

Identifying the Organisational Capability for Value Co-creation

Submitted by

Jason Peter James Williams

to the University of Exeter as a thesis for the degree of

Master of Philosophy in Management Studies

May 2013

This thesis is available for Library use on the understanding that it is copyright material and that no quotation from the thesis may be published without proper acknowledgement.

I certify that all material in this thesis which is not my own work has been identified and that no material has previously been submitted and approved for the award of a degree by this or any other University.

.....

Abstract

The objective of this thesis is to identify the organisational capability for value co-creation. The study draws on literature to inform the notion of value and organisational capability. A conceptual framework is then developed that describes the organisational capability for value co-creation. The framework constructs are validated and refined through the generation of a diagnostic survey tool that is tested through two case studies.

Service-dominant Logic (SDL) proposes service as the central purpose of economic exchange and in doing so provides a theoretical understanding of how organisations collectively create value through service interactions (Vargo and Lusch, 2004). Adopting SDL as a strategic business logic requires organisations to develop and nurture capabilities that facilitate and enhance the co-creation of value (Karpen et. al., 2008).

The research contributes to theory by defining and operationalising the organisational capability for value co-creation. This is done firstly by deriving the Dimensions of Capability from the literature on organisational capability and then secondly by demonstrating how these dimensions need to be configured within a business-to-business (B2B) organisation to promote the co-creation of value. This configuration is presented in a framework called the OC4VC.

A contribution to practice is made through the creation of a diagnostic tool known as C-CAT™ (Co-creation Capability Assessment Tool). The application of the tool within the two case study organisations was used to demonstrate its validity and usability in a B2B context. Following the study the tool was incorporated into the EPSRC's Knowledge Transfer Box (KT-Box) research programme.

The study encounters a number of limitations which bound the impact and generalisability of the findings. The B2B context of the two case organisations bounds the generalisability of the findings. Although this is an exploratory study the limited sample size constrains the level of quantitative validation possible. These limitations have been recognised and a number of areas for further research are identified. The key areas suggested for further work focus on the need for further work on capacity, other operating environments and further quantitative validation.

Acknowledgements

This study was conducted as part of the Knowledge Transfer Partnership (KTP) between the University of Exeter and Harmonic Limited. Thanks must go to all the staff at Harmonic who partook in the project and especially Steve Mead who spent endless hours with me in front of flipcharts with post-it notes whilst we wrestled with what Irene was on about. I owe my interest and involvement in value co-creation to Prof Irene Ng and her ever inspiring energy. Thanks must also go to Dr Nick Yip who helped me understand the research process and rigour required to conduct such a study.

Following the KTP project my supervision was provided by Dr Harry Maddern and Prof Andi Smart who helped me see the wood from the trees and focus on completing this thesis. The many Skype calls with Harry were invaluable over the last year, without his clarity of observation and guidance I would still be yet to finish.

Thanks are due to Laura Smith who has shared the research experience with me. The numerous discussions and debates we have had about value, doing research and working with Irene have always been a good source of cathartic entertainment.

For their endless encouragement and support the biggest thanks must go to my family. On the numerous occasions when I wanted to throw in the towel my wife Fran and Dad always put me firmly back in my place and told me to crack on. Eventually their stubbornness has paid off so thank you. Additional thanks must go to Dad who having steamed through his PhD at the same time as this study has been able to mentor and guide me through the construction of my own thesis. And last but not least thank you to my Mum for her never-ending words of encouragement and belief.

I now look forward to sleeping in at the weekend and not feeling guilty about going out all day on my bike.

This thesis is dedicated to my grandfather, Martin Williams, who had an inspiring and relentless quest for knowledge.

Contents

Abstract.....	2
1. Introduction	8
1.1. Introduction	8
1.2. Research context.....	8
1.3. Rationale	9
1.4. Research Aims and Objectives	11
1.5. Significance of the Study.....	11
1.6. Organisation of Thesis.....	13
1.6.1. Chapter 2 – Literature Review part 1: Value.....	13
1.6.2. Chapter 3 – Literature Review part 2: Capability	14
1.6.3. Chapter 4 – Methodology	14
1.6.4. Chapter 5 – Findings & Discussion	15
1.6.5. Chapter 6 – Conclusion	15
2. Literature Review Part 1 – Value Co-creation.....	17
2.1 Service Dominant Logic.....	18
2.2 Value	21
2.3 Value co-creation	23
2.4 Implications for Practice	25
2.5 The Research Gap	26
2.6 The Attributes of Value Co-creation	29
2.7 Summary and Conclusion	32
3. Literature Review Part 2 – Organisational Capability	34
3.1 Capability in strategic management	34
3.2 Organisational capability	35
3.3 Strategic capability.....	37
3.4 Dynamic capability	38
3.5 The extracted dimensions explained	39
3.5.1 Competence	39
3.5.2 Capacity.....	41
3.5.3 Culture.....	43
3.5.4 Systems	44
3.5.5 Structure	46
3.5.6 Infrastructure	47
3.6 Conclusion.....	48
4. Methodology.....	50
4.1 Research objectives	51
4.2 Philosophical basis of the research.....	51
4.3 Research context.....	54
4.4 Research design	55
4.4.1 Selection and justification of the cases.....	56
4.4.2 Case 1 – Harmonic Limited	57
4.4.3 Case 2 – Flybe Aviation Services	58
4.5 Research methods	59
4.5.1 Qualitative methods for framework development.....	62

4.5.2	Quantitative methods for framework validation.....	62
4.6	The research process	62
4.7	Framework development.....	63
4.7.1	Qualitative data sources	65
4.7.2	Qualitative data analysis.....	69
4.7.3	Summary of the framework development stage	70
4.8	Framework validation	70
4.8.1	Refining the framework	72
4.8.2	Survey construction	74
4.8.3	Survey pilot	75
4.8.4	Survey sample sizes and types	75
4.8.5	Quantitative analysis for theoretical validation.....	76
4.8.6	Quantitative analysis for managerial validation	77
4.8.7	Qualitative evaluation with the case organisations.....	77
4.8.8	Summary of the framework validation stage	78
5.	Findings	79
5.1.	Framework development.....	79
5.1.1.	Identifying the first order constructs	79
5.1.2.	Constructing the framework.....	82
5.1.3.	Populating the framework.....	83
5.1.4.	Summary of Framework development	89
5.2.	Theoretical validation	89
5.2.1.	Refining the framework	90
5.2.2.	Operationalising the framework.....	92
5.2.3.	Survey pilot and refinement	95
5.2.4.	Validating the framework	97
5.2.5.	Summary of theoretical validation	99
5.3.	Managerial Validation.....	100
5.3.1.	Harmonic survey results	100
5.3.2.	Harmonic conclusions and recommendations.....	106
5.3.3.	Feedback on the Harmonic survey.....	106
5.3.4.	Flybe survey results.....	108
5.3.5.	Flybe conclusions and recommendations.....	113
5.3.6.	Feedback on the Flybe survey.....	115
5.3.7.	Summary of managerial validation	115
6.	Discussion.....	117
6.1.	The organisational capability for value co-creation explained	118
6.2.	Implications for theory.....	124
6.2.1.	The Dimensions of Capability.....	124
6.2.2.	Organisational capability for value co-creation	126
6.3.	Implications for practice	129
6.3.1.	A 'best practice' framework.....	129
6.3.2.	Usable diagnostic tool.....	131
7.	Conclusion.....	134
7.1	Limitations.....	134
7.1.1	Dealing with capacity	134
7.1.2	Achieving generalisability	135
7.1.3	Construct validity	135

7.2	Further research	136
7.2.1	Dealing with capacity	136
7.2.2	Expanding the significance and generalisability	137
7.2.3	Developing the organisational capability for value co-creation ...	137
7.3	Final Comments	138
	Bibliography	139
	Annex A – Case 1 workshops	149
	Annex B - Qualitative data – Case 1: Harmonic Ltd	150
	Annex C – Second Order Constructs	153
	Annex D – Measures	156
	Annex E – KTP Action Plan (September 2010)	164

Publications

Publication 1: Redefining Organisational Capability for Value Co-creation in Complex Engineering Service Systems	130
Publication 2: Exploring the barriers to co-production in UK health policy	147

Tables

3.1 Competence measures.....	41
3.2 The Dimensions of Capability derived from literature	48
4.1 Extract from Eisenhardt’s ‘Process of Building Theory from Case Study Research’	60
4.2 The Research Process	63
4.3 The six most common sources of case study evidence	65
4.4 The Harmonic Exec team interviewed during the case study	66
5.1 Qualitative findings from the Harmonic case	83
5.2 The guiding measures identified from the literature	93
5.3 Harmonic Cronbach coefficient alpha results	96
5.4 Flybe Cronbach coefficient alpha results	97

Figures

1.1 The Contribution to Theory.....	12
1.2 Overview of research process and thesis chapters	13
4.1 Assumptions about the nature of social science	52
4.2 Framework depicting schools of management research	53
4.3 Steckler <i>et al.</i> 's models of mixed methods research	61
4.4 The original conceptual framework	64
4.5 Framework validation activities	72
4.6 The revised conceptual framework	73
5.1 The conceptual framework	82
5.2 The revised conceptual framework	91
5.3 Highlighting the differences between measures from the same construct	95

5.4 Harmonic’s capability scoring presented against the framework	100
5.5 Harmonic’s capability by Attribute of Value Co-creation	100
5.6 Harmonic’s capability by Dimension of Capability	101
5.7 Flybe’s capability scoring presented against the framework	107
5.8 Flybe’s capability by Attribute of Value Co-creation	108
5.9 Flybe’s capability by Dimension of Capability	108
6.1 The contribution to theory	123

1. Introduction

1.1. Introduction

This exploratory research aims to identify the organisational capability needed to effectively co-create value. It draws on literature in the areas of value and organisational capability to develop a conceptual framework and then validates the framework constructs through two case studies. The research contributes to theory by defining and evaluating the organisational capability for value co-creation, as well as contributing to practice through the creation of a diagnostic tool.

This introductory chapter sets the context, rationale and scope of this research and provides an overview of the contribution to knowledge and practice.

1.2. Research context

The starting point for this research is the field of service marketing, specifically the area of Service-dominant Logic (SDL) which has emerged from the services marketing domain. SDL proposes service as the central purpose of economic exchange and in doing so provides a theoretical understanding of how organisations collectively create value through service interactions (Vargo and Lusch, 2004). The premise of SDL is that value is always co-created by all involved parties which is in opposition to the long running goods dominant logic which has traditionally described value as being provided by organisations for the benefit of others. SDL changes the traditional roles of the customer and provider in creating value. The crucial implication that providers are required to come to terms with is that they must take responsibility for managing the customer's involvement in the co-creation experience in order to ensure they capitalise on the provider's value proposition. Effectively managing the customer's involvement in the co-creation experience requires organisations to develop and nurture capabilities that facilitate and enhance this experience (Karpen et. al., 2008).

In response to the SDL paper by Vargo and Lusch there has been a surge in literature emerging on value co-creation. Most of which has focused on the process of co-creation, very little has been done to address the underlying capabilities required to ensure consistent and effective co-creation of value. This research addresses that gap by identifying the organisational capability needed to effectively co-create value. In doing so the study contributes to understanding

the capability required to co-create value and provides opportunities for further research in this area.

It is important at this stage to point out the distinction adopted during this research between capability and competence. Capability is defined as the power or ability to produce an outcome (Oxford English Dictionary). Competence is defined as the level and type of knowledge and skills which can be brought to bear (Ng, Nudurupati & Williams, 2010). The distinction being that competence is seen as a subset of capability. This distinction is explored in more detail in the second part of the literature review (chapter 3, page 33).

1.3. Rationale

The growth of the service sector and emergence of new technologies has led to new business models and changes in the environment in which organisations operate. According to Spohrer and Maglio (2008) there is a lack of research and knowledge in service with most academics working within the traditional manufacturing paradigm rather than a service paradigm. Historically the majority of research has supported the manufacturing sector, but with economies shifting to become service dominated, there is a widespread call for research to focus on the technology and techniques that will enable organisations in the service sector to function effectively and productively (Ng and Maull, 2009). Nevertheless there still remains a void in the knowledge, technology and expertise to design and deliver service, which may include value being delivered that is perishable by nature (i.e. time bound) and heterogeneous in characteristic (Ng and Maull, 2009). It is widely recognised that service research has not kept up with the demands of the economy (Grönroos, 2001).

In service delivery, the value of the service is embedded in the processes and interactions between the customer and firm. However, the traditional perspective of customer-supplier relationships reflects value as exchange value where each party exchanges one kind of value for another in a transactional manner. This perspective dominates the traditional academic literature in this area (e.g. Marshall, 1927; Thomas, 1978). However the emergence of SDL has brought about a different perspective which places value-in-use as the driving force of superior competitive advantage (Vargo and Lusch, 2004).

As identified through the emergence of SDL, the growth of the service sector has revealed a change in the role of the customer and the source of competitive advantage (Vargo and Lusch, 2004; Prahalad and Ramaswamy, 2004) as well as the emergence of Service Science, a new trans-disciplinary field of study (Spohrer and Maglio, 2005; Ng and Maull, 2009). Organisations are faced with the challenge of dealing with a competitive landscape that is changing at an unprecedented rate. Delivering value-in-use requires organisations to understand the role of the customer in the value creation process (Lengnick-Hall, 1996) and to design a system that effectively incorporates the customer in that process.

Within the context of SDL, the majority of research on value co-creation has focused on: co-creating the voice of the customer (Jaworski and Kohli, 2006); satisfying expectations (Oliver, 2006); a cost-function model for co-production (Etgar, 2006); supply chain issues and value chain management (Flint and Mentzer, 2006); cross-functional processes (Lambert and Garcia-Dastugue, 2006); and marketing strategy effectiveness and operations efficiency (Kalaighnam and Varadarajan, 2006). This extant research focuses on specific aspects of value co-creation; however very little exists to help organisations understand the wider organisational capability needed to effectively and sustainably co-create value. The two notable exceptions are that of Prahalad and Ramaswamy's (2004) DART model and Payne, Storbacka and Frow's (2008) conceptual framework for value co-creation (see section 2.4, page 24).

Value-in-use is the concept that value is realised in the process of consumption, rather than exchange (Marx, 1867). As such the value derived from any experience will vary depending on the situation and context in which it is consumed. Given the state dependent nature of value-in-use, the ability to deal with heterogeneity is arguably a crucial requirement for organisations seeking to thrive in today's economy (Eisenhardt and Martin, 2000; Teece, 2007).

Organisations are therefore obligated to develop flexible capabilities that remain agile in continuously co-creating value with customers (Brodbeck, 2002).

Effectiveness is driven by the ability to achieve a complementary fit between the structure, control and operations of an organisation and the context in which it operates (Drago, 1998). This requires organisations to nurture agility within processes and governance mechanisms and encourage staff to be open to and pro-active in dealing with change. Hence organisations can build sustainable

competitive advantage by developing the capability to adapt to and align with evolving environments in order to continuously collaborate effectively with customers to deliver value-in-use.

Meeting this challenge requires transition from the traditional transaction-based business model to a relationship-based model and the development of service capability (Ng *et al.*, 2008) to deliver value-in-use. This transition demands an evaluation of traditional organisational capability, principles, structures and behaviours and consequently represents a major managerial change (Oliva and Kallenburg, 2003). Defining and managing this change remains largely unaddressed.

1.4. Research Aims and Objectives

The overarching objective of this research is ...

... to identify the organisational capability for value co-creation

In order to realise this objective two activity streams were identified:

1. Create a conceptual framework to describe the organisational capability for value co-creation
2. Validate the conceptual framework

Identifying these activity streams and splitting the work accordingly provides a clear distinction between the conceptual theory building work (activity 1) and the empirical validation work (activity 2).

1.5. Significance of the Study

The research contributes to theory by defining and operationalising the organisational capability for value co-creation. This is done first by deriving the Dimensions of Capability from the literature on organisational capability and then demonstrating how these dimensions need to be configured within a B2B organisation in order to drive the co-creation of value with the customer. Hence a theoretical contribution is made to the understanding of how value co-creation can be cultivated within organisations. This contribution to theory is described illustratively in Figure 1.1.

A contribution to practice is made through the creation of a robust and usable diagnostic tool known as C-CAT™ (Co-creation Capability Assessment Tool). The

application of the tool with the two case study organisations demonstrates its validity and usability in a B2B context. Following the study the tool was incorporated into the EPSRC’s Knowledge Transfer Box (KT-Box) research programme. The KT-Box is an EPSRC supported Knowledge Transfer Award to develop practical tools and techniques that enable industry and other users to adopt findings from recent service research. Involvement in the KT-Box programme provided the funding to further develop the tool based on the case study findings. The C-CAT™ tool has now been approved by the KT-Box as production ready and opportunities to deploy it are actively being sought by a number of parties.

Whilst a contribution to theory and practice is made its generalisability is constrained, firstly by the context, the study focused on the B2B sector; and secondly the sample size of the two case studies. The exploratory and theory building nature of the research constrained the generalisability but the study has not sought provide significant generalisability and instead provide a platform from which further work could be done to provide greater generalisability.

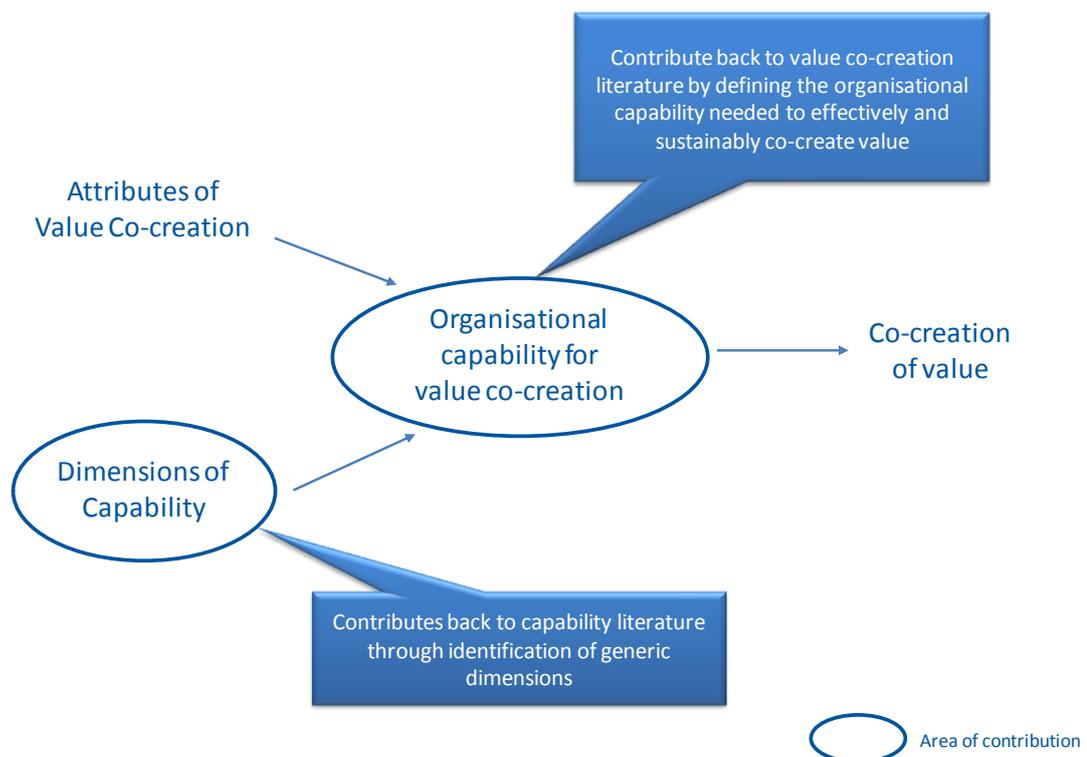


Figure 1.1: The contribution to theory

1.6. Organisation of Thesis

The thesis is organised into seven chapters as outlined below in Figure 1.2. A short summary of each chapter is presented below.

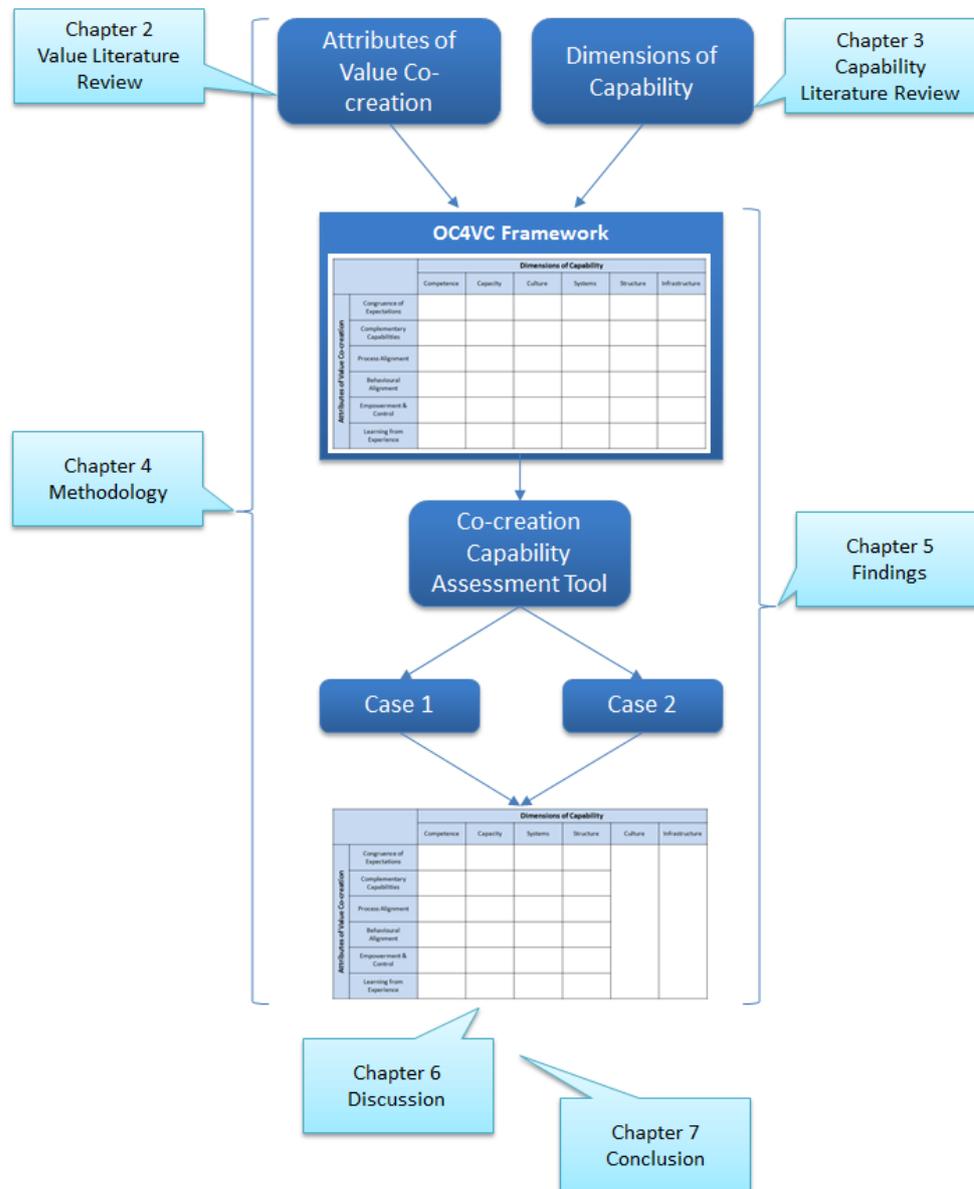


Figure 1.2: Overview of research process and thesis chapters

1.6.1. Chapter 2 – Literature Review part 1: Value

The emergence of Service Dominant Logic (SDL) has stimulated a stream of literature on value that has focused on amongst other things, the process of co-creation. The first part of the literature review begins with an explanation of SDL, its foundational principles and their implications. The chapter then explores the co-creation stream of work highlighting how the literature has developed and where the significant focuses lie. The Attributes of Value Co-creation (AVC),

identified by Ng *et al.* (2009), are highlighted from the literature and adopted as the basis on which the conceptual framework described in chapter 5 is built.

This part of the literature review also identifies and explains the relevant gaps and opportunities that exist for further research. Attention is paid to highlighting the gap that exists in providing organisations with the kind of knowledge and technology needed to understand and cope with the implications of value co-creation.

1.6.2. Chapter 3 – Literature Review part 2: Capability

Capability has been a much-studied topic within strategic management (Helfat, 2000). The growing volume of research on firm capabilities links capability with performance, an indication of the importance of capability in creating and sustaining competitive advantage. While the intricacies of the relationship between capability, performance and competitive advantage are widely debated, it is clearly recognised that a firm's ability to manage and develop its capabilities over time is crucially important and will only become more crucial as levels of competition continue to increase.

This part of the literature review examines the body of knowledge on organisational capability with a view to identifying holistic dimensions that can be used to build the conceptual framework to explain the organisational capability for value co-creation.

1.6.3. Chapter 4 – Methodology

The beginning of the chapter describes the research objectives, philosophical basis, context, design, methods and process. The second half of the chapter is divided into two parts, firstly the framework development stage of the research is explained, and secondly the framework validation stage is explained.

The framework development section outlines the first stage of the research, which focuses on developing a conceptual framework to describe the organisational capability for value co-creation. As a result of this stage a conceptual framework is derived from existing literature sources and qualitative case findings. The framework is developed and populated with both first order constructs (the x and y axis) and second order constructs (the centre of the framework). As well as the conceptual framework the key output from this stage

of the research is the theoretical contribution delivered by identifying the Dimensions of Capability (one set of first order constructs).

Having satisfied the first research objective of creating a conceptual framework, the second stage of the research is created to address the second objective - validate the framework. The second stage was crucial in furthering the contribution made by this study. The validation activity was two-fold; the framework was validated from both a theoretical and a managerial perspective. The analysis to validate the theoretical contribution is important in furthering the conceptual contribution made by the initial inception of the framework. The managerial validation is an important step in ensuring the contribution to practice is both useful and also valid.

1.6.4. Chapter 5 – Findings

The findings are divided into two parts – the framework development findings and discussion, and the framework validation findings and discussion.

The framework development activity describes the identification of two sets of first order constructs from the literature, how they are mapped to form a framework structure, and how the framework is populated with second order constructs. This stage of the research provides a conceptual framework and as such makes a theoretical contribution to the value co-creation literature.

In the framework validation section the refinement of the framework, use of the survey with the case organisations and subsequent construct validity analysis are described. The analysis undertaken demonstrates the empirical validation of the framework and substantiates the theoretical contribution. Also described in the validation section is the managerial validation undertaken.

1.6.5. Chapter 6 – Discussion

The contribution to and implications for theory and practice are discussed in this chapter. In doing so the findings are related back to the literature to both evidence and debate the significance of the contribution made by the research.

The study has contributed to theory by defining and operationalising the organisational capability for value co-creation. The framework that encapsulates the capability is validated from both theoretical and managerial perspectives. An explanation of the constructs used to populate the framework and their implications is provided in the first section of the chapter. The contribution made

by the framework and the associated diagnostic tool are outlined in the second part of the chapter.

The third section of the chapter discusses the contribution to practice. This study provides practitioners in business-to-business industries with both insight and tangible tools to help improve the enactment of value co-creation within their organisations. The two tangible outputs from the study are the OC4VC framework and the C-CAT™ diagnostic tool.

1.6.6. Chapter 7 – Conclusion

The concluding chapter acknowledges the limitations of the study, discusses the opportunities for further research, and closes the thesis with concluding remarks.

It is recognised that the timing and context within which the research is undertaken placed certain constraints on the work. The limitations and opportunities for further research are outlined and cover issues including dealing with capacity, construct validity and generalisability.

Final remarks are made to summarise the research undertaken and the extent to which the objectives are achieved. As part of this the relative significance and impact of the findings for theory and practice is described.

2. Literature Review Part 1 – Value Co-creation

The emergence of Service Dominant Logic (SDL) has stimulated a stream of literature addressing the phenomenon of ‘value’ focusing on amongst other things, the process of co-creation. This part of the literature review begins with an explanation of SDL, its foundational principles and their implications. The chapter then explores the co-creation stream of work highlighting how the associated phenomena have developed and where the significant focuses lie. The Attributes of Value Co-creation (AVC), identified by Ng *et al.* (2009), are highlighted from the literature and adopted as the basis on which the conceptual framework described in chapter 4 is built. The rationale behind this decision is explained in section 2.6.

This part of the literature review also identifies and explains the relevant gaps and opportunities that exist for further research, in particular the gap that gives rise to this study. Attention is paid to highlighting the gap that exists in providing organisations with the kind of knowledge and technology needed to understand and cope with the implications of value co-creation.

Ahead of the body of the chapter a few informative definitions are presented:

- Service Dominant Logic – is a mind set for a unified understanding of the purpose and nature of organisations, markets and society. The foundational proposition of S-D logic is that organisations, markets, and society are fundamentally concerned with exchange of service - the applications of competences (knowledge and skills) for the benefit of a party (Vargo and Lusch, 2004). See section 2.1.
- Value – perceived preference for and evaluation of product attributes, attribute performances, and consequences arising from use that facilitate (or block) achieving the customer's goals and purposes in use situations (Woodruff, 1997). See section 2.2.
- Value co-creation – resources (i.e. people, systems, infrastructure and information) working together through processes to achieve the optimum benefit for the consumer (Vargo and Lusch, 2004). See section 2.3.

2.1 Service Dominant Logic

Marketing's traditional model of exchange was inherited from economics and based on a dominant logic that focused on goods as the unit of exchange. Central to this logic is the focus on tangible resources with embedded value delivered through transactions (Marshall, 1927; Thomas, 1978). More recently this traditional goods dominant logic has been challenged. In 2004 Vargo and Lusch published a seminal paper which proposed a new perspective on service, a paper which has since sparked endless discussion, debate and subsequent work on the characteristics and consequences of service as a concept. The paper gave rise to SDL; it is this logic and its inferences that provide the context for this research. Outlined here is an overview of SDL's central concepts and the implications they pose to firms seeking to deliver value-in-use.

The evolution of SDL is based on a perceived shift in importance between operand and operant resources. Vargo and Lusch (2011, p.183) define these resource types as,

“operand resources are those that require some action to be performed on them to have value (e.g. natural resources) and operant, those that can be used to act (e.g. human skills and knowledge)”.

Previously operand resources, seen as factors of production, were primary in defining value and wealth of organisations and nations (Smith, 1776). The recognition that operant resources are the producers of effects has led to a new basis for the assessment of value. The shift in the relative importance of resources has implications for how exchange processes, markets, and customers are perceived and approached (Vargo and Lusch, 2004). The scale of these consequences is reflective of the fact that they arise from a new and unique perspective and not a trend, fad or fashion.

Vargo and Lusch (2004) defined six differences between the traditional goods-centred dominant logic and the emerging service-centred dominant logic. These differences can be examined to reveal significant implications for industry necessitating transformational shifts in both thinking and practice.

Primary unit of exchange

Under goods-centred logic it is thought that people exchange for goods and their functionality; the contrasting service-centred logic believes people exchange for the benefit of others competences. SDL leads firms to focus on the knowledge and skills required to deliver on competences rather than primarily focusing on the tangible good. The idea that people seek benefits from economic exchange requires organisations to identify and understand the desired customer benefits and subsequently design systems to work towards those benefits. Such a notion gives rise to the need to adopt a highly customer-oriented approach based around delivering outcomes.

Role of goods

SDL perceives goods as appliances in the value creation process. That is to say goods in themselves are transmitting embedded knowledge that leads to benefit, but do not provide benefit in their own right. For example, a phone is useless unless you know how to use it; it is the combination of good (operand resource) and knowledge (operant resource) that lead to the benefit of making a call when needed. Organisations need to focus on the package of resources (operand and operant) that are required to deliver benefit and realise that the operand resources often play a subordinate role to the operant resources in delivering the desired benefits (Constantin and Lusch, 1994). This provides a significant and even intimidating challenge to goods-based organisations that have previously not concerned themselves with helping or equipping customers with the operant resources required to benefit from their products.

Role of the customer

A distinct difference between goods-centred and service-centred logic is the role of the customer. Goods logic places the customer as a passive player whereas SDL places the customer as an active, indeed critical, agent in creating value. SDL states that it is necessary for firms to perceive the customer as part of the value creating process. This position necessitates greater customer involvement on a relational basis, causing firms to become customer-centric and market driven (Day, 1999). This means more than simply being customer-oriented; it means collaborating with and learning from customers and being adaptive to their individual and dynamic needs. This need for more dialogue driven collaborative relationships with customers is in direct contrast to the often traditionally

transactional relationships that many industries employ. Developing such relationships requires a cultural shift from both customers and firms if it is to be successful.

Determination & meaning of value

Unlike the goods-centred logic which places the producer as the determiner of value, service-centred logic believes value is perceived and determined by the customer on the basis of 'value-in-use'. Value results from the beneficial application of resource (both operand and operant) and not from the resource itself. For this reason firms can only propose value (Ballantyne and Varey, 2006). Firms can therefore compete on two fronts, the value proposition and the ability to co-create value with customers. The latter is the key to service capability and reflects the enhanced role of the customer, as highlighted in the previous paragraph. The concept of value is explored further in the next section of this literature review.

Firm-customer interaction

As already stated, SDL presents customers as active participants in relational exchanges and co-production. As a result customer interactions need to be viewed in a different way, less transactional and more relational. Firms need to take responsibility for managing all interactions in such a way as to ensure synergy between firm and customer systems, processes and behaviours so maximising the effectiveness of the co-production interactions. The ability to effectively manage the interaction and alignment between an organisation and its customer is a crucial enabler of the co-creation process.

Source of economic growth

The evolution of SDL sees a move away from tangible resources being the source of wealth and a realisation that wealth is obtained through the application and exchange of specialised knowledge and skills. This move reflects the SDL focus on operant resources, often people, being central to success. Under the SDL view the recruitment and development of highly knowledgeable and skilled staff along with the creation and maintenance of process and systems that facilitate effective and efficient application and economic exchange become the levers of economic growth. SDL demands leadership that understands that in the new economics of

service, front line workers and customers need to be the central concern. Successful leadership concentrates on the factors that drive profitability in the new service paradigm: investment in people, technology that supports front line workers and recruitment and development practices (Heskett *et al*, 1994).

As shown SDL proposes service as the central purpose of economic exchange and in doing so provides a theoretical understanding of how organisations collectively create value through service interactions (Vargo and Lusch, 2004). SDL states that value is not provided by organisations for the benefit of others, but instead value is always co-created by all involved parties. This logic changes the traditional roles of the customer and provider in creating value. The crucial implication for providers being that they are required to manage customer's involvement in the co-creation process to ensure they maximise the potential benefits of the provider's value proposition. Adopting SDL as strategic business logic requires organisations to develop and nurture capabilities that facilitate and enhance the co-creation of value (Karpen and Bove, 2008).

Before examining the organisational capabilities needed to effectively co-create value it is useful to further explore and understand what is meant by 'value' and the phenomenon of 'value co-creation'. These topics are covered in the two sections that follow.

2.2 Value

Organisations have been called upon to deliver superior customer value as a major source of competitive advantage (Payne and Holt, 2001; Eggert, Ulaga & Schultz, 2006; Liu, Leach & Bernhardt, 2005; Ulaga and Eggert, 2006). Similarly value and customer orientation is echoed amongst academics in different fields (Cannon and Homburg, 2001; Chase, 1978; Amit and Zott, 2001; Ramirez, 1999; Kim and Mauborgne, 1999). Indeed, Raval and Grönroos (1996) claimed that an organisation's ability to provide superior value was regarded as one of the most successful competitive strategies in the nineties. Delivering superior customer value assists organisations in developing and maintaining strategic buyer-seller relationships (Liu, Leach & Bernhardt, 2005), resulting in loyalty (Bolton and Drew, 1991) and the potential to grow margins and profits (Butz and Goodstein, 1996).

Whilst the importance and criticality of delivering superior customer value has rarely been contested, deriving a common understanding of value has been less straight forward. Many researchers took on the task of defining value with Zeithaml (1988) positing that,

“(1) value is low price; (2) value is whatever I want in a product; (3) value is the quality I get for the price I pay and (4) value is what I get for what I give” (Zeithaml, 1988, p. 2).

Such a definition suggests that value is a state of being and therefore likely to vary over time and in different contexts. Researchers such as Holbrook (1996) proposed an axiological approach, defining value as an, *“interactive relativistic preference experience”* (Holbrook, 1996, p. 139). The most cited definition of value that has since become generally accepted is presented by Woodruff (1997, p.142),

“Customer value is a customer's perceived preference for and evaluation of product attributes, attribute performances, and consequences arising from use that facilitate (or block) achieving the customer's goals and purposes in use situations”.

Woodruff's (1997) model proposes that customers think of products as bundles of attributes, and attribute performances to achieve benefits. For Woodruff (1997), this structure of attributes, consequences and goals is a critical conceptualisation of customer value; one that requires organisations to facilitate the customer in achieving their goals 'in use'.

More recently, the concept of customer value has been considered from a relationship marketing perspective, with value comprising of customer-firm relational processes (Tuli, Kohli & Bharadwaj, 2007; Eggert, Ulaga & Schultz, 2006; Flint, Woodruff and Gardial, 1997; Liu, Leach & Bernhardt 2005; Payne and Holt, 2001). Gummesson (1999) describes relationship marketing in terms of interactions, relationships and networks. These views accentuate value creation as the creation of an experience which occurs within a relationship, as opposed to transaction-based exchanges. Indeed, Danaher and Mattson (1994) found that value is evaluated through an aggregate of interactions with the firm. Thus goods, activities, and environment are all, *“carriers of experience”* (Prahalad, 2004, p. 23).

The trend in the value literature has been towards recognising that value is perceived and determined by the customer on a basis of value-in-use (as mentioned in the SDL explanation above). That is to say that value results from the beneficial application of resources and not from the resource itself. This perspective sees value as derived from phenomenological experiences, i.e. value resides not in an object, product or possession but in the use experience (Ng, Smith and Vargo, 2012). This view has challenged the legacy assumption that value is determined in exchange (value-in-exchange). For some time now it has become increasingly accepted that products and services are not inherently embedded with value (e.g. Shostack 1977; Levitt 1980; Grönroos 2007). Instead value realisation is highly dependent on the purchase, usage and interaction practices of customers. Doyle (1989) argued that the value of a product is less about what the producer puts in and more about what the consumer gets out as a result of their usage. Acceptance of this position has led to the recognition that in order to maximise the value of a firm's proposition it must understand and work with the customer's processes and systems for purchasing and consumption, be that product or service-based.

Work in this area has evolved into more current ideas around value co-creation, where resources, i.e. people, systems, infrastructures and information (Grönroos, 2004), work together through processes to achieve the optimum benefit for the consumer (Tuli, Kohli and Bharadwaj, 2007; Vargo and Lusch, 2004, 2008). The ideas and previous work surrounding value co-creation are explored and explained in more detail in the next section.

2.3 Value co-creation

Vargo and Lusch (2004, 2008) built on Smith's (1776) notion of value-in-use by suggesting that value is more than simply the utility of an offering but instead the co-created phenomenological experience of the beneficiary. Furthermore the value created through that experience is derived with the participation of, and determined by, the beneficiary through involvement in the processes of acquisition, usage and disposal (Holbrook, 1987). Consequently organisations cannot provide value but merely propose it through their various offerings. It is the customer that determines value by co-creating it with the firm. Hence an

organisation's offering is merely a bundle of potential value until the customer realises it through co-creation to gain the benefit (Ng *et al.*, 2009).

The recent SDL literature has begun to describe those involved in co-creation (individuals, groups or organisations) as systems, constellations or networks of resources (e.g. Normann, 2001; Vargo *et al.*, 2008; Vargo and Lusch, 2011). These systems work together in mutually beneficial ways to co-create value. Systems of resources create value by combining and realising the value propositions of both the firm and the customer. This value is created through the use and integration of operand resources (tangible resources such as material things on which an operation or an act is performed) and operant resources (intangible resources such as skills or information which are used to act on operand or operand resources) from all parties; a process termed *resource integration* by the SDL literature.

