumer preferences and behaviour with regards to value co-creation. The proposed value co-creation attributes and the quantitative data emphasise a need to re-examine how segmentation might impact on pricing strategies when considering the customers' preferences for value co-creation attributes and their willingness to pay for a service. In that respect, this thesis advances service pricing knowledge from two perspectives.

Primarily, it informs service pricing literature with regards to the impact of value co-creation attributes on the customers' willingness to pay for a service. This provides a theoretical understanding for formulating value-based pricing strategies for improving revenues using value co-creation attributes. Second, the use of "willingness to pay" encourages theoretical thinking for capturing the customer's perceived value under hypothetical value co-creation environments. This is important as the proposed value co-creation attributes were operationalised as perceptual measures, and this provides a different strategic approach to understanding value co-creation.

Therefore, based on the findings of the generic value co-creation attributes and its impact on willingness to pay, this thesis demonstrates its contribution to marketing literature by informing gaps in both value co-creation and service pricing literature.

5.2 Managerial Implications

Apart from the theoretical implications, this author believes that this thesis also contributes from a managerial perspective. The proposed generic value co-creation attributes suggest that if organisations do not fully understand how value is co-created by the different stakeholders, the design of the service may not be adequate enough and would result in poor service delivery or inconsistent performances. As such, explicitly incorporating attributes of value co-creation into the service design will enable the introduction of services to be better informed. In that respect, this thesis has managerial implications on a few levels.

5.2.1 The customer's perspective

In service management, understanding the customer's perspective in the service system is important as it gives an insight into the customer's experience. From this perspective, the qualitative evidence in the case studies provide managerial examples of how understanding the customer's needs and their experience leads to the belief that value co-creation is able to impact on the service delivery.

For example, in the healthcare context, some patients were more nervous than others. Our data showed that "hand holding" or "hand squeezing" is something that the nurses and healthcare assistants do to help the patients overcome nervousness and to some extent, fear of the unknown. Similarly in the defence context, recognising how customers behave, such as when fighter jet pilots are "releasing seat belts", led the

organisation to achieve savings which benefitted both parties under a performance-based service contract.

Likewise, understanding students' perspective of their education experience was important for some universities in helping them securing higher student satisfaction scores which benefit both the university and future students.

Hence, managerially, there is a need to take a much more customer-centric approach in service design and provision. By this, management should consider incorporating important behavioural, psychological and sociological aspects into the service experience, rather than merely focusing on the technological aspects of the service delivery.

5.2.2 Operant and operand resources

An understanding of how the entire system delivers benefits to the customer through operant and operand resources which are contributed by all stakeholders is necessary to inform the design of service systems and for greater innovation. This is important from a managerial perspective, as it informs management to think holistically not only about its resources but more pertinently, also about its customer's resources in value co-creation.

For example, students in higher education contribute resources by way of time and effort in learning and gaining knowledge. Likewise in the healthcare case study, patients need to self-administer some form of eye medication hours and sometimes days before seeing the consultants. In some instances, the resources of other stakeholders are equally important such as the Primary Care Trusts (PCT) which contribute research funding for the drugs that are ultimately used in the administration of the medical treatment. Without the PCTs' involvement in empowering the use of specific drugs, potential medicine cannot be tested.

It is clear then that an informed and collective integration of these operant and operand resources are necessary to enable value co-creation, and it is therefore critical that organisations recognise that these resources can impact on the overall service delivery.

5.2.3 Roles within the service system

The case study under the healthcare context highlighted the different roles that doctors, nurses and administrators take on in providing treatment for their patients. However, these various roles caused conflict and to a large extent had an impact on the service delivery. In some cases, the tension resulted in varying levels of empowerment, control and behaviour which then impacted on the processes within the hospital and on the patients. For example, doctors applying for free medical treatment on behalf of some patients although they know that the patients do not qualify for them, and indirectly laying the blame on the administrators. This resulted in animosity between the stakeholders and provided the patients with false security.

Similarly, in the case of higher education, students showed that the role of academics and other students are more important in supporting their university experience than support staff, the vice chancellor's office and the government. Interestingly, the students did not feel the importance of the latter in delivering their education service.

These observations imply that the role definition of different stakeholders within the service system is important in supporting value co-creation. From a managerial perspective, incorporating the definition and roles of the various stakeholders would assist in understanding tensions and conflicts. This can include the training and re-training of employees, and also empowerment to include customer resources within the system to enable better value co-creation. This can further assist the service system in ensuring quality and consistent experiences and outcomes for customers, rather than merely activities and tasks within the organisation only.