The conceptualisation of co-creation actors as systems of resources illustrates the mutual dependence and importance of all actors in the co-creation process; no longer is the customer a link on the end of the production-consumption chain but instead a central part of the co-creation system. This view is supported by, Woodruff and Flint (2006) who propose a new *bi-directionality* for mutual satisfaction, and Gummesson (2002) who suggests the term '*balanced centrality*'. Woodruff and Flint (2006) discuss the obligation of the firm and the customer to assess the needs of the other and identify the resources needed to deliver their part of the co-creation process. Additionally both parties must build an understanding of how they work together to align processes and systems (where necessary).

Arnould *et al.* (2006) illustrate this with a cultural resource-based theory of the customer. Their work builds on the idea of resource integration by conceptualising how customers access operand and operant resources to extract value-in-use by co-creating with the firm and its operand and operant resources. Importantly bi-directionality or reciprocity in value co-creation is less about symmetry but more about the complementary nature of the firm's and customer's resources. So whilst co-creation may be symmetric in power it will often be asymmetric in tasks and resources, with the firm being required to contribute more in terms of tasks and resources.

Whilst an understanding of what is necessary to effectively co-create value is found in the literature, it is clear that not all co-creation results in the highest benefits. A lack of cohesion between the value propositions of the firm and the customer's objectives and competences will undoubtedly lead to sub-optimal outcomes and benefits. Hence the danger of not understanding and integrating the resources of the firm and the customer presents a risk for both parties. Ng and Yip (2009) discovered four key findings relating to the risk associated with value co-creation and its impact on contracting. In particular they described firms being exposed to customer focused risks that may threaten their capability to deliver service value that is replicable, consistent and scalable. They concluded that both parties need to collaborate to realise an effective value co-creation model and in turn the appropriate contractual mechanisms to achieve consistently high benefits.

2.4 Implications for Practice

Research into the co-creation of value is a growing area of literature. Much of the early work in this area focused on the theoretical concepts of why value must be co-created; only in recent years has the emphasis moved towards exploring and understanding the implications for practice. One of the first pieces of work to create a model from which practice could benefit is that of Payne *et al.* (2008) who developed a framework for managing the co-creation of value. The framework adopts a process view incorporating three main components: (1) customer value creating processes; (2) supplier value creating processes; (3) encounter processes. As well as identifying the crucial components, Payne *et al.* (2008) proclaim the processes as interconnected and recursive. While each process requires design and management it is the interaction of the processes that facilitate the creation of value. Payne *et al.*'s (2008) research may be regarded as deficient in addressing the organisational capability required to develop and integrate these three process types. To effectively develop and manage the integration of these processes an organisation must develop the capability to manage the co-creation of value. It is in this area that this research will contribute.

Cases studied by Ordanini and Pasini (2008) have shown joint governance and joint teams at all levels as being a critical element of the co-production activity. In

fact, joint teams and systems have shown to provide a source of learning and improvement for both parties, helping to mature the collaborative systems and behaviours in both supplier and customer. While the idea is attractive, the practicalities for inter-organisation governance and teamwork are far from straight forward; issues of control, trust and responsibility abound. As discussed by Ng and Yip (2009), there are established methods for implementing and encouraging such collaborative behaviour; the important part is allowing time and resource to design and implement such methods and ensuring they are built into the service system along with the technical processes and behaviours.

The implications of value co-creation presented here centre around people, communication, understanding, and collaboration. It appears the quest for organisations seeking to maximise the co-creation of value is to encourage a strong collaborative ethic across diverse groups often in multiple locations with apparently differing goals (Ordanini and Pasini, 2008; Ng and Yip, 2009). Critical to achieving this, as shown by the literature, is the allowance of time, resource and effort in establishing the goals and collaborative requirements up front before launching into complex contract negotiation or service delivery (although many of the details may be fine-tuned through the use of a pilot service). Underpinning the ability to do all of this must be an organisation wide understanding of the need to do so, a willingness to do so, the skills to do so, the processes and tools to do so, the authority to do so and the infrastructure to support such activity (Ng and Yip, 2009). It is suggested that collectively these attributes form the organisational capability for value co-creation; something that has not been well documented in the literature but explored in detail through this study.

2.5 The Research Gap

There is clearly a need to better understand the dynamics and practicalities of value co-creation. Yet, literature on the practicalities of effective value co-creation is scarce. The majority of research on co-creation has focused on issues such as interactions, relationships, reciprocity, bi-directional and customer orientation, which while valuable, does not assist in managing an organisation or service to enable the effective co-creation of value. Indeed, as Oliva and Kallenberg (2003) noted, transitioning from a transaction-based business model to a relationship-

based model with the capability to co-create value requires an evaluation of organisational principles, structures, and process, and consequently represents a major managerial challenge. This challenge is echoed in the management literature, where there have been calls for organisations to discard the common goods dominant logic and re-define the value chain towards a 'web' model (Prahalad, 2004) or 'value constellations' (Normann and Ramirez, 1993; Ramirez, 1999) that could enable more effective value co-creation.

Despite such calls, the development of knowledge to inform service management has been slow to catch up. There have however been more significant advances in service design in the last few years (e.g. Aurich, Fuchs & Wagenknecht, 2006; Erradi *et al.*, 2007; Weigand *et al.*, 2009; Zomerdijk and Voss, 2010). Current literature in marketing emphasises more on relationships but less on the organisational and service design that could facilitate such relationships. Further research into organisational and service design and capability is needed to assist organisations to operate in a service system where resources are substitutable between one another according to what is most effective (Ng and Maull, 2009; Vargo, Maglio and Akaka, 2008). In addition, much of the research in value co-creation resides in the theoretical and conceptual domain (e.g. Prahalad and Ramaswamy, 2004; Vargo and Lusch, 2004, 2008; Lengnick-Hall, 1996). Empirical evidence of the phenomenon is lacking.

Work has been done to begin addressing this gap, two notable pieces being that by Ng *et al.* (2010) and the later work of Karpen and Bove (2011). Whilst the Karpen and Bove's research is still in the theoretical realm it does make significant strides to defining a co-creation capability required by organisations seeking to operate under the SDL paradigm.

Karpen and Bove (2011) acknowledge that while the literature has outlined the managerial benefits of co-creation, it has done little to help understand the organisational capabilities necessary to execute SDL in practice. In response to this lack of understanding they devise an SD-orientation, specified as a portfolio of six strategic capabilities that constitute a co-creation capability. Their capabilities include:

1. Individuated interaction – understanding individual customers' service processes, contexts and desires

2. Relational interaction – supporting the connection of social and emotional links with service customers
3. Ethical interaction – supporting fair and non-opportunistic customer service
4. Empowered interaction – enabling customers to shape the nature and content of service
5. Developmental interaction – supporting customers’ own knowledge and competence development in service processes
6. Concerted interaction – supporting co-ordinated and integrated service processes including customers

The conceptual model is developed through an in-depth literature review and input from 21 academics. They claim the conceptual SD-orientation provides, “*a foundation for bridging SD logic and strategy research with a more general framework*” (Karpen and Bove, 2011, p. 23). Whilst it goes some way to do so their conceptual framework is exactly that – conceptual and does not provide sufficient detail to effectively ‘bridge the gap’ between theory and practice. The research encapsulated in this thesis attempts to go further by identifying and operationalising the detailed measures needed to provide the necessary information to inform practice and in doing so develop normative level theory.

Superficially Karpen and Bove’s (2011) work sets out to address the same objective as the research covered in this study. This is particularly true of the language and positioning used. However upon examination of what they are proposing it becomes apparent that whilst they are addressing the same issue they have stopped short of the depth necessary to provide the practical utility that this study achieves. They define S-D orientation as a higher-order co-creation capability consisting of six lower-order interaction capabilities. Whilst they are described in a way that appears comparative to the organisational capability for value co-creation outlined in this study, they do not delve to the same level of detail and explanation. In fact their interaction capabilities represent an alternative to Ng *et al.*’s (2010) Attributes of Value Co-creation (AVC) that are explored in more detail in the next section of this literature review. The research presented in this study proposes a greater contribution to the understanding of the organisational capability for value co-creation than Karpen *et al.*’s (2011) work. This is achieved by taking an equivalent set of attributes (the AVC) and

defining and operationalising the constituent parts. This additional, set of second order constructs and measures that have been created are what are needed to thoroughly define and explain the co-creation capability.

Although Karpen and Bove's (2011) interaction capabilities represent an alternative to Ng *et al.*'s (2010) AVC they have not been empirically validated. The AVC have been empirically validated and so represent a robust basis upon which to base the research described in this study. Additionally, Karpen and Bove's (2011) S-D orientation focuses on operant resources rather than a complete and comprehensive capability comprising operant and operand resources. Through the identification and use of the Dimensions of Capability this research identifies a comprehensive capability makeup that incorporates the operant (e.g. competent staff) *and* operand (e.g. appropriate infrastructure) resources required to consistently co-create value. Again this provides a more robust and comprehensive basis for the research.

2.6 The Attributes of Value Co-creation

In response to the call for more empirical research to understand how service design can be used to maximise customer benefits, Ng *et al.* (2010) conducted a study that identified six attributes required for effective co-creation of value – the Attributes of Value Co-creation (AVC). The attributes were initially discovered through a qualitative study, with data collected through interviews, participant observation, analysis of texts and documents. This data set was then analysed through a grounded theory approach (Strauss and Corbin, 1990) to arrive at the six attributes of value co-creation (AVCs). The study went onto operationalise the AVC and internally validate them using Exploratory and Confirmatory Factor Analysis using data obtained from a survey with the participating organisations..

The study revealed that the role of the customer in achieving value-in-use is dependent on use practices in different contexts which have a direct impact on the organisation's delivery system. The implication of which is that organisations have to develop the capability to manage open systems and even when the customer and the firm do the exact same thing each time, the context changes and together with it, benefits, satisfaction and costs.

The learning taken from this study and the resulting attributes provide a robust and validated basis from which we can begin to identify the organisational capabilities needed to develop, nurture and manage the attributes described in Ng *et al.*'s (2010) study. Before doing so Ng *et al.*'s (2010) six AVC are explained:

1. Congruence of expectations
2. Complementary competencies
3. Process alignment
4. Behavioural alignment
5. Empowerment and control
6. Behavioural transformation

Congruence of expectations

Clearly articulated, understood and aligned expectations between the firm and the customer are essential if the interactions are to be productive in co-creating value. If the firm and the customer have overlapping skills and roles, it creates ambiguity such as to who should perform certain tasks, which can lead to a mismatch in expectations and duplication of effort in some circumstances. Hence the firm should understand and be clear of the customer's expectations and vice-versa.

Complementary competencies

Both the customer and the firm have to provide the right mix and balance of competences, in terms of expertise and resources. Getting this complementary balance right ensures the best resource for the job and maximises the leveraging of competences from both parties. Firms and customers who are able to effectively manage the complementary nature of their competences (i.e. resources) will benefit from improved planning, resource utilisation and cost predictability. When the customer shares complementary information, material and skills, the firm will have the opportunity to learn and develop new technologies, skills and behaviours necessary to deliver the availability of service required by the customer (Ng and Nudurupati, 2010).

Process alignment

The alignment of processes across the interface between the firm and the customer enables the effective and efficient exchange of information, facilitates

activities being carried out in a timely manner and expedites the necessary decision making required by the organisations. The processes should also aid smooth flows of material and equipment between the firm and the customer to enable efficient service delivery. Achieving such alignment will often require a level of flexibility on both sides to ensure the respective processes of each party are aligned at the interface where they meet. Importantly this alignment of process is only necessary at the interface between the two organisations and does not need to extend back into the respective organisations.

Behavioural alignment

In addition to having the right mix of competences both the firm and the customer have to ensure the right behaviours are in place to collectively capitalise on the available competences and resources. Success in co-creation is highly dependent on personal relationships so ensuring the right behaviours such as co-operation, teamwork, trust and open communication is essential in delivering the required outcomes.

Empowerment and control

Empowerment is described as employees with suitable autonomy and authority to make situational decisions as well as to implement new ideas. Perceived control is defined as employees' ability to demonstrate their competency within the operating environment. During the course of service delivery changes in the environment, roles and responsibilities cause discomfort and disruptions resulting in a reduced sense of control and security within individuals. Hence empowering employees to allow them to turn problems into opportunities and exercise personal judgement for greater effectiveness will improve the efficiency and effectiveness of the service for both the firm and the customer. Also, allowing customers sufficient visibility of service delivery information and processes renders employees of both organisations better perception of control.

Behavioural transformation

The attribute of behavioural transformation is essential for delivering outcomes (value-in-use) and implies customers should be educated on the best usage of the firm's assets and activities. Thus, firm employees have to transform the behaviours of customers to ensure better usage in achieving outcomes. Better

usage results in lower costs of delivery and higher satisfaction. Whilst the need for behavioural transformation is dyadic (i.e. the firm must influence the customer and the customer must influence the firm), it is recognised that the ability to transform behaviours is of greater necessity for the firm rather than the customer; the customer often taking the lead from the firm.

The Attributes of Value Co-creation accentuate the need for structural change in firms to enable knowledge sharing, communication, interaction and innovation (e.g. Sawhney and Prandelli, 2000; Grönroos, 2004). Achieving value-in-use clearly does not follow the typical value chain (Porter, 1985) with interactions compartmentalised into marketing, HR, operations, supply chain and logistics. Instead, value co-creation transcends discipline, functional and organisational boundaries of both the customer and the firm, focusing on outcomes and value-in-use. Value is co-created through interactions at every level and with every resource be it equipment or people, all co-existing in a common service system.

As an empirically validated set of attributes that define the underpinning requirements for effective co-creation of value, the six AVC provide a strong foundation on which to define the organisational capability required for value co-creation. In defining the organisational capability for value co-creation this research extends the practical use of the AVC by creating an understanding of the organisational building blocks required to exhibit the practices and characteristics that the AVC encapsulate.

2.7 Summary and Conclusion

This first part of the literature review has outlined the theoretical basis from which this research has originated. The review has explained how the emergence of SDL has prompted research on value co-creation. It is from the gaps identified in the associated literature that this study has been shaped. The review of the value co-creation literature has indicated there may be significant gaps still in providing organisations with the kind of knowledge and technology needed to understand and cope with the implications of value co-creation. It is in that area that this research will focus.

Having reviewed the extant work on value co-creation the empirically validated Attributes of Value Co-creation (Ng et. al., 2010) have been selected (as justified

above) to provide the foundation from which the organisational capability for value co-creation will be built.

In order to define a new organisational capability a thorough understanding of the literature on capability is required. The next part of the literature review examines the work on capability in order to extract a holistic capability foundation from which the proposed organisational capability for value co-creation can be defined.

3. Literature Review Part 2 – Organisational Capability

This part of the literature review examines the body of knowledge on organisational capability with a view to identifying holistic dimensions that can be used to build the conceptual framework to explain the organisational capability for value co-creation.

At the broadest level capability is defined as the power or ability to produce an outcome (Oxford English Dictionary). Based on this definition capability can take many forms depending on the situation; for example a certain capability is required to cook a meal but this is different to the capability needed to run an organisation. Underlying all forms of capability is a holistic foundation upon which any capability can be built. To be able to build, integrate and manage capabilities a thorough understanding is required of the underlying foundation.

Capability has been a much-studied topic within strategic management (Helfat, 2000). The growing volume of research on firm capabilities links capability with performance, an indication of the importance of capability in creating and sustaining competitive advantage. While the intricacies of the relationship between capability, performance and competitive advantage are widely debated, it is clearly recognised that a firm's ability to manage and develop its capabilities over time is crucially important and will only become more crucial as levels of competition continue to increase (e.g. Ulrich and Lake, 1991; Helfat, 2000).

3.1 Capability in strategic management

Helfat (2000) introduces the special issue of the Strategic Management Journal (2000, vol. 21) focused on the evolution of firm capabilities. The special issue examines the ways in which firm capabilities emerge, develop and change over time as well as the link with performance. The main arising themes include: the role of prior experience in determining the future evolution of capabilities and competitive advantage; the ease or difficulty of organisational learning over time; and the extent of heterogeneity of firm capabilities within an industry over time.

The growing volume of research on firm capabilities and the link with performance provides an indication of the importance of capability in creating and sustaining competitive advantage. While the intricacies of the relationship between capability, performance and competitive advantage are not fully

understood, it is clearly recognised that a firm's ability to manage and develop its capabilities over time is crucially important and will only become more crucial as levels of competition continue to increase. This special issue provides a milestone to indicate that assessing, managing, and planning of firm capabilities is a serious issue and may well provide a source of competitive advantage.

In the special issue of the Strategic Management Journal (1994, vol. 15) which focuses on identifying new strategy paradigms, Prahalad and Hamel (1994) cite industry transformation as a primary reason for needing new strategy paradigms. They emphasise existing and traditional strategy principles as no longer being sufficient to deal with the increasing challenge of competing in the late twentieth century. By adopting the lens of service-dominant logic as proposed by Vargo and Lusch (2004) a new basis for strategy can be identified. Building on the work of the likes of Prahalad and Hamel (1994), Vargo and Lusch (2004) highlight core competence (an organisation's knowledge and skills) as the defining element of competitive advantage. By identifying and focusing on the development and exploitation of core competence, a new basis for strategy is defined.

An organisation's core competence will be built from the collective ability of the organisation to excel in a particular discipline. This ability is the result of a range of organisational elements combining to provide a coherent and sustainable outcome, one that allows the organisation to outperform its competitors. It is therefore the makeup and interaction of these 'organisational elements' that is key to the successful development and exploitation of core competence. Identifying and understanding these elements is of interest in helping to define the holistic underpinnings of organisational capability.

3.2 Organisational capability

Ulrich and Lake (1991) make the case that organisations have traditionally focused on financial, strategic and technological capabilities to gain competitive advantage. While this indicates the importance of a capability focus in creating and sustaining competitive advantage, Ulrich and Lake (1991) argue that the traditional focus is insufficient in creating competitive advantage. The existing capability perspectives must be supplemented by organisational capability - *"the firm's ability to manage people to gain competitive advantage"*. Organisational capability emphasises the realisation that there is a strong link between effective

people management, performance and competitiveness. Ulrich and Lake (1991) see organisational capability as the glue between the traditional financial, strategic and technological capabilities. *"Managers who are able to understand and integrate all four sources [of capability] are more likely to build competitive organisations"* (Ulrich and Lake, 1991).

From an examination of organisational capability and how it integrates with the traditional capabilities (financial, strategic and technological) several holistic capability dimensions arise, as highlighted in bold within the following two paragraphs.

In establishing organisational capability the organisation must become adaptive by establishing internal structures (**structure**) and processes (organisational **systems** and procedures) that aid the creation of core competences (**competence**). Competence is further nurtured through selective recruitment and importantly, *"effective human resource practices"* (Ulrich and Lake, 1991). Recruitment and personal development procedures allow an organisation to build a stable resource base providing the necessary **capacity** to compete in the marketplace. Capability development involves, *"adopting principles and attitudes, which in turn determine and guide behaviour"* (Ulrich and Lake, 1991), i.e. the **culture** of the organisation.

Ulrich and Lake (1991) define a capable organisation as consisting of four critical elements: (1) a shared mind-set both internally and externally (**culture**); (2) make use of management practices to build a shared mind-set (**structure** to build **culture**); (3) create capacity for change through understanding influence and managing organisational systems (**systems** influence **culture**); (4) empower all employees to think and act as leaders (**structure** and **systems** nurture **competence**).

As part of this study the dimensions highlighted above in bold are taken to be the constituent parts of organisational capability. In addition to the five dimensions identified here (structure, systems, culture, competence, capacity) from the literature a sixth conceptual dimension is added, **infrastructure**. The first five dimensions largely arise out of what Ulrich and Lake (1991) define as organisational capability; however infrastructure cuts across all four of the capability types (organisational, financial, strategic, and technological) by

providing the physical environment needed for the operation of an organisation. Infrastructure includes buildings, equipment, materials and IT systems, all of which facilitate the working and interaction of the other capability dimensions (Broadbent *et al*, 1999; Hamel and Prahalad, 1994). The importance of infrastructure in service experiences is emphasised by the servicescapes work of Booms and Bitner (1981) and more latterly Bitner (1992). The servicescapes concept emphasises the impact of the physical environment on the value created through a service experience, helping to differentiate customer experiences of similar services in different environments.

So abstracting from Ulrich and Lake's (1991) four types of interacting capability emerges a holistic model of capability and six constituent dimensions.

1. Competence
2. Capacity
3. Culture
4. Systems
5. Structure
6. Infrastructure

Establishing a holistic model allows the capability to be tailored or nurtured for different purposes. In the case of this study the interest lies in developing a value co-creation capability, a specific composition that focuses on creating customer benefits, and in doing so align with Ulrich and Lake's (1991) definition that competitive advantage is built on customer value and uniqueness.

3.3 Strategic capability

Lenz (1980) focuses on *strategic* capability and in doing so attempts to evaluate an organisation's total capability for strategic action. Lenz (1980) proposes three dimensions for assessing a firm's strategic capability: (1) knowledge-technique base for value creation; (2) capacity to generate and acquire resources; (3) general management technology. Each dimension is constructed of two sub-dimensions used as guidelines for identification of empirical referents, as explained below.

1. Knowledge-technique base for value creation - confluence of knowledge (**competence**) about value creation and technical facilities

(**infrastructure**), techniques and processes (**systems**). This dimension is further divided into breadth of competence, dependent on "*an organisation's domain of organised action*", and depth or **capacity** being, "*a function of the pattern of resource allocation*".

2. **Capacity** to acquire and generate resources - Chamberlain (1968) recognised that an organisation's capability is not limited to its own or internal resources, but instead also includes the resource it can generate by other entities in the supporting environment. So an organisation's strategic capability depends on both, the **competence** to access resources, and the **culture** of the organisation in influencing the character of external relationships.

3. General management technology - success is based on more than what Lenz (1980) terms the dimensions of knowledge-technique base for value creation and the required resources, but also the existence and practice of managerial expertise supported by an appropriate administrative framework (Schendel and Hatten 1972; Christensen, Andrews & Bower 1973, 1978). Managerial knowledge and experience is a product of **competence** and the supporting framework the result of **structure** (including governance).

An examination of strategic capability, as described by Lenz (1980), shows that the three dimensions for assessing a firm's strategic capability can be mapped against the six holistic dimensions of capability, as identified above. This mapping further validates the holistic nature of the six capability dimensions and in doing so provides a more rounded understanding of capability and its composition.

3.4 Dynamic capability

Teece *et al* (1997) examined dynamic capabilities which they defined as, "*the firm's ability to integrate, build and reconfigure internal and external competences to address rapidly changing environments*". This study suggests that it is not about internal and external *competences* but *capabilities*, consisting of a number of dimensions including competence. In order to compete and survive a firm must go beyond the configuration of the required competence and instead configure, integrate and manage capabilities in order to produce the desired results. This assertion is based on the following definitions; competence being knowledge and skills and capability being the ability to produce an outcome.

The dynamic nature of this type of capability focuses on an organisation's ability to deal with change (Teece *et al*, 1997). Dynamic capability therefore becomes an additional type of capability separate from but not exclusive from operational and strategic capabilities. The dynamic capability of an organisation will be drawn upon to assess, plan and execute significant change as a result of the altering environment. The six holistic capability dimensions can be used as a framework for building dynamic capability and also managing any significant change within the organisation; the dimensions providing the framework against which to assess the organisation's current and required future state and provide a structure for the activities to bridge the states.

3.5 The extracted dimensions explained

Having extracted six holistic dimensions of capability from the literature a hypothetical conceptual frame for capability is developed. It is necessary to explore the individual dimensions in more detail to understand the related literature and how the dimensions will inform this study.

3.5.1 Competence

Competence is generally thought of as the knowledge and skills retained by an individual. In the context of this research we are interested in organisational competence, or as Teece *et al*. (1992) describe it - functional competence - that which resides at a corporate and not individual level. Organisational competence is also referred to as architectural competence which is the ability to integrate individual or component competences effectively (Henderson and Cockburn, 1994). Teece *et al* (1992) define organisational competence as, when assets are assembled in integrated clusters spanning individuals and groups to enable distinctive activities to be performed. Lado and Wilson (1994) take this one step further by suggesting that it is firm specific resources that enable the organisation to develop, choose and implement *value enhancing strategies*, rather than simply *distinctive activities*. Organisational competences include all firm specific assets, knowledge and skills embedded in the organisation's structure, technology, processes, and interpersonal (and inter-group) relationships (Lado and Wilson, 1994).

Customers are recognised as a source of competence that is increasingly vital in the delivery of successful services (Prahalad and Ramaswamy, 2000) and as such organisations are required to develop the ability to manage the customer in order to exploit their competence for mutual benefits. The ability to 'manage the customer' in this way has been labelled as a new source of competitive advantage (Prahalad and Ramaswamy, 2000) and as such an area many organisations appear increasingly eager to develop.

The organisational competence to co-create value is defined by how well the organisation's institutional and human knowledge and skills can be applied to deliver against the attributes of value co-creation, much in the same way that Prahalad and Ramaswamy (2000) suggest. Having the institutional and human knowledge and skills to manage the co-creation of value is clearly the crucial and underpinning dimension of capability, without which the other dimensions would not function. For this reason we seek to assess the level and type of competence for value co-creation within an organisation.

Prahalad and Ramaswamy (2000) describe four dimensions involved in harnessing customer competence (*active customer dialogue, the mobilisation of communities of customers, managing customer diversity, and co-creating personalised experiences*), which can be adapted, combined and extended to become measures of the competence to co-create value.

Stratman and Roth (2002) assessed competences in an Enterprise Resource Planning context using six constructs, of which the measures from the business process skills construct (*understanding the impact of actions, understanding the fit within the organisation*) are adopted and modified. Additionally measures from Maheshkumar *et al's* (2003) assessment of alignment of the organisation's strategic view based on five constructs (*quality of conformance, flexibility, quality of design, cost, and delivery*) are adopted and modified. Teece *et al.* (1997) add an additional measure in 'dynamic' - the ability to renew competences so as to achieve congruence with the changing business environment. Inclusion of the dynamic measure aids the assessment of the organisation's ability to adapt over time; that being distinct from the ability to be *flexible* in accommodating short term changes in requirement and behaviour.

Lado and Wilson (1994) divide organisational competences into four dimensions assessed as follows: *Managerial* - the ability of leaders to articulate and communicate a vision and empower members to realise that vision; *Input-based* - physical and human (knowledge and skills) resources that enable transformational processes that help create value; *Transformational* - competences that facilitate the conversion of inputs into outputs, such as innovation, entrepreneurship, culture and learning; and *Output-based* - knowledge-based intangible assets such as reputation, quality and loyalty.

The competence measures extracted from the literature and taken forward by this study are highlighted in table 3.1.

Sources	Measures
Prahalad and Ramaswamy (2000)	Active customer dialogue; The mobilisation of communities of customers; Managing customer diversity; Co-creating personalised experiences
Stratman and Roth (2002)	Understanding the impact of actions; Understanding the fit within the organisation
Maheshkumar <i>et al's</i> (2003)	Quality of conformance; Flexibility; Quality of design; Cost; Delivery
Teece <i>et al.</i> (1997)	Dynamic
Lado and Wilson (1994)	Managerial; Input-based; Transformational; Output-based

Table 3.1: Competence measures

3.5.2 Capacity

There are two quite different, yet compelling, reasons for studying the impact of capacity measurements on organisations (Watts *et al.*, 2009). In a purely economic sense, firms which continuously make best use of their resources can be expected to outperform their competitors (Alchian and Demsetz, 1972). Capacity measurement helps to identify the relative degree of productive versus non-productive utilisation. A second reason for being interested in capacity measurement arises from the potential structural effects of capacity measurement metrics. Capacity metrics allow measurement of the time-space dimensions of an organisation's productive capability (Watts *et al.*, 2009). They create an "*analytical and useful space*" for calculating, evaluating and comparing performance across multiple machines, systems, or activities (DeBruine and

Sopariwala, 1994; McNair and Vangermeersh, 1998), making capacity a visible, and hence actionable, construct (Burchell et al., 1980). Capacity can therefore be viewed as a measurement of the value creating ability of a machine or system (McNair and Vangermeersh, 1998).

In the context of this research capacity is an important contributor to the capability for value co-creation. The activity surrounding the co-creation of value (across all six Attributes of Value Co-creation) requires an organisation to dedicate adequate time and deploy sufficient levels of resource to execute and manage that activity as well as utilise an infrastructure capable of supporting the level of activity.

Lovelock (1992) described the capacity of a service firm as "*the highest quantity of output possible in a given time period with a predefined level of staffing, facilities and equipment*". Adopting this definition leads us to be concerned with two factors: firstly the *amount of time* dedicated to an activity, and secondly the *level of resource* (e.g. staffing, facilities or equipment) dedicated to an activity. Hence capacity is a function of time and resource in the quest to produce a defined output or outcome.

For the purposes of this research Lovelock's (1992) definition is expanded to provide a broader appreciation of capacity which includes infrastructure and resource. An organisation's infrastructure, that is its equipment, IT and physical environment, plays a pivotal role in facilitating and supporting operational activity (Broadbent *et al.*, 1999; Hamel and Prahalad, 1994). Managing the infrastructure capacity is crucial in ensuring it plays an enabling and not constraining role in executing operational activity. For example a lack of meeting rooms or technologies to enable data sharing would have a detrimental effect on service delivery. The inclusion of 'resource' here is meant to reflect Constantin and Lusch's (1994) definitions of operand and operant resources with an emphasis placed on operand resources - resources on which an operation or act is performed to produce an effect. People, a key operant resource, are covered separately by Lovelock's 'staffing' measure and other operant resources such as equipment and IT are covered by the infrastructure measure.

3.5.3 Culture

Edgar Schein (1984) produced a formal definition of organisational culture which determines it to be,

"The pattern of basic assumptions that a given group has invented, discovered or developed in learning to cope with its problems of external adaptation and internal integration, and that have worked well enough to be considered valid and therefore to be taught to new members as the correct way to perceive, think and feel in relation to those problems".

For the purposes of this research the definition is simplified to, 'the collective assumptions, behaviour and values of a group of people'.

The organisational culture to co-create value is defined as holding collective assumptions, behaviour and values that are customer focused to collectively co-create value across all co-creation attributes to achieve joint outcomes. The culture to co-create value largely reflects a partnering culture which encourages, through reward and communication, win/win situations realised through complementary interdependence between parties. Organisations are therefore tasked with developing a culture which is able to cope with not only internal integration but also external adaptation (Schein, 1984). Even where the skills, knowledge and tools exist to effectively co-create value, organisations have to ensure the right behaviours are in place to nurture co-production and co-creation of value. Based on Schein's work we adopt the factors of coping with internal integration and external adaptation as crucial measures of an organisation's culture when seeking to nurture the capability for value co-creation.

Morgan and Hunt's (1994) work on relationship marketing theorised that successful relationships require relationship commitment and trust. Their subsequent Key Mediating Variable (KMV) model of relationship marketing described relationship commitment and trust as the influencing factors on acquiescence, propensity to leave, cooperation, functional conflict and uncertainty; all of which are determinants of the behaviour and culture within a relationship. The constructs of relationship commitment and trust were validated as mediating variables using five measures: relationship termination costs, relationship benefits, shared values, communication and opportunistic behaviour.

The measures of shared values, communication and opportunistic behaviour are of particular interest in the context of assessing cultural synergy when co-creating value and so have been adopted and adapted as necessary.

Giannakis (2007) examined supplier relationships concluding that the culture and dynamic of a relationship is determined by four 'high rank' (structural) variables: trust, power, involvement and commitment. These four are further broken down into a series of lower measurable variables as follows. Trust is divided to become, calculative, normative and trustworthiness. Power becomes authority, control and influence. Involvement consists of, complexity, scope and intensity of interactions. Finally commitment is a function of effort, loyalty and length of relationship. These lower level measures provide a useful indication of cultural synergy amongst stakeholders.

3.5.4 Systems

When examining capability, systems is defined in the context of organisational systems consisting of *the processes, procedures and tools deployed to manage operational activity*. This is distinct from *system* which is defined as, "*a set of elements connected together which form a whole, this showing properties which are properties of the whole rather than properties of its component parts*" (Checkland, 1981).

The organisational systems to co-create value are defined as the processes, procedures and tools required to consistently manage service delivery exhibiting all the co-creation attributes (Ng, Nudurupati & Williams, 2010). In order to achieve this, the organisation must develop and deploy systems capable of ensuring a relationship and interactions that reflect an understanding of each party, a degree of alignment with each party and an ability to adapt and improve over time.

The interface between organisations is the point at which co-production takes place, an understanding of the systems through which each organisation operates and the degree of alignment between them is essential in ensuring co-production activity maximises the subsequent co-creation of value. For this reason an organisation's systems play a pivotal role in its ability to co-create value. Representing the joint processes and capturing the interactions among

stakeholders in a structured way is critical to improve collaborative productivity (Cai *et al.*, 2005). Much of the work related to systems alignment between organisations comes from the field of collaboration which draws insights from many industries (Cai *et al.*, 2005; Lu and Cai, 2001; Shelbourn *et al.*, 2007; Kanter, 1994).

In the contexts where the Internet facilitates collaboration Cai *et al.* (2005) propose several *layers* of interaction ranging from data sharing to business processes and building on these developed a 'collaboration layer' concerned with intelligent knowledge and process interactions between various groups. It is clear that organisations seeking to work together can align their systems and processes at a number of levels of which the level of complexity and benefit are directly correlated.

A socio-technical approach to collaboration allows stakeholders to construct and manage collaborative processes by examining the characteristics of three parameters - *work processes*, *stakeholders' perspectives*, and *continuous improvement* (Lu and Cai, 2001). For the purposes of assessing and enhancing service capability continuous improvement had been used in place of conflict management and in doing so brought a slightly different connotation to the parameter. A systematic socio-technical analysis methodology can be used to improve process and reconcile stakeholders' perspectives (Lu and Cai, 2001). Through this approach continuous improvement strategies can be applied to construct and improve the collaborative processes through a feedback mechanism. It helps stakeholders generate specific strategies to monitor, refine, and control the collaborative processes by successfully managing improvement.

Shelbourn *et al.* (2007) described strategies and success factors for effective collaboration covering business, technology and people. Relevant to assessing systems alignment is the factor of communication. A common means of communication is agreed by all key participants in the collaboration (Shelbourn *et al.*, 2007). It is widely recognised that effective communication is necessary regardless of the context or goal. Ensuring agreed *channels of communication* becomes even more critical when multiple organisations and a diverse set of stakeholders seek to collaborate.

Kanter (1994) describes five types of integration amongst alliance partners: strategic, tactical, operational, interpersonal, and cultural. From the perspective of systems alignment both tactical and operational integration provide insightful measures. Tactical integration brings together middle management to develop plans for specific activities and identify organisational or system changes that will facilitate collaboration and knowledge transfer. This type of integration feeds into Cai *et al.*'s (2005) measure involving a systematic and joint procedure for continuous improvement. *Operational integration* aids the day-to-day activity by enabling timely access to information, resources and people. Kanter highlights examples of shared training programmes and direct data interchange as enabling common language, competence and time efficiencies. This type of integration is linked to Cai *et al.*'s (2005) layers of interaction but specifically focuses on integration on a day-to-day operational level.

3.5.5 Structure

For the purposes of this study the interest lies in 'structure' within the context of an organisation. Organisational structure is the formal allocation of work roles and the administrative mechanisms to control and integrate work activities including those which cross formal organisational boundaries (Child, 1972; Faulkner, 2002). The organisational structure to co-create value is defined as the use of structure and governance mechanisms to maintain a core of stability whilst providing the ability to address and adapt to the six co-creation attributes encountered across customer environments. It is this definition of structure that bounds this study's somewhat narrow interest in organisational structure.

Consequently structure should provide the ability to learn about and adapt to a variety of customer environments as well as a flexible and agile interface to manage changes in customer capability and requirement. In essence, the firm should promote agility by adopting flexible governance structures to cope with the variety of customer environments and capabilities.

Joint governance procedures (including risk management) are required to monitor and review performance ensuring ownership, responsibility and control. Well defined structures facilitate effective communication and promote efficiency. This is true not just within organisations but throughout the supply chain. In the context of supply chain management the elements of effective *information*

sharing (Fawcett *et al.*, 2007), appropriate *allocation of decision rights* (van Veen Dirks and Verdaasdonk, 2009; Teng and Das, 2008) and *performance measures and incentives* (Anand and Mendelson, 1997; Jensen and Meckling, 1992) have been shown to be crucial elements of the governance system and used to measure the effectiveness of supply chain governance. Van Veen-Dirks and Verdaasdonk (2009) also identified a *joint approach to continuous improvement* as having a controlling influence over the productivity and longevity of a supply chain.

Ashenbaum *et al* (2009) investigated the integration and governance of supply chains. The primary construct used (organisational alignment) was designed to measure upper management efforts to foster internal supply chain integration. The measures used were that of *joint rewards systems, integrating personnel, and spatial proximity*.

Chiu and Chang (2009) conducted a study into the influence of the structure of innovation teams and external support mechanisms on the commercialisation of new small and medium sized ventures. The results indicate that higher *self-control* and *formalisation* are more helpful when it comes to coordinating various complex innovation activities, and this, in turn, can improve resource efficiencies such as saving money, time, or human resource. This is consistent with the earlier argument made by Cunningham and Rivera (2001) which examined the link between structural designs and organisational effectiveness and found the degree of formalisation, centralisation and specialisation to be key determinants of effectiveness.

3.5.6 Infrastructure

An organisation's infrastructure plays a pivotal role in facilitating and supporting operational activity (Broadbent *et al.*, 1999; Hamel and Prahalad, 1994). According to the Oxford English Dictionary, infrastructure is the basic physical and organisational structures needed for the operation of a society or organisation. In the context of an organisation the term typically refers to the technical structures that support operational activity such as facilities, material, IT, equipment, transport, and utilities (Broadbent *et al.*, 1999). For the purposes of this research we define infrastructure as, '*the material, equipment, IT and physical environment that supports operational activity*'.

The concept of servicescapes as coined by Bitner (1992) explains the influence and importance infrastructure, in particular the surrounding physical environment, plays in determining the value created through service experiences. This influence is never greater than during face-to-face service experiences but also has an influence on remote service interactions.

New work realities have created an environment in which people and processes succeed only when barriers of time and distance are overcome. A supporting infrastructure is there to provide access to the people, technology, material, equipment, locations and information required to perform. Richert and Rush (2005) used measures of *time*, *distance* and *access* to assess the effectiveness of infrastructure in Sun Microsystems.

Power and Simon (2004) discuss the use of technology to connect partners not as a new revelation but nonetheless important in providing the support infrastructure required for effective relations. This view is supported by the earlier work of Brown and Pattinson (1995) who reviewed trends in electronic information infrastructure in strategic alliances. They predicted a 'fusion' of technologies particularly in telecommunications providing *integrated technologies* that support productivity.

3.6 Conclusion

A review of the concepts and theories relating to capability has revealed different types of capability each focused in specific areas (e.g. strategic, technology, financial). The holistic dimensions that have been derived from this review of the literature are not intended as a replacement for those but to provide a conceptual frame that offers an underpinning commonality across all capability types. By providing a holistic basis different types of capability can be configured against the dimensions and the interrelationship between capability types revealed, e.g. strategic and organisational, so aiding the integration of operational activity and indeed the ongoing strategic management of the organisation.

Table 3.2 provides a summary of the dimensions of capability that will be taken forward by this study and the sources from which they were derived.

Dimension	Definition	Sources
Competence	The level and type of	Teece <i>et al.</i> (1992)

	knowledge and skills which can be brought to bear	Teece <i>et al.</i> (1997) Henderson and Cockburn (1994) Lado and Wilson (1994) Prahalad and Ramaswamy (2000) Maheshkumar <i>et al.</i> (2003)
Capacity	The level of output possible in a given time period with a predefined level of staffing, facilities and equipment	Watts <i>et al.</i> (2009) Alchian and Demsetz (1972) Burchell <i>et al.</i> (1980) McNair and Vangermeersh (1998) Lovelock (1992) Broadbent <i>et al.</i> (1999) Hamel and Prahalad (1994)
Culture	Collective assumptions, behaviour and values of a group of people	Schein (1984) Morgan and Hunt (1994) Giannakis (2007)
Systems	Processes, procedures and tools used to transform inputs into outputs	Checkland (1981) Cai <i>et al.</i> (2005) Lu and Cai (2001) Shelbourn <i>et al.</i> (2007) Kanter (1994)
Structure	Organisational structure and associated governance mechanism that controls activity	Child (1972) Faulkner (2002) Fawcett <i>et al.</i> (2007) Ashenbaum <i>et al.</i> (2009) Chiu and Chang (2009) Cunningham and Rivera (2001) Van Veen Dirks and Verdassdonl (2009) Teng and Das (2008) Anand and Mendelson (1997) Jensen and Meckling (1992)
Infrastructure	The material, equipment and physical environment that supports operational activity	Broadbent <i>et al.</i> (1999) Hamel and Prahalad (1994) Richert and Rush (2005) Power and Simon (2004) Brown and Pattinson (1995)

Table 3.2: The Dimensions of Capability derived from literature

4. Methodology

This is an exploratory study that seeks to enhance the understanding of what is required of organisations seeking to effectively and sustainably co-create value. Central to this work is the creation of a conceptual framework (stage 1) which illustrates the organisational capability for the co-creation of value. The conceptual framework is operationalised and refined from the literature and case findings and then validated (stage 2). The result is a framework that illustrates the organisational capability needed for effective co-creation of value and a practical diagnostic tool capable of assessing an organisation's capability for value co-creation.

The beginning of the chapter describes the research objectives, philosophical basis, context, design, methods and process. The second half of the chapter is divided into two parts, firstly the framework development stage of the research is explained, and secondly the framework validation stage is explained.

The framework development section outlines the first stage of the research which focuses on developing a conceptual framework to describe the organisational capability for value co-creation. As a result of this stage a conceptual framework is derived from existing literature sources and qualitative case findings. A two dimensional six-by-six framework is populated with both first order constructs (the x and y axis) and second order constructs (the centre of the framework). As well as the conceptual framework the key output from this stage of the research is the theoretical contribution delivered by identifying the Dimensions of Capability.

Having satisfied the first research objective of creating a conceptual framework, the second stage of the research is created to address the second objective - validate the framework. The second stage is crucial in furthering the contribution made by this study. The validation activity undertaken is two-fold; the framework is validated from both a theoretical and a managerial perspective. The analysis to validate the theoretical contribution is important in furthering the conceptual contribution made by developing the framework. The managerial validation is an important step in ensuring the contribution to practice is both useful and also valid.

4.1 Research objectives

The overarching objective of this research is to identify the organisational capability for value co-creation.

Achieving this objective provides both a theoretical and managerial contribution. A theoretical contribution is made to the understanding of how value co-creation can be cultivated within organisations. A managerial contribution is made through a framework and diagnostic tool that allows firms to assess and analyse their capability for value co-creation. In order to realise these contributions two activity streams were created:

1. Create a conceptual framework that describes the organisational capability for value co-creation
2. Validate the conceptual framework

Identifying these activity streams and splitting the work accordingly provides a clear distinction between the theory building work (activity 1) and the validation work (activity 2).

The following sections explain the philosophical basis of the research, context within which the research was conducted, then the design, methods and process through which the research objective was achieved, are described.

4.2 Philosophical basis of the research

In undertaking any study of organisations it is important to set out the underlying philosophical assumptions used by the researcher to assist others in judging the reliability of the outcome (Johnson and Duberley, 2000). There is considerable debate within the literature about how philosophical assumptions direct researchers into gaining particular insights into the phenomena being studied (Bryman, 2004; Guba and Lincoln, 1994; Prasad, 2005; Kuhn, 1962; Johnson and Duberley, 2000). Kuhn (1962) argues that a paradigm provides the rules and standards for a particular way of conducting research. A paradigm sets out the assumptions used by researchers about what the world is like (Bryman and Bell, 2007; Guba and Lincoln, 1994; Burrell and Morgan, 1979).

There are four areas where the assumptions need to be made explicit (Burrell and Morgan, 1979). These are the ontology, epistemology, views about human

nature, and research methodology. Burrell and Morgan (1979) developed a framework of these areas using a subjective - objective dimension approach (see Figure 4.1 below).

The Subjective-Objective Dimension

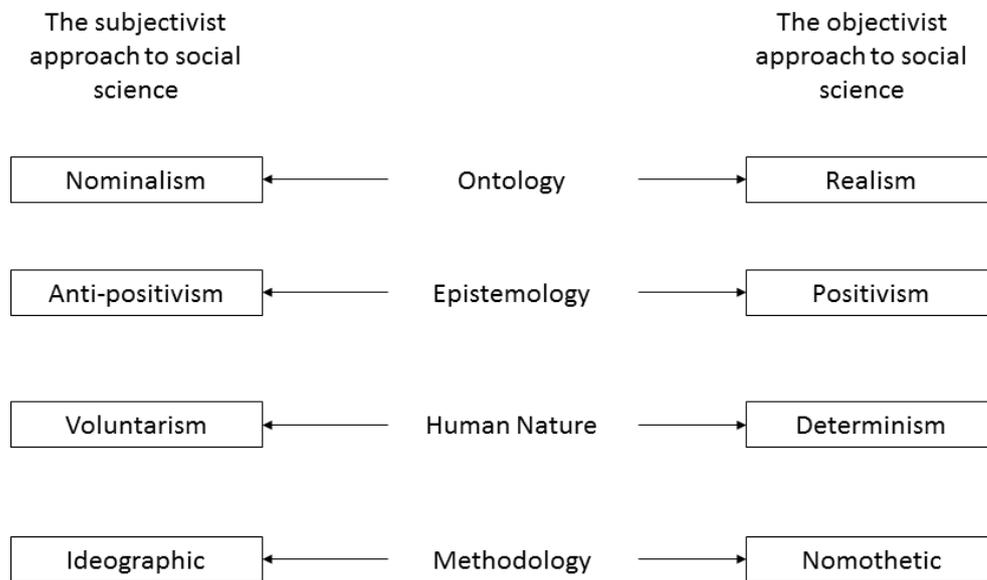


Figure 4.1: Assumptions about the nature of social science, (Burrell and Morgan, 1979)

Ontology is the 'theory of being' (Mautner, 2000). In studying organisations as social entities assumptions are made as to whether they exist as independent objective entities or as social constructions. An objectivist approach would argue that there are social entities that exist independent from human agency (Archer, 2000, Searle, 1995). A subjectivist approach assumes that it is only humans and language which are real. Social entities such as organisations are constructed by human language that describes them as structures or networks (King, 2004).

Epistemology is the study of the nature and possibility of knowledge (Mautner, 2000). The objectivist assumption is that knowledge is gained through independently examining reality to find generalisable laws (Prasad, 2005, Kuhn, 1962). The opposite approach assumes that knowledge is derived from subjective human experience and interpretation (Prasad, 2005).

The human nature area is concerned with the relationship humans have with their context (Burrell and Morgan, 1979). The objectivist assumes that human actions

are 'determined' by their environment or social structure. The subjectivist assumes that humans have the ability to create and change their environment through adapting the social networks and structures (King, 2004).

The methodology area is linked to epistemology and sets out the assumptions as to how knowledge is obtained. The objectivist seeks to find measurable laws and hypothesis that can be tested. The subjectivist approach takes an interpretative approach that allows for different views and therefore no single generalisable law (Burrell and Morgan, 1979).

There are different paradigm approaches to management research. Johnson and Duberley (2000) set out the approaches in a two dimensional matrix using the objective and subjective dimensions which is reproduced below (Figure 4.2).

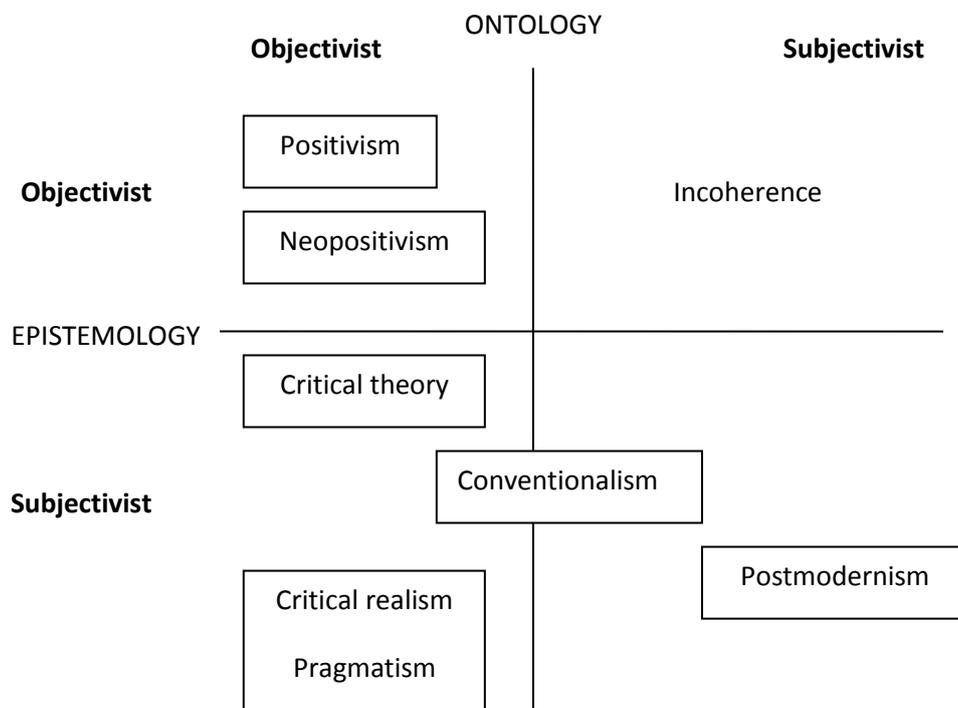


Figure 4.2: Framework depicting schools of management research, (Johnson and Duberley, 2000)

The top left quadrant takes an objective stance to both epistemology and ontology. Knowledge is gained about independent objective entities through objective observation of phenomena. Such an approach does not question the underlying theoretical assumptions behind the method (Johnson and Duberley, 2000). The schools of thought in the bottom left quadrant seek to overcome

some of the weaknesses of the positivist approach. In summary the approaches accept that there is an objective reality independent of human minds. However, where they differ from a positivist approach is the assumption that knowledge gained about the objective reality involves the reflective and interpretative capacity of humans.

Within this research it is assumed that there are objective social entities such as the organisations being studied. However, it is also assumed that the researcher gains knowledge about the capabilities of those organisations from the varied views of people involved and the researcher's interpretations of those opinions. The assumption that there is an objective reality and that human understandings of reality will vary, leads to the critical realist position.

4.3 Research context

The research takes place as part of a Knowledge Transfer Partnership (KTP) between the University of Exeter and Harmonic Limited. The work was funded by the Technology Strategy Board, Economic & Social Research Council and Harmonic Limited. Like all KTP projects the work was driven by two separate but related objectives:

1. Commercial objective – transform Harmonic Limited into a business capable of pro-actively and systematically co-creating value with its customers
2. Research objective – better understand the organisational capability required for effective co-creation of value

The two year project was led by a researcher, known as the KTP Associate, who was responsible for managing the project and conducting the work required to meet both the commercial and research objectives. The work was overseen by both an academic supervisor and a company director, who together were responsible for ensuring the work provided the correct balance of commercial and research activity. The researcher, employed by the University of Exeter, worked closely with Harmonic Limited (case 1) and latterly with Flybe Aviation Services (case 2). The majority of time was spent with Harmonic Limited during which time the conceptual framework was developed and first tested. Following initial validation and refinement, the framework and associated diagnostic tool were

further validated through a survey run with both Harmonic Limited and Flybe Aviation Services.

As outlined above the study is divided into two parts - theory building and theory testing. The time and sample population limitations placed on the study by the KTP context resulted in the emphasis being on theory building. Whilst this leads to limitations in the types of quantitative analysis that could be in theory testing, this limitation is openly recognised and addressed in the Conclusion chapter.

4.4 Research design

The selection of research design and methods of data collection are dictated by the objectives of the research being undertaken. Given the objective set out above ('to identify the organisational capability for value co-creation') an exploratory and empirical theory building approach (Meredith, 1998; Wacker, 1998) is adopted. Whilst a number of potential research designs may apply to this situation it is argued that case study is the most appropriate given the context within which the research takes place.

A case study approach was adopted because of the following reasons:

1. Yin (2003) argues that case studies are suitable when the relationship between the phenomenon being examined and the context of the study is not known prior to commencing data gathering. It was not clear how the project work being undertaken through the KTP would affect the examination of value co-creation within Harmonic Limited.
2. Research into the dynamic interactions between organisations requires an understanding of the context within which the complex socio-technical system operates. The case approach allowed for greater exploration of the environment in which the participating organisations operated. The case study design is suitable where there is complexity in the subject matter (Stuart *et al.*, 2002); given the cross-boundary nature of value co-creation a case approach is particularly relevant. Empirical investigation of cases can provide the richness of understanding that is often not available through other means (Wacker, 1998; Yin, 2003; Rynes, 2007; Voss *et al.*, 2002).

3. The KTP project context in which the research was required to be conducted dictated the need for practical application from the research. The use of a case study design allows for direct engagement with practitioners helping provide insights that will help them apply the learning arising from the study (Melnik and Handfield, 1998; Rynes, 2007; Voss *et al.*, 2002).
4. The critical realist approach adopted in this study allows the researcher to gain different perceptions of reality through mixed method data collection. Knowledge can be gained about the capabilities of organisations from the varied views of people involved and the researcher's interpretations of those opinions. The case studies used provided access to a wide range of individuals along with multiple forms of data collection.
5. Case study research allows the use of multiple data collection methods which is key to strengthening the grounding of theory through the triangulation of evidence to provide stronger substantiation of constructs and hypotheses (Eisenhardt, 1989)

The case studies presented here support both stages of the research process (explained in section 4.6) by firstly providing data that is abstracted to populate the conceptual framework (stage 1) and secondly, providing data to validate the framework (stage 2). The first case study (Harmonic) is used across both stages of the research, whilst the second case (Flybe) is only used during the validation stage of the research to provide the necessary quantitative data.

4.4.1 Selection and justification of the cases

Cases are selected to provide particular insights. In this research the case study organisations were chosen because of their complementary and contrasting characteristics as well as the opportunity for unusual access and maintenance (Yin, 2003) provided by the KTP project context. The case organisations are complementary as they both operate in the business-to-business (B2B) sector, but also contrasting as they operate in different industries. Harmonic's primary market is the UK defence industry whilst Flybe Aviation Service's primary market is the European aviation services industry (Flybe Aviation Services is a separate business unit to the more commonly known airline – Flybe UK). Two case study

organisations were used in order to provide greater generalisability and applicability than that provided by a single case organisation. The generalisability was however bounded by the fact that both organisations operate in the B2B sector.

The research focused on the co-creation of value in a business-to-business (B2B) context incorporating the added scale, interdependencies and multi-level relationships faced by organisations operating in B2B markets. Customer relationships in a B2B market are an interactive process (Ford, 2001) where resource integration and co-production form integral parts of the value proposition (Prahalad and Ramaswamy, 2004). The time horizon and co-creation of value-in-use is often longer in B2B markets than in business-to-consumer (B2C) markets and Ballantyne and Varey (2006) argue that S-D logic makes the time-logic of marketing exchange open-ended, from pre-sale service interaction to post-sale value-in-use. The development of complex defence information systems (Harmonic) and provision of aircraft availability (Flybe) are pertinent examples of services that have life spans of several decades. Such conditions make it necessary for the organisation to understand and manage value creation over time, thus providing ideal conditions to examine and identify the organisational capability needed for sustained and effective co-creation of value.

The next two sub-sections provide an overview of each case study organisation and case purpose.

4.4.2 Case 1 – Harmonic Limited

Established in 2003, Harmonic Limited is a small professional service provider working primarily in the Defence industry. The firm helps major defence contractors win and deliver complex information systems programmes. With a turnover of £9M (FY 11-12), it has a permanent staff base of 27 and draws on a pool of 900 Associates to help deliver its client engagements. Harmonic's service offering consists of Business Winning services and Project Delivery services. The Business Winning offering combines consultancy activity (such as running capture workshops and bid reviews and conducting proposal assessments) and the deployment of bid teams to lead, manage and co-ordinate client bids. The Project Delivery offering covers the provision of Programme and Project Management

expertise to assist clients in delivery as well as taking on complete delivery responsibility for outsourced projects and work packages.

Harmonic was the company partner for the KTP project and it was during this two year period (December 2008 to November 2010) that the research took place. The KTP project signalled major change for the organisation, actively investing in a project aimed at helping the organisation to understand and improve its ability to co-create value with its customers. Given the nature of how value is co-created the project focused on examining and altering *how* Harmonic offered its services rather than *what* services it offered. This involved implementing changes to how Harmonic sells, contracts and delivers its services, as well as the sort of governance used to control the organisation. Successfully transforming Harmonic into a business capable of pro-actively and systematically co-creating value with its customers required a changes project that involved:

- A detailed examination of how the firm conducted its business
- A review of co-creation best practice to identify sources of change
- Identification of a new operating model to incorporate co-creation best practice
- Detailed planning of the changes required to realise the new operating model
- Implementation and monitoring of planned changes

Given the nature of the change project outlined above Harmonic provided the ideal case study environment within which to examine the organisational capability required for effective co-creation of value. The data collection and analysis taking place as part of the KTP project was directly applicable to this research and formed a large part of the qualitative data used to inform both stages of the research. The types of data collected and the analysis conducted during the Harmonic case study is explained in the 'Theoretical Development' and 'Empirical Work' sections below.

4.4.3 Case 2 – Flybe Aviation Services

Flybe is most commonly known as one of the UK's most popular regional airlines; however the Flybe brand is made up of three separate businesses. Flybe UK is the regional airline, Flybe Europe is the European airline, and Flybe Aviation Services

is the training and Maintenance, Repair and Overhaul (MRO) business. Case 2 was carried out with MRO business unit of Flybe Aviation Services. The Flybe Aviation Services business performs MRO on both the Flybe fleet and a global network of small to medium sized airlines. Roughly 70% of the MRO activity is revenue generating third party work.

Building and maintaining long term profitable relationships with commercial customers is a perennial challenge for Flybe's MRO business. Competing in a highly competitive market with low profit margins requires compelling value propositions that rely on highly reliable service delivery. Flybe have invested heavily in providing a world leading MRO service targeted at small to medium sized airlines. The reputation Flybe has built for reliable and timely MRO service provision is reflective of the business' desire to be seen as a market leader in the field. The success and growth of the MRO business provided an ideal second case environment to provide the quantitative data needed to validate the conceptual framework.

The purpose of the second case study was to allow for theoretical sampling to increase the generalisability and applicability of the findings. Theoretical sampling is the use of additional cases to allow comparison of findings across multiple data sets in order to provide deeper understanding of observed phenomena (Glaser and Strauss, 1967). The Flybe case study complements the Harmonic case in that both businesses operate in the B2B sector but also provides the contrast needed for generalisability in that the case organisations operate in different markets (defence and aviation services).

4.5 Research methods

A case-based approach allows for use of multiple data collection and analysis methods. Unlike limiting data collection to a survey with a broad sample population, the case study approach allowed data from a quantitative survey to be complemented by the depth of understanding and synergy provided by associated qualitative data. This combination of multiple data collection methods strengthens the grounding of theory by triangulating evidence to provide stronger substantiation of constructs and hypotheses (Eisenhardt, 1989) (see table 4.1 below).

Step	Activity	Reason
Crafting Instruments and Protocols	Multiple data collection methods	Strengthens grounding of theory by triangulation of evidence
	Qualitative and quantitative data combined	Synergistic view of evidence
Entering the Field	Overlap data collection and analysis	Speeds analyses and reveals helpful adjustments to data collection
	Flexible and opportunistic data collection methods	Allows investigators to take advantage of emergent themes and unique case features
Shaping Hypotheses	Iterative tabulation of evidence for each construct	Sharpens construct definition, validity and measurability

Table 4.1: Extract from Eisenhardt's 'Process of Building Theory from Case Study Research'

As articulated by Eisenhardt (1989) overlapping data collection and analysis helps speed analysis and reveal helpful adjustments to data collection. This technique was used to run the collection and analysis of qualitative data in parallel with the construction of the framework. The findings and insights revealed from the qualitative case data (documents, interviews, observation) helped to refine and sharpen the second order constructs which in turn helped focus the operationalisation of the framework. This iterative approach is firmly supported by Glaser and Strauss (1967).

Qualitative and quantitative methods were combined in what Steckler *et al.* (1992) call 'Model 1', where qualitative methods are used to help develop quantitative measures and instruments. Steckler *et al.*'s models result from work done to articulate the potential procedures for conducting mixed methods research. The four possible models are outlined below in Figure 4.3.

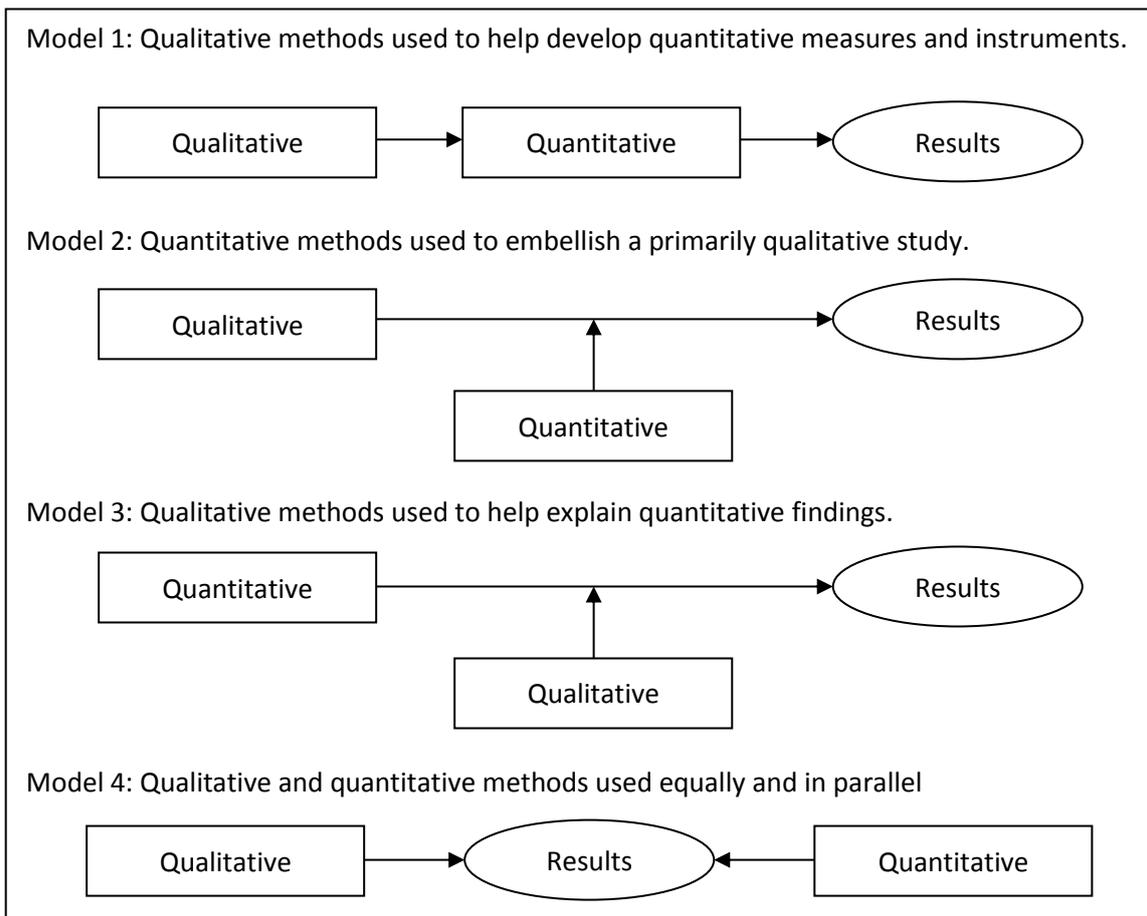


Figure 4.3: Steckler et al.'s models of mixed methods research

As described below The 'Model 1' procedure for mixed methods research was adopted in this study.

Theory building researchers typically combine multiple data collection methods (Eisenhardt, 1989). The rationale is the same as that of hypothesis testing research, *"the triangulation made possible by multiple data collection methods provides stronger substantiation of constructs and hypotheses"* (Eisenhardt, 1989, pp. 538). Case study research can utilise qualitative and quantitative data (Yin, 1984), indeed the combination can be highly synergistic. Quantitative data often presents relationships which may not be readily apparent to the researcher and qualitative data provide a means of understanding the rationale or theory underlying relationships revealed by the quantitative data. For these reasons multiple data collections methods were employed to create and refine the conceptual framework before subsequently validating it through a quantitative survey.

4.5.1 Qualitative methods for framework development

The first stage of the research focused on developing the conceptual framework. Informing this work was the literature review and the qualitative data gathered from the Harmonic case study. The literature review provided the insights needed to identify the first order constructs which structured the framework. Populating the framework with second order constructs was, likewise, driven by the literature but importantly refined based on the qualitative case finding from Harmonic.

The qualitative methods employed during the Harmonic case included interviews, direct and participant observation (including meetings and workshops) and artefact review. More detail on the methods and analysis is contained in the 'Framework Development' (section 4.7).

4.5.2 Quantitative methods for framework validation

The second stage of the research was to validate the conceptual framework both from a theoretical perspective and a managerial perspective.

Quantitative methods were used to conduct the theoretical validation which included testing for reliability and validity. This quantitative analysis was possible by developing a survey containing items for each of the second order constructs. The survey was deployed across the two case study organisations – Harmonic and Flybe Aviation Services. The survey results were analysed for unidimensionality and reliability. Unfortunately the limited sample size was not sufficient to carry out the factor analysis that would have tested for discriminant validity across the constructs. This limitation is recognised and addressed in the Conclusion chapter. More detail on the construction of the survey, sample size and analysis is contained in the 'Framework Validation' section (section 4.8).

The managerial validation was carried out using qualitative methods, further detail of which is contained in section 4.8.7.

4.6 The research process

The exploratory research process through which the framework was created, operationalised, refined and validated is described in Table 4.2 and further explained in the following two sections.

Research stage & objective	Method	Output	Contribution
Framework development <i>Create a conceptual framework</i>	<ul style="list-style-type: none"> Literature review Case study (interviews, artefacts, workshops, observation) 	Conceptual 6x6 framework with 1 st order and 2 nd order constructs	<i>Theoretical</i> – Creation of the Dimensions of Capability
Framework validation <i>Empirically validate the framework and diagnostic tool</i>	<ul style="list-style-type: none"> Content validity assessment Framework operationalisation Create, pilot and refine a survey Run survey with two case organisations Analyse survey data for theoretical validation Review survey results with case organisation for managerial validation 	<ul style="list-style-type: none"> Refined framework (6x4+2) Diagnostic survey tool – C-CAT™ Theoretically validated framework Managerially validated diagnostic tool 	<i>Theoretical</i> Identification of the organisational capability for value co-creation <i>Managerial</i> Creation of a diagnostic assessment tool known as C-CAT™

Table 4.2: The research process

4.7 Framework development

The first stage of the research focused on developing a conceptual framework to describe the organisational capability for value co-creation. The conceptual nature of the objective at this stage of the research meant that the work was focused in the theoretical domain. The objective of this stage was to derive a conceptual framework from existing literature sources and the qualitative case findings through a grounded theory approach. Rather than beginning with a hypothesis, the grounded theory methodology begins with data collection and then through a process of codification and categorisation of the data a theory or hypothesis is induced (Martin & Turner, 1986).

The literature review at the outset of this study examined work in two distinct areas - value co-creation which has emerged from research in services marketing, and organisational capability which forms part of the strategic management literature. These two areas of literature provided the two disciplines that were used to form the basis of the two-dimensional conceptual framework.

Research by Ng *et al.* (2009) into the co-creation of value in complex service environments identified what they term the 'Attributes of Value Co-creation'. These attributes cover the characteristics present in service interactions that effectively co-create value. The attributes are adopted as presented by Ng *et al.* (2009) as an appropriate and validated set of constructs that accurately describe the practices required by organisations seeking to consistently co-create value.

A review of the literature surrounding organisational capability revealed sources that were used to identify six dimensions that encapsulate the underlying holistic foundations of any form of organisational capability. These dimensions were termed the 'Dimensions of Capability' and are described in detail in the literature review chapter. Deriving the Dimensions of Capability provided the first theoretical contribution of this research. This holistic set of dimensions provides a basis from which further research into different types of capability, organisational or otherwise, can draw upon.

These two sources were combined to form the first order constructs of a six-by-six matrix framework; the Dimensions of Capability being the x-axis constructs and the Attributes of Value Co-creation form the y-axis constructs (see Figure 4.4 below). This structure provided the basis from which the conceptual framework could then be populated, operationalised and validated, as described below.

		Dimensions of Capability					
		Competence	Capacity	Culture	Systems	Structure	Infrastructure
Attributes of Value Co-creation	Congruence of Expectations						
	Complementary Capabilities						
	Process Alignment						
	Behavioural Alignment						
	Empowerment & Control						
	Behavioural Transformation						

Figure 4.4: The original conceptual framework

The next stage was to populate the centre of the framework with 36 second order constructs. These constructs were derived from further examination of the

literature, as presented in Literature Review chapter, and refined from Harmonic qualitative case study findings.

The qualitative data gathered through the Harmonic case study were crucial to the creation and particularly to the refinement of the conceptual framework. Whilst the second order constructs were driven from the literature it was only through the work with Harmonic that the constructs were given the context that allowed them to be captured in a meaningful lexicon.

What follows below is an explanation of the types of qualitative data used in the Harmonic case study and the rationale for using them.

4.7.1 Qualitative data sources

Yin (2003) describes six sources of evidence most commonly used in case studies, as well as espousing the highly complementary nature of the sources and the virtue of combining as many sources as possible. The relative strengths and weaknesses of the most common sources of evidence are outlined below (see table 4.3).

Source of evidence	Strengths	Weaknesses
Documentation	<ul style="list-style-type: none"> • Stable – can be reviewed repeatedly • Unobtrusive – not created as a result of the case study • Exact – contains exact names, references and details of an event • Broad coverage – long span of time, many events, and many settings 	<ul style="list-style-type: none"> • Retrievability can be low • Biased selectivity if collection is incomplete • Reporting bias – reflects (unknown) bias of author • Access – may be deliberately blocked
Archival records	<ul style="list-style-type: none"> • [same as above] • Precise and quantitative 	<ul style="list-style-type: none"> • [same as above] • Accessibility due to privacy reasons
Interviews	<ul style="list-style-type: none"> • Targeted – focuses directly on case study topic • Insightful – provides perceived causal inferences 	<ul style="list-style-type: none"> • Bias due to poorly constructed questions • Response bias • Inaccuracies due to poor recall • Reflexivity – interviewee gives what interviewer wants to hear

Direct observations	<ul style="list-style-type: none"> • Reality – covers events in real time • Contextual – covers context of event 	<ul style="list-style-type: none"> • Time consuming • Selectivity – unless broad coverage • Reflexivity – event may proceed differently because it is being observed • Cost – hours needed by human observers
Participant observation	<ul style="list-style-type: none"> • [same as direct observations] • Insightful into interpersonal behaviour and motives 	<ul style="list-style-type: none"> • [same as direct observations] • Bias due to investigator’s manipulation of events
Physical artefacts	<ul style="list-style-type: none"> • Insightful into cultural features • Insightful into technical operations 	<ul style="list-style-type: none"> • Selectivity • Availability

Table 4.3: The six most common sources of case study evidence, taken from Yin (2003)

The Harmonic case study conducted during this stage of the research utilised four of the six most common sources of qualitative case study evidence as described below.

Interviews

Interviewing is a technique often used in case study research and is designed to elicit detailed descriptions of the participant’s perspective on the research topic (Saunders *et al.*, 2007). It is an effective qualitative method for encouraging people to articulate their opinions, experiences and even feelings on particular subjects. In this research, attention was given to the relationship participants saw between the culture and structure of the organisation and its ability to effectively and sustainably co-create value with its customers.

All five members of the Harmonic Exec team (see table 4.4 below) were interviewed separately to identify their individual perspectives on how value is created through services and what is required of a business looking to excel in co-creating value with its customers.

Exec member
Managing Director
Finance Director
Services Director

Head of Human Resources
Head of Business Development

Table 4.4: The Harmonic Exec team interviewed during the case study

The interview transcripts were codified and analysed against the DoC themes laid down from the conceptual framework for both synergies and contrasting opinions (Strauss and Corbin, 1990). The analysis conducted on the interview transcripts is described below in the ‘Qualitative data analysis section (4.7.2).

The data collected during the interviews provided particular insights into the cultural and structural constructs of the framework. The findings emerging around the cultural elements of the organisation were particularly insightful in not only shaping the cultural constructs but were crucial in informing the decision to reduce the cultural second order constructs from six to one which is further explained in the Findings chapter (chapter 5).

Direct and participant observation

Participant observation allows the researcher to gain a close and intimate familiarity with a given group of individuals and their activities or practices through an intensive involvement with people in their natural environment, usually over an extended period of time (Mack *et al.*, 2005).

Data collected from participant observation provides contextual understanding and is invaluable in understanding and interpreting the data collected through other methods. Hence, what we learn from participant observation can help us not only to understand data collected through other methods (such as interviews and quantitative research methods), but also help to understand the phenomenon being studied. Participant observation, along with the other qualitative data sources used in the Harmonic case proved crucial in providing the contextual understanding needed to interpret and refine the second order constructs derived from literature and used to populate the conceptual framework.

During the course of the case study both internal meetings and meetings with customers were observed. The internal meetings consisted of regular operational meetings and one-off planning/strategy meetings. These meetings provided valuable input to generating the second order constructs associated with the

structure and culture capability dimensions (two of the first order constructs). The customer meetings were account review meetings, organised by Harmonic, to review performance and explore future opportunities with customers. The synthesised notes taken from these meetings were thematically grouped to inform the second order constructs particularly in the areas of congruence of expectations, complementary capabilities, behavioural alignment, and learning from experience.

In addition to observing meetings the researcher observed internal workshops to gain insights into the transition Harmonic was undertaking. The workshops allowed the perspectives and opinions of groups of individuals to be discussed and captured. Workshops are not only an efficient means of gathering evidence but provide the valuable opportunity to discuss and investigate the level of synergy amongst a group on specific subjects.

Eight workshops were observed over the course of two years involving staff from across the business. A list of workshops, their purpose and dates is contained in Annex A.

Specific workshops were held on subjects covering:

- Selling
- Contracting
- Service delivery
- Organisational structure and governance

Notes taken during the workshops were examined for insights that not only aided the transformation of the Harmonic business (helping meet the commercial objective of the KTP project) but provided the operational level detail needed to identify many of the second order constructs, especially in terms of process alignment, congruence of expectations and complementary capabilities (three of the first order constructs).

Artefact review

Complete and open access was granted to all company documents during the course of the case study. This level of access allowed the review of a variety of document types and the opportunity to observe how documents/reports evolved during the two years over which the case study took place.

The types of artefact reviewed include:

- Strategy papers
- Organisational design documents
- Service development process and guidance
- Engagement management process and guidance
- Contracting guidance
- Market proposition framework
- Call reports
- Customer plaudits and complaints

4.7.2 Qualitative data analysis

The Harmonic case qualitative data was collected to inform the identification of appropriate second order constructs. Having already identified the Dimensions of Capability (one set of first order constructs) they were used as the themes against which the data would be categorised. This form of categorical aggregation negated the need to induce themes as the data was collected and allowed the collection and analysis process to be appropriately focused (Stake, 1995).

The codified transcripts and synthesised notes from the interviews and the direct and participant observation (including meetings and workshops) were combined to produce a multi-source data set that was used to inform the generation and refinement of the second order constructs within the conceptual framework. The data were thematically grouped around the Dimensions of Capability to provide the categorical aggregation through which the data could be analysed for insights to inform the creation of the second order constructs. It was through the analysis of the aggregated data that naturalistic generalisations (Creswell, 2007) were identified to inform the creation of the second order constructs.

As detailed by Miles and Huberman (1994) the use of a conceptual framework to dictate the categorisation themes contained within the data helps to bound and prioritise the data collection and analysis. The focus provided by entering into the data collection and analysis process with pre-determined themes allows for efficiencies unobtainable from the traditional approach of inducing themes from the data (Miles and Huberman, 1994). Given that the research took place alongside the KTP project the researcher was fully immersed within the case study

organisation, as such the potential for data collection was unparalleled, both in the multiplicity of forms and volume. Therefore the use of pre-determined themes rather than induced was crucial not only to the efficiency of the research but also to the timeliness and effectiveness in order to prevent overload.

4.7.3 Summary of the framework development stage

This section has outlined the first stage of the research which focused on developing a conceptual framework to describe the organisational capability for value co-creation. As a result of this stage a conceptual framework was derived from existing literature sources and qualitative case findings. The two dimensional six-by-six framework was populated with both first order constructs (the x and y axis) and second order constructs (the centre of the framework).

As well as the conceptual framework the key output from this stage of the research was the theoretical contribution delivered by identifying the Dimensions of Capability. The Dimensions of Capability (DoC) are the six parameters that represent the building blocks of any organisational capability. The DoC are derived from the literature on organisational capability and strategic management, to provide a basis from which the Attributes of Value Co-creation can be extrapolated, to identify the organisational capability needed to consistently and sustainably co-create value. The DoC contribute to the capability literature through the identification of holistic dimensions from which further research into types of organisational capability can be based. This contribution is further detailed in the Discussion chapter.

4.8 Framework validation

Having satisfied the first research objective of creating a conceptual framework, the second stage of the research was created to address the second objective - validate the framework. The second stage was crucial in furthering the contribution made by this research. The validation activity was two-fold; the framework was to be validated from both theoretical and managerial perspectives.

By validating the framework the theoretical contribution already made would be furthered by empirical evidence that the content of the conceptual framework is valid. In doing so the framework would provide a detailed definition of the

organisational capability needed for effective and sustainable co-creation of value. The KTP context within which the study was conducted placed constraints on the volume of data that could be gathered which had an impact on the level and type of theoretical validation possible. Nonetheless some quantitative analysis was possible, demonstrating theoretical validation, which is further supported by the managerial validation work that was undertaken.

Managerial validation was an important step in ensuring the contribution to practice was both useful but also valid. This piece of validation work was separate but related to the theoretical validation. The purpose of the managerial validation was to ensure the framework and diagnostic survey tool (known as C-CAT™) were in a fit state to be adopted and used by practitioners. Without this stage of the research there would be no evidence that a robust contribution to practice had been made.

The 'managerial validation' relates directly to the overall purpose of this research which, as already stated above is, "an exploratory piece of research that seeks to *enhance the understanding* of what is required of organisations seeking to effectively and sustainably co-create value". It is only through combining the theoretical and managerial validation work that a contribution to 'enhancing the understanding' of co-creation capability can credibly be made.

The following sections outline the work done to carry out both the theoretical and managerial validation. This work is illustrated below in Figure 4.5.