5.2.4 Pricing

Finally, service literature suggest that the purchase of a service is often conducted in advance and consumed at a later point in time, for example, the purchase of travel tickets, a concert ticket, the use of a gym, insurance and services of a bank. This separation of purchase and consumption is associated with different risks as consumers buying in advance are uncertain of future states (Ng 2008; Xie and Shugan 2001). The uncertainties mentioned above contribute to what is termed as valuation risk to the customer, meaning that customers run the risk of purchasing a service that, at consumption, would lead to a value lower than what they had anticipated, and on which they had based their purchasing decision (Ng 2008).

In the case of higher education, there appear to be risks attached to the buying of an education. However, the quantitative data suggests that students would consider the

different proposed value co-creation attributes in reducing these valuation risks associated with the purchase of their higher education by paying more.

From a managerial perspective, this is an interesting observation. Despite students indicating that the proposed value co-creation attributes are of similar importance to them, the cluster analysis indicate that individuals do have preferences and will consider higher payment for combinations of value co-creation attributes suited to themselves. In the wake of proposed government budget cuts to UK universities and the removal of capped fees for university degree programmes, this insight into the student's perspective of willingness to pay and the extent to which they pay has huge managerial implications.

From a broader perspective, this observation implies that organisations can evaluate the different value co-creation attributes in supporting the customer's experience and this has an impact on marketing strategies in segmentation and the bundling of services. Hence, understanding how to incorporate relevant attributes of value co-creation into the service system might result in higher revenues.

The next section addresses some limitations in this thesis.

5.3 Limitations of the research

In case study 2, the selection of participants for the NHS study relied significantly on "judgement sampling". This methodology in supporting data collection may not be sufficiently rigorous in representing the population. Hence, it was understood that the sample size was not generalisable at this stage.

From a quantitative perspective, conjoint tools are able to perform price sensitivity tests to measure impact. However, this study chose not to include price as an attribute among the value co-creation attributes to overcome possible confusion on the part of the respondent. By doing so, the choice exercise was limited to examining the preference of value co-creation attributes on the part of the respondent. Instead, the study tested for impact on pricing of the education service via a "willingness to pay" mechanism and a statistical significance means test which may be considered less rigorous.

Next, the sample size of 171 for the quantitative data representing a 7.4% response rate might be considered small. This is due to the data collection being conducted at only two universities and confined to the business schools in both universities. As the

questionnaire was web-based, the study was also unable to determine the origin of the respondents with regards to the university they represent. Hence, it is assumed that business students from both universities share the same perception of their university experience, again limiting the generalisability of the research.

Value co-creation is bi-directional in nature. However, the design of the survey instrument is one-directional from the student's perspective and this was done in order to measure students' perspective and their "willingness to pay" for their education. From the service provider's perspective, this may limit the focus of the study.

Finally, the examination of the impact of value co-creation attributes on pricing is conducted by assuming a hypothetical environment where these attributes are perceived by the students to exist. The study validated this hypothetical environment by asking students to consider various measures in supporting their university experience. However, this assumption may have limited this study by excluding other possible measures.

5.4 Future research

The findings in this thesis provide opportunities for possible further research in marketing management. Critically, from a theoretical perspective is the development of value co-creation attributes and how these attributes can play a significant role in service design for supporting service systems.

It is clear from the quantitative study that respondents view the generic attributes differently depending on the context in which they operate. The study provided a platform for understanding the way students trade off between value co-creation attributes. It recognises the attributes that are most likely to have a positive impact in supporting the student's university experience. Therefore, research into modelling the adequacy of the attributes and what it means for the customer and the firm would provide first steps towards constructing better service design.

From a managerial perspective, this type of research is particularly significant for the healthcare industry which has often come under criticism for their lack of efficiency and effectiveness in dealing with their services (Laurance 2009). Additionally, institutions of higher learning may also benefit from research of this nature as it would enable marketing managers to re-think and determine appropriate strategies for targeting groups who can be attracted to their universities.

Another meaningful research area is expanding the theoretical insights of the impact of value co-creation attributes on willingness to pay. The findings of this thesis suggest that these attributes are able to influence pricing strategies with regards to the consumer's preferences. Hence, research in this area across other contexts may increase our knowledge with regards to the antecedents of price, as well as understanding better how to capture the customer's perceived value.

In that respect, a cross-disciplinary link was necessary to locate the relevant knowledge for this thesis. Hence, this author feels that a multidisciplinary approach to studying management theories is an area that needs further investigation, especially when examining complex theories such as value co-creation and the pricing of value. For instance, Newell (2001) argued that multifaceted problems which are predominantly non-linear in nature must be complex, and that such issues require an interdisciplinary approach to the research problem. Klein (2004) further argued that complexity and inter-disciplinarity are linked in a wide range of business practices, so much so that the management issues facing society today are mostly "*emergent phenomena with nonlinear dynamics*".