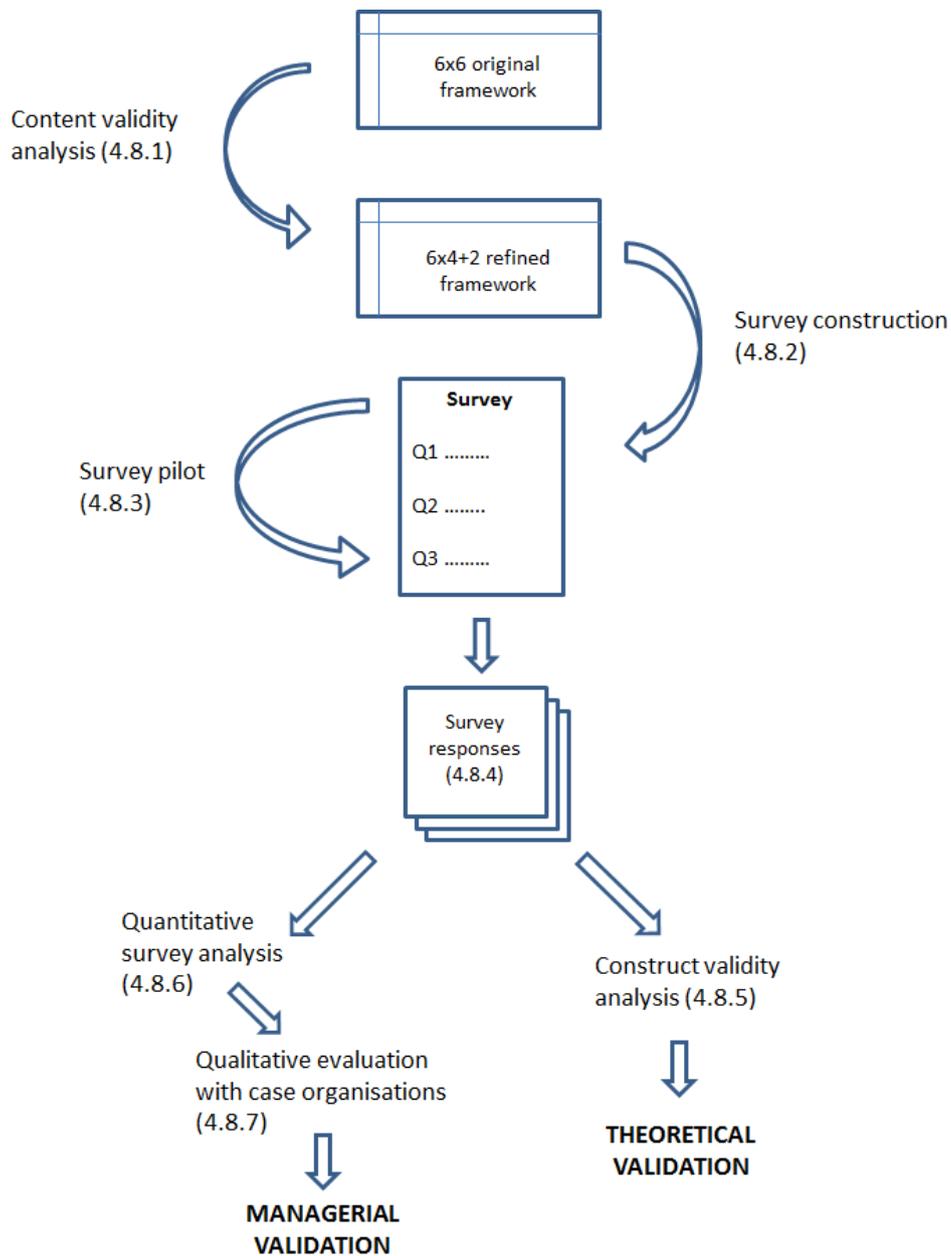


Figure 4.5: Framework validation activities

4.8.1 Refining the framework

The first step towards validating the framework was to conduct a content validity assessment. This was carried out by a team involving two academics and two practitioners. The academics came from the field of service management. The two practitioners were Harmonic staff – the Services Director and a member of the Exec Board. The purpose of the content validity assessment was to conduct an initial analysis of the now populated framework to ascertain whether it stood up to external scrutiny before engaging in more detailed validity assessments

(Oppenheim, 1992). The reviewers were asked to examine the second order constructs to ensure they included ‘*everything they should*’ and didn’t include ‘*anything they shouldn’t*’, as well as reviewing the appropriateness of having 36 second order constructs (Litwin, 1995).

The content validity assessment produced two significant results. Firstly, the consensus was that not all of the second order constructs were significantly distinct enough from each other to warrant further inclusion in the framework and survey tool. Secondly, it was concluded that the ‘Capacity’ dimension (and its six related second order constructs) could not be accurately measured and so would not be included as part of the subsequent survey tool.

This process of content validity analysis and refinement of the second order constructs and related measures led to the conceptual framework being refined from a 6x6 matrix into a 6x4+2 matrix framework (see Figure 4.5 below). This resulted in the original 36 second order constructs being reduced to 26 to be carried forward into the survey tool for the subsequent quantitative validation.

		Dimensions of Capability					
		Competence	Capacity	Systems	Structure	Culture	Infrastructure
Attributes of Value Co-creation	Congruence of Expectations						
	Complementary Capabilities						
	Process Alignment						
	Behavioural Alignment						
	Empowerment & Control						
	Behavioural Transformation						

Figure 4.6: The revised conceptual framework

Following the refinement of the framework it was productionised into a survey-based diagnostic tool known as the Co-creation Capability Assessment Tool (C-CAT™). The survey tool was created to allow the framework constructs to be tested for reliability and validity. The survey construction process is outlined in the following section, after which the deployment across the two case studies and

analysis undertaken to test the model for reliability and validity as well as its ease of application are explained.

4.8.2 Survey construction

The conceptual framework is tested for reliability and validity by developing a survey with items created for each of the second order constructs. To develop multi-item measures for each of the 26 second order constructs, individual items were identified and amended from extant literature on value co-creation, competence, organisational structure, systems and processes and infrastructure. This identification and amendment is explained in detail in section 5.2.4 in the Findings chapter.

The items were reviewed and refined by a mixture of academics and practitioners with relevant experience and expertise in service operations and management. Two academics were involved with expertise in service design and operations, marketing and value co-creation. Likewise two practitioners contributed to the review who brought experience from service and operations management as well as project and programme management. The item review process assisted in re-wording items to address potential confusion in meaning as well as promoting consistency in syntax.

All items were set against a five point Likert scale with the endpoints of 'Strongly Disagree' (1) and 'Strongly Agree' (5). An additional point ('don't know' (0)) was added to the scale to allow participants to register when they were unable to answer the question. Providing the 'don't know' option was important for certain items which not all staff would be able to appropriately answer given their position within the organisation. The 'don't know' option was provided as it is distinct from the 'neither agree nor disagree' (3) point on the Likert scale (Oppenheim, 1992).

The survey was intended not just as a means of providing theoretical validation of the framework but also as a practical and usable diagnostic tool that could be adopted by practitioners seeking to understand their organisation's co-creation capability. As such the survey was packaged as a diagnostic tool known as the Co-creation Capability Assessment Tool (C-CAT™). To aid the practical utility of the survey as a diagnostic tool a number of background questions were added in

addition to the construct specific items. These questions allowed for the collection of useful participant data that can be used in organising and interpreting the analysis. The data from such questions are used purely for managerial interpretation of the results and are not used in the theoretical validation of the framework and its constituent constructs.

4.8.3 Survey pilot

Key to the development of an effective survey instrument is the pilot stage (Litwin, 1995). A pilot is typically used to identify errors in the survey's form and presentation. Of particular concern was the lexicon used in the survey and its potential to cause confusion and misunderstanding amongst the respondents. By piloting the survey the opportunity was provided to identify and rectify any such issues. The other useful purpose of the survey is to identify the typical time it takes respondents to complete the survey. A balance must be struck between the number of questions required to provide meaningful data and the number of questions respondents can reasonably be asked to answer without providing incomplete or spurious responses (Oppenheim, 1992).

The survey was piloted with six people – two academics and four staff from Harmonic. The academic staff were included because of their experience in survey design which would be useful in identifying inconsistencies and issues relating to poor design. The Harmonic staff were included as they represented typical respondents and so would be useful in identifying any lexicon and timing issues.

The two key findings from the pilot were, firstly, there were issues with the lexicon in places, and secondly, the feeling of repetition in several places in the survey. Both of these issues are further detailed in the Findings chapter (chapter 5) along with the action taken to address them.

4.8.4 Survey sample sizes and types

The survey was deployed across the two organisations – Harmonic Limited and Flybe Aviation Services. The online survey was distributed to a participant population that includes staff working at multiple levels within the chosen organisations, performing a variety of roles and with differing levels of contact with co-creating partners (i.e. customers or suppliers). A multi-level participant

population was specifically chosen to help avoid any bias that might arise from focusing the sample at a single layer of the organisational hierarchy. By widening the participant population beyond just that of the case study organisation, Harmonic Limited, any bias that might arise from a single organisation or industry was countered.

Within Harmonic the survey was distributed to all 27 staff. From which 25 complete and usable responses were received, giving a response rate of 92.6%. The same survey was distributed to 41 Flybe staff, with 32 complete and usable responses received, giving a response rate of 78%. The total usable sample size for the survey is therefore 57.

4.8.5 Quantitative analysis for theoretical validation

In order to fully validate the framework from a theoretical standpoint construct validity should be demonstrated. Typically this involves testing for two forms of construct validity – convergent and discriminant. Convergent validity, or unidimensionality, is used to show that measures that should be related are in fact related. This was used to test for convergence within the groups of measures being used for each construct. Divergent validity is used to show that measures that should not be related are in fact not related. Given the predominantly exploratory nature of this study and the limited data set gathered from the case organisations divergent validity was not tested for across the constructs. The absence of full construct validity is recognised as both a limitation of this study and an opportunity for further research in the Conclusion chapter.

Unidimensionality is the existence of a single latent construct that underlies a set of measurement items (Anderson, Gerbing and Hunter, 1987) that can be accounted for by a single common factor (Netemeyer, Bearden and Sharma, 2003). To test for unidimensionality, or internal consistency reliability as it is otherwise known (Litwin, 1995), the Cronbach coefficient alpha was calculated for each of the second order constructs for both the Harmonic survey results and the Flybe survey results. The results of the Cronbach analysis are presented in the Findings chapter (section 5.2.6).

4.8.6 Quantitative analysis for managerial validation

In order to provide a usable and meaningful output from the survey a Microsoft Excel macro enabled workbook was developed to organise and analysis the raw survey data. The workbook forms part of the C-CAT™ diagnostic tool. It was configured to output a series of averages derived by collating all the responses for all items relating to each second order construct and averaging them. This produced an average score for each of the second order constructs which represented the collective views of the participant population. A similar macro was developed to produce an average score for each of the first order constructs.

The combined set of averages could then be transposed onto the framework structure as well as a series of spider diagrams. The framework populated with averages scores provides a powerful visual representation of an organisations capability for value co-creation. The power of the visual representation is enhanced by overlaying the scores with a colour-based rating (green, amber, red) to further embellish the implications of the scores. The averages scores associated with the first order constructs were visualised on spider diagrams, which, as with the colour-coded framework, provides a quick visual representation of the relative strengths and weaknesses of an organisation, in this case at the first order construct level.

As well as the automated macro-enabled analysis, further interpretation of the survey data was possible by analysing the range of responses to specific items across the participant population. This provides an indication of the level of alignment and cohesion amongst the staff completing the survey.

The quantitative analysis along with a descriptive evaluation of the results and conclusion and any pertinent recommendations were captured and presented back to the case organisations in a report which forms the core output from the C-CAT™ tool. A summary of the report content is contained in the Findings chapter (section 5.3.3 for Harmonic results, section 5.3.6 for Flybe results).

4.8.7 Qualitative evaluation with the case organisations

The results of the survey were presented to the respective Harmonic and Flybe management teams through the reports outlined above. Submission of the reports was followed up by a face-to-face meeting with each management team

to discuss their reaction to the results. This was a key stage in the managerial validation activity – the feedback from the two management teams on the usability of the diagnostic process and the robustness and relevancy of the output would dictate its appropriateness and validity as a practical tool to be taken forward by other practitioners.

The comments and feedback from the two management teams was captured and is summarised in the Findings chapter (sections 5.3.5 and 5.3.8). As well as capturing the feedback on the usability and validity of the C-CAT™ tool, feedback on the adoption and implementation of the recommendations contained within the reports was sought. This feedback is also outlined in the Findings chapter.

4.8.8 Summary of the framework validation stage

Having satisfied the first research objective of creating a conceptual framework, the second stage of the research was created to address the second objective - validate the framework. Although exploratory in nature the second stage of this study was crucial in furthering the contribution made by the study. The validation activity outlined above was two-fold; the framework was validated from both a theoretical (where possible) and a managerial perspective.

The framework validation section has described the work done to refine the framework, create, test and run the survey, and analyse the survey results to test for theoretical and managerial validity.

The analysis to validate the theoretical contribution was important furthering the conceptual contribution already made by developing the framework. The managerial validation was an important step in ensuring the contribution to practice was both useful but also valid.

5. Findings

The findings are divided into two parts – the framework development findings, and the framework validation findings.

The framework development activity describes the identification of two sets of first order constructs from the literature, how they are mapped to form a framework structure and populated with second order constructs. This stage of the research provides a conceptual framework and as such makes a theoretical contribution to the value co-creation literature which is discussed in chapter 6.

In the framework validation section the refinement of the framework, use of the survey with the case organisations and subsequent analysis are described. The analysis undertaken demonstrates the empirical validation of the framework and substantiates the theoretical contribution. Also described in the validation section is the managerial validation undertaken. This step is important in ensuring the contribution to practice is both useful but also valid (see chapter 6).

5.1. Framework development

The first stage of the research focused on developing a conceptual framework to describe the organisational capability for value co-creation. The conceptual nature of this stage of the research meant that the work was focused in the theoretical domain. The objective of this stage was to derive a conceptual framework from existing literature sources and the qualitative case findings through a grounded theory approach (Corbin and Strauss, 1990).

The following sections describe the activities and outputs from the framework development stage of the research.

5.1.1. Identifying the first order constructs

As identified in the literature review chapter, there is a need to better understand the dynamics and practicalities of value co-creation. However, the literature on the practicalities of value co-creation is limited. The majority of research on co-creation has focused on terms and issues around interactions, relationships, reciprocity, bi-directional and customer orientation, which while valuable, provide a limited contribution to understanding how organisations and services should be designed to enable the effective co-creation of value.

There are however exceptions to this as more significant advances in service design have emerged in the last few years (e.g. Aurich, Fuchs & Wagenknecht, 2006; Erradi *et al.*, 2007; Weigand *et al.*, 2009; Zomerdijk and Voss, 2010). Two notable pieces of work explored in detail in the literature review chapter are that of Ng *et al.* (2010) and the later work of Karpen *et al.* (2011). Whilst the Karpen *et al.* (2011) research is still in the theoretical realm, it does make significant strides to defining a co-creation capability required by organisations seeking to operate under the SDL paradigm. It is however the work of Ng *et al.* (2010) that was chosen as the basis upon which to begin constructing the conceptual framework to illustrate the organisational capability for value co-creation. Their work was chosen as the basis from which this research builds because of the empirically validated nature of the work, which provides a more robust foundation than the theoretical work of Karpen *et al.* (2011).

Picking up on the call for more empirical research to understand how to design service delivery to co-create value with customers to attain the highest benefits, Ng *et al.* conducted a study that identified six attributes required for effective co-creation of value – the Attributes of Value Co-creation (AVC). The attributes were initially explored through a qualitative study, with data collected through interviews, participant observation, analysis of texts and documents. This data set was then analysed through a grounded theory approach (Strauss and Corbin, 1990) to arrive at the six attributes of value co-creation (AVCs). The study went onto operationalise the AVC and internally validate them using Exploratory and Confirmatory Factor Analysis from the data obtained through an internal survey.

The study revealed that the role of the customer in achieving value-in-use is dependent on use practices in different contexts which have a direct impact on the organisation's delivery system. The implication of which is that organisations have to develop the capability to manage open systems and even when the customer and the firm do the exact same thing each time, the context changes and together with it, benefits, satisfaction and costs.

The six attributes identified by Ng *et al.* are listed below and described in detail in section 2.6.

1. Congruence of expectations
2. Complementary capabilities

3. Process alignment
4. Behavioural alignment
5. Empowerment and control
6. Behavioural transformation

These six AVC are adopted as the first set of first order constructs. Whilst the attributes identified by Ng *et al.* (2010) are robust and have been thoroughly validated, they do not provide the depth of explanation and understanding needed to accurately describe the organisational capability needed to sustainably co-create value. Instead the AVC can be seen as the characteristics that must be continually displayed by organisations seeking to co-create value. It is the need to move the understanding from the characteristics to the underpinning organisational capability that necessitates the need to build on the AVC by identifying a second set of first order constructs to map against the AVC.

The second part of the literature review examined the work on capability in order to extract a holistic capability foundation from which the proposed organisational capability for value co-creation could be defined.

Capability has been a much-studied topic within strategic management (Helfat, 2000). The growing volume of research on firm capabilities links capability with performance, an indication of the importance of capability in creating and sustaining competitive advantage. While the intricacies of the relationship between capability, performance and competitive advantage are widely debated, it is clearly recognised that a firm's ability to manage and develop its capabilities over time is crucially important and will only become more crucial as levels of competition continue to increase. Despite the unilateral consensus on the importance of capability to a firm's success little work has been done to identify the underpinning elements that makeup capability. Instead most of the capability literature has focused on defining and explaining specific capabilities (e.g. financial, strategic, technological) rather than providing a holistic set of foundational elements (Ulrich and Lake, 1991).

Ulrich and Lake (1991) make the case that organisations have traditionally focused on financial, strategic and technological capabilities to gain competitive advantage. While this indicates the importance of a capability focus in creating and sustaining competitive advantage, Ulrich and Lake (1991) argue that the

traditional focus is insufficient in creating true competitive advantage. The existing capability perspectives must be supplemented by organisational capability – the firm's ability to manage people to gain competitive advantage. Organisational capability emphasises the realisation that there is a strong link between effective people management, performance and competitiveness. Ulrich and Lake (1991) see organisational capability as the glue between the traditional financial, strategic and technological capabilities. Further examination of their work, specifically the critical elements that they espouse, provided an appropriate basis from which holistic capability dimensions could be defined. From reviewing research on organisational capability and how it integrates with the traditional capabilities (financial, strategic and technological) several holistic capability dimensions were identified. The Dimensions of Capability derived from the literature are as follows:

1. Competence – the level and type of knowledge and skills which can be brought to bear (to an acceptable level)
2. Capacity – the level of output possible in a given time period with a pre-defined level of staffing, facilities and equipment
3. Culture – the collective assumptions, behaviour and values of a group of people
4. Structure – the organisational structure and associated governance mechanism that controls the organisation
5. Systems – processes, procedures and tools used to transform inputs into outputs
6. Infrastructure – the material, equipment and physical environment that supports operational activity

5.1.2. Constructing the framework

The six Dimensions of Capability were mapped against the six Attributes of Value Co-creation and represented as a matrix providing the first instantiation of the conceptual framework. By mapping the two sets of first order constructs against each other in this way the organisational capability for value co-creation begins to take shape, as illustrated below in Figure 5.1.

		Dimensions of Capability					
		Competence	Capacity	Culture	Systems	Structure	Infrastructure
Attributes of Value Co-creation	Congruence of Expectations						
	Complementary Capabilities						
	Process Alignment						
	Behavioural Alignment						
	Empowerment & Control						
	Behavioural Transformation						

Figure 5.1: The conceptual framework

5.1.3. Populating the framework

Having mapped first order constructs against each other in a two-dimensional framework the centre of the resulting matrix was then populated with second order constructs. These second order constructs were identified by defining the touch points between the two sets of first order constructs, i.e. identifying definitions for each of the 36 cells that make up the centre of the framework.

The second order constructs were defined through combining the definitions of the related first order constructs and the qualitative findings from the Harmonic case data. So for example, where the ‘Congruence of Expectations’ attribute maps against the ‘Competence’ dimension, the resulting second order construct was defined as, *‘the institutional and human knowledge and skills to continually ensure expectations are aligned across the stakeholder community’*. The full framework complete with all second order constructs is included in Annex C.

The key qualitative findings from the Harmonic case are presented below in table 5.1. The table contains a traceability reference (contained in the source column) back to the source data which is presented in Annex B. The numbering down the left hand side of the table provides each finding with a unique reference.

Ref.	Finding	Source	Attributes
Competence			
F1	Institutional and human knowledge – the difference between and importance of nurturing institutional knowledge (institutional knowledge provides consistency and repeatability).	Topic of discussion during workshops; question being how to nurture institutional knowledge. (WO.1.1, WO.3.1)	All attributes
F2	Appropriate levels of attribute (e.g. process alignment). How to identify and then implement appropriate level of process alignment etc. Same rule does not apply to each customer. Skill that needs to be developed over time through refinement.	Came from workshops on establishing new processes for selling, contracting, and delivery. (WO.3.4, WO.3.5)	All attributes
F3	The ability to identify a lack of co-creation and diagnose what is required is a crucial area of competence – requires knowledge and experience.	Observed from customer review meetings where the delivery staff showed insight and skill in identifying and diagnosing a lack of co-creation as well as proposing solutions. Also discussed in workshop. (CM.2.2, WO.3.6)	All attributes
F4	Skills to deal with changing customer personnel and behaviours. Changes in customer personnel often bring challenges in continuity of service and the relationship. The ability (both skill and process) to deal with these changes has been shown as key to Harmonic maintaining enduring customer relationships that out live individuals – within both Harmonic and the customer.	Observed during customer review meetings, planning workshops on delivery and in interview with Exec members (area of concern for several members). (CM.3.1, WO.6.3)	Behavioural alignment
Capacity			
F5	Capacity relates to the availability of both resources and infrastructure. Capacity discussions often focused on infrastructure issues such as availability of meeting rooms for customer meetings and integration with customer IT systems.	Observed from internal operational review meetings. (IM.3.2, IM.6.3)	All attributes
F6	The need to understand what is adequate capacity – both in terms of how much is needed (at any one time as well as profiling/predicting	Observed from internal operational review meetings discussing the resourcing of	All attributes

Ref.	Finding	Source	Attributes
	forward looking capacity requirements) and how much you actually have (quality/appropriateness of the capacity). Relates to competence dimension. Managing the availability of capacity is difficult and constant challenge.	delivery staff across client accounts. (IM.3.2, IM.3.3, IM.3.4, IM.6.3)	
F7	The need to provide resource to complement the customer's lack of resource (for capacity and competence reasons) in specific areas. Discussion during meetings looked at how to know when to do so and how to plan for needing to do so. Examples discussed tended to focus on issues around process alignment (the customer's inability to implement) and complementary competences (the customer's lack of competence in required areas).	Observed during internal review meetings and in customer review meetings. (IM.3.2, IM.3.3, IM.4.1, CM.5.3, CM.6.2)	All attributes but particularly process alignment and complementary competences
Culture			
F8	Culture is key to ensuring the enactment of the co-creation capability – skills and process may exist but if culture is wrong co-creation will be constrained.	Observed as an issue during customer review meetings – client side lacking culture to encourage co-creation. (CM.2.3, CM.5.4)	All attributes
F9	Overriding message that cultural aspects of co-creation relied on a shared willingness and collective interest to act and behave in a certain way. Key themes being a sense of 'oneness' (shared or collectiveness) and pro-activeness (willingness and interest) about the culture. The 'oneness' being essential in creating a coherent culture. The pro-active element being a key enabler of a co-creation culture – one that reflects a desire to continually strive for progress in realising mutual benefits.	This was a general observation from time spent with Harmonic, i.e. came from all qualitative sources.	All attributes
F10	The importance of openness and honesty were observed as crucial enablers of effective behavioural transformation. The observation from customer meetings was that whilst Harmonic consistently	Customer meetings. (CM.2.2, CM.7.1, CM.7.2)	Behavioural transformation

Ref.	Finding	Source	Attributes
	demonstrated openness and the desire for improvement, the customer often didn't. The challenge for Harmonic appeared to be in developing the skills and mechanisms to encourage this openness and desire for improvement within customers.		
Systems			
F11	Processes are needed for both establishing and then continually practising the AVC. There is a key difference between the setup and ongoing management of the AVC. Developing and nurturing the required processes must be done in conjunction with the related competences.	Came from workshops on establishing new processes for selling, contracting, and delivery. (WO.6.5, WO.6.6, WO.6.7)	All attributes
F12	The importance of having a process or 'way of doing things' for each attribute. May or may not be formally documented process, but at least needs to be understood across the business (institutional knowledge). Processes for adhering to attributes must be embedded in normal working practices, i.e. be the normal way of doing business, not the exception. The degree to which formal processes must exist is debatable but a common understanding of the way things are done is essential.	Observed from internal operational meetings reviewing account performance. (IM.3.3, IM.7.2, IM.7.3)	All attributes but particularly congruence of expectations and process alignment
F13	The importance but also the difficulty of assessing the fit and responsibilities between parties for each of the attributes, i.e. what processes are in place to identify and review how well the AVC are functioning between the firm and the customer. This covers not just process but also governance (structure dimension).	Came from workshops on process, organisational structure and governance for monitoring the effectiveness of value co-creation. (WO.3.4, WO.3.5, WO.5.3, WO.5.4)	All attributes
F14	Having formal processes for all attributes is difficult. Some attributes don't lend themselves to restricted or mechanistic processes. Attributes such as behavioural alignment, empowerment and control, and congruence of expectations are in reality more reliant on the	Observed in workshops focused on developing new processes for selling and delivery (WO.5.4, WO.5.6, WO.5.7)	Congruence of expectations, behavioural alignment,

Ref.	Finding	Source	Attributes
	competence dimension than the systems dimension. However any progress towards capturing and sharing process for these attributes will greatly improve the consistency of application.		empowerment and control
Structure			
F15	Structure dimension covers the organisational structure/hierarchy or roles associated with each attribute and also the governance mechanism in place to monitor and control each attribute.	Came from literature but reinforced by observations from workshops on organisational structure and governance (WO.5.10)	All attributes
F16	A balance must be struck between having a prescribed way of doing things which is monitored and controlled, and an ability/need to be flexible in adjusting to changing circumstances in order to continually and effectively co-create value. This is often a balance of effectiveness (from the customer's perspective) and efficiency (from the firm's perspective). The governance mechanisms need to be setup to monitor and control the 'business as usual' activities but recognise when exceptions to the norm are required and then monitor and control these exceptions to prevent them from exceeding a threshold of acceptability. From this arose the idea of a core of stability surrounded by flexible and agile interfaces with customers. The idea being that the core of stability provides the consistency and predictability firm's need to plan and drive efficiencies but with the ability to adapt to customer circumstances in order to provide service experiences that are attuned to customer's needs.	Topic of conversation in operational review meetings and workshops (WO.5.4, WO.5.6, WO.5.7, IM.7.2, IM.7.3)	All attributes but particularly congruence of expectations, complementary competences and behavioural alignment
F17	The perceived control and empowerment attribute is closely linked to the structure dimension. The organisational structure and governance mechanisms in place will either enable or constrain the level of perceived control and empowerment. This attribute is also	Discussed at workshops on organisational structure and governance but stimulated from an issue that arose during a customer review meeting.	Empowerment and control

Ref.	Finding	Source	Attributes
	enabled or constrained by the culture dimension but it is thought that this element of culture largely feeds off the prevailing structure and governance. The structure and governance needs to be setup in such a way as to promote the dissemination of authority and information to the relevant levels within the firm and within the customer.	(CM.8.2, WO.5.10, WO.5.11, WO.5.12)	
Infrastructure			
F18	Infrastructure dimension largely reflects the need to use IT and the physical environment to promote and ease the flow of communication both within the firm and with the customer. Discussions relating to infrastructure tended to focus on the availability and use of collaborative working environments with customers and the availability of meeting rooms for customer meetings.	General observation from time at Harmonic but specifically discussed at operational review meetings. (IM.6.3, IM.6.5)	All attributes
F19	The use of divergent IT systems was highlighted as a particular blocker to process alignment between Harmonic and some customers. The duplication of effort and tendency for data errors arising from incompatible IT systems was a frustration shared by Harmonic and some of its customers. A lack of transparency was also noted as a source of frustration. This issue often focused on the finance and contracting systems used to issue and track Purchase Orders and invoices. However it also extended to the use of different Project Management systems.	Operational review meetings and planning workshops (CM.8.2, IM.6.5, IM.8.2, IM8.3)	Process alignment

Table 5.1: Qualitative findings from the Harmonic case

5.1.4. Summary of Framework development

The framework development activity identified two sets of first order constructs from the literature, plotted them to form a framework structure and populated the framework with second order constructs to provide detail and meaning to describe the organisational capability for value co-creation. It was at this stage that the conceptual framework was given the title '*the OC4VC framework*', standing for the Organisational Capability for Value Co-creation framework.

This stage of the research has created a conceptual framework and as such makes a theoretical contribution to the value co-creation literature. The work so far does however not provide empirical validation of the framework which is why the second stage (theory testing) of the study was identified. In order to move beyond purely theoretical work empirical evidence was needed to provide both theoretical and managerial validation of the framework. The second stage of this study focused on empirically validating the framework already created. This validation work is described in the section below.

5.2. Theoretical validation

Having satisfied the first research objective of creating a conceptual framework, the next stage of the research set out to address the second objective - validate the framework. By validating the OC4VC framework the theoretical contribution already made was further established to include a framework that defines in detail the organisational capability needed for effective and sustainable co-creation of value.

The second element of the validation work was to validate the OC4VC framework from a managerial or practitioner perspective. This step was important in ensuring the contribution to practice was both useful but also valid. In doing so an additional managerial contribution is made through the creation of a diagnostic tool, capable of assessing an organisation's capability for value co-creation.

In this section the refinement, operationalisation and theoretical validation of the OC4VC framework is described. The managerial validation is described in section 5.3.

5.2.1. Refining the framework

The first step towards validating the framework was to conduct a content validity assessment. This was carried out by a team involving two academics and two practitioners. The academics came from the field of service management. The two practitioners were Harmonic staff – the Services Director and a member of the Exec Board. The purpose of the content validity assessment was to conduct an initial analysis of the now populated framework to ascertain whether it passed external scrutiny before engaging in more detailed validity assessments (Oppenheim, 1992). The reviewers were asked to examine the second order constructs to ensure they included everything they should and didn't include anything they shouldn't, based on their experience and expertise. They were also asked to review the appropriateness of having 36 second order constructs (Litwin, 1995).

The content validity assessment produced two significant results. Firstly, it was collectively decided that not all of the second order constructs were significantly distinct enough from each other to warrant further inclusion in the framework and survey tool. Secondly, it was concluded that the 'Capacity' dimension (and its six related second order constructs) could not be accurately measured and so would not be included as part of the subsequent survey tool. These two decisions are further explained below before the refined framework is presented in its new form (Figure 5.3).

The review of the second order constructs revealed that those relating to both the 'Culture' and 'Infrastructure' dimensions were not significantly distinct enough to warrant the inclusion of six second order constructs per dimension. The decision to reduce the number of second order constructs was stimulated by the content validity assessment and further informed by the Harmonic case work. In particular the case study showed that the content validity assessment showed that the six second order constructs listed under the Culture dimension were not credibly discrete. This assertion was backed up by the work being done within Harmonic to nurture a culture of co-creation. It became clear that the culture needed within an organisation is not constructed from six distinct sub-cultures, i.e. different cultures relating to each of the Attributes of Value Co-creation, but a single coherent culture that is present throughout the organisation. The culture

must encompass a set of collective assumptions, behaviours and values that are customer focused to collectively co-create value across all of the co-creation attributes. In fact nurturing a single coherent culture was shown to be the crucial enabler within Harmonic to develop the organisational capability for value co-creation. Without this coherence the other elements of the co-creation capability are unlikely to be fully exploited.

Likewise the content validity assessment revealed the constructs relating to Infrastructure were not discrete enough to exist separately. All aspects of infrastructure, defined as the material, equipment, IT and physical environment that effectively support service delivery, must be collectively configured to support each of the co-creation attributes. This is particularly true of the IT and physical environment elements of infrastructure. It would be counterproductive to have different IT and physical infrastructures supporting each of the co-creation attributes. Instead a single IT infrastructure that is fully integrated to support the organisation's activities is needed along with a physical environment that promotes communication both within the organisation and with customers.

The content validity assessment concluded that due to the difficulties in measuring capacity the 'Capacity' dimension of capability should not be included as part of the survey tool that was to be developed to validate the OC4VC framework. The measures arising from the capacity dimension and its constituent second order constructs would require the survey participant to respond to questions the nature of which no one member of staff could credibly or reliably answer. This difficulty arises from the nebulous nature of capacity. Lovelock (1992) described the capacity of a service firm as, "*the highest quantity of output possible in a given time period with a predefined level of staffing, facilities and equipment*". Adopting this definition leads us to be concerned with two factors: firstly the *amount of time* dedicated to an activity, and secondly the *level of resource* (e.g. staffing, facilities or equipment) dedicated to an activity. Hence capacity is a function of time and resource in the quest to produce a defined output or outcome.

For the purposes of this research Lovelock's definition is expanded to provide a broader take on capacity which includes both infrastructure and resource. Based on this definition and the typical sample of staff within an organisation it was

deemed unreasonable to expect the sample to credibly comment on whether sufficient resource and time was unilaterally applied to activities that enable the co-creation of value. The reviewers did however note that capacity is still a valid dimension of capability and organisations still need to develop the necessary capacity to co-create value. The capacity dimension therefore remains in the OC4VC framework but it is recognised that as part of this research it was not possible to validate its inclusion and related second order constructs. This is further addressed in the limitations section within the Conclusion chapter.

This process of content validity analysis and refinement of the second order constructs and related measures led to the conceptual framework being refined from a 6x6 matrix into a 6x4+2 matrix framework (see Figure 5.2 below). This resulted in the original 36 second order constructs being reduced to 26 from which the 6 capacity constructs were ignored leaving 20 to be carried forward into the survey tool for the subsequent quantitative validation.

		Dimensions of Capability					
		Competence	Capacity	Systems	Structure	Culture	Infrastructure
Attributes of Value Co-creation	Congruence of Expectations						
	Complementary Capabilities						
	Process Alignment						
	Behavioural Alignment						
	Empowerment & Control						
	Behavioural Transformation						

Figure 5.2: The revised conceptual framework

5.2.2. Operationalising the framework

Having identified and subsequently refined the second order constructs the next stage was to identify measures for each of the constructs that could be taken forward into the survey used to validate the framework. As described in chapter 3 the literature was reviewed to identify a set of ‘guiding’ measures for each of the

Dimensions of Capability and formed the basis of the resulting measures taken forward into the survey. The final measures were arrived at by taking the 'guiding' measures and mapping them against the Attributes of Value Co-creation to produce a set of measures for each of the 20 second order constructs being tested. The guiding measures identified from the capability literature are listed below in Table 5.2 and further explained in the Capability literature review that is chapter 3. The resulting or final measures derived by mapping the guiding capability measures against the Attributes of Value Co-creation are listed in full in Annex D.

Dimension of Capability	Source	Guiding measures
Competence	Prahalad and Ramaswamy (2000)	Active customer dialogue; <i>Managing customer diversity</i> ; Co-creating personalised experiences;
	Stratman and Roth (2002)	Understanding the impact of actions; Understanding the fit within the organisation
	Maheshkumar <i>et al's</i> (2003)	Quality of conformance; Flexibility
	Lado and Wilson (1994)	Managerial; Input-based; Transformational; Output-based
Culture	Schein (1984)	Internal integration; External adaptation
	Morgan and Hunt (1994)	Shared values; <i>Communication</i> ; Opportunistic behaviour
	Giannakis (2007)	Trust; <i>Power</i> ; <i>Involvement</i> ; Commitment
Systems	Cai <i>et al.</i> (2005)	Layers of alignment
	Kanter (1994)	Operational integration
	Shelbourn <i>et al.</i> (2007)	Channels of communication
	Lu and Cai (2001)	Agreed work practices; <i>Stakeholder perspectives</i> ; Continuous improvement
Structure	Fawcett <i>et al.</i> (2007)	Information sharing
	van Veen Dirks and Verdaasdonl (2009); Teng and Das (2008)	The allocation of decision rights
	Anand and Mendelson (2007); Jensen and Meckling (1992)	Performance measures and incentives
	van Veen Dirks and Verdaasdonl (2009)	Joint approach to continuous improvement
	Ashenbaum <i>et al.</i> (2009)	Joint reward systems; <i>Integrated personnel</i> ; Spatial proximity
	Chiu and Chang (2009)	A formalised structure; Self-control
Infrastructure	Richert and Rush (2005)	Access to resource; <i>The timeliness of access to resource</i> ; The mitigation of distance between parties
	Power and Simon (2004)	Integration of technologies between parties

Table 5.2: The guiding measures identified from the literature

5.2.3. Survey pilot and refinement

The measures extracted from the literature were combined into a survey tool, known as C-CAT™, as detailed in the Methodology chapter. The survey was piloted, refined and then deployed across the two case study organisations as also detailed in the Methodology chapter. The findings from the survey pilot and the subsequent refinements are presented below.

Key to the development of an effective survey instrument is the pilot stage (Litwin, 1995). A pilot is typically used to identify errors in the survey's form and presentation. Of particular concern was the lexicon used in the survey and its potential to cause confusion and misunderstanding amongst the respondents. By piloting the survey the opportunity was provided to identify and rectify any issues. The other useful purpose of the survey is to identify the typical time it takes respondents to complete the survey.

The survey was piloted with six people – two academics and four staff from Harmonic. The academic staff were included because of their experience in survey design which was be useful in identifying inconsistencies and issues relating to poor design. The Harmonic staff were included as they represented typical respondents and so were useful in identifying any lexicon and timing issues.

The two key findings from the pilot were, firstly, there were some issues with the lexicon in places, and secondly, the feeling of repetition in several places in the survey.

As suspected ahead of the pilot some of the lexicon used in the survey was deemed, *“too academic”* by several of the Harmonic pilot respondents. This was a known risk due to the nature and source of the measures used within the survey instrument. Whilst strives had been taken to address this in the initial construction of the survey there were still areas thought to be confusing because of the language used. This was partially expected from the pilot and as such a useful confirmation that further work was needed to tailor the language to suit the audience. As a result of this finding several of the measures were re-worded to make the lexicon more meaningful and applicable to the likely audience. For example the measure, *‘I believe my organisation has the institutional and human*

knowledge and skills to ensure a complementary fit between the capability of the company and the customer’, became, ‘I believe my organisation has the knowledge and skills to ensure the strengths of each party are effectively utilised’.

Several of the pilot participants commented that, “it felt like there was a lot of repetition”, and, “the language was very mechanistic”. Whilst intentional, the somewhat repetitive style of the measures clearly caused some issues with the pilot participants, which deemed it worthy of further attention. The style and structure of the measures included within the survey was intentionally similar to provide a level of consistency for the respondents. The idea being that they quickly became familiar with the way the measures were being presented and so would be able to swiftly respond to each new measure without having to familiarise themselves with the structure of the question being posed (Oppenheim, 1992). In order not to lose the benefits of consistent style and structure the typography of some of the measures was adjusted to highlight the difference between seemingly similar consecutive measures. This was done quite simply but highlighting the key or unique elements of the measure in bold font. Thus drawing the participants attention to the crucial part of the measure against which they should respond. Two examples of how the differences between measures were highlighted are shown below in Figure 5.3.

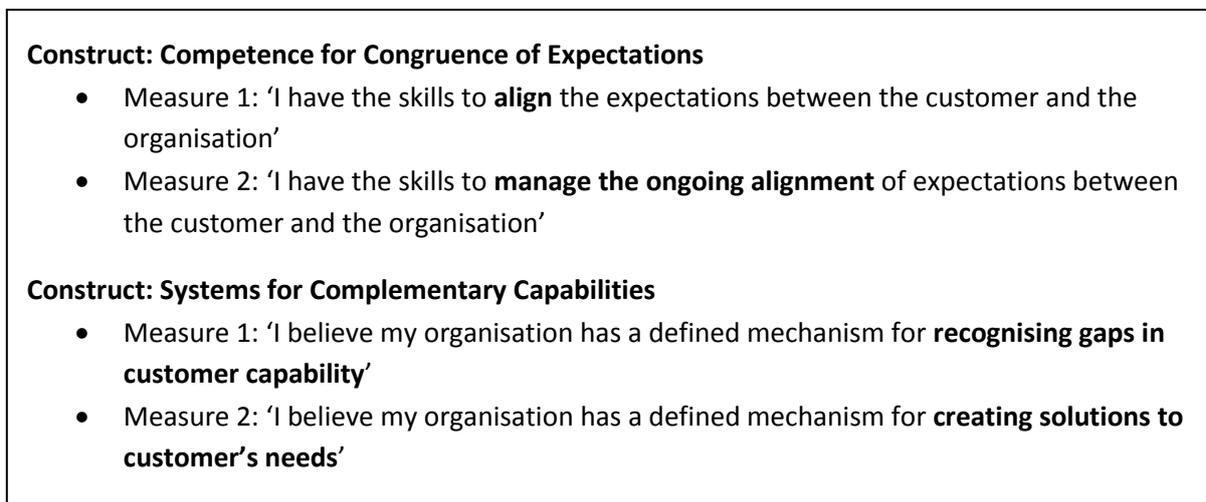


Figure 5.3: Highlighting the differences between measures from the same construct

The survey amendments resulting from the pilot were incorporated in an updated version of the C-CAT™ which was later used in both the Harmonic and Flybe case

studies. The results of which are included in sections 5.3.3 (Harmonic survey results) and 5.3.6 (Flybe survey results) and the subsequent analysis undertaken to validate the framework is detailed below.

5.2.4. Validating the framework

Having refined the OC4VC framework and run the survey with the case organisations, quantitative analysis was undertaken to test the validity of the constructs and measures used within the framework. This analysis was required to empirically validate the OC4VC framework and substantiate the theoretical contribution. As already mentioned the relatively limited data set meant the type and level of validation through quantitative analysis was limited but considered adequate given the primarily exploratory nature of this study and the strength of the supporting qualitative work.

Analysis was done to test for unidimensionality and reliability to ensure the measures for each construct were measuring a single construct, i.e. convergent validity. This was conducted on both the Harmonic and Flybe data sets, the results of these tests are presented below.

Harmonic survey analysis

The survey was distributed to all 27 members of staff at Harmonic. From which 25 complete and usable responses were received, giving a response rate of 92.6%. These responses were tested for unidimensionality and reliability using the Cronbach coefficient alpha. The Cronbach results are outlined below in Table 5.3.

	Competence	Systems	Structure	Culture	Infrastructure
Congruence of expectations	0.831	n/a	0.709	0.778	0.564
Complementary capabilities	0.571	0.623	0.706		
Process alignment	0.425	n/a	0.855		
Behavioural alignment	0.597	n/a	0.579		
Empowerment & control	0.790	0.740	0.740		
Behavioural transformation	0.729	0.924	0.831		

Table 5.3: Harmonic Cronbach coefficient alpha results

11 of the constructs had adequate item loadings (greater than 0.7), 6 of the constructs had a low item loading (less than 0.7) and 3 of the constructs used single items so did not require testing for unidimensionality. The above results show that the majority of the items used to operationalise the constructs are sufficiently reliable to validate the second order constructs. Arguably further work is required to amend the measures used for the six constructs that did not return adequate loadings. This was not done during the course of this study but is suggested as being part of any future activity to further refine and validate the framework.

Flybe survey analysis

The survey was distributed to 41 Flybe staff, with 32 complete and usable responses received, giving a response rate of 78%. These responses were tested for unidimensionality and reliability using the Cronbach coefficient alpha. The Cronbach results are outlined below in Table 5.4.

	Competence	Systems	Structure	Culture	Infrastructure
Congruence of expectations	0.491	n/a	0.635	0.724	0.687
Complementary capabilities	0.425	0.535	0.553		
Process alignment	0.595	n/a	0.634		
Behavioural alignment	0.162	n/a	0.405		
Empowerment & control	0.609	0.392	0.777		
Behavioural transformation	0.454	0.846	0.497		

Table 5.4: Flybe Cronbach coefficient alpha results

Only three of the constructs has adequate item loadings (greater than 0.7), with 14 having low loadings (less than 0.7); the remaining three constructs used single items so did not require testing for unidimensionality. Unlike the Harmonic coefficient alpha results the Flybe results do not provide validation for the majority of constructs. This result does not negate the theoretical contribution made by the framework but does mean that further work should be undertaken to refine, and if necessary add and remove, measures to strengthen the discriminate validity of the second order constructs. Given the time constraints

associated with this study it was not possible to make these refinements and re-run the survey and resulting analysis. This work therefore falls to a future study.

It is difficult to conclusively explain the difference between the Cronbach coefficient results of the Harmonic and Flybe cases. One reason for the discrepancy in item loadings may be that Harmonic staff were better equipped to respond to the survey given their involvement in the KTP project. This will have resulted in Harmonic staff being more familiar with the concepts and language surrounding the co-creation of value and affected their ability to comprehend and accurately respond to the measures presented in the survey.

5.2.5. Summary of theoretical validation

Through the quantitative analysis that was possible, given the predominantly exploratory nature of the study, the theoretical contribution of the OC4VC framework has been validated. The study has shown the convergent validity of the constructs to be sufficient to justify their inclusion in the framework. As a result of which this study can legitimately claim to have developed a framework that defines in detail the organisational capability needed for effective and sustainable co-creation of value.

The content validity assessment led to the removal of the capacity dimension from the validation activity. It is however recognised that capacity is a fundamental part of the overall capability. The decision was made that it could not be adequately tested within the bounds of this study and this is acknowledged as a limitation of this research but an opportunity for further work. The quantitative analysis that did take place has shown that there are weaknesses in the measures used to operationalise the framework. These weaknesses have been recognised, are not deemed sufficient to negate the contribution made by the framework, but have been identified as an area for future work. Alongside which it has already been recognised that it was not possible to test for discriminant validity which would ultimately be needed to fully justify the construct validity. Nonetheless the level of theoretical validation achieved is deemed adequate given the theory building focus of the study.

This section has described the refinement, operationalisation and theoretical validation of the OC4VC framework. What follows are the findings arising from the managerial validation of the framework.

5.3. Managerial Validation

The second element of the validation work was to validate the framework from a managerial or practitioner perspective. This step was important in ensuring the contribution to practice was both useful but also valid. Having already validated the OC4VC framework and resulting survey from a theoretical perspective this separate but related element of validation set out to ensure the framework and the diagnostic survey tool (C-CAT™) were in a fit state to be adopted and used by practitioners. Without this stage of the research there would be no evidence that a contribution to practice had truly been made.

The managerial validation relates directly to the overall purpose of this research which, as stated in the Methodology chapter described the research as, “an exploratory piece of research that seeks to *enhance the understanding* of what is required of organisations seeking to effectively and sustainably co-create value”. It is only through combining the theoretical and managerial validation work that a contribution to ‘enhancing the understanding’ of co-creation capability can credibly be made.

The managerial validation was carried out by deploying the C-CAT™ survey tool (developed from the framework as described in the Methodology chapter) with Harmonic and Flybe. Both the usability and validity of the tool were tested through the ease of application and participation (usability) and the accuracy and appropriateness of the results (validity).

The following sections outline the results, conclusions, recommendations and feedback received from each of the case organisations.

5.3.1. Harmonic survey results

The results of the survey showed Harmonic's capability for value co-creation to be strong and well balanced across the 6 Attributes of Value Co-creation. In key areas such as supporting customers with effective solutions and managing the alignment of expectations the assessment revealed consistently high scoring. The skills and culture required to work collaboratively were shown to be an area of

strength however the process and ownership elements were lacking in several areas which raised concerns of scalability and sustainability. The result is typical of an organisation of Harmonic's size, age and type. The business has been built around highly experienced and skilled people, its size allowing it to be dynamic and agile in accommodating customer requirements.

The survey responses were collated and mean averages calculated for each of the second order constructs. This provides a score, based on the opinions of the Harmonic staff, for how capable Harmonic is at addressing each of the second order constructs. The result is an average scoring that can be illustrated against the framework as per Figure 5.4.

	Competence	Structure	Systems	Culture	Infrastructure	TOTAL
Behavioural Alignment	4.1	3.5	3.3	4.4	3.6	3.7
Complementary Capability	4.2	3.6	3.7			3.8
Congruence of Expectations	3.9	3.5	3.6			3.7
Empowerment & Control	3.8	3.7	3.4			3.6
Behavioural Transformation	3.7	3.1	3.1			3.3
Process Alignment	3.9	3.3	3.4			3.6
	3.9	3.3	3.4	4.4	3.6	3.6

Figure 5.4: Harmonic's capability scoring presented against the framework

Along with representing the results against the framework the survey instrument allows the results to be split out against each set of first order constructs in a spider diagram format, as per Figures 5.5 and 5.6.

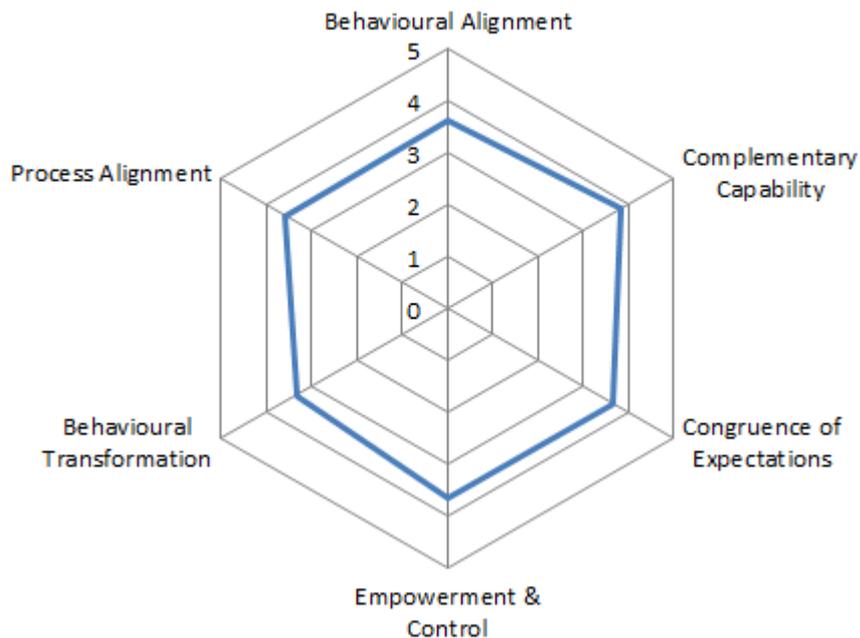


Figure 5.5: Harmonic's capability by Attribute of Value Co-creation

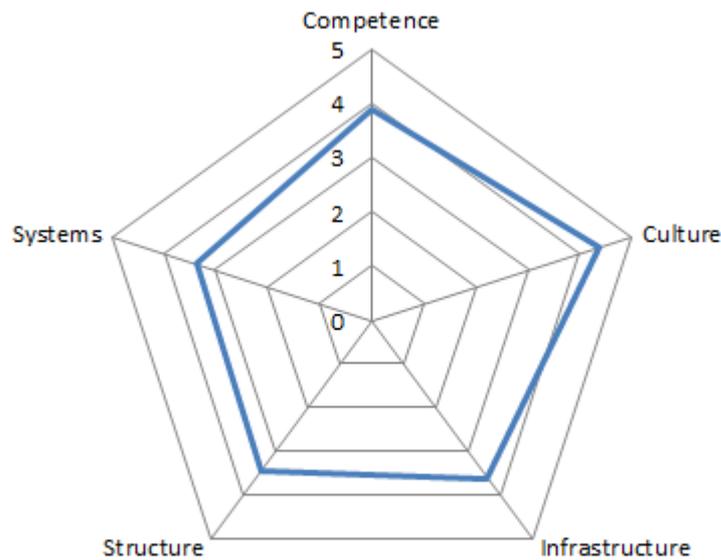


Figure 5.6: Harmonic's capability by Dimension of Capability

The results of the Harmonic survey are explained in more detail below. The explanation has been structured against the Attributes of Value Co-creation.

Congruence of Expectations

The ability to share and align expectations across the stakeholder community, particularly with customers, is one of the fundamental drivers that underpin effective collaboration. With an average score of 3.7 out of 5 managing the congruence of expectations is one of Harmonic's strengths. However there is disparity in the views of Harmonic staff with perceptions ranging from 'strongly disagree' to 'strongly agree' when asked about the dimensions required to manage the congruence of expectations with customers. This is particularly true of the process, governance and ownership dimensions.

The analysis shows that it is the people centric dimensions of competence and culture driving performance in this area. The management of customer expectations is a strong part of Harmonic's client focus value. Where the business was seen to fall short was in explicitly sharing and aligning its expectations and objectives with the customer. The openness and willingness to explicitly share expectations requires a behavioural step change from those involved in managing customer facing activities.

The process (systems) and governance (structure) dimensions whilst producing an adequate scoring were in reality lacking, especially in terms of process. A more robust sales process has been developed for the setup of Capability Partnering arrangements but the ability to align expectations is still very much reliant on the willingness of Harmonic individuals to explicitly share Harmonic's expectations and objectives with customers.

Complementary Capabilities

The ability to continually provide effective customer solutions which minimise customer overhead is the second core driver of value co-creation. It is this driver that provides the continued impetus to work together. Scoring an average of 3.8 out of 5 complementary capabilities was Harmonic's highest scoring attribute.

As with other attributes, Harmonic's performance is underpinned by the competence (4.2 out of 5) and cultural (4.4 out of 5) dimensions required to identify needs, design and where necessary adapt solutions to meet changing customer requirements. There was some disagreement within the business with around the process, ownership and governance dimensions of the ensuring complementary capabilities but strong unison in terms of the availability of the required skills.

Process Alignment

Implementing agreed working practices for sharing information, decision making and communicating is a crucial enabler of efficient working between parties. Aligned practices save time, duplication of effort and help prevent breakdown in communication and lost data. Scoring 3.6 out of 5 Harmonic possesses adequate capability to ensure process alignment with customers.

The areas of process, governance and ownership are again the areas of greatest weakness against this attribute. The alignment of processes was seen to be done on an ad-hoc case-by-case basis and led by customer process. Ownership of process alignment did not exist at customer level, i.e. no single person took control of process alignment with a customer. Instead alignment was driven by individual interface needs, e.g. between finance departments. Such practice may

lead to optimisation of individual interfaces but should be monitored and controlled to prevent constraints in the overall service delivery process.

Process alignment will demand greater attention as the complexity of service delivery increases with introduction of Capability Partnering. Such arrangements are reliant on the regular exchange of information feeding pre-emptive and responsive resourcing activity. The service management process and material relating to Capability Partnering has been developed for this very purpose but has yet to be tested.

Behavioural Alignment

The ability to integrate into customer teams and work seamlessly alongside others is crucial to the successful delivery of all Harmonic services. With an average score of 3.7 out of 5 Harmonic is well positioned against this co-creation attribute. Of particular strength was the skills dimension scoring 4.1 out of 5. There was again disparity amongst the staff when it came to having a defined process for enabling behavioural alignment; responses ranging from 'strongly disagree' to 'strongly agree'. In reality performance against this collaborative driver was supported by the skills and culture of Harmonic individuals rather than robust process with clear governance.

Harmonic's reputation for working seamlessly within customer teams to supplement core roles is a real strength which has been picked up and valued by multiple customers. This reputation should be further helped through the use of tailored induction processes for surge services delivered through the Capability Partnering platform.

As the business takes on more packaged work requiring multi-disciplined delivery teams required to interface with multiple customer contacts the need to build and manage delivery teams takes on greater importance. This presents an area requiring attention as the business moves forwards.

Empowerment & Control

Pro-active communication and decision making are reliant on active leadership and appropriate involvement of relevant stakeholders. This attribute is responsible for ensuring staff and customers are adequately involved and

provided with the skills, responsibility and information required to do their jobs. Capability in this area is often overlooked and subsequently neglected. With a score of 3.6 out of 5 Harmonic's capability in this area was adequate but one of the weak points in its overall capability.

A number of areas of disparity exist within this attribute, most notable of which were: the skills to develop staff, a mechanism to delegate authority, a mechanism to involve customers in decision making, and ownership of customer communications.

The skills required against this attribute again came out with the highest score across the capability dimensions. It was apparent that more active leadership backed by adequate processes was required to make a step change in the way staff are developed and involved in decision making and communication. Progress in this area would lead to more pro-active and behaviour and timely decision making from both staff and customers.

Behavioural Transformation

The ability to continually improve relationships and service delivery is the hallmark of customer loyalty. With Harmonic's plans to move towards managing enduring strategic relationships through its Capability Partnering platform the willingness and agility to adapt and improve was recognised as increasingly important. Scoring 3.3 out of 5, learning from experience was Harmonic's weakest co-creation attribute.

The analysis again revealed an adequate skill base to carry out such activity but the business lacked the clear ownership, governance and processes to guide and control the application of such skills. In addition to this there was also disparity in the existence and robustness of the ownership, governance and processes for continuous improvement activity.

The work done in developing the engagement management elements of Capability Partnering will help embed the ownership, governance and process to facilitate improvement activity. Processes have been created to address both point failures in service delivery as well as pro-active assessment of the direction and appropriateness of the service. These developments have yet to be tested

but will provide the foundation for improvements in Harmonic's ability to learn from experience.

5.3.2. Harmonic conclusions and recommendations

The co-creation capability assessment showed that Harmonic's capability is well balanced across the six co-creation attributes. There is certainly room for improvement in a number of the attributes, particularly learning from experience and process alignment. The strength of the capability was not found to be well balanced across the dimensions of capability (competence, culture, systems, structure and infrastructure). Harmonic's capability and the deployment of that capability is highly reliant on the skills and culture of its staff and in several areas is not backed by adequate process and clear ownership. This assessment has highlighted the areas of relative weakness which provide a focus for improvement activities.

With clear ambitions for growth the scalability and sustainability of customer facing activities will either become a crucial enabler or constraint for the business. The key areas for future improvement are establishing greater leadership and accountability for the individual attributes as well as ensuring robust and consistent processes are in place to manage customer facing activity.

Steps have been taken to introduce more formal processes, toolsets and ownership in several areas through the development of Capability Partnering™ - Harmonic's new business model for long term collaborative customer relationships. The work undertaken through the KTP project has looked to identify and embed the co-creation attributes across the areas of selling, contracting, delivery and corporate activity within the business. These areas form the basis of focused activity both during and subsequent to the KTP project as further detailed in the next section.

5.3.3. Feedback on the Harmonic survey

The use of the survey tool with Harmonic formed a key part of the KTP project taking place alongside this research. The assessment and subsequent results were to be used to help shape the change activity the business was undertaking to improve its ability to co-create. Carrying out the survey and understanding the results was therefore a key enabler to the rest of the project.

The results of the Harmonic survey were captured in a report, detailing the results, conclusions and recommendations outlined above, that was presented to the executive management team. The content of the report was accepted without question as an accurate and pertinent reflection of the business. The Executive's review of the report is encapsulated by the following two comments from key figures in the Harmonic business.

"An easy but effective way of base-lining our current position, prioritising improvements and subsequently measuring our progress" - Managing Director

"The development, piloting and subsequent use of the C-CAT survey tool is a key part of the KTP project. The business welcomes the achievement of this milestone and the contribution it has made to informing the future direction of our improvement activities. We whole heartedly accept the assessment results and will be working to adopting the recommendations as the next step in the KTP project" - Services Director

As part of the KTP project activity the recommendations were included in the project action plan so as to become a core part of the project work. A copy of the action plan from September 2010 is included in Annex E. The business clearly recognised that further work was required beyond the life of the KTP project to test and mature the developments arising from the KTP. To which end a sustainment plan was put in place, the top level highlights of which include the following activities, the origin of which can be traced back to the survey findings presented above:

- **Selling – Business Development Director**
 - Finalise integration of sales process and materials (inc. framework and guidance)
 - Refine and embed set-up process and materials
- **Contracting – Finance Director**
 - Refine Service Level Agreement as tested by initial engagements
 - Commercial training for Business Development and Services staff
 - Pricing Summary updated to reflect guidance and pricing models for Capability Partnering™
- **Delivery – Services Director**
 - Complete development of service management IT systems
 - Roll out demand planning and engagement management process and materials
 - Roll out governance process and materials
- **Corporate – Managing Director**

- Finalise ‘vision and reality’ work with Exec
- Update induction and PDP process

Harmonic continues to work on embedding and refining its processes and practices to reflect the content of the framework. Progress and performance in this area continue to be monitored by the Exec team on a bi-monthly basis.

5.3.4. Flybe survey results

The unit of analysis for the Flybe survey was the collaborative practices used in managing the contracts Flybe Aviation Services has with its rotables suppliers. These contracts were chosen for assessment as they represent relatively high value expenditure and require close management due to the time critical nature of rotables parts.

Flybe demonstrated consistently healthy levels of capability across all six attributes of co-creation. Perhaps more interesting than the capability scores themselves is what is driving the scores. The analysis clearly revealed that Flybe’s performance is reliant on the quality of its people, as with the findings from the Harmonic case. By comparison little evidence was found of best practice in the organisation’s processes and governance to support effective co-creation. Nevertheless the results provided positive reinforcement that the performance and reputation of the business has been built around the organisation’s culture and agility. However the apparent reliance on the quality of staff did raise concerns around consistency, sustainability and scalability. Such issues will be particularly important as the Aviation Services business grows.

The survey responses were collated and mean averages calculated for each of the second order constructs. This provides a score, based on the opinions of the Flybe staff, for how capable Flybe is at addressing each of the second order constructs. The result is an average score that can be illustrated against the framework as per Figure 5.7.

	Competence	Structure	Systems	Culture	Infrastructure	TOTAL
Behavioural Alignment						3.0
Complementary Capability						2.8
Congruence of Expectations						3.0
Empowerment & Control						2.9
Learning from Experience						3.0
Process Alignment				3.8	2.6	3.0
	3.7	2.3	2.6	3.8	2.6	

Figure 5.7: Flybe's capability scoring presented against the framework

As with the Harmonic results the results have been split out against each set of first order constructs in a spider diagram format, as per Figures 5.8 and 5.9.

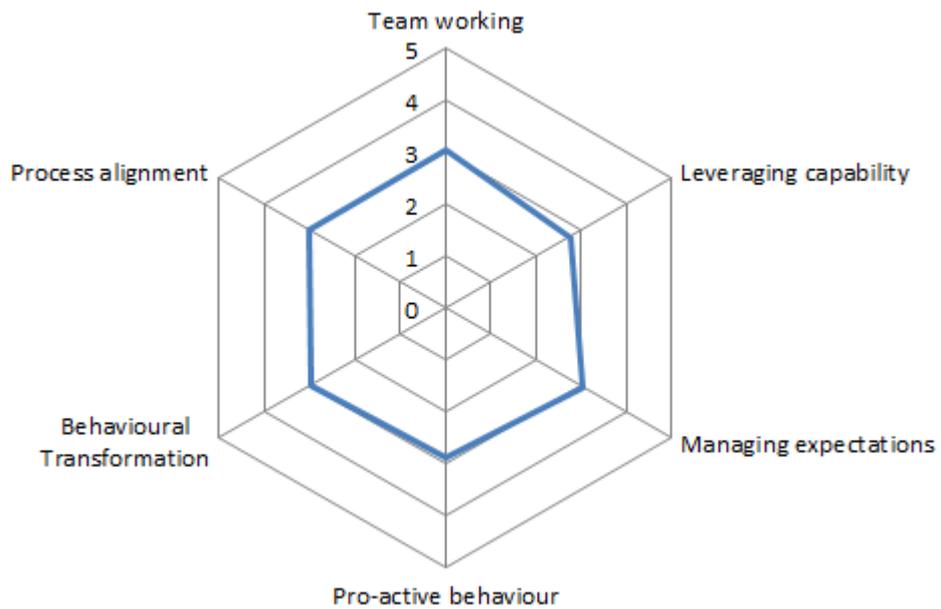


Figure 5.8: Flybe's capability by Attribute of Value Co-creation

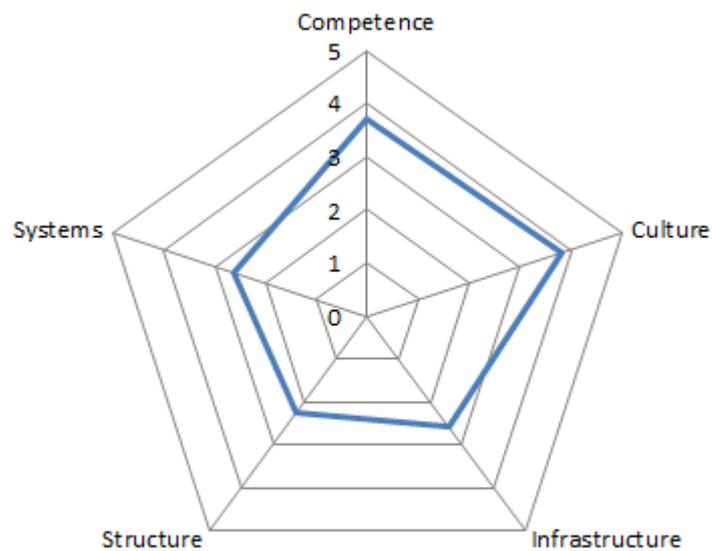


Figure 5.9: Flybe's capability by Dimension of Capability

The results of the Flybe survey are explained in more detail below. As with the Harmonic results, the explanation has been structured against the Attributes of Value Co-creation.

Congruence of Expectations

With an average score of 3 out of 5, Flybe are clearly aware of the need to manage expectations internally and with suppliers. The frequent nature of communication, primarily by telephone and email, with rotatable suppliers was shown to be working to ensure all parties are kept informed.

Performance in this area was clearly driven by the skills and attitude of the staff. This demonstrated not just the competence of Flybe staff but the organisation's commitment to closely managing its key relationships. The survey results indicated that such pro-active behaviour was supported by formal process but little evidence of this was found. Instead the processes in place appeared to be largely tacit and unlikely to be captured in policy or guidance. This is true of much most of the co-creation attributes assessed. Of particular concern was the low survey scores attributed to the lack of internal governance used to ensure expectations are being managed across the supply base.

The analysis revealed little disparity in staff perspectives where it came to managing expectations. However those lower in the organisational structure tended to score Flybe's ability higher than those in middle and senior management.

Complementary Capabilities

With a scoring of 2.8 out of 5 this is Flybe's lowest scoring attribute. However this score perhaps masks the true picture – the performance of the supply base varies across the different suppliers. In addition to the core tier one rotatable suppliers, Flybe has developed a network of tier two and three suppliers that can also provide rotatable parts. This network is leveraged to fill gaps and delays when the tier one suppliers are unable to provide the parts in time. Whilst the ability to manage and leverage the tier two and three network is highly commendable it appears only necessary because the tier one suppliers are unable to satisfy the service levels required to meet Flybe's demand. In essence the additional suppliers are a 'work around' that Flybe invests time and effort in developing and managing to meet deficiencies in its core supply base.

The scoring of this attribute was constrained by a lack of formal mechanisms to assist the ongoing management of poor performing suppliers. So whilst the need for a 'back up' supply base appears commonplace across the industry, more joint demand profiling and risk management between Flybe and its tier one suppliers would help improve supplier performance and reduce the time associated with managing the tier two and three network.

Process Alignment

The use of agreed working practices for sharing information, decision making and communication is a crucial enabler of efficient supplier relationships. Aligned practices save time, duplication of effort and help prevent breakdowns in communication and lost data. With a score of 3 out of 5 Flybe possesses an adequate capability to ensure processes are effectively aligned with its supply base.

As per the other attributes, performance in this area is led by the abilities of staff to agree ways of working with suppliers. Procedural guidance for setting up and agreeing ways of working was shown to be minimal at best. Such activities appear to be conducted on a 'find the best way to achieve the desired outcome' basis. The lack of formal process means the business is reliant on the spread and retention of tacit knowledge in order to consistently deliver successful outcomes. This presents the risk that relationships are reliant on individuals and as they move on the quality and performance of the relationship can easily deteriorate. The retention and sharing of tacit knowledge is highlighted as a key risk and enabler for the future success of the Flybe Aviation Services business.

Behavioural Alignment

With a scoring of 3 out of 5, Flybe demonstrated a clear ability to work with suppliers in a co-operative and aligned manner. As with most areas of this assessment, the performance in this area largely hinged on the culture of the business (scoring 3.8 out of 5) and the skills of staff (scoring 4.2 out of 5).

The time critical nature of rotables supplies requires close working with suppliers. Whilst formal joint teams (Flybe and supplier staff) are not used, the inclusion of technical supplier representatives in the Flybe workplace and the frequency of

communication with suppliers were illustrative of good practice in this area. The allocation of roles and responsibilities between Flybe and its suppliers appeared clear and no evidence was found of friction or disruptive behaviour on either side. The relationships appeared mature enough that individuals could be challenged and confronted where service performance issues arose and collaborative approaches are taken to resolving operational issues.

Constraining the performance of this area appeared to be a lack of process and governance to ensure effective team working with suppliers. A lack of formal process in this area is not necessarily a grave concern given both the apparent levels of team working and the nature of the relationships with rotatable suppliers which don't require formal joint teams to be developed. It was not clear from the findings whether the trade-off between formal and organic team working had been made intentionally but the consequence was highlighted to the Flybe management team.

Empowerment & Control

Empowerment and control is driven by a positive culture, active leadership and the appropriate involvement of relevant stakeholders. Excelling in this area is difficult but has real benefits in terms of the performance and productivity of critical relationships. The survey score of 2.9 out of 5 is deceptive based on the evidence found which suggested a more positive 'can do' attitude and high levels of communication between Flybe and its suppliers. Reliability performance data is constantly monitored and frequently circulated to keep all relevant parties informed. Flybe and its suppliers clearly work hard together to review and improve reliability performance.

The staff appraisal process provided positive encouragement that a mechanism is in place to encourage pro-active behaviour. What appeared to be constraining maturity in this area is corporate governance. The survey indicated that governance within the business was not conducive to timely decision making.

Behavioural Transformation

The ability to sustain relationships with rotatable suppliers over the long term whilst continuing to drive value from those contracts is crucial given the small

number of suppliers in the market. As a result of this Flybe require the ability to learn, adapt and evolve these relationships over time. The assessment revealed a scoring of 3 out of 5 in this area. Again the score is restrained by the apparent lack of formal processes to manage continuous improvement with external parties, such as suppliers. There did however appear to be indication of some formality in resolving arising issues. The areas of governance and ownership relating to continuous improvement with suppliers were also highlighted as areas that could be improved.

Nonetheless, it is clear that Flybe closely monitors performance issues looking for areas for improvement. And whilst there was some disparity in staff opinion on whether Flybe *pro-actively* works with suppliers on continuous improvement, specific examples of continuous improvement with suppliers were noted.

5.3.5. Flybe conclusions and recommendations

The assessment of Flybe's co-creation capability found much to celebrate both in terms of Flybe's underlying capability to co-create and the actual enactment of co-creation practices. There are however always areas that can be improved. Crucial to the value of such an assessment and any follow-on improvement activity is ensuring the areas taken forward are appropriate and targeted. Any efforts to improve capability must be appropriate to the environment in which Flybe operates. This point is raised because it was acknowledged through discussion with Flybe management that scoring 5 out of 5 for each co-creation attribute is not necessarily desirable or more beneficial than perhaps level 3 or 4. This is true because of the dynamic and often transactional nature of the Aviation Services operating environment. Equally improvements should be targeted where they can best leverage benefit to the organisation versus the effort and investment required to achieve them. It is with this in mind that the following recommendations have been made.

The recommendations outlined below are targeted at improving the coherence of Flybe's capability to co-create value which should in turn help support and improve the performance of its strategic relationships, such as those with rotatable suppliers. In seeking to ensure coherence and scalability of capability the recommendations focus on addressing the weaker areas of process and governance.

Recommendation 1: Process capture

In order to continue to leverage the strength of Flybe's skill base as the business grows it was recommended that the working practices associated with developing and managing strategic relationships (be that customer, supplier or partner) be documented through a process capture initiative. The key benefit of such an initiative is capturing the tacit knowledge of the staff that has built up over time and is crucial to the ongoing success of the business. It becomes much easier to share and disseminate this knowledge if it can be documented to some degree. This would provide a consistent base from which to share best practice internally, induct new staff and make succession planning easier. The idea is not to constrain the intelligence and flexibility of staff but to understand the best practice within the organisation and look to replicate it as widely as possible.

It was recommended that the process capture should focus, in the first instance, on how external facing interactions are managed. This would allow the business to address issues such as, what information is shared, with whom, how and when; who is responsible for what and who makes what decisions. It is the interactions with customers, suppliers and partners that determine the effectiveness of the organisation's operations and yet such working practices are too often not commonly understood, let alone pro-actively managed and improved over time.

Recommendation 2: Governance and assurance

Building on the process capture work to better understand how interactions with external partners are managed, greater levels of monitoring and assurance would help ensure those interactions are being managed to greatest effect. This kind of monitoring would complement the core supplier KPIs which are already monitored with a set of 'softer' KPIs which reflect that state of the working relationship rather than purely the output. Such monitoring would help identify areas of inconsistency and trends in the application of the collaborative practices outlined above. This would provide a governance mechanism to ensure everything possible is done to maximise the effectiveness of Flybe's working relationships as well as a means of identifying areas of best practice that can be shared and replicated.

5.3.6. Feedback on the Flybe survey

As with the Harmonic survey, the results of the Flybe survey were documented in a report that was presented to members of the Flybe Aviation Services management team. The results were unanimously accepted as an accurate reflection of the business. The core finding that Flybe's success is built upon the quality and knowledge of its people did not come as a surprise to the Flybe team. They were well aware of this and also of the underlying weakness arising from a lack of formal process and governance in some parts of the business. The general consensus amongst the Flybe team was that of, 'it hasn't told us anything we didn't already suspect, but has confirmed all our concerns', this is typified by the following comments from two of the management team.

"You absolutely hit the nail on the head in identifying our weaknesses" -
Head of Line Maintenance

"I can't believe how insightful the output was given the efficiency of the assessment process. This was a hugely useful exercise in identifying where we need to focus our effort as the aviation services business grows" -
Director of Aviation Services

It is worth pointing out that the lack of formal process and governance applies purely to working practices of the rotables part of the Flybe Aviation Services business. This lacking was not found in any way to affect the regulatory or safety aspects of Flybe's operations as these were out of scope of the survey assessment.

The recommendations outlined above were acknowledged as appropriate and required in order to help protect the business as it continues to grow. However no concrete commitment was made by Flybe during the case period to enact the recommendations so the longer term impact of the assessment is not known.

5.3.7. Summary of managerial validation

The second element of the validation work was to validate the framework from a managerial perspective. Having already validated the framework and resulting survey from a theoretical perspective this separate but related element of validation set out to ensure the framework and C-CAT™ diagnostic survey tool were fit for purpose in being adopted and used by practitioners. Without this

stage of the research there would be no evidence that a contribution to practice had been made.

The managerial validation was carried out by deploying the C-CAT™ tool with Harmonic and Flybe. Both the usability and validity of the tool were tested through the ease of application and participation (usability) and the accuracy and appropriateness of the results (validity). The validation work revealed that the OC4VC framework has provided practitioners with a significant contribution in aiding the understanding and application of value co-creation. This contribution is furthered through the combination of the framework and the C-CAT™ diagnostic tool which allows firms to be assessed against the capability described within the framework.

The value and impact of these benefits are validated by the case study work with Harmonic and Flybe. The use of the survey tool with Harmonic formed a key part of the KTP project taking place alongside this research. The assessment and subsequent results were to be used to help shape the change activity the business was undertaking to improve its ability to co-create. The value of the assessment was described by Harmonic's Managing Director as, *"an easy but effective way of base-lining our current position, prioritising improvements and subsequently measuring our progress"*. The results from the Flybe assessment were unanimously accepted as an accurate reflection of the business. As with the Harmonic assessment the feedback from the Flybe management team fully endorsed the assessment process and output - *"I can't believe how insightful the output was given the efficiency of the assessment process. This was a hugely useful exercise in identifying where we need to focus our effort as the aviation services business grows"* - Director of Aviation Services.

The tool is not only accurate but efficient in application. As described in the Harmonic and Flybe feedback sections the combination of ease of use and robustness were rated as real highlights within both case studies. The robustness is obviously important when developing any tool for practice, but the fact that it can be applied efficiently will contribute hugely to its adoption and use by practitioners.

6. Discussion

This discussion chapter draws together the implications for theory and practice resulting from this exploratory study. This introductory section reiterates the theoretical basis of the study, summarises the work undertaken, and outlines the contribution this study has made. The chapter then moves on to address the implications for theory and practice in more detail.

Service-dominant Logic (SDL) proposes service as the central purpose of exchange and in doing so provides a theoretical understanding of how organisations collectively create value through service interactions (Vargo and Lusch, 2004). SDL states that value is not provided by organisations for the benefit of others, but instead value is always co-created by all involved parties. This logic changes the traditional roles of the customer and supplier in creating value. The crucial implication for firms being they are required to manage customer's involvement in the co-creation process in order to ensure they effectively utilise the firm's value proposition. Adopting SDL as a strategic business logic requires organisations to develop and nurture capabilities that facilitate and enhance the co-creation of value (Karpen et. al., 2008).

Most of the extant literature on value co-creation has focused on the process of co-creation, very little has been done to address the underlying capabilities required to ensure consistent and effective co-creation of value. This exploratory study aimed to address that gap by defining the organisational capability needed to effectively co-create value. In doing so the study has sought to provide organisations with some of the information and understanding needed to begin developing the required organisational capability. The overarching objective this study set out to achieve was, to identify and validate a framework to describe the organisational capability for value co-creation. The study was divided into two parts: firstly the development of a conceptual framework, and secondly the empirical validation of that framework.

The conceptual framework is developed from the literature on value co-creation and organisational capability. This stage of the research developed a conceptual six-by-six framework which mapped value co-creation constructs against organisational capability constructs. The subsequent validation stage resulted in the conceptual framework being refined into a six-by-four plus two framework

along with the production of a diagnostic analysis tool. The refined framework and diagnostic tool were tested with two case studies through which both theoretical and managerial validation is demonstrated, along with some limitations.

The study contributes to theory by defining and operationalising the organisational capability for value co-creation. The OC4VC framework, which encapsulates the capability, is validated from both theoretical and managerial perspectives. The contribution made by the framework and the associated diagnostic tool are outlined in more detail later in this chapter.

The final section of this chapter discusses the contribution to practice. This study provides practitioners in business-to-business industries with both insight and tangible tools to help improve the enactment of value co-creation within their organisations. The two tangible outputs from the study are the OC4VC framework and the C-CAT™ diagnostic tool.

6.1. The organisational capability for value co-creation explained

Having created the OC4VC framework to explain the organisational capability for value co-creation practitioners are provided with the kind of depth and detail needed to manage the implications of value co-creation. To demonstrate the meaning and implications of the constructs used to constitute the OC4VC an explanation is provided below as to what they mean for organisations, how they can be addressed and how the Harmonic case informed the definition of the constructs.