Finally, further research can include theoretical insights into the area of product service systems (PSS) which aims to provide a system of "products and services" that would be able to fulfil customer needs as efficiently as possible from both an economic and environmental point of view. Research into PSS was developed with the aim of a business model to accomplish all different management goals with a reduced level of environmental impact. One of the major key drivers for pushing PSS research forward is the understanding that the world is fast becoming a "service economy", making the case that services can provide higher margins and retain their value proposition longer than products, which can rapidly become obsolete (Tukker and Tischner 2006). As such, understanding the way in which value co-creation impacts on production and consumption would be valuable in moving PSS research forward.

Chapter 6: Conclusion

Marketing literature has propagated “customer-participation” in the seller-buyer framework since the 1980s (Goodwin 1988; Mills and Morris 1986). Yet, marketing research has done little to identify where these gaps in “customer-participation” lie. Research by Prahalad and Ramaswamy’s (2004b) on value creation emphasised the need to re-evaluate how value is created for modern consumers who are more informed of their choices due to the close nature of the interactions between the buyer and the seller.

Vargo and Lusch’s (2004a, 2008a) seminal work on the S-D Logic further reiterated this emphasis with the notion that the “*customer is always the co-creator of value*” as the customer is part of the system that delivers value. Therefore, in an increasing competitive environment that is largely fuelled by easier access to information and innovative technology to boost consumer knowledge, a deeper appreciation of how value co-creation is attributed should pave the way for new opportunities for firms to create value with their customers. In that respect, firms can then be better informed of pricing opportunities, given a better understanding of value co-creation.

Under this orientation, this thesis primarily aimed to identify value co-creation attributes and how they may impact on the customers’ willingness to pay for a service. For this purpose, this author raised the research question: “**What are the attributes of value co-creation in service, and how might they impact on the customers’ willingness to pay?**”

To answer this research question, three studies were conducted. The first two were qualitative case studies employed to derive insights into value co-creation attributes under two different service contexts; the defence and the healthcare industries. The third study employed a quantitative methodology to gauge the impact of value co-creation attributes on the customers’ willingness to pay.

Both case study 1 and case study 2 found that the customer is at the centre of the service system, supported by various stakeholders in the service delivery. For the service to be delivered optimally, value is co-created by the different stakeholders. Evidence from the qualitative research proposed six generic attributes of value co-creation: congruence of expectations, complementary competencies, process alignment, behavioural transformation, perceived control and empowerment.

Interestingly, the qualitative evidence in both sets of interview data demonstrates that these generic attributes reported were a manifestation of the service system as a whole and not as parts. Thus the value co-creation attributes manifested in the findings are a system-level emerging property which implies that for a service to be provided efficiently and effectively, a holistic systems approach is necessary. This finding is important from both a theoretical and managerial perspective as it informs our understanding of the consumer experience, and therefore able to impact on the strategic design of the service provision.

The next stage of the thesis investigated the impact of these value co-creation attributes on the customers' willingness to pay for the service. Applying the qualitative evidence from both the case studies, Study 3 used a quantitative approach under the context of higher education. As there were no available measurements from current literature to gauge the students' perspectives on their university experience and their roles in co-producing education, the study adopted a cross-disciplinary platform involving literature in higher education and marketing. This link was necessary in order to locate relevant knowledge on the possible dimensions involved in a student's perspective of their time at university.

Research propositions were then formed to support the study of the impact of value co-creation attributes on the customer's willingness to pay for a service. The resulting framework consisted of nine testable hypotheses for Study 3. To perform the evaluation of the hypotheses, data was collected using a web-based survey tool and sent to an estimated 2,300 business students across two universities. The survey was conducted over a period of two weeks and a reminder was subsequently sent out three days before the close of the survey.

The results of the quantitative study showed empirically that students believed that their university experience was linked to value co-creation attributes such as empowerment, perceived control, behavioural transformation, complementary competencies and processes alignment. It also revealed that students differed in their preferences of these attributes in supporting their university experience.

Consequently, when presented with their preferred value co-creation attributes, students indicated that they were willing to pay higher fees for their education service, and the opposite when presented with their least preferred attributes. These empirical results supported the research propositions.

In summary, this doctoral thesis validates that value co-creation is indeed an important aspect in the provision of a service. As 21st century customers become increasingly informed and empowered in their decision making, a deeper understanding of how the customer co-creates value with the firm may become more central to marketing activities. Hence, the strategic consideration of value co-creation attributes appears to be an excellent platform in engaging with the customer's experience and this contributes to marketing knowledge.

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