Competence constructs

The organisational *competence* to co-create value is defined by how well the firm's institutional and human knowledge and skills can be applied to deliver against the six Attributes of Value Co-creation. For example, the competency to ensure complementary competencies is defined by how well the firm's institutional and human knowledge and skills are able to continually ensure a complementary fit between the knowledge and skills of the firm and the customer. The Harmonic case (see table 5.1, page 83, ref. F1 and F2) showed that this type of competency can be attained with policies that ensure the

customer and company share information on each other's competencies, to achieve complementarity. Harmonic did not however complement these policies with joint training or evaluation of technology and assets that are complementary with customers. Furthermore, the firm is required to build expertise throughout the organisation that allow it to understand, align with and adapt to changes in customer expectations, processes and behaviours (see table 5.1, page 83, ref. F4). Specific skill sets are needed to ensure behaviours are transformed in the firm and customer domains, where necessary changes produce improved outcomes (see table 5.1, page 83, ref. F3). This is not merely about training of employees but ensuring the roles within the firm are re-defined for the execution, rather than impediment, of such behaviours.

During the course of the Harmonic case a new role was created within the firm to act as the conduit for transforming and aligning behaviours between Harmonic and customers. The Engagement Manager role took responsibility for not only managing the delivery of customer projects but, perhaps more importantly, ensuring the roles, skills and behaviours of Harmonic and the customer were aligned to productively benefit both sides. Whilst creating an additional overhead the Engagement Manager role was shown to be crucial in ensuring the cost efficiency of delivering customer projects and helped improve customer loyalty leading to additional future business.

Capacity constructs

Organisational *capacity* is defined as the level and effectiveness of output possible in a given time period with a predefined level of staffing, facilities and equipment (resources). However, outputs are determined by how such resources interact and the quality of the interactions and processes. Thus, the capacity to co-create value is defined by the firm's ability to deploy necessary resources (be it people, facilities or equipment) to facilitate the service delivery in line with the six attributes. Hence the capacity for complementary competencies is defined by how well the firm is able to deploy the necessary resources to complement the customer's lack of resources to achieve outcomes. This is an area where Harmonic excelled. The Harmonic business model is based on maintaining a relatively small core of permanent staff but complementing this with the ability to deploy teams consisting of Associates (independent contractors/practitioners)

drawn from a very large resource pool. This ability to surge and flex capacity provided the ideal means to complement the customer's lack of resources in any number of areas (see table 5.1, page 83, ref. F6). Through observation of customer meetings it became clear that customer's truly valued Harmonic's ability to surge resource in this way and this was a large part of the value that Harmonic brought to customers (see table 5.1, page 84, ref. F7).

Higher levels of trust can improve capacity effectiveness and quality by reducing transaction and monitoring demands and costs. Similarly, the necessary resources should be identified and allocated to facilitate the behavioural transformation and process alignment, and where appropriate the relevant training should be provided to sufficient numbers of people to enhance capacity effectiveness while co-creating value with customer.

Culture constructs

The organisational *culture* to co-create value is defined as, holding collective assumptions, behaviours and values that are customer focused to collectively co-create value across all co-creation attributes to achieve joint outcomes. The drive and desire to achieve jointly beneficial outcomes was one of the most defining features of the Harmonic culture (see table 5.1, page 84, ref. F9), particularly so of the delivery staff. The whole ethos behind delivering customers projects was that of, *"deliver the customer's outcomes and we will in turn achieve our outcomes"*. The culture to co-create value largely reflects a partnering culture which encourages, through reward and communication, win-win situations realised through complementary interdependence between parties. Everyone in Harmonic fully understood this and appeared pro-active in targeting win-win situations (see table 5.1, page 84, ref. F8).

A variety of approaches are required to nurture the necessary culture which include: creating a value set that emphasises regular and open communication; formal skills sharing mechanisms; encouraging agility by rewarding innovation; promoting trust and openness through transparency and delegation of authority; and nurturing continuous improvement through empowerment and reward incentives. Whilst not all of these mechanisms were in place within Harmonic

they appeared to be doing enough to nurture the required culture for value co-creation (see table 5.1, page 84, ref. F10).

The behaviour of individuals within the firm is hugely influenced by the prevailing culture. It is the behaviour of employees, acting upon and within the firm's capability, which ultimately determines the effectiveness of the firm's role in co-creating value with the customer. Hence, nurturing the culture to effectively co-create value should be seen as a formal and crucial activity and so prioritised accordingly within the firm's ongoing activities and any improvement initiatives.

Systems constructs

The organisational *systems* to co-create value are defined as the processes, procedures and tools required to consistently manage service delivery exhibiting all the attributes of co-creation. In order to achieve this, firms should deploy the tools and processes to assess and map competences allowing analysis of the complementary fit across the stakeholder community (see table 5.1, page 85, ref. F13). To ensure congruence of expectations robust processes should be incorporated to ensure roles, responsibilities and boundaries are clearly mapped and enable effective ongoing communication between parties to clearly understand each other's expectations (see table 5.1, page 85, ref. F11). To this end the implementation of tools and techniques such as business process management (BPM) or other process change management techniques to map, change and integrate interface processes for better process alignment and more effective co-production are warranted. A formal approach and tools are required to aid the sustainability of delivery through behavioural alignment. Many such tools arise from the areas of team dynamics and collaboration. In addition, a formal approach and tools for auditing behaviours and managing any necessary change activity is required to ensure the continued effectiveness of service delivery. Empowerment and control, through the use of systems and processes, can be developed by allowing flexibility in internal processes and systems to ensure adaptability and agility.

The systems elements of the organisational capability for value co-creation were by far the weakest elements of Harmonic's capability (see table 5.1, page 85, ref. F12). The business lacked the formal process and tools described above (see table

5.1, page 85, ref. F14). Harmonic's ability to co-create value was very much predicated on the quality of its people, i.e. the competence and culture dimensions of capability. The lack of formal systems to support the effective co-creation of value was recognised as a constraint in achieving the company's growth aspirations and so initiatives were put in place to identify and develop the required processes and tools.

Structure constructs

The organisational *structure* to co-create value is defined as the use of structure and governance mechanisms to maintain a core of stability whilst providing the ability to address and adapt to the six co-creation attributes encountered across customer environments (see table 5.1, page 86, ref. F15 and 16). Consequently structure should provide the ability to learn about, and adapt to, a variety of customer environments. Additionally the organisational structure should be used to provide a flexible and agile interface to manage changes in customer capability and requirement. A sense of empowerment and control in the firm and the customer should be nurtured by delegating power and authority appropriately to levels where the impact of decisions is best understood and can be managed (see table 5.1, page 86, ref. F17). Finally, flexible governance mechanisms and dissemination of authority should be implemented to encourage staff to influence change in customer behaviour where service outcome benefits can be jointly realised.

Translating the customer specific nuances (process, preferences and behaviours) into standard ways of working within the business caused a tension between the external facing parts of the business and the internal supporting functions. Dedicated Business Development and Engagement Management staff were used to be flexible and agile at the interface with customers. However internally the support functions, such as the resourcing and contracts teams, were being asked to work in different ways for different customers causing inefficiencies and additional work. The business realised that a balance had to be struck between customer facing agility and internal consistency and efficiency (see table 5.1, page 86, ref. F16). Harmonic decided that the benefits of long term contracts and customer loyalty from providing customer facing agility warranted the need to grow the support functions and create different processes to cope with the

demands of delivering against customer agility. This decision provided its own challenges in terms of the structure of the organisation and the governance needed to control the internal and external operations.

Infrastructure constructs

The organisational *infrastructure* to co-create value is defined as the material, equipment, IT and physical environment that effectively support service delivery in accordance with the six attributes. Organisations should strive to create an infrastructure that utilises IT and the physical environment to effectively support communication and data sharing amongst the stakeholder community which will in turn help ensure congruence of expectations and behavioural alignment (see table 5.1, page 87, ref. F18). The IT and communications infrastructure should also be capable of supporting, and indeed enabling, interface processes, roles and responsibilities, thus strengthening the process alignment. The alignment and sharing of IT systems is crucial in enabling visibility across organisational boundaries, which in turn encourages the timeliness and efficiency of inter-organisation working. Harmonic have typically struggled to achieve the kind of inter-organisation visibility which has caused countless delays in the project setup and approval process as well as invoicing (see table 5.1, page 87, ref. F19). Steps to provide customers with web portals detailing project details, progress and invoices have been made but the rate of customer adoption has not warranted the systemic use of such portals with all customers. There will always be a reluctance to share and align IT systems between organisations because of access and security concerns. The challenge for organisations is to identify what level of alignment is both beneficial and practical.

The infrastructure should effectively support collaboration and skills sharing and thus strengthen complementary competencies. It is important to create an infrastructure that allows the customer visibility and access to the people, information, equipment and facilities involved in service delivery as this will promote empowerment and control within the customer. The ability to easily meet with and host customers at the Harmonic offices was acknowledged as an important enabler of long term customer relationships (see table 5.1, page 87, ref. F18). As such, investment has been made in expanding the office facilities to provide a range of meeting and workshop rooms as well as hot desk facilities.

6.2. Implications for theory

The research contributes to theory by defining and operationalising the organisational capability for value co-creation. This is done first by deriving the Dimensions of Capability from the literature on organisational capability and then demonstrating how these dimensions need to be configured within an organisation in order to drive the presence and performance of the Attributes of Value Co-creation which are responsible for the creation of value with the customer. The output of this research is encapsulated in the Organisational Capability for Value Co-creation (OC4VC) framework which maps the Dimensions of Capability against the Attributes of Value Co-creation. This contribution to theory is described illustratively in Figure 6.1.

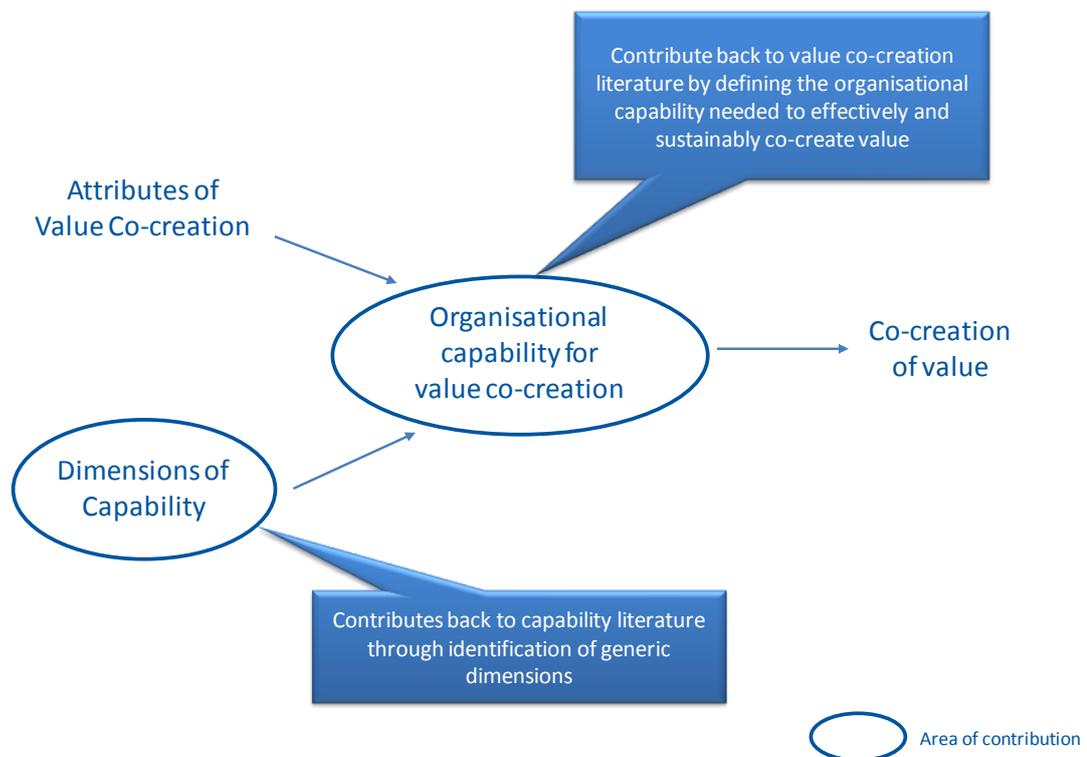


Figure 6.1: The contribution to theory

The two areas of contribution are further discussed in the following sub-sections.

6.2.1. The Dimensions of Capability

The key implications for theory discussed in this section are as follows:

- A holistic set of capability dimensions
- The opportunity for further research presented by the holistic dimensions

The capability literature focuses on specific types of organisational capability (e.g. financial, strategic, and technological) and their constituent attributes (e.g. Eisenhardt and Martin, 2000; Helfat, 2000; Ulrich and Lake, 1991; Teece *et al.*, 1997). However, little work has been done to identify the common foundations and components of all types of capability. This research has sought to address this gap by identifying holistic capability dimensions from the literature.

The capability dimensions derived through this research provide a basis from which the specific capability types (e.g. financial and strategic) can be re-examined to provide further detail and understanding of their constitution. Building on this concept the holistic dimensions can be used as a common basis from which to compare and contrast the different capability types previously identified by Eisenhardt and Martin (2000) and Ulrich and Lake (1991). Additionally the dimensions can be used to help construct detailed definitions of emerging capabilities.

The way in which the Dimensions of Capability are mapped against the Attributes of Value Co-creation to form a framework is a concept that can be re-used. By reusing the framework structure other types of capability can be mapped against the DoC, i.e. replace the AVC in framework with the attributes of strategy, finance, technology, or innovation. This could help to identify areas of commonality and disparity which would aid firms in planning their organisational development activities. The ability to conduct such comparisons across capability types will allow the relationships between capabilities to be identified, an issue recognised by Teece *et al* (1997) at the time in their work on dynamic capabilities. Arguably it is the relationships between such capabilities and how they interact that dictates the effectiveness of the capabilities and therefore the organisation. The holistic definition of organisational capability presented in this study provides the opportunity to further the work done by Ulrich and Lake (1991) on the link between organisational capability and competitive advantage. Hence the contribution to theory made by identifying a common capability foundation is significant and has created an opportunity for further research in this area.

This contribution can be evidenced in the practical domain by Harmonic's adoption of the dimensions as the standard structure within which service development and governance takes place. The use and impact of the dimensions

within Harmonic is further explained in the Implications for Practice section below (page 128).

6.2.2. Organisational capability for value co-creation

The key implications for theory discussed in this section are as follows:

- The definition of the organisational capability for value co-creation
- Identifying the need for a coherent and balanced organisational capability if co-creation of value is to be sustainable
- Not all elements of the organisational capability for value co-creation are equal

Most of the extant literature on value co-creation has focused on the process of co-creation, very little has been done to address the underlying capabilities required to ensure consistent and effective co-creation of value. This research has addressed that area of weakness, by defining and testing the organisational capability needed to effectively co-create value. In doing so a contribution to the understanding of value co-creation has been made that builds on the largely theoretical and conceptual work of Prahalad and Ramaswamy (2004), Vargo and Lusch (2004, 2008), Lengnick-Hall (1996), and Karpen and Bove (2011).

The recent work of Karpen and Bove (2011) sets out a Service Dominant orientation which includes a portfolio of six strategic capabilities that constitute a co-creation capability. However, their work only exists in the conceptual realm and so does not provide the depth or validation provided by this study. Consequently this study provides a greater theoretical and managerial contribution to the understanding of value co-creation. Additionally the framework and particularly the Dimensions of Capability provide a structure through which the Karpen and Bove's (2011) six strategic capabilities could be further researched.

The area of previous research that this study most closely aligns with and complements is the work of Ng *et al* (2010) who derived and validated the Attributes of Value Co-creation (AVC). The AVC were adopted in this study as one of the two sets of first order constructs and as such provided the fundamental underpinning to the value co-creation dimension of the framework that was produced. The findings produced by this study not only complement the prior

work by Ng *et al* (2010) but extend it by providing a more in depth understanding of how the AVC need to be configured within an organisation to maximise the co-creation of value. In essence it is this understanding of the configuration of the AVC that is the contribution made by this study.

In addition to complementing and building on the AVC work by Ng *et al* (2010) this study complements the existing process focused co-creation work (e.g. Payne *et al.*, 2008; Ordanini and Pasini, 2008). Greater depth of understanding is provided on how organisations need to configure and prepare themselves for the process and specific instances of value co-creation. The research shows the depth and breadth of what must be in place for the value co-creation to be consistently and effectively enacted by organisations.

The OC4VC framework provides a tangible output from the research which can be further validated by research into both the organisational capability side of value co-creation, and the process and enactment side of co-creation. Suggested areas of future research are outlined below in section 7.2.

The central purpose of this research was to define the organisational capability for value co-creation. This has been done and is encapsulated in the OC4VC framework. In addition to the framework itself a number of discoveries have arisen from the process of creating the framework have been identified and are detailed below.

This research has shown that effective and consistent value co-creation requires co-ordinated and significant organisational development across a range of areas within the business. Crucial to developing the organisational capability for value co-creation is not ensuring the organisation is good at all the individual elements (or constructs) but instead ensuring the organisation is capable of drawing on a rounded, coherent and appropriate capability that spans all elements of the framework. This proposition echoes the central concepts of systems theory. It is the interaction of all the elements that will dictate the strength of the organisation's capability, not the strength of the individual elements themselves (Checkland, 1981). The two cases presented here have shown that strengths in the people areas (competence and culture) can compensate for relative weaknesses in other areas (process and governance). As such the approach and

theory for developing the organisational capability for value co-creation is suggested as a topic for future research. The opportunity exists to explore how organisational change and systems theory can be used to inform the development of the organisational capability identified in this study. This point is picked up in the Future Research section in the Conclusion chapter (page 136).

Effective and consistent value co-creation should be the result of a balanced capability. It is recommended that organisations do not rely entirely on the people dimensions for the co-creation of value; the process, systems and infrastructure dimensions must support their actions if co-creation is to be truly successful. Both of the case study organisations were shown to be heavily reliant on the people dimensions but recognised the challenge this presented in wanting to grow their businesses.

Whilst no work is done in this study on providing a weighting of importance across either the Dimensions of Capability or the Attributes of Capability, a reliance on the people dimensions is not recommended. It is suggested that the people dimensions are the critical enablers to effective, but not necessarily efficient, co-creation. Given the interactive and relational nature of co-creation, having the right competences and culture within the organisation is absolutely fundamental to creating an environment where effective co-creation flourishes. This applies regardless of the level of human-to-human interaction in service encounters, as people are still responsible for designing and managing automated technology-based service experiences.

Building on the previous point it is suggested that the capability dimensions of systems, structure and infrastructure are key to enabling the efficient co-creation of value; as opposed to the people dimensions which play a greater role in ensuring effectiveness. As well as ensuring the efficiency of individual service encounters, the systems, structure and infrastructure dimensions are vital to ensuring consistency and scalability – issues that both case organisations have struggled with. The OC4VC framework provides the case organisations the information needed to begin addressing the apparent areas of weaknesses revealed by the survey. The OC4VC framework provides organisations with the level of detail needed to provide direction on how their organisations should develop and configure the dimensions of systems, structure and infrastructure.

Whilst most of the capability dimensions break down into sub-elements (second order constructs) for each of the attributes of co-creation the underpinning dimensions of culture and infrastructure have been shown not to do so in the same manner. Second order constructs have been identified for the infrastructure and culture dimensions, however sufficiently unique measures have not been identified. This led to the dimensions being presented as first order constructs, and not being broken down into six constituent second order constructs per dimension. This discovery offers a better understanding of how the dimensions of culture and infrastructure provide a common underpinning of any organisational capability.

6.3. Implications for practice

This study provides practitioners in B2B industries with both insight and tangible tools to help improve the enactment of value co-creation within their organisations. The two tangible outputs from the study are the OC4VC framework and the C-CAT™ diagnostic tool; the implications, benefits and applicability of these outputs are described below.

6.3.1. A 'best practice' framework

The key implications for practice discussed in this section are as follows:

- Effective co-creation requires a particular type of organisational capability
- The importance of managing its interaction and relationships with customers
- The need for the whole organisation to work together to co-create value

Practitioners are provided with a detailed description of what is required of their organisations if they are to sustainably and effectively co-create value. The OC4VC framework provides a robust baseline against which organisations can compare themselves, through use of the C-CAT™, and plan the required organisational development activity. It enables practitioners to develop their understanding of how organisation can be more effectively configured for value co-creation as well as how to design and deliver service to encourage the co-creation of value with the customer. It is exactly this kind of tangible artefact that practitioners have been calling for in supporting them to both understand and enact the co-creation of value.

The organisational capability for value co-creation presents several important implications for practitioners wishing to better understand value co-creation. Firstly, it makes clear that managing an organisation for effective co-creation of value requires a particular type of organisational capability. A capability that doesn't necessarily align with the traditional organisational capabilities but one that could provide a significant competitive advantage if effectively implemented. Secondly, it backs up the core premise of value co-creation in that it makes clear the fact that value must be co-created through interactions and relationships. As such the organisational capability that is described by the framework is focused on the firm's ability to manage its interactions and relationships rather than its internal operations. Thirdly, and finally, value co-creation requires cross organisational and functional working. The content of the framework does not neatly align with the traditional functional responsibilities within an organisation. The core elements of the organisational capability, i.e. the Attributes of Value Co-creation, span both functional and organisational boundaries, which makes the effective implementation of those elements complex. Fundamental to achieving the cross organisational and functional working needed to effectively co-create value is a conducive culture. This research has shown that a single coherent culture must be present throughout the organisation that encompasses a set of collective assumptions, behaviours and values that are customer focused. In fact nurturing a single coherent culture was shown to be the crucial enabler within the Harmonic case to develop the organisational capability for value co-creation. Without this coherence the other elements of the co-creation capability are unlikely to be fully exploited.

The usefulness of the OC4VC framework is encapsulated in the level of detail and structure it provides. This structure and detail provides practitioners with something tangible, intelligible and useful against which they can compare themselves and target development activities. Without this level of detail and prescribed structure, practitioners have been left with value co-creation as an esoteric concept that whilst great in theory has proven difficult to invoke in a structured way. The OC4VC framework, combined with the C-CAT™, addresses this theoretical to practical void.

The applicability of the OC4VC framework is built upon its lack of bias towards any industry, organisational size or type. It has been specifically designed, and tested, to be generically applicable to business-to-business service-based organisations. The wide ranging applicability of the framework adds to the significance of the contribution made to practice.

A further contribution to practice is made through the ability to re-use the framework format by re-configuring it for other types of organisational capability. As described above in section 6.1.1, by reusing the framework structure other types of capability can be mapped against the DoC, which is exactly what Harmonic has done. Harmonic adopted the Dimensions of Capability by embedding them in the approach and documentation used to create new services, nurture the ongoing maturity of services and govern the service portfolio; as evidence by the sustainment plan on page 83 and action plan in Annex E. The use of a common and consistent set of dimensions makes it easier for staff from different parts of the business to work together and contribute through a known process. The adoption of the Dimensions of Capability has allowed the business to move away from the style of individuals dictating how services are developed and provided a personality free approach that has been shown to be both more effective and more efficient.

The OC4VC framework has provided practice a significant contribution in aiding the understanding and application of value co-creation. This contribution is furthered through the combination of the framework and the C-CAT™ diagnostic tool which allows firms to assess themselves against the framework. The development, applicability and benefits of the C-CAT™ are described in the next section.

6.3.2. Usable diagnostic tool

A contribution to practice is made through the creation of a robust and usable diagnostic tool, known as C-CAT™, the Co-creation Capability Assessment Tool. The tool was created to provide a means of validating the second order constructs generated to populate the OC4VC framework. Subsequent to this validation the tool has been developed to provide practice with a usable diagnostic tool that can be applied to assess a firm's capability against that outlined in the OC4VC framework. As such the tool is complementary to the framework and indeed a

hugely useful enabler in a firm understanding how it compares to the framework and where to focus its development activity.

The application of the tool within the two case study organisations demonstrated its validity and usability. Following the KTP project the tool was incorporated into the EPSRC's Knowledge Transfer Box (KT-Box) research programme. The KT-Box is an EPSRC supported Knowledge Transfer Award to develop practical tools and techniques that enable industry and other users to adopt findings from recent service research. Involvement in the KT-Box programme provided the funding to further develop the tool based on the case study findings.

Through the tool development process set out by the KT-Box, the tool was added to through the creation of an Artefact Workbook and an Interview Workbook. The Artefact Workbook provides the guidance and documentation needed to conduct a review of documents that would be expected to contain evidence of either process or practice that aligns with the organisational capability contained in the OC4VC framework. The artefact review provides the opportunity to analyse a collection of the firm's artefacts for evidence in support of or contradiction to the results arising from the survey element of the assessment. The Interview Workbook was created to guide the questioning of firm staff which follows the survey and artefact review. Interviewing a small selection of staff provides the opportunity to ask more detailed questions seeking clarification or explanation of findings arising from the survey and artefact review.

The C-CAT™ tool has now been approved by the KT-Box as a fully usable and exploitable tool and opportunities to deploy it are actively being sought by the academic partners, the universities of Exeter, Cambridge, Nottingham, Cranfield and Warwick, and the company partner, Harmonic.

The use and further development of the tool has shown its value and effectiveness. Specifically it has been shown to provide practitioners the following benefits:

- Objective evidence of capability
- Areas of success to be celebrated and replicated
- Identification of constraints preventing effective service delivery
- Outline recommendations for improvement
- Benchmark across teams, programmes, business units

The value and impact of these benefits were validated by the case study work with Harmonic and Flybe. The use of the survey tool with Harmonic formed a key part of the KTP project taking place alongside this research. The assessment and subsequent results were to be used to help shape the change activity the business was undertaking to improve its ability to co-create. The value of the assessment was described Harmonic's Managing Director as, *"an easy but effective way of base-lining our current position, prioritising improvements and subsequently measuring our progress"*. The results from the Flybe assessment were unanimously accepted as an accurate reflection of the business. As with the Harmonic assessment the feedback from the Flybe management team fully endorsed the assessment process and output - *"I can't believe how insightful the output was given the efficiency of the assessment process. This was a hugely useful exercise in identifying where we need to focus our effort as the aviation services business grows"* - Director of Aviation Services.

The tool is not designed for single use but to be applied repeatedly over time. The continued application, at appropriate time intervals, allows organisations to track their progress in developing and maintaining the organisational capability for value co-creation. The scores from each application can be contrasted to reveal patterns and trends over time. This ability for re-use helps extend the useful life and value of the tool.

The tool is not only accurate but efficient in application. As described in the Harmonic and Flybe feedback sections of the Findings chapter the combination of ease of use and validity were rated as real highlights within both case studies. The validity is obviously important when developing any tool for practice, but the fact that it can be applied efficiently will contribute hugely to its adoption and use by practice.

7. Conclusion

The study has contributed to theory by defining and operationalising the organisational capability for value co-creation. The OC4VC framework, which encapsulates the capability, has been validated from both theoretical and managerial perspectives. However, it is recognised that the timing and context within which the research was undertaken placed certain constraints on the work. The limitations and opportunities for further research are outlined below and focus on dealing with the capacity for co-creation, extending the generalisability of the findings, and investigating how best to develop the capability articulated by the OC4VC framework.

This concluding chapter acknowledges the limitations of the research, makes suggestions for further work and closes with some concluding remarks.

7.1 Limitations

As with any study the context and timing present a set of constraints that must be worked within. The key limitations identified during this study are outlined below and where appropriate picked up in the following further research section.

7.1.1 Dealing with capacity

The content validity assessment concluded that due to the difficulties in measuring capacity the 'Capacity' dimension of capability should not be included as part of the survey tool that was being developed to validate the framework. The measures arising from the capacity dimension and its constituent second order constructs would require the survey participant to respond to questions the nature of which no one member of staff could credibly or reliably answer. The difficulty in measuring capacity is not thought to result from the limitations of the survey instrument but instead arises from the nebulous nature of capacity.

Lovelock (1992) described the capacity of a service firm as, "*the highest quantity of output possible in a given time period with a predefined level of staffing, facilities and equipment*". Adopting this definition leads us to be concerned with two factors: firstly the *amount of time* dedicated to an activity, and secondly the *level of resource* (e.g. staffing, facilities or equipment) dedicated to an activity. Hence capacity is a function of time and resource in the quest to produce a defined output or outcome. For the purposes of this research Lovelock's

definition is expanded to provide a broader appreciation of capacity which includes both infrastructure and resource.

The practitioner and academic reviewers did however note that capacity is still a valid dimension of capability and organisation's still need to develop the necessary capacity to co-create value. The capacity dimensions therefore remains in the framework but it is recognised that as part of this research it was not possible to validate its inclusion and related second order constructs.

Not validating the capacity dimension of the OC4VC framework is therefore recognised as a limitation of this research but at the same time presents an opportunity for further research. Work is needed to better understand the capacity needed for value co-creation and how it can be accurately measured and therefore validated. This need is further outlined below in section 6.3.1.

7.1.2 Achieving generalisability

The generalisability of this study is constrained by two factors: Firstly the context, the study focuses on the business-to-business (B2B) sector; and secondly the sample size of the two case studies. These constraints are a function of the exploratory and theory building nature of the research. This study has not sought provide significant generalisability but instead provide a platform from which further work could be done to provide greater generalisability.

This exploratory study focuses on better understanding value co-creation in a B2B context. This is partly because it is the B2B service sector that has seen the largest growth and it is recognised that service research has not kept pace with this growth (Grönross, 2001). Additionally, the KTP context within which the study is conducted places certain bounds on the nature of the research possible. So whilst it is recognised that the generalisability of this study is bounded by the B2B nature of the case organisations the organisations have been purposefully selected from different industries so not to further limit the applicability of the findings to a specific industry.

7.1.3 Construct validity

The limited sample size of the surveys run with the two case studies limits the extent to which it is possible to demonstrate construct validity. The time constraints placed upon the research by the KTP project meant a broader and

larger population was not possible. Whilst the validation carried out on the existing survey population demonstrates convergent validity, testing for discriminant validity is not possible with the current survey population. It is recognised that further work in this area would aid the significance of the theoretical validation. This suggestion is outlined in more detail below in section 6.3.2.

7.2 Further research

As with all research this study took place within the bounds of the time and context that were available at the time. As set out above these bounds led to a number of limitations, which whilst not ideal, provide subsequent opportunities for further research. Future research is however not constrained to addressing the weaknesses of this study. The study has made a valuable contribution to theory and in doing so has given rise to new questions and opportunities to further theory in areas not yet already fully understood. The suggested areas for further research are outlined below.

7.2.1 Dealing with capacity

As detailed above (section 6.2.1) the capacity dimension of the OC4VC framework is not quantitatively validated as part of this study due to the complexities encountered in measuring capacity. This does not negate the need for capacity's inclusion in the framework and is instead a recognised weakness of this study in not being able to fully validate all elements of the framework. This limitation gives rise to the opportunity to further investigate the capacity for value co-creation to better understand what the capacity for value co-creation really means and how it can be readily measured.

To a large extent the service capacity literature has focused on measuring capacity in terms of productive versus non-productive utilisation and the capacity to fulfil service delivery processes (Watts *et al*, 2009). This is not exactly the same form of capacity that we are concerned about when discussing the capacity for value co-creation. In the context of the OC4VC framework the interest is in understanding the type and level of capacity needed to ensure the adequate existence of the Attributes of Value Co-creation in the organisations operations. The attributes themselves do not all form part of the core service delivery processes an organisation would expect to undertake. As such the common capacity measures

are not sufficiently adequate to be used in validating the OC4VC framework. Further research in this area is needed to not only help complete the validation of the OC4VC framework but also to better the understanding of the capacity for value co-creation.

7.2.2 Expanding the significance and generalisability

It is noted above that the generalisability of this study is constrained by the B2B context within which the study took place and the sample size achieved between the two case studies. Use of a larger sample size would improve generalisability as would broadening the contextual validity. Deploying the survey into the business to consumer (B2C) and Not for Profit sectors would provide the contextual diversification needed to claim greater generalisability of the findings. Broadening the sample population would provide the opportunity to understand whether the organisational capability for value co-creation is the same across different sectors, e.g. is the B2B capability the same as the B2C capability? As such it is suggested that the research be enhanced by re-running the survey and subsequent analysis using a much larger and broader population.

Expanding the survey sample size would provide the necessary data to run the quantitative analysis needed to fully test for construct validity and thus expand the significance of the OC4VC framework. Specifically the data could be used to test for discriminant validity which was not possible during this study. This would no doubt lead to the further refinement of the framework and its constituent measures.

7.2.3 Developing the organisational capability for value co-creation

The case organisations were provided with a set of recommendations for improvements based on the gap between their performance and the practice described by the OC4VC. Whilst not within the bounds of this study this does give rise to the question of should organisations develop the capability for value co-creation? This study has focused on identifying the capability needed for value co-creation but has done nothing to help understand how that capability can be developed over time. Clearly understanding what you are aiming for and how that compares to your current situation is the first step but, in order to be truly beneficial to practice, an understanding of how best to go about developing said capability is also needed. The opportunity therefore arises to explore how the

areas of organisational change, organisational development and systems theory can be used to inform the development of the organisational capability identified in this study.

7.3 Final Comments

As an exploratory piece of research this study has been successful in achieving its objective of identifying the organisational capability for value co-creation. The development of a conceptual framework and subsequent validation work has provided both a managerial and theoretical contribution to the areas of value co-creation and organisational capability. The contribution made by this study goes some way to addressing the calls for more research focused in the service paradigm (Spohrer and Magilo, 2008) and that which will inform organisational design (Weigand *et al*, 2009; Zomerdijk and Voss, 2010). In particular a significant contribution has been made to practice through the development of a detailed framework and associated diagnostic tool which has been shown to provide real value to the case organisations.

These outputs provide organisations with tangible and digestible artefacts that can be used to understand and action the need to confront the implications of value co-creation. It is the usefulness of this contribution to practice that characterises this study. The leap from a theoretical contribution to a meaningful practical contribution is a significant challenge facing research in the 21st century. The significance of this contribution should not be overlooked considering the importance of the impact agenda in today's research climate. As Lewin (1952, p.169) put it, "*there is nothing more powerful than a good theory*", because good theory guides effective action by turning knowledge into wisdom.

Bibliography

- Alchian, A. A., Demsetz, H. (1972) Production, information costs, and economic organization. *The American Economic Review*, 62, 777-795.
- Amit, R., Zott, C. (2001) Value creation in e-business. *Strategic Management Journal*, 22, 493-520.
- Anand, K. S., and Mendelson, H. (1997) Information and Organisation for Horizontal Multimarket Coordination. *Management Science*, 43, 1609-27.
- Anderson, J. C., Gerbing, D.W., Hunter, J.E. (1987) On the Assessment of Unidimensional Measurement: Internal and External Consistency, and Overall Consistency Criteria. *Journal of Marketing Research*, 24, 432-437.
- Anderson, J. C., Narus, J.A. (1995) Capturing the value of supplementary services. *Harvard Bus Review*, Jan-Feb, 75-83.
- Archer, M. (2000) *Being Human: the Problem of Agency*, Cambridge, CUP.
- Arnould, E. J., Price, L.L., Malshe, A. (2006) Toward a Cultural Resource-Based Theory of the Customer. IN VARGO, S. L., LUSCH, R.F. (Ed.) *The Service Dominant Logic of Marketing: Dialog Debate and Directions*. Armonk, NY, M.E. Sharpe.
- Ashenbaum, B., Maltz, A., Ellram, L., Barratt, M. (2009) Organisational Alignment and Supply Chain Governance Structure. *International Journal of Logistics Management*, 20, 169-186.
- Aurich, J. C., Fuchs, C., Wagenknecht, C. (2006) Life cycle oriented design of technical Product-Service Systems. *Journal of Cleaner Production*, 14, 1480-1494.
- Ballantyne, D., Varey, R. J. (2006) Creating value-in-use through marketing interaction: the exchange logic of relating, communicating and knowing. *Marketing Theory*, 6, 335-348.
- Bitner, M.J. (1992) Servicescapes: The Impact of Physical Surroundings on Customers and Employees. *Journal of Marketing*, 56, 57-71.
- Bolton, R. N., Drew, J.H. (1991) A longitudinal analysis of the impact of service changes on customer attitudes. *Journal of Marketing*, 55, 1-9.
- Booms, B.H. and Bitner, M.J. (1981), Marketing strategies and organisation structures for service firms, in Marketing of Services, J. Donnelly and W.R. George (eds), American Marketing Association
- Broadbent, M., Weill, P., St. Clair, D. (1999) The Implications of Information Technology Infrastructure for Business Process Redesign. *MIS Quarterly*, 23, 159-182.
- Brodbeck, P. W. (2002) Complexity theory and organization procedure design. *Business Process Management Journal*, 8, 377 - 402.
- Brown, L., Pattinson, H. (1995) Information Technology and Telecommunications: Impacts on Strategic Alliance Formation and Management. *Management Decision*, 33, 41-51.
- Bryman, A. (2004) *Social Research Methods*, Oxford, Oxford University Press.
- Bryman, A., Bell, E. (2007) *Business Research Methods*, Oxford, OUP.

- Burchell, S., Clubb, C., Hopwood, A., Hughes, J., Nahapiet, J. (1980) The Roles of Accounting in Organization and Society. *Accounting, Organizations and Society*, 5, 5-27.
- Burrell, G., Morgan, G. (1979) *Sociological Paradigms and Organisational Analysis: Elements of the Sociology of Corporate Life*, Aldershot, Gower.
- Butz, H. E., Goodstein, L.D. (1996) Measuring customer value: Gaining the strategic advantage. *Organizational Dynamics*, 24, 63 - 77.
- Cai, J., Lu, S., Grobler, F., Case, M., Jing, N. (2005) Modelling and Managing Collaborative Processes over the Internet. *Business Process Management Journal*, 11, 255-274.
- Cannon, J. P., Homburg, C. (2001) Buyer-Supplier Relationships and Customer Firm Costs. *Journal of Marketing*, 65, 29-43.
- Chamberlain, N. (1968) *Enterprise and Environment: The Firm in Time and Place*, New York, McGraw-Hill.
- Chase, R. B. (1978) Where does the customer fit in a service operation? *Harvard Business Review*, 56, 137-142.
- Checkland, P. (1981) *Systems Thinking, Systems Practice*, Chichester, John Wiley & Sons.
- Child, J. (1972) Organisational Structure, Environment and Performance: The Role of Strategic Choice. *Sociology*, 6, 1-22.
- Christensen, C., Andrews, K., Bower, J. (1973) *Business Policy: Text & Cases*, Homewood III, Irwin.
- Christensen, C., Andrews, K., Bower, J. (1978) *Business Policy: Text & Cases*, Homewood III, Irwin.
- Chiu, S., Chang, K. (2009) Organisational Structure, Support Mechanism and Commercialisation Performance. *International Journal of Commerce & Management*, 19, 183-194.
- Cunningham, G. B., Rivera, C.A. (2001) Structural designs within American intercollegiate athletic departments. *The International Journal of Organizational Analysis*, 9, 369-390.
- Constantin, J., and Lusch, R. (1994) *Understanding Resource Management*, Oxford, OH: The Planning Forum.
- Creswell, J. W. (2007) *Qualitative Inquiry & Research Design*, Thousand Oaks, California, Sage.
- Danaher, P. J., Mattsson, J. (1994) Customer satisfaction during the service delivery process. *European Journal of Marketing*, 28, 5-16.
- Day, G. (1999) *The Market Driven Organisation: Understanding, Attracting, and Keeping Valuable Customers*, New York, The Free Press.
- Debruine, M., Sopariwala, P.R. (1994) The use of practical capacity. *Journal of Cost Management Science*, 8, 25-31.
- Doyle, P. (1989) Building Successful Brands: The Strategic Options. *Journal of Marketing Management*, 5, 77-95.

- Drago, W. A. (1998) Mintzberg's 'pentagon' and organisational positioning. *Management Research News*, 21, 30-40.
- Eggert, A., W. Ulaga, F. Schultz (2006) Value creation in the relationship lifecycle: A quasi-longitudinal analysis. *Industrial Marketing Management*, 35, 20 - 27.
- Eisenhardt, K. M. (1989) Building Theories from Case Study Research. *The Academy of Management Review*, 14, 532-550.
- Eisenhardt, K. M., Martin, J.A. (2000) Dynamic Capabilities: What are they? *Strategic Management Journal*, 21, 1105-1121.
- Erradi, A., Kulkarni, N., Maheshwari, P., Krämer, B., Lin, K., Narasimhan, P. (2007) Service Design Process for Reusable Services: Financial Services Case Study. *Service-Oriented Computing – ICSOC 2007*. Springer Berlin / Heidelberg.
- Etgar, M. (2006) Co-production of services: A managerial extension. IN LUSCH, R. F., VARGO, S. L. (Ed.) *The service-dominant logic of marketing: dialog, debate and directions*. New York, M. E. Sharpe.
- Faulkner, D. (2002) *Strategy: Critical Perspectives on Business and Management*, London, Taylor & Francis.
- Fawcett, S. E., Osterhaus, P., Magnan, G.M., Brau, J.C. And Mccarter, M.W. (2007) Information Sharing and Supply Chain Performance: The Role of Connectivity and Willingness. *Supply Chain Management: An International Journal*, 1, 358-368.
- Fitzsimmons, J., Noh, J., Thies, E. (1998) Purchasing Business Services. *Journal of Business & Industrial Marketing*, 13, 370-380.
- Flint, D. J., Mentzer, J. T. (2006) Striving for integrated value chain management given a service dominant logic for marketing. IN LUSCH, R. F., VARGO, S. L. (Ed.) *The service dominant logic of marketing: Dialog, debate and directions*. New York, M.E. Sharpe, Inc.
- Flint, D. J., Woodruff, R. B., Gardial, S. F. (1997) Customer Value Changes Industrial Marketing Relationships: A Call for New Strategies and Research. *Industrial Marketing Management*, 26, 163–175.
- Ford, D. (2001) *The Business Marketing Course: Managing in Complex Networks*, Chichester, England, John Wiley & Sons.
- Giannakis, M. (2007) Performance Measurement of Supplier Relationships. *Supply Chain Management: An International Journal*, 12, 400-411.
- Glaser, B., Strauss, A. (1967) *The Discovery of Grounded Theory: Strategies of Qualitative Research*, London, Wiedenfeld and Nicholson.
- Grönroos, C. (2001) The Perceived Service Quality Concept - A Mistake. *Managing service Quality*, 11, 150-52.
- Grönroos, C. (2004) The relationship marketing process: Communication, interaction, dialogue, value. *Journal of Business & Industrial Marketing*, 19, 99–113.
- Grönroos, C. (2007) *Service Management and Marketing: Customer Management in Service Competition*, West Sussex, England, John Wiley & Sons, Inc.

- Guba, E. G., Lincoln, Y. S. (1994) *Competing Paradigms in Qualitative Research: Handbook of Qualitative Research*, Thousand Oaks, CA., Sage.
- Gummesson, E. (1999) Total Relationship Marketing: Experimenting with a Synthesis of Research Frontiers. *Australasian Marketing Journal*, 7.
- Gummesson, E. (2002) Practical Value of Adequate Marketing Management Theory. *European Journal of Marketing*, 36, 325-349.
- Hamel, G., Prahalad, C. (1994) *Competing for the Future: Breakthrough Strategies for Seizing Control of Your Industry and Creating the Markets of Tomorrow*, Boston, MA., Harvard Business School Press.
- Helfat, C. (2000) Guest Editor's Introduction to the Special Issue: The Evolution of Firm Capabilities. *Strategic Management Journal*, 21, 955 - 959.
- Henderson, R. & Cockburn, I. (1994) Measuring Competence? Exploring Firm Effects in Pharmaceutical Research. *Strategic Management Journal*, 15, 63-84.
- Heskett, J. L., Jones, T. O., Loveman, G. W., Sasser, W. E. Jr, Schlesinger, L. A. (1994) Putting the service-profit chain to work. *Harvard Business Review*, 72, 11.
- Holbrook, M. B. (1987) O, consumer, how you've changed: Some radical reflections on the roots of consumption. IN FARIAT, F., DHOLAKIA, N., BAGOZZI, R. (Ed.) *Philosophical and radical thought in marketing*. Lexington, MA, D.C. Health.
- Holbrook, M. B. (1996) Customer Value – A Framework for Analysis and Research. *Advances in Consumer Research*, 23, 138-142.
- IBM Research (2005) *Services science: A new academic discipline?*, Armonk, NY, IBM Research.
- Jaworski, B., Kohli, A. K. (2006) Co-creating the voice of the customer. IN LUSCH, R. F., VARGO, S. L. (Ed.) *The service dominant logic of marketing: Dialog, debate and directions*. New York, M.E. Sharpe, Inc.
- Jensen, M. C., and Meckling, W.H. (1992) Specific and General Knowledge, and Organisational Structure. IN WERIN, L., WIJKANDER, H. (Ed.) *Contract Economics*. Cambridge, Blackwell.
- Johnson, P., Duberley, J. (2000) *Understanding Management Research*, London, Sage.
- Levitt, T. (1980) Marketing Success Through Differentiation of Anything. *Harvard Business Review*, January/February, 83–91.
- Litwin, M. S. (1995) *How to Measure Survey Reliability and Validity*, London, Sage.
- Liu, A. H., Leach, M. P., Bernhardt, K. L. (2005) Examining customer value perceptions of organisational buyers when sourcing from multiple vendors. *Journal of Business Research*, 58, 559-568.
- Lu, S. C.-Y., Cai, J. (2001) A Collaborative Design Process Model in the Socio-technical Engineering Design Framework. *Artificial Intelligence for Engineering Design, Analysis and Manufacturing*, 15, 3-20.
- Kalaighnam, K., and Varadarajan, R. (2006) Customers as co-producers: Implications for marketing strategy effectiveness and marketing

- operations efficiency. IN LUSCH, R. F., VARGO, S. L. (Ed.) *The service dominant logic of marketing: Dialog, debate and directions*. New York, M.E. Sharpe, Inc.
- Kanter, R. (1994) Collaborative Advantage: The Art of Alliances. *Harvard Business Review*, July-August 1994, 96-108.
- Karpen, I., Bove, L. (2008) Linking S-D logic and marketing practice: Toward a strategic service orientation. *Otago Forum 2*. Otago, NZ.
- Karpen, I., Bove, L. (2011) Service-Dominant Orientation: Empirical Measurement Model Considerations. *Naples Forum*. Naples.
- Kim, W. C., Mauborgne, R. (1999) Strategy, value innovation, and the knowledge economy. *Sloan Management Review*, 40, 41– 54.
- Kinney, S. (2000) An Overview of B2B and Purchasing Technology. *Public Workshop Policy in the World of B2B Electronic Marketplaces*.
- Lado, A. A. & Wilson, M. C. (1994) Human Resource Systems and Sustained Competitive Advantage: A Competency-Based Perspective. *The Academy of Management Review*, 19, 699-727.
- Lambert, D. M., & Garcia-Dastrugue, S. J. (2006) Cross functional business processes for the implementation of service-dominant logic. IN LUSCH, R. F., VARGO, S. L. (Ed.) *The service dominant logic of marketing: Dialog, debate and directions*. New York, M.E. Sharpe, Inc.
- Lengnick-Hall, C. A. (1996) Customer contributions to quality: A different view of the customer-oriented firm. *Acad Manage Rev* 21, 791-824.
- Lenz, R. (1980) Strategic Capability: A Concept and Framework for Analysis. *The Academy of Management Review*, 5, 225 - 234.
- Lewin, K. (1952) *Field theory in social science: Selected theoretical papers by Kurt Lewin*, London, Tavistock.
- Litwin, M. S. (1995) *How to Measure Survey Reliability and Validity*, London, Sage.
- Liu, A. H., Leach, M. P., Bernhardt, K. L. (2005) Examining customer value perceptions of organisational buyers when sourcing from multiple vendors. *Journal of Business Research*, 58, 559-568.
- Lovelock, C. (1992) Seeking Synergy in Service Operations: Seven Things Marketers Need to Know About Service Operations. *European Management Journal*, 10, 22-29.
- Mack, N., Woodsong, C., Macqueen, K., Guest, G., and Namey, E. (2005) Qualitative Research Methods: A Data Collector's Field Guide. Available on http://www.fhi.org/en/RH/Pubs/booksReports/QRM_datacoll.htm.
- Maheshkumar, J. P., Kathuria, R., and Stephen, J.P. (2003) Alignment of strategic priorities and performance: An integration of operations and strategic management perspectives. *Journal of Operations Management*, 21, 353-69.
- Marshal, A. (1927) *Principles of economics*, London, Macmillan.
- Martin, P. Y., Turner, B. A. (1986) Grounded Theory and Organizational Research. *The Journal of Applied Behavioral Science*, vol. 22, no. 2.

- Marx, K. 1867 [2001] *Capital: A Critique of Political Economy*, Harmondsworth, Middlesex, England, New York NY: Penguin Books in association with New Left Review.
- Mautner, T. (2000) *The Penguin Dictionary of Philosophy*, London, Penguin.
- McNair, C. J., Vangermeersh, R. (1998) *Total Capacity Management: Optimizing at the Operational, Tactical and Strategic Levels*, Boca Raton, FL, St Lucie Press.
- Melnyk, S. A., Handfield, R.B. (1998) May you live in interesting times...the emergence of theory-driven empirical research. *Journal of Operations Management Science*, 16, 311-319.
- Meredith, J. (1998) Building operations management theory through case and field research. *Journal of Operations Management*, 16, 441-454.
- Miles, M. B., Huberman, M.A. (1994) *Qualitative Data Analysis*, London, Sage Publications.
- Morgan, R. M., Hunt, S.D. (1994) The Commitment-Trust Theory of Relationship Marketing. *The Journal of Marketing*, 58, 20-38.
- Neely, A. (2007) Servitization of manufacturing. *14th International Annual EurOMA Conference*. Turkey.
- Netemeyer, R. G., Bearden, W.O., Sharma, S. (2003) *Scaling procedures: Issues and applications*, Thousand Oaks, CA, Sage.
- Ng, I. C. L., Guo, L., Scott, J., Yip, N.K.T. (2008) Towards a Benefit-based Framework for Understanding B2B Services and its impact on Contract and Capability. *10th International Research Seminar in Services Management*. La Londe, France.
- Ng, I. C. L., Maull, R.S. (2009) Embedding the new discipline of Service Science: A Service Science Research Agenda. *The Fifth IEEE International Conference on Service Operations, Logistics and Informatics*. Chicago.
- Ng, I. C. L., Nudurupati, S.S. (2010) Challenges of Outcome-Based Contracts in B2B Service Delivery. *Journal of Service Management*.
- Ng, I. C. L., Nudurupati, S.S., Tasker, P. (2009) *Value co-creation in the delivery of outcome-based contracts for business-to-business service*, UK, University of Cambridge.
- Ng, I. C. L., Nudurupati, S., Williams, J. (2010) Redefining Organizational Capability for Value Co-creation in Complex Engineering Service Systems. IN IRENE NG, P. W., GLENN PARRY, DUNCAN MACFARLANE AND PAUL TASKER (Ed.) *Complex Engineering Service Systems: Concepts & Research*. Springer.
- Ng, I. C. L., Smith, L.A., Vargo, S.L. (2012) An Integrated Framework of Value. *WMG Service Systems Research Group, Working Paper Series*.
- Ng, I. C. L., Yip, N.K.T. (2009) Identifying Risk and its Impact on Contracting Through a Benefit Based Model Framework in Business to Business Contracting: Case of the Defence Industry.
- Normann, R. (2001) *Reframing Business: When the Map Changes the Landscape*, Chichester, John Wiley & Sons Inc.

- Normann, R., Ramirez, R. (1993) From value chain to value constellation: Designing interactive strategy. *Harvard Business Review*, 71, 65-77.
- Oliva, R., Kallenberg, R. (2003) Managing the Transition from Products to Services. *International Journal of Service Industry Management*, 14, 160-172.
- Oliver, R. L. (2006) Co-producers and co-participants in the satisfaction process: Mutually satisfying consumption. IN LUSCH, R. F., VARGO, S. L. (Ed.) *The service dominant logic of marketing: Dialog, debate and directions*. New York, M.E. Sharpe, Inc.
- Oppenheim, A. N. (1992) *Questionnaire Design, Interviewing and Attitude Measurement*, London, Cassell.
- Ordanini, A., Pasini, P. (2008) Service co-production and value co-creation: The case for a service-oriented architecture (SOA). *European Management Journal*, 26, 289-297.
- Payne, A. & Holt, S. (2001) Diagnosing Customer Value: Integrating the Value Process and Relationship Marketing. *British Journal of Management*, 12, 159.
- Payne, A., Storbacka, K., Frow, P. (2008) Managing the co-creation of value. *Journal of the Academy of Marketing Science*, 36, 83-96.
- Porter, M. E. (1985) *Competitive Advantage: Creating and Sustaining Superior Performance*, New York, Free Press.
- Power, D., Simon, A. (2004) Adoption and Diffusion in Technology Implementation: A Supply Chain Study. *International Journal of Operations & Production Management*, 24, 566-587.
- Prahalad, C. K. (2004) *The Fortune at the Bottom of the Pyramid: Eradicating Poverty Through Profit*, Upper Saddle River, NJ, Wharton School Publishing.
- Prahalad, C., Hamel, G. (1994) Strategy as a Field of Study: Why Search for a New Paradigm? *Strategic Management Journal*, 15, 5 - 16.
- Prahalad, C. K. & Ramaswamy, V. (2000) Co-opting Customer Competence. *Harvard Business Review*, 78, 79-87.
- Prahalad, C., Ramaswamy, V. (2004) Co-creation experiences: The next practice in value creation. *Journal of Interactive Marketing*, 18.
- Prasad, P. (2005) *Crafting Qualitative Research: Working in the postpositive traditions*, Armonk, New York, M E Sharpe.
- King, A. (2004) *The Structure of Social Theory*, London, Routledge.
- Kuhn, T. (1962) *The Structure of Scientific Revolution*, Chicago, University of Chicago Press.
- Ramirez, R. (1999) Value Co-Production: Intellectual Origins and Implications for Practice and Research. *Strategic Management Journal*, 20, 49-65.
- Ravald, A. & Gronroos, C. (1996) The value concept and relationship marketing. *European Journal of Marketing*, 30, 19-30.

- Richert, E., Rush, D. (2005) How new Infrastructure provided Flexibility, controlled Cost and empowered Workers at Sun Microsystems. *Journal of Corporate Real Estate*, 7.
- Rynes, S. (2007) Let's create a tipping point: what academics and practitioners can do together. *Academy of Management Journal*, 50, 10-46.
- Saunders, M., Lewis, P., Thornhill, A. (2007) *Research Methods for Business Students*, Harlow, Pearson Education Limited.
- Sawhney, M., Prandelli, E. (2000) Communities of creation: managing distributed innovation in turbulent markets. *California Management Review*, Summer, 24-54.
- Schein, E. (1984) Coming to a New Awareness of Organisational Culture. *Sloan Management Review*, 25, 3-16.
- Schendel, D., Hatten, K. (1972) Business Policy or Strategic Management: A Broader View for an Emerging Discipline. Krannert School, Purdue University.
- Searle, J. R. (1995) *The Construction of Social Reality*, London, Penguin.
- Shelbourn, M., Bouchlaghem, N., Anumba, C., Carrillo, P. (2007) Planning and Implementation of Effective Collaboration in Construction Projects. *Construction Innovation*, 7, 357-377.
- Shostack, G. L. (1977) Breaking Free from Product Marketing. *Journal of Marketing*, 41, 73-80.
- Smith, A. (1776) *An Inquiry Into the Nature and Causes of the Wealth of Nations*, London, Williams Clowes & Sons.
- Spohrer, J., Maglio, P. (2005) Emergence of service science: Services sciences, management, engineering (SSME) as the next frontier in innovation, presented at the IBM Almaden Research Center.
- Spohrer, J., Maglio, P. (2008) The Emergence of Service Science: Towards Systematic Service Innovations to Accelerate Co-Creation of Value. *Production & Operations Management*, 17, 238-246.
- Stake, R. (1995) *The Art of Case Study Research*, Thousand Oaks, CA, Sage.
- Steckler, A., Mcleroy, K.R., Goodman, R.M., Bird, S.T., McCormick, L. (1992) Toward Integrating Qualitative and Quantitative Methods: An Introduction. *Health Education Quarterly*, 19, 1-8.
- Stratman, J. K., Roth, A.V. (2002) Enterprise Resource Planning (ERP) Competence Constructs: Two Stage Multi-Item Scale Development and Validation. *Decision Sciences*, 33, 601-628.
- Strauss, A., Corbin, J.M. (1990) *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*, Newbury Park, California, Sage.
- Stuart, I., Mccutcheon, D., Handfield, R., Mclachlin, R. & Samson, D. (2002) Effective case research in operations management - a process perspective. *Journal of Operations Management*, 20, 419-433.
- Teece, D. J. (1992) Competition, cooperation, and innovation: Organizational arrangements for regimes of rapid technological progress. *Journal of Economic Behavior and Organization*, 18, 1-25.

- Teece, D. J. (2007) Explicating Dynamic Capabilities: The Nature and Microfoundations of (Sustainable) Enterprise Performance. *Strategic Management Journal*, 28, 1319 - 1350.
- Teece, D., Pisano, G. Shuen, A. (1997) Dynamic Capabilities and Strategic Management. *Strategic Management Journal*, 18, 509 - 533.
- Teng, B., Das, T. (2008) Governance Structure Choice in Strategic Alliances. *Management Decision*, 46, 725-742.
- Thomas, D. R. E. (1978) Strategy is different in service businesses. *Harvard Business Review*, 56, 158-165.
- Tuli, K. R., Kohli, A.K., Bharadwaj, S.G. (2007) Rethinking customer solutions: From product bundles to relational processes. *Journal of Marketing*, 71.
- Ulaga, W., & Eggert, A (2006) Value-based differentiation in business relationships: Gaining and sustaining key-supplier status. *Journal of Marketing*, 70, 191 - 236.
- Ulrich, D., Lake, D. (1991) Organisational Capability: Creating Competitive Advantage. *The Executive*, 5, 77 - 92.
- Van Veen-Dirks, P., Verdaasdonk, P. (2009) The Dynamic Relation between Management Control and Governance Structure in a Supply Chain Context. *Supply Chain Management*, 14, 466-478.
- Vargo, S. L., Lusch, Robert F. (2004) Evolving to a New Dominant Logic for Marketing. *Journal of Marketing*, 68, 1-17.
- Vargo, S. L., Lusch, R. (2008) Service-dominant logic: continuing the evolution. *Journal of the Academy of Marketing Science*, 36, 1-10.
- Vargo, S. L., Maglio, P.P., Akaka, M.A. (2008) On Value and Value Co-creation: A Service Systems and Service Logic Perspective. *European Management Journal*, 26, 145-152.
- Vargo, S. L., Lusch, R.F. (2011) It's all B2B ... and Beyond: Towards a Systems Perspective of the Market. *Industrial Marketing Management*, 40, 181-187.
- Voss, C. N., Tsiriktsis, N. & Frohlich, M. (2002) Case research in operations management. *International Journal of Operations and Production Management*, 22, 195-219.
- Wacker, J. G. (1998) A definition of theory: research guidelines for different theorybuilding research methods in operations management. *Journal of Operations Management*, 16, 361-385.
- Watts, T., Mcnair, C.J., Baard, V., Polutnik, L. (2009) Structural Limits of Capacity and Implications for Visibility. *Journal of Accounting and Organisational Change*, 5, 294-312.
- Weigand, H., Johannesson, P., Andersson, B., Bergholtz, M., Van Eck, P., Gordijn, J. & Wieringa, R. (2009) Value-Based Service Modeling and Design: Toward a Unified View of Services Advanced Information Systems Engineering. Springer Berlin / Heidelberg.
- Wolfl, A. (2005) The Service Economy in OECD Countries. *STI Working Paper*. Paris, OECD.

- Woodruff, R. (1997) Customer Value: The Next Source for Competitive Advantage. *Journal of the Academy of Marketing Science*, 25, 139 - 153.
- Woodruff, R. B., Flint, D.J. (2006) Marketing's Service Dominant Logic and Customer Value. IN VARGO, S. L., LUSCH, R.F. (Ed.) *The Service Dominant Logic of Marketing: Dialog Debate and Directions*. Armonk, NY, M.E. Sharpe.
- Yin, R. (1984) *Case Study Research*, Beverly Hills, CA, Sage Publications.
- Yin, R. (2003) *Case Study Research: Design & Methods*, London, Sage Publications.
- Zeithaml, V. A. (1988) Consumer Perceptions of Price, Quality, and Value: A Means-End Model and Synthesis of Evidence. *Journal of Marketing*, 52, 2-22.
- Zomerdijk, L. G., Voss, C.A. (2010) Service Design for Experience-Centric Services. *Journal of Service Research*, 13, 67-82.

Annex A – Case 1 workshops

The following workshops were held during the course of the Harmonic case study.

Ref.	Workshop title	Participants	Date
WO.1	Service provision (part 1)	Managing Director Services Director Business Development Director Head of HR	05 Dec 08
WO.2	Value propositions	Services Director Business Development Director Head of Management Services Head of Business Winning	16 Dec 08
WO.3	Service provision (part 2)	Managing Director Services Director Business Development Director Head of HR	12 Jan 09
WO.4	Performance based contracting and value co-creation	Services Director Finance Director Head of Management Services Head of Business Winning	16 Feb 09
WO.5	Creating customer value	Managing Director Services Director Business Development Director	07 May 09
WO.6	Service development	Services Director Head of Management Services Head of Business Winning	16 Oct 09
WO.7	Contracting	Finance Director Services Director Head of Management Services	22 Apr 10
WO.8	Capability Partnering – the vision	Managing Director Services Director Business Development Director	13 May 10

Annex B - Qualitative data – Case 1: Harmonic Ltd

Ref.	Note
Workshops	
WO.1.1	Discussed the difference between the knowledge of individuals and the collective knowledge of the company . Feeling is that individual have necessary knowledge but this isn't adequately translated into 'company knowledge'.
WO.3.1	Issue of 'company knowledge' came up again. Concern amongst Exec team as to the best approach for nurturing company knowledge as people leave and as the company expands.
WO.3.4	"How do we know how aligned we need to be? " Head of HR. Recognition of the need to align processes with customers but uncertainty about what kind of processes to align and what alignment really means. Similar uncertainty around the extent to which other attributes must be exercised.
WO.3.5	Consensus that some customers require much greater 'alignment' than has currently been achieved. The overhead associated with gaining and maintaining this alignment must be factored in to judge value of doing so.
WO.3.6	The skills and experience needed to spot a lack of alignment and, importantly, do something about are not to be underestimated. Recognition that those skills/experience do exist in the business but perhaps not consist across BD and Delivery teams.
WO.5.3	Process and guidance is needed for those establishing new customer relationships on how to ensure the co-creation attributes are addressed up front, even if not explicitly.
WO.5.4	Accepted that strict processes aren't necessary needed but documented and commonly understood 'way of doing things' should be put in place . Will also be important to monitor compliance/application of the 'Harmonic way' to ensure a consistent approach is taken with customers, as well as looking for the opportunity to improve the 'Harmonic way'.
WO.5.6	Debate over the degree to which all aspects can be captured in processes. Some aspects of co-creation involved in service delivery are difficult to script . Recognition that at the very least guidance should be provided as to the 'Harmonic way' without being prescriptive.
WO.5.7	Agreement that the success in co-creating value with customers will always fundamentally come down to the quality, expertise and judgement of Harmonic staff .
WO.5.10	Discussion over the need to clarify roles and responsibilities which should help both internally and for customers. Not just roles (who does what) but also responsibility and accountability needs to be clarified to ensure governance and control at the right level within the organisation.
WO.5.11	Getting roles and responsibilities right will help with decision making at the right level within the organisation.
WO.5.12	Clear roles and responsibilities need to be backed up by 'good comms' to ensure all the right people are kept informed and aware of events/decisions.
WO.6.3	Changing customer staff identified as delivery challenge. Greater

Ref.	Note
	structure/process needed for dealing with the issue.
WO.6.5	"We need to address both the setup and the ongoing management of the co-creation attributes as the present different challenges" Service Director. Recognition that different techniques and often different people are needed to setup relationships with customer and to manage the ongoing relationship and service delivery.
WO.6.6	General consensus that Harmonic need to be better at the setup phase through more structured processes .
WO.6.7	Those involved in the ongoing management of customer relationships are highly skilled and experienced but could be better supported by more formal processes and tools .
Customer meetings	
CM.2.2	MW identified disjoint between relationship and discussions Harmonic team are having with senior customer stakeholders and the customer delivery teams. The disconnect is causing confusion on both sides as to Harmonic's role. All hands workshop proposed to clarify position; output will be 'one-pager' describing how Harmonic and SELEX will work together.
CM.2.3	MW concerned the culture within SELEX, at the operational level, is not conducive to effective co-creation . Partial acknowledgement by customer.
CM.3.1	TS having to explain the background, rationale and value of the existing Harmonic-AW relationship to the new COO who is unclear on the history and future need of Harmonic's services.
CM.5.3	AWE struggling/reluctant to fully involve Harmonic in business and resource planning activities. Lack of engagement is impacting Harmonic's ability to deliver.
CM.5.4	AWE's reluctance to fully involve Harmonic seems more culturally driven than because of technical difficulties.
CM.6.2	Babcock's new contract will require surge in PM and SE skills need during the next 2-3 months. Recognised that Harmonic needs to be better involved in planning and mobilisation stages.
CM.7.1	Joint SELEX-Harmonic workshop provided step forward in addressing disconnect between intended relationship and reality. Still early in telling actual effectiveness.
CM.7.2	SELEX customer saw workshop as valuable and open opportunity to share and align expectations. MW doesn't agree that the session was truly ' open and honest ' and believes further work will be needed.
CM.8.2	TS raised concern that AWE structure and process is constraining the involvement and visibility given to Harmonic – " <i>this limits the value and impact we can provide</i> " TS. Customer recognises the issue and believes the rather insular AWE culture as partly to blame.

Ref.	Note
Internal meetings	
IM.3.2	Focus of the meeting was demand/resource forecasting . Need to profile and manage resource loading across accounts to ensure the current capacity can meet predicted demand. Where not possible to meet capacity resourcing activity will seek to increase capacity in specific areas.
IM.3.3	Appears to be some inconsistencies in how demand planning and resource profiling is carried out.
IM.3.4	Accurately understanding current available capacity doesn't seem straightforward. This uncertainty compounds the inaccuracy for modelling future available capacity . A more consistent and robust approach was identified as needed, plus the skills and time to do it properly.
IM.4.1	Resources are being provided to customers to fill both capacity and skills gaps .
IM.6.3	Increasing desire to host customer work at Harmonic office but concern about real estate capacity in terms of desks and meeting rooms.
IM.6.5	Integration with customer IT systems is constraining factor in ability to host customer work on site.
IM.7.2	Some disagreement as to whether a formal process for aligning and managing customer expectations is needed. Should this be process driven or people driven? Recognition that a 'Harmonic way' would help provide greater consistency as long as not seen as strict process.
IM.7.3	Acknowledged that a 'Harmonic way' is needed in several areas across the business to help manage customer relationships and service delivery. A balance will be needed to ensure individuals are not stifled by process and are allowed to exercise their judgement and experience in the application of the 'Harmonic way'.
IM.8.2	Incompatibility of Harmonic and AW finance systems continues to require manual workaround by Harmonic Financial Controller which is impacting his workload and productivity.
IM.8.3	Similar incompatibility issue raised by two Project Managers who are required to use multiple reporting systems .

Annex C – Second Order Constructs

AVC \ DoC	COMPETENCE	CAPACITY	CULTURE	SYSTEMS	STRUCTURE	INFRASTRUCTURE
Congruence of expectations	The institutional and human knowledge and skills to continually ensure expectations are aligned across the stakeholder community.	The identification and allocation of adequate resources required to manage expectations.	A collective interest in ensuring a congruence of expectations across the stakeholder community.	The processes to ensure roles, responsibilities and boundaries are clearly mapped and enable effective ongoing communication between parties.	A set of governance structures and activities that maintains a core of stability and ability to learn about the customer competencies and environments; as well as a flexible and agile interface to manage changes in customer competency and to strategically decide and communicate what the organisation is or is not able to do within its structure.	The utilisation of communications technologies and the physical environment to effectively support communication amongst the stakeholder community.
Complementary competences	The institutional and human knowledge and skills to ensure a complementary fit between the knowledge and skills (/capability) of the company and	The ability to deploy the necessary resources to complement the customer's lack of resources to achieve particular outcomes.	A willingness to continually ensure a complementary fit between the competencies of the company and the customer.	The tools and process to assess and map competencies allowing analysis of complementary fit.	A set of governance structures and activities that maintain a core of stability and ability to learn about multiple customer competencies and environments; as	The utilisation of IT and communications technologies as well as the physical environment to effectively support communication and data sharing

AVC \ DoC	COMPETENCE	CAPACITY	CULTURE	SYSTEMS	STRUCTURE	INFRASTRUCTURE
	the customer.				well as a flexible and agile interface to manage changes in customer competency.	amongst the stakeholder community.
Process alignment	The institutional and human knowledge and skills required to continually ensure an appropriate degree of process alignment between the company and the customer by recognising and adapting to any changes in customer requirements or processes.	The identification and allocation of resources required to ensure compatibility with customer processes for all transformations (information, people or material/equipment) required to deliver value.	A shared behaviour set which actively seeks to ensure an appropriate degree of process alignment between the company and the customer.	The tools and techniques to map, change and integrate interface processes for more effective co-production.	A set of governance structures and activities that maintain a core of stability and ability to learn about the customer competencies and environment; as well as a flexible and agile interface to manage customer process changes.	The utilisation of IT and communications technologies capable of mapping and communicating interface processes, roles and responsibilities, as well as identifying any changes during the service delivery process.
Behavioural alignment	The institutional and human knowledge and skills to continually ensure an appropriate degree of behavioural alignment between the company and the customer by	The identification and allocation of resources that could be deployed for absorbing changes in customer requirements and behaviours.	A shared behaviour set which actively seeks to ensure an appropriate degree of behavioural alignment between the company and the customer.	A formal approach for monitoring and recording changes in customer behaviour to aid sustainability of delivery.	A set of governance structures and activities that maintain a core of stability and ability to learn about the customer competencies and environment; as well as a flexible	The utilisation of IT and communications technologies to monitor customer behaviour and identify any changes during the service delivery process.

AVC \ DoC	COMPETENCE	CAPACITY	CULTURE	SYSTEMS	STRUCTURE	INFRASTRUCTURE
	recognising and adapting to any changes in customer behaviour.				and agile interface to manage customer behavioural changes.	
Perceived control & empowerment	The application of the organisation's institutional and human knowledge and skills to assure the customer of the organisation's competency, providing the customer with sufficient artefacts for a sense of being 'in good hands' across various contexts of use.	The identification and allocation of resources to ensure stakeholders remain fully appraised of progress and provided with adequate resource and infrastructure.	A shared set of values which work to ensure fair distribution of control and authority.	The appropriate communication channels to keep the stakeholder community informed and allow their opinions to be captured and influence the service delivery.	Appropriate organisational structure and governance mechanisms to allow effective dissemination of authority allowing service delivery to be controlled for better outcomes.	The materials, equipment, technologies and physical environment that provides stakeholders with the visibility of and access to the information, people, equipment, materials and facilities required for service delivery.
Behavioural transformation	The institutional and human knowledge and skills required to influence and adapt customer behaviour for more effective co-production.	The identification and allocation of resources required to transform customer behaviours as part of the delivery processes.	Openness to change and willingness to be involved in orchestrating improvements in service delivery by changing customer behaviour.	A formal approach and tools for auditing customer behaviours as well as managing any necessary change activity.	A set of governance mechanisms and activities that include the transformation of the customer as part of the due process.	The utilisation of IT and communications technologies to effectively support the company in changing customer behaviour.

Annex D – Measures

- Congruence of Expectations
 - Competence
 - I am clear on what the people I interact with on the customer side want to do under the contract.
 - I believe the people I interact with on the customer side know what I should do under the contract.
 - I am clear on how the people I interact with on the customer side should do their job under the contract.
 - I believe the people I interact with on the customer side know what I want to do under the contract.
 - I am clear on what the people I interact with on the customer side should do under the contract.
 - I am clear on how the people I interact with on the customer side are doing under the contract.
 - I am clear on what the people I interact with on the customer side will do under the contract.
 - I believe the people I interact with on the customer side know how I am doing the job under the contract.
 - I believe the people on the customer side know how I should do my job under the contract.
 - I believe the people I interact with on the customer side know what I am doing under the contract.
 - I believe the people I interact with on the customer side know what I will do under the contract.
 - I am clear on how the people I interact with on the customer side are doing their jobs under the contract.
 - I and the people I interact with on the customer side have the expertise to ensure our expectations of each other are aligned.
 - Capacity
 - I and the people I interact with on the customer side spend sufficient time ensuring congruence of expectations.
 - I feel sufficient resource is allocated to managing expectations.
 - Culture
 - I value a clear understanding of what is expected of me.
 - I actively seek to understand what the customer expects of me.
 - I actively communicate my expectations of the customer to the customer.
 - Regularly communicating progress and expectations is a valued behaviour.
 - The customer is a valued stakeholder.
 - There are an agreed and communicated set of common values between the company and the customer.
 - The customer communicates well their expectations of our/my performance.
 - There is a good level of trust between the company and the customer.

- Systems
 - The company has the processes in place to map the interests and roles of all major stakeholders involved in service delivery.
 - The role, responsibilities and boundaries of the customer are clearly captured and recorded.
 - I feel the company clearly communicates its structure and governance mechanisms to external stakeholders.
- Structure
 - I feel the company is run in such a way that promotes communication with external stakeholders.
 - I am clear on what my role, responsibilities and boundaries are in working with the customer.
 - I am clear on what the customer's role, responsibilities and boundaries are.
 - There is a formalised and communicated structure that maps the roles and interests of all major stakeholders involved in service delivery.
- Infrastructure
 - The supporting infrastructure efficiently facilitates communication between the company and customer.
- Complementarity Capabilities
 - Competence
 - I and the people I interact with on the customer side have the expertise to ensure our skills sets are complementary.
 - Myself and the people I interact with on the customer side have complementary skills to get the work done.
 - Capacity
 - Myself and the people I interact with on the customer side are able to access the resources necessary to get the work done.
 - I and the people I interact with on the customer side spent sufficient time ensuring we have complementary knowledge and skills to get the work done.
 - The supporting infrastructure allows the customer and I to share our skills and knowledge in a timely manner.
 - I feel I am able to deploy the necessary resources to complement the customer's lack of resource or expertise.
 - Myself and the people I interact with on the customer side are able to access the technology necessary to get the work done.
 - Culture
 - I see benefit and am interested in ensuring a complementary fit between my skills and those of the people I interact with on the customer side.
 - I am interested in working with others to produce results I could not deliver alone.
 - Systems

- I feel the company has the processes in place to ensure a complementary fit between my skills and those of the people I interact with on the customer side.
 - Structure
 - Myself and the people I interact with on the customer side have complementary roles (job title & description).
 - I feel the company has a stable core governance structure but remains agile in its ability to interface with multiple customer environments and capabilities.
 - I feel the company is run in such a way that promotes agility in adapting to different customer environments.
 - I feel the company is run in such a way that enables it to learn about multiple customer environments and capabilities.
 - Cross functional teams are created which integrate people from the company and customer.
 - Teams are constructed and roles allocated by making best use of the skills sets available from the customer and supplier resource pool.
 - Infrastructure
 - The supporting infrastructure allows the customer and I to easily share our skills and knowledge.
- Process Alignment
 - Competence
 - I feel I have the expertise to adapt the company's processes so that they align with the customer's processes.
 - I feel that the personnel I interact with on the customer side have the expertise to adapt their processes so they align where necessary.
 - I feel I have the skills to assess the level of process alignment between the company and the customer.
 - Capacity
 - The company/I allocate sufficient time and appropriate resource to manage alignment with the customer's processes.
 - I feel the customer allocates sufficient time and appropriate resource to manage process alignment.
 - The supporting infrastructure facilitates the integration of the company and customer systems and processes in a timely manner.
 - Culture
 - I see benefit and am interested in improving the company's alignment with the customer's processes.
 - The customer appears interested in improving process alignment between the company and the customer.
 - Systems
 - The company's processes for exchanging data are aligned with those of the customer.

- The company's processes for installing, moving and maintaining materials and equipment are aligned with those of the customer.
 - The company's processes for executing 'people focused' activities are aligned with those of the customer.
 - Common and agreed channels of communication are agreed by all key stakeholders.
 - I feel the company has the processes in place to ensure the interface work processes between myself and the personnel I interact with on the customer side are mapped and agreed.
 - I feel that all stakeholder perspectives are accounted for in the agreed interface systems and processes.
 - I feel that systematic and joint procedures are in place to identify and manage areas for improvement in aligning systems and processes.
 - The company's and customer's operational systems and processes are integrated to provide timely access to information, resource and people to get the job done.
 - The interface systems and processes are aligned at a number of layers, e.g. Data sharing, business process and continuous improvement.
 - Structure
 - I feel the company is run in such a way that promotes agility in adapting to changing customer processes.
 - Infrastructure
 - The supporting infrastructure effectively enables the company and customer processes to be aligned.
 - The supporting infrastructure provides effective access to the information, people, equipment, facilities and materials required to get the job done.
 - The company's and customer's technologies have been integrated to facilitate effective and efficient communication and exchange of information.
- Behavioural Alignment
 - Competence
 - I feel I have the skills to assess the behavioural fit between myself and the personnel I interact with on the customer side.
 - I feel I have the expertise to adapt my behaviours so that they align with the customer's behaviours.
 - Myself and the personnel I interact with on the customer's side would discuss any plans that might change the nature of the work we are doing.
 - Capacity
 - I and the personnel I interact with spend sufficient time assessing and managing behavioural alignment.
 - The supporting infrastructure allows the company and customer to align their behaviours in a timely manner.
 - Culture

- Myself and the personnel I interact with on the customer side give each other a clear picture of what goes on behind the scenes that impact our work.
 - Myself and the personnel I interact with on the customer side give each other ample notice of planned changes that might impact our operations.
 - Myself and the personnel I interact with on the customer side share (reasonable) resources to help in our day to day operations.
 - Myself and the personnel I interact with on the customer side do a good job of notifying each other in advance of any schedule changes.
 - Myself and the people I interact with on the customer side take the time needed to discuss new ideas.
 - Myself and the personnel I interact with on the customer side co-operate in order to apply new ideas.
 - I am interested in maintaining and developing the relationship with the customer.
 - I see benefit in ensuring an alignment in behaviour between myself and the customer.
- Systems
 - I feel that the agreed channels of communication are properly used by the company and the customer.
 - I feel that the interface work processes are properly used by the company and the customer.
 - I feel that the agreed processes for exchanging data are properly used by the customer and the company.
 - I feel that the agreed processes for installing, moving and maintaining materials and equipment are properly used by the company and the customer.
 - I feel the agreed processes for executing 'people focused' activities are properly used by the customer and the company.
- Structure
 - I feel the company is run in such a way that promotes agility in adapting to changing customer behaviours.
 - I and the personnel I interact with on the customer side are judged and rewarded on the same basis.
 - Teams are constructed and roles allocated by making best use of the characters and personalities available from the customer and supplier resource pools.
- Infrastructure
 - The spatial proximity of the company and customer allows face-to-face working, encouraging a similar behaviour set.
 - The company has the correct supporting infrastructure to enable customer and company behaviours to be aligned.

- The spatial proximity between myself and the personnel I interact with in the customer side has been addressed either through co-location or use of shared IT technologies.
 - The supporting infrastructure mitigates the distance between company and customer people, facilities and equipment.
- Perceived Control & Empowerment
 - Competence
 - I feel I have the expertise to prove our capability to deliver to the customer.
 - When interacting with personnel from the customer side, I am good at turning problems into opportunities.
 - When interacting with people from the customer side, I feel I can do more than what my job specifies to ensure good contract performance.
 - Capacity
 - There are sufficient resources to enable me to complete my work.
 - I feel sufficient time is spent ensuring the customer maintains a perception of control over the service delivery and outcome.
 - I feel I am able to deploy sufficient resource to enable me to complete my work.
 - Culture
 - I feel I have control over the variety of methods I employ in completing my work.
 - I see benefit and am interested in ensuring the customer maintains a perception of control over the service delivery and outcome.
 - When interacting with personnel from the customer side I feel that my line manager supports me even when I go beyond the normal call of duty.
 - When interacting with personnel from the customer side I feel I can use tactics that would ensure good contract performance.
 - Systems
 - The company has the tools and processes I need to complete my work.
 - The company has the processes to ensure the customer has a perception of control over the service delivery and outcome.
 - Structure
 - I feel that I have control over the decisions that affect my work.
 - I feel that I can dictate how quickly or slowly I have to work.
 - I feel that I can choose among a variety of tasks to do.
 - I feel that I have total control over the quality of the work I deliver.
 - I feel that I have influence over the policies and procedures of my work unit.
 - I feel I can control access to the resources I need to complete my work.
 - The company's governance procedures ensure a level of perceived control is maintained by the customer.
 - I feel I have the authority to act when a situation needs changing.
 - I have responsibility for taking actions and issuing orders.
 - Infrastructure

- I am provided with the facilities, materials and equipment to effectively carry out my work.
 - The company's supporting infrastructure effectively allows the customer to maintain a perception of control over service delivery.
- Behavioural Transformation
 - Competence
 - I feel I have the expertise to influence and change service delivery and use for improved outcomes.
 - The customer is responsive to my suggestions of change or improvement.
 - I feel I have the expertise to influence and change the customer's behaviour.
 - Capacity
 - I feel the company is able to deploy sufficient resource to improve service delivery and outcomes over time.
 - The supporting infrastructure effectively facilitates the influencing and adaptation of customer behaviour in a timely manner.
 - I feel the company has sufficient resource to absorb changes in customer requirements and behaviours.
 - I feel the company's infrastructure is sufficient in supporting continuous improvement activity.
 - I feel the company is able to deploy sufficient resource to change customer behaviour when necessary.
 - Culture
 - If necessary I would try to influence the location of the personnel I interact with on the customer side to ensure good contract performance.
 - If necessary I would try to influence the behaviours of the personnel I interact with on the customer side to ensure good contract performance.
 - If necessary I would try to influence the attitudes of the personnel I interact with on the customer side to ensure good contract performance.
 - I see benefit in proactively encouraging the customer to change behaviour where it will improve service delivery outcomes.
 - I am open to and willing to change how I operate to improve service delivery and outcomes.
 - Systems
 - I feel the company has the tools and processes in place to ensure service delivery and use are adapted over time to maintain and/or improve outcomes and benefits.
 - I feel the company has the tools and processes in place to ensure customer behaviour can be effectively improved.
 - Structure
 - I feel the company is run in such a way that it proactively attempts to change customer behaviour when necessary.
 - I feel the company is run in such a way that it proactively seeks opportunities to improve service delivery and use for enhanced outcomes and benefits.

- Infrastructure
 - The company's facilities and equipment help to facilitate changing customer behaviour when necessary.
 - The company's facilities, equipment and IT infrastructure are suitable to facilitate continuous improvement activity.

Annex E – KTP Action Plan (September 2010)

Selling Actions

Task	Due	Status	Who	Activities	Report
Capability Partnering Framework	June	Complete	JW	Develop a framework to guide the sales and setup process for Capability Partnering relationships; specifically aimed at partnered service provision. To include process and supporting artefacts.	Capability Partnering Framework complete and rolled out.
Marketing material	Aug	Complete	CW	Develop high level material to attract attention of potential clients. To include: web content, brochure, articles, and adverts.	Baseline material created as part of White Paper now requires distilling up to relevant level of detail and design(s) created for material types. To be done by Marketing post-KTP.
	Aug	Complete	CW	Develop Capability Partnering graphic.	Graphic developed by Simon Ellis.
Sales material	Jun	Complete	CB	Company slide set: Create additional CP slides to feed into company slide set (external use).	Company slide set updated to include Capability Partnering material.
	Jul	Complete	JW	Capability Partnering sales slide set: Create a sales slide set specific to CP discussions that provides additional detail and outlines key features as well as allowing BD team to conduct initial diagnostic.	Slide set created and approved.
	Jul	Complete	JW	White Paper: Create a semi client specific sales document aimed at informing clients and providing the motivation and business case with which to proceed. To include Harmonic Partnering Principles. Two papers tailored for key markets - industry and public sector.	Industry White Papers approved. Public Sector paper still to be developed.

Definition & Design workshop	Aug	Complete	JW	Create a workshop structure and material to allow Harmonic to facilitate client workshops that clarify the client's current state and define and design a CP solution. Workshop output to feed into proposal, SoW and Partnering Principles.	Structure and content in place. Collateral still in development.
Capability Partnering proposal template	Sep	Not started	AB	Create a proposal template to allow production of client specific Capability Partnering proposals. Proposal should capture the outputs from the workshop and present a coherent case from which the client can make an informed buying decision.	Capability Partnering proposal template to be storyboarded. Full template will be developed when the need arises, i.e. after the first workshop.

Contracting Actions

Task	Due	Status	Who	Activities	Report
Commercial models	Jul	Complete	JW	Identify possible commercial models, the characteristics, the customer applicability of each and the relevance to individual service types.	Contracting guidance issued covering mechanisms, scenarios and commercial models.
Capability Partnering Principles	Jul	Complete	JW	Develop Capability Partnering principles to describe the basis on which a CP relationship should be built and managed.	Capability Partnering principles developed and incorporated in CP White Paper.
Service contracting	Sep	Started	SDA	Develop template Service Level Agreement with contracting elements for use in Capability Partnering arrangements. Should allow client to contract directly against SLA and SoW.	Outline Commercial Framework created; to be populated with pricing information. Template SLA still to be created.
Contracting training	Sep	Started	JW	Provide workshop style training for all those involved in selling and setting up service engagements to ensure a common understanding of how service engagement can and should be contracted.	Material in place; initial session scheduled for Aug 17th.

Delivery Actions

Task	Due	Status	Who	Activities	Report
Engagement management (service governance)	Sep	In progress	SM	Enhance existing engagement management approach and develop tools to facilitate stakeholder management, Associate induction and monitoring, performance and relationship management, communication and internal reporting.	Engagement management approach enhanced to ensure appropriate for offload engagements; further work required to ensure it is fit for partnered service provision by incorporating the 6 AVC (apart from process & behavioural alignment).
	Nov	Complete	SM	Develop Learning from Experience mechanism to facilitate change and continuous improvement activity within engagements.	Mechanism created and included in Engagement Management approach.
Service delivery	Sep	In progress	RB	Individual Surge Service: Develop the process and tools to manage the delivery of an Individual Surge Service. To include process and behavioural alignment, such as: demand planning, pool management, knowledge capture, induction, performance monitoring, communication (extranets).	Process maps created to aid service delivery. Tools and artefacts still to be developed.
	Sep	Not started	SM	Team Surge Service: Develop the process and tools to manage the delivery of a Team Surge Service. To include process and behavioural alignment, such as: demand planning, pool/team management, knowledge capture, induction, performance monitoring, communication, reporting.	Process maps created to aid service delivery. Tools and artefacts still to be developed.
	Aug	Complete	JW	Ensure Harmonic 'Attributes and Behaviours' incorporate the requirements for effective co-creation. Implementation of 'A & Bs' to be done by Ops.	No activity yet.

Corporate Actions

Task	Due	Status	Who	Activities	Report
Partnering culture	Sep	In progress	TS	Ensure clarity of the Harmonic vision , offering and internal structure amongst all staff to promote a single cohesive culture which buys into the 'big picture'.	Work underway to clarify Capability Partnering vision make 'bring it to life' throughout the organisation.
	Sep	Not started	JW	Conduct Collaborative Capability assessment to gauge staff perceptions of Harmonic capability and identify areas for future activity post KTP.	Survey developed as part of Collaborative Capability Assessment Tool (C-CAT). To be disseminated before next Company Review and results reported back to all staff.
IT systems	Nov	In progress	SDA	Implement effective data sharing (customer portals, shared work space), collaborative tools and communication technologies (video conferencing), which facilitate effective working both within and across organisations. IT system needed to improve pool searching and bench management.	Initial infrastructure in place. Further work needed to develop shared working environments including customer portals.
Sustainment	Nov	Not started	JW	Plan activities required to further develop and sustain the capability to deliver Capability Partnering relationships. Plans to include responsibilities and ongoing governance. Ensure CP and AVC material is embedded in induction and PDP processes.	No activity to date.

Publications

Publication 1:

Ng, I. C. L., Nudurupati, S., Williams, J. (2010) Redefining Organisational Capability for Value Co-creation in Complex Engineering Service Systems. In IRENE NG, P. W., GLENN PARRY, DUNCAN MACFARLANE AND PAUL TASKER (Ed.) *Complex Engineering Service Systems: Concepts & Research*. Springer.

Chapter 5

Redefining Organisational Capability for Value Co-creation in Complex Engineering Service Systems

Irene C L Ng¹, Sai Nudurupati² and Jason Williams¹

Abstract There is evidence that service transformation is bringing substantial benefits to traditional design and manufacturing organisations leading them to invest in transforming into service firms co-creating value with their customers. However there is a lack of understanding in how these organisations can effectively and efficiently (re)design their service delivery to co-create value with customer to attain optimal benefits. This chapter explains the seven key attributes that are essential in value co-creation: complementary competencies, empowerment & control, behavioural alignment, process alignment, behavioural transformation, firm's expectations, customer's expectations. It describes how the seven attributes demand the need for organisational structural change. The chapter then describes how the six dimensions of organisational capability, i.e. competence, capacity, culture, structure, systems and infrastructure should be redefined for better value co-creation and proposes key actions organisations need to take to develop the capability for value co-creation. In doing so the chapter provides a starting point for organisations to understand and begin to plan how their organisational capability could be re-configured for enhanced co-creation of value.

5.1 Introduction

Traditional academic literature focuses on value as exchange value (e.g. Marshall 1927, Thomas 1987). This notion of exchange value underpins the traditional customer-producer relationships, where each party exchanges one kind of value for another, with something in exchange for something else. With the advent of servitization (Anderson & Narus, 1995, Neely 2007, IBM Research 2005), a value-centric approach with service dominant logic puts delivering value-in-use as the key to superior competitive advantage (Vargo and Lusch 2008, Ng 2009). Consequently, to achieve value-in-use, the firm has to ask how value is created and understand the role of the customer within that context (Lengnick-Hall, 1996). The challenge lies in changing the nature of collaboration between the firm and its customers. This challenge is amplified and becomes more complex when the firm shares resources across multiple contracts with different degrees of involvement with the customer. This is prevalent in complex engineering service systems such as firms operating in the defence industry (aircraft manufacturing, maintenance, repair and overhaul services). Collaborative activities become increasingly complex as they cross organisational boundaries.

According to Marion and Bacon (2000), traditional organisations with a closed system approach of complexity limit their organisation's ability to adapt to its environment resulting in loss of control and opportunities. Hence cross-organisational activities should be managed with an open systems approach by developing flexible capabilities to continuously change and co-create value with customers (Brodbeck, 2002). Firms can increase their effectiveness by achieving a good 'fit' between their structures and coordinating mechanisms and the context in which they operate (Drago, 1998). To collaborate in this way, organisations must nurture flexibility within processes and procedures and encourage and empower employees to reactively self-organise as change occurs. Such procedures, modelled on complexity theory, would suggest a capability to adapt and provide an enduring fit between structure and context (Brodbeck, 2002). Competitive advantage may

¹I.Ng, J. Williams (✉)
UK

²S.Nudurupati (✉)

Manchester Metropolitan University Business School, UK
e-mail: S.Nudurupati@mmu.ac.uk

University of Exeter Business School,
e-mail: irene.ng@exeter.ac.uk, Jason.Williams@harmonictd.co.uk

be gained through creating the capability to continuously adapt and co-evolve within the complex environments created, embedding a system capable of undergoing continuous transformation in order to respond to a dynamic business environment (Brodbeck, 2002, Lewin et al, 1999).

The objective of this chapter is to discuss the seven attributes of value co-creation presented by Ng et al (2009b) and their impact on the organisational capability required to deliver complex services. A new definition of capability is proposed that is configured to enable effective co-creation through a value-web (capability integration perspective), rather than delivering its value proposition through a value chain (vertical integration perspective). Initially, it presents the seven attributes from a more technical paper on the subject. Later on it presents the six dimensions of service capability identified from literature. By mapping the dimensions of capability onto the attributes of value co-creation, we propose a matrix that redefines organisational capability and suggest actions for firms to achieve that capability.

5.2 Attributes of Value Co-Creation

In service delivery, the *value* of the service is embedded in the processes and interactions between the customer and the firm over time. Recent literature have discussed these interactions as those where the value is co-created between the firm and the customer. For example, maintaining and servicing equipment and parts on site, integrating systems, or training. Consequently, whether benefits to customers are attained through tangible goods or through the activities of firms, a customer-focused orientation would focus on achieving value-in-use, delivered by the outcomes rendered by the firm's value proposition of goods or activities (Vargo and Lusch, 2004, 2008; Tuli et al, 2007).

In striving to achieve value-in-use the firm now becomes an essential part of the consumption process. According to this perspective the relationships, service delivery processes and interactions between firm and customer become crucial in determining the value created. Hence greater concern should be placed on post-purchase interactions as they directly impact on value creation and the likelihood of future contracts and revenues (Bolton et al, 2008).

5.2.1 Value Co-creation

In co-creating value, firms do not provide value, but merely propose value (Vargo and Lusch, 2004) and it is the customer that determines the value by co-creating it with the firm. As Ballantyne and Varey (2006) puts it, a "customer's value-in-use begins with the enactment of value propositions" (p.337). Hence, a firm's product offering be they goods or activities, are merely value unrealised. Through this logic the offering is a, "store of potential value" (Ballantyne and Varey, 2006, p.344) until the customer realises it through a process of co-creation and gains the proposed benefit. Value co-creation is therefore the customer realising the value proposition to obtain benefits (value-in-use).

Woodruff and Flint (2006) suggested that customers have an obligation to assess the provider's needs and to assess their resources to deliver these needs as part of the co-creation of value. In doing so, there is a need to understand the role of the customer in the firm's processes and systems, and vice versa. Payne et al. (2008) developed a process-based framework for co-creation in which they proposed customer value-creating processes, firm value-creating processes and encounter processes through which customers derive benefits from the firm's value propositions. Ulaga (2001) argued that suppliers and customer organise the service system where value is jointly co-created with superior value arising from the effective combination of core competency and relationships (Kothandaraman & Wilson, 2001).

Thus, for co-creation to be understood in its fullest the customer's role in attaining benefits for themselves cannot be ignored and firms have to face the challenge of understanding customer consumption processes (Ballantyne and Varey, 2006). While there is clearly a need to better understand the dynamics of how value is co-created, literature in this area is scarce. Most research has discussed value co-creation in terms such as

interactions, relationships, reciprocity, and customer orientation. Value co-creation has also been described as, “spontaneous, collaborative and dialogical interactions” (Ballantyne and Varey, 2006, p. 344). Whilst accurate, such descriptions are not useful for developing the organisational capability or for designing services that effectively co-create value.

Oliva and Kallenberg (2003) noted that the transition from a transaction-based business model to a relationship-based model requires the firm to develop the capability to co-create value. This in turn requires an evaluation of organisational principles, structures, and processes – a major managerial challenge. This is also echoed in redefining the value chain towards a ‘web’ model (Prahalad, 2004) or ‘value constellations’ (Normann and Ramirez, 1993; Ramirez, 1999) that could enable more effective value co-creation. This is particularly important for organisations that deliver to outcome-based contracts (see Ng et al, 2009a), where the focus on delivering to outcomes extend the boundaries of the organisation’s responsibility, compelling the organisation to co-create value with the customer and embed value co-creation as an organisational capability.

Current literature places more emphasis on relationships and less on organisational or service design that could facilitate such relationships. Much of the research in value co-creation resides in the theoretical and conceptual domain with little empirical evidence (eg Prahalad & Ramaswamy, 2004; Vargo & Lusch, 2004, 2008; Lengnick-Hall, 1996). It is still unclear *how* firms should design their service delivery to co-create value with customer to attain the highest benefits. In other words,

What attributes should a service system exhibit that would enable co-creation of value with the customer to attain beneficial outcomes and how should such attributes impact on the organisation’s capability?

A study to uncover the attributes was conducted and the results reported in a more technical paper (see Ng et al, 2009b). The following section will present the key aspects of the study and following on, develop a framework on managerial implications for organisation capability.

5.2.2 The Seven Attributes of Value Co-creation

The seven attributes were initially discovered through qualitative study, with data collected through interviews, participant observation, analysis of texts and documents as well as recording and transcribing. The data was then analysed through a grounded theory approach (Strauss & Corbin, 1990) to arrive at the seven attributes of value co-creation (AVCs). The study also operationalised these AVCs and internally validated them using Exploratory and Confirmatory Factor Analysis from the data obtained through an internal survey. It found that the role of the customer in achieving outcomes or value-in-use is dependent on use practices in different contexts which ‘push back’ into the organisation’s system. This meant that organisations have to develop a capability to manage open systems and where even when the customer and the firm do the exact same thing each time, the context changes and together with it, benefits, satisfaction and costs. The seven AVCs derived from Ng et al’s (2009b) study provide a starting point towards changing the internal organisation to ensure more effective interfaces with the customer.

- | | |
|-------------------------------|--|
| 1. Complementary competencies | 5. Behavioural transformation |
| 2. Empowerment and control | 6. Congruence of the customer’s expectations |
| 3. Behavioural alignment | 7. Congruence of the firm’s expectations |
| 4. Process alignment | |

The first of the AVCs is *complementary competencies*, described as both the customer and the firm employees having to provide the right competencies, in terms of expertise and judgment, and complementary resources. Organisations exhibiting such an attribute would benefit from improved planning with increased resource demand and cost predictability. When the customer shares complementary information, material and skills, the firm will have the opportunity to learn and develop new technologies, skills and behaviours necessary in delivering the availability of service (Ng and Nudurupati, 2010).

The second AVC is *empowerment and perceived control*. *Empowerment* is described as “employees with suitable autonomy to make situational decisions as well as to implement new ideas”. *Perceived control* is

defined as “employees and customers ability to demonstrate their competency over the environment”. During the course of service delivery changes in roles and responsibilities cause discomfort and disruptions resulting in a reduced sense of control and security within individuals. Hence empowerment of the employees in the firm allow them to turn problems into opportunities, exercise personal judgement for greater effectiveness would improve the service efficiency and effectiveness. Also, allowing customers sufficient visibility of service delivery information and processes renders employees of both organisations better perception of control.

The third AVC is the *behavioural alignment* between firm’s and customer’s personnel. Success in co-creation is highly dependent on personal relationships. Ensuring the right behaviours such as co-operation, teamwork, trust and open communication (of plans) is essential in delivering the required outcomes.

To facilitate behavioural alignment, the firm and the customer also need to (re)align their processes to enable exchange of information through emails, telephone, meetings, and seminars. The processes should also enable smooth flows of material/equipment between the firm and the customer to enable efficient service delivery. For these reasons *process alignment* was identified as the fourth AVC.

The fifth attribute of *behavioural transformation* is essential for delivering outcomes (value-in-use) as customers need to be educated on the best usage of the firm’s assets and activities. Thus, firm employees have to transform the behaviours of customers to ensure better usage in achieving outcomes. Better usage results in lower costs of delivery and higher satisfaction.

If the organisation and the customer have overlapping skills and roles, it creates ambiguity such as to who should perform certain tasks, why it should be them and not us etc., which can lead to a mismatch in expectations. Hence the firm should understand and be clear of the *customer’s expectations* and vice versa. The congruence of expectations between the firm and the customer of each other represents the sixth and seventh AVCs.

The seven AVCs accentuate the need for structural change in firms to enable knowledge sharing, communication, interaction and innovation (e.g. Sawhney and Prandelli, 2000; Grönroos, 2004). Achieving value-in-use clearly does not follow the typical value chain (Porter, 1985) with interactions compartmentalised into marketing, HR, operations, supply chain and logistics. Instead, value co-creation transcends discipline, functional and organisational boundaries of both the customer and the firm, focused only on outcomes and value-in-use. Value is co-created through interactions at every level and with every resource be it equipment or people all co-existing in a common service system. Using the seven AVCs, we redefine the organisational capability required for value co-creation. The dimensions of organisational capability are explored and discussed in the next section.

5.3 Dimensions of Service Capability

Where service is defined as *the application of knowledge and skills for the benefit of another* (Vargo & Lusch, 2008), service capability is defined as, *the ability to deliver beneficial outcomes to satisfy customers*. The development and effective execution of service capability is a key source of competitive advantage as it represents the true ability to continually and consistently satisfy customers.

An organisation is said to have service capability when the business model is explicitly focused on achieving the co-creation of value with stakeholders through the application of specialist (core) competencies designed to create benefit for customers. Particular emphasis is placed on the effective utilisation of operand resources rather than operant resources (Constantin and Lusch, 1994). In order to explore the dimensions of capability, a brief literature review is presented in the following sub sections.

5.3.1 Capability in Service Transformation

In planning and implementing the service transformation of an organisation towards effective service capability it is essential to understand both the current operating state and that required by the future operating model. A clear understanding of both states will inform the planning process, allowing detailed activities to be structured

around the transformation requirements necessary to develop service capability. Capability is used as the basis for assessment because the transformation aims to develop the service capability of the organisation. To build and manage service capability a generic capability basis is required.

A capability perspective assists the understanding, integration and application of capability to achieve common objectives. Adopting capability as the basis of transformation is appropriate because it transcends organisational functions in the same way that effective co-creation of value requires coordinated activity across multiple functions and indeed organisations. Managing from a capability perspective promotes the creation of innovative solutions focusing on the integrated management of interlinking functions (possibly across organisational boundaries) and activities in a strategic context.

5.3.2 Capability in Strategic Management

Capability has been a much-studied topic within strategic management (e.g. Helfat, 2000). The growing volume of research on firm capabilities links capability with performance, an indication of the importance of capability in creating and sustaining competitive advantage. While the intricacies of the relationship between capability, performance and competitive advantage are widely debated, it is clearly recognised that a firm's ability to manage and develop its capabilities over time is crucially important and will only become more crucial as levels of competition continue to increase. Most literature would agree that capabilities that are critical to a business achieving competitive advantage contribute to the firm's core competency (Hamel and Prahalad, 1990)

Traditionally, organisations have focused on financial, strategic and technological capabilities to gain competitive advantage (Ulrich and Lake 1991). However, it is beginning to emerge that such capability perspectives must be supplemented by another capability, that of the firm's ability to manage people. Such an organisational capability emphasises the strong link between effective people management, performance and competitiveness. Ulrich and Lake (1991) see organisational capability as the glue between the traditional financial, strategic and technological capabilities. "*Managers who are able to understand and integrate all four sources [of capability] are more likely to build competitive organisations*" (Ulrich and Lake, 1991, p. 82). Today, organisations are increasingly interacting with their customers resulting in value being embedded in a system of interactions. This means that boundaries of what is value is fluid and the organisation's capability has to contend with the management of such a value proposition as well as dealing with customer use variety to realise the value delivered by the firm.

In establishing organisational capability the organisation must therefore become adaptive by establishing internal structures (*structure*) and processes (*systems*) that aid the creation of competences (*competence*). Competence is further nurtured through selective recruitment and importantly, "effective human resource practices" (Ulrich and Lake, 1991, p. 77). Recruitment and personal development procedures allow an organisation to build a stable resource base providing the necessary *capacity* to compete in the marketplace. Capability development involves, "adopting principles and attitudes, which in turn determine and guide behaviour" (Ulrich and Lake, 1991, p. 77), i.e. the *culture* of the organisation.

Ulrich and Lake define a capable organisation as consisting of four critical elements: (1) a shared mindset both internally and externally (*culture*); (2) make use of management practices to build a shared mindset (*structure* to build *culture*); (3) create *capacity* for change through understanding influence and managing organisational systems (*systems* influence *culture*); (4) empower all employees to think and act as leaders (*structure* and *systems* nurture *competence*). In addition to the five dimensions arising from Ulrich and Lake's definition of organisational capability, there is a sixth dimension, *infrastructure*, that cuts across all four of the capability types (organisational, financial, strategic, and technological) by providing the physical environment needed for the operation of an organisation. Infrastructure includes buildings, equipment, materials and IT systems, all of which facilitate the working and interaction of the other capability dimensions.

By abstracting from Ulrich and Lake's four types of interacting capability, we propose a generic definition of capability and its six constituent dimensions. Establishing a generic model allows the capability to be tailored or nurtured for different purposes. In the case of service transformation we are interested in developing *service* capability, a particular blend that focuses on co-creating customer benefits, and in doing so align with Ulrich and Lake's definition that competitive advantage is build on customer value and uniqueness.

5.3.3 Extracting the Six Dimensions of Capability

Six generic dimensions of capability have been identified based on the examination of extant literature:

1. *Competence* – The level and type of knowledge and skills which can be brought to bear (to an acceptable level)
2. *Capacity* – The level of output possible in a given time period with a predefined level of staffing, facilities and equipment
3. *Culture* – Collective assumptions, behaviour and values of a group of people
4. *Structure* – The structure and associated governance mechanism that controls activity
5. *Systems* – Processes, procedures and tools used to transform inputs into outputs
6. *Infrastructure* – The material, equipment and physical environment that supports operational activity

The six dimensions of capability are mapped against the seven attributes of value co-creation and represented as a matrix that illustrates the capability for value co-creation, which according to current literature (Maglio & Spohrer, 2008), is how we would define the firm's capability for *service*. The matrix provides a framework for identifying key actions that can be taken by the firm and/or customer to enhance co-creation of value through service delivery resulting in greater benefits. This matrix with key actions is presented and discussed in the next section.

5.4 Redefining the Firm's Capability for Value Co-creation

In 5.2 we identified the seven attributes of value co-creation and in 5.3 we identified the six dimensions of capability. In this section, we will discuss how to configure the seven attributes against the six dimensions and the actions that could be taken to enhance an organisation's capability to co-create value through effective service delivery resulting in greater benefit for the firm and the customer.

As outlined in Table 5.1, organisational *competence* to co-create value is defined by how well the firm's institutional and human knowledge and skills can be applied to deliver against the seven attributes. So for example, the competency to ensure complementary competencies is defined by how well the firm's institutional and human knowledge and skills are able to continually ensure a complementary fit between the knowledge and skills of the firm and the customer. This type of competency can be attained with policies that ensure customer and company share information on each other's competencies, to achieve complementarity; policies that are also assisted by joint training and evaluation of technology and assets that are complementary. Furthermore, the firm is required to build expertise throughout the organisation that allow it to understand, align with and adapt to changes in customer expectations, processes and behaviours. Specific skill sets are needed to ensure behaviours are transformed in the firm and customer domains, where necessary changes produce improved outcomes. This is not merely about training of employees but ensuring the roles within the firm are redefined for the execution, rather than impediment, of such behaviours.

Organisational *capacity* is defined as the level and effectiveness of output possible in a given time period with a predefined level of staffing, facilities and equipment (resources). However, outputs are determined by how such resources interact and the quality of the interactions and processes. Thus, the capacity to co-create value is defined by the firm's ability to deploy necessary resources (be it people, facilities and equipment) to facilitate the service delivery in line with the seven attributes. Hence the capacity for complementary competencies is defined by how well the firm is able to deploy the necessary resources to complement the customer's lack of resources to achieve outcomes. Higher levels of trust can improve capacity effectiveness and quality by reducing transaction and monitoring demands and costs. Similarly, the necessary resources should be identified and allocated to facilitate the behavioural transformation and process alignment, and where appropriate the relevant training should be provided to sufficient numbers of people to enhance capacity effectiveness while co-creating value with customer.

The organisational *culture* to co-create value is defined as, holding collective assumptions, behaviours and values that are customer focused to collectively co-create value across all co-creation attributes to achieve joint outcomes as shown in Table 5.1. The culture to co-create value largely reflects a partnering culture which encourages, through reward and communication, win/win situations realised through complementary

interdependence between parties. A variety of approaches are required to nurture the necessary culture which include: creating a value set that emphasises regular and open communication; formal skills sharing mechanisms; encouraging agility by rewarding innovation; promoting trust and openness through transparency and delegation of authority; and nourishing continuous improvement through empowerment and reward incentives.

The behaviour of individuals within the firm is hugely influenced by the prevailing culture. It is the behaviour of employees, acting upon and within the firm's capability, which ultimately determines the effectiveness of the firm's role in co-creating value with the customer. Hence, nurturing the culture to effectively co-create value should be seen as a formal and critical activity and so prioritised accordingly within any improvement programme.

As shown in Table 5.1, the organisational *systems* to co-create value are defined as the processes, procedures and tools required to consistently manage service delivery exhibiting all the co-creation attributes. In order to achieve this, the firm should deploy the tools and processes to assess and map competencies allowing analysis of the complementary fit across the stakeholder community. To ensure congruence of expectations robust processes should be incorporated to ensure roles, responsibilities and boundaries are clearly mapped and enable effective ongoing communication between parties to clearly understand each other's expectations. To this end the implementation of tools and techniques such as business process management (BPM) or other process change management techniques to map, change and integrate interface processes for better process alignment and more effective co-production are warranted. A formal approach and tools are required to aid the sustainability of delivery through behavioural alignment. Many such tools arise from the areas of team dynamics and collaboration. In addition a formal approach and tools for auditing behaviours and managing any necessary change activity is required to ensure the continued effectiveness of service delivery. Empowerment and control through the use of systems and processes can be developed by allowing flexibility in internal processes and systems to ensure adaptability and agility.

The organisational *structure* to co-create value is defined as the use of structure and governance mechanisms to maintain a core of stability whilst providing the ability to address and adapt to the seven co-creation attributes encountered across customer environments. Consequently structure should provide the ability to learn about and adapt to a variety of customer environments as well as a flexible and agile interface to manage changes in customer capability and requirement as shown in Table 5.1. A sense of empowerment and control in the firm and the customer should be nurtured by delegating power and authority appropriately to levels where the impact of decisions is best understood. Finally, flexible governance mechanisms and dissemination of power should be implemented to encourage staff to influence change in customer behaviour where service outcome benefits can be jointly realised.

Table 5.1 Redefining Organisational Capability for Value Co-creation in Service – Value Co-creation Capability Matrix
(*DoC : Dimensions of Capability, AVC : Attributes of Value Co-creation)

DoC / AVC*	Competence	Capacity	Culture	Systems	Structure	Infrastructure
Complementary competences	<p>Def: The institutional and human knowledge and skills to ensure a complementary fit between the capability of the company and the customer.</p> <p>Actions: Training to develop analytical and organisational skills. Policies to ensure customer and company share competency information.</p>	<p>Def: The ability to deploy the necessary resources to complement the customer's lack of resources to achieve particular outcomes.</p> <p>Actions: Train sufficient number of staff in analytical and organisational skills. Both parties to commit resources to ensure complementarity is maintained.</p>	<p>Def: The collective assumptions, behaviour and values of employees in the firm that strive for fit between the competencies of the company and the customer. Actions: Reward examples of win/win situations realised through complementary interdependence between parties. Develop formal skills sharing and work shadowing mechanisms to encourage knowledge transfer and an appreciation of others skills and roles.</p>	<p>Def: The processes, procedures and tools utilised to map competencies allowing analysis of complementary fit.</p> <p>Actions: Instil competency assessment of both customer and firm as standard operating procedure during due diligence and subsequent service delivery. Develop tools to allow competency comparison and aid cross functional and cross organisational working.</p>	<p>Def: A set of governance structures and activities that maintain a core of stability and ability to learn about multiple customer competencies and environments; as well as a flexible and agile interface to manage changes in customer competency.</p> <p>Actions: Allow agility in resource usage and governance to cope with variety of customer environments and capabilities.</p>	<p>Def: The utilisation of IT and communications technologies as well as the physical environment to effectively support communication and knowledge sharing amongst the stakeholder community.</p> <p>Actions: Develop infrastructure that effectively supports collaboration and skills sharing.</p>

DoC / AVC*	Competence	Capacity	Culture	Systems	Structure	Infrastructure
Congruence of expectations	<p>Def: The institutional and human knowledge and skills to continually ensure expectations are aligned across the stakeholder community.</p> <p>Actions: Training in stakeholder management and partnering. Policies for constant communication and updates between employees of firm and customer.</p>	<p>Def: The identification and allocation of adequate resources required to manage expectations.</p> <p>Actions: Train sufficient number of staff in stakeholder management and customer orientation. Policies of open communication and transparency.</p>	<p>Def: The collective assumptions, behaviour and values of employees in the firm that strive congruence of expectations across the stakeholder community.</p> <p>Actions: Create a value set that emphasises regular and open communication and the benefits of shared goals.</p>	<p>Def: The processes, procedures and tools transparently developed with and communicated to the customer where boundaries are clearly mapped and enable effective ongoing communication between parties.</p> <p>Actions: Develop robust processes for regular and thorough communication across the stakeholder community.</p>	<p>Def: A set of governance structures and activities that maintains a core of stability and ability to learn about the customer competencies and environments; as well as a flexible and agile interface to manage changes in customer competency and to strategically decide and communicate what the organisation is or is not able to do within its structure.</p> <p>Actions: Appropriate communications strategy. Governance mechanism to encompass all key stakeholders and sufficient regularity of reviews.</p>	<p>Def: The utilisation of IT and communications technologies and the physical environment to effectively support communication amongst the stakeholder community.</p> <p>Actions: Develop infrastructure that effectively supports communication between parties through various medium.</p>

DoC / AVC*	Competence	Capacity	Culture	Systems	Structure	Infrastructure
Process alignment	<p>Def: The institutional and human knowledge and skills required to continually ensure an appropriate degree of process alignment between the company and the customer by recognising and adapting to any changes in customer requirements or processes.</p> <p>Actions: Training in business process management and stakeholder management.</p>	<p>Def: The identification and allocation of resources required to ensure compatibility with customer processes for all transformations (information, people or material/equipment) required to deliver value.</p> <p>Actions: Train sufficient number of staff in business process management. Develop infrastructure with capacity to support timely process alignment.</p>	<p>Def: The collective assumptions, behaviour and values of employees in the firm that actively seeks to ensure an appropriate degree of process alignment between the company and the customer.</p> <p>Actions: Nurture culture of agility that is open to change by rewarding innovation.</p>	<p>Def: The processes, procedures and tools utilised to transform inputs into outputs together with the customer with a willingness to change and integrate interface processes for more effective co-production.</p> <p>Actions: Implement Business Process Management to ensure all interface processes are mapped and reviewed regularly. Develop approach for formal process change control to ensure synergy between interface and internal processes within the company. Develop approach for managing customers through process change.</p>	<p>Def: A set of governance structures and activities that maintain a core of stability and ability to learn about the customer resources, assets and environment, as well as a flexible and agile interface to manage customer process changes.</p> <p>Actions: Allow agility in resource configuration, equipment and assets use, and governance mechanisms to cope with changing customer requirements and processes.</p>	<p>Def: The utilisation of IT and communications technologies capable of mapping and communicating interface processes, roles and responsibilities, as well as identifying any changes during the service delivery process.</p> <p>Actions: Create IT and communications infrastructure capable of mapping and communicating interface processes, roles and responsibilities.</p>

DoC / AVC*	Competence	Capacity	Culture	Systems	Structure	Infrastructure
Behavioural alignment	<p>Def: The institutional and human knowledge and skills to continually ensure an appropriate degree of behavioural alignment between the company and the customer by recognising and adapting to any changes in customer behaviour.</p> <p>Actions: Role redefinition and development of strong interpersonal skills of firm employees as well as openness to adaptation and flexibility. Develop an Understanding of behavioural psychology.</p>	<p>Def: The identification and allocation of resources that could be deployed for absorbing changes in customer requirements and behaviours.</p> <p>Actions: Develop sufficient number of staff with interpersonal and behavioural skills capable of absorbing changes in customer behaviours.</p>	<p>Def: The collective assumptions, behaviour and values of employees in the firm that actively seeks to ensure an appropriate degree of behavioural alignment between the company and the customer.</p> <p>Actions: Redefinition of roles and responsibilities to nurture and reward a culture of agility and customer orientation</p>	<p>Def: The processes, procedures and tools utilised to transform inputs into outputs together with the customer with a formal approach for monitoring and recording changes in customer environment and behaviour to aid delivery.</p> <p>Actions: Develop the process and tools to monitor customer behaviour in order to identify changes that might affect service delivery and outcomes. Develop approach for formally changing and recording behavioural change within the company's standard operating procedures. Develop robust processes for regular and thorough communication across the stakeholder community.</p>	<p>Def: A set of governance structures and activities that maintain a core of stability and ability to learn about and manage customer behavioural changes.</p> <p>Actions: Appropriate communications strategy. Agility in governance and structure to absorb changes in behaviour and process caused by changes in customer behaviour.</p>	<p>Def: The utilisation of IT and communications technologies to monitor customer behaviour and identify any changes during the service delivery process.</p> <p>Actions: Utilise communication technologies that effectively facilitate the communications strategy and processes.</p>

DoC / AVC*	
Empowerment & Control	<p>Competence</p> <p>Def: The level and type of institutional knowledge and skills which seeks to achieve suitable empowerment of its employees, and able to assure the customer of the firm's competency, providing the customer with sufficient artefacts for a sense of being 'in good hands' across various contexts of use. Actions: Role redefinition of employees for greater empowerment when dealing with customer changes. Training in stakeholder management and communications skills. Provide personal and professional development opportunities; including training in appropriate skills areas.</p> <p>Capacity</p> <p>Def: The identification and allocation of resources to ensure stakeholders remain fully appraised of progress and provided with adequate resource and infrastructure. Actions: Ensure sufficient number of staff have redefined roles and responsibilities with higher empowerment and control. Ensure sufficient numbers of staff are competent in stakeholder management. Ensure technology investment has the capacity to support the customer's need for</p> <p>Culture</p> <p>Def: The collective assumptions, behaviour and values of employees in the firm that strive for customer centricity and shared values which work to ensure fair distribution of control and authority between firm and customer. Actions: Redefinition of roles and responsibilities to empower employees and encourage personal leadership. Nurture a culture of trust and openness through transparency and delegation of authority.</p> <p>Systems</p> <p>Def: The processes, procedures and tools utilised to transform inputs into outputs together with the customer with appropriate communication channels to keep the stakeholder community informed and allow their opinions to be captured and influence the service delivery. Actions: Develop robust processes for regular and thorough communication across the stakeholder community. Allow flexibility in internal processes and systems where benefits in service delivery can be realised.</p> <p>Structure</p> <p>Def: Appropriate organisational structure and governance mechanisms to allow effective dissemination of authority allowing service delivery to be controlled for better outcomes. Actions: Delegation of power and authority to nurture a sense of empowerment in the company and the customer. Use of technology and information systems to ensure transparency and control</p> <p>Infrastructure</p> <p>Def: The materials, equipment, technologies and physical environment that provide stakeholders with the visibility of and access to the information, people, equipment, materials and facilities required for service delivery. Actions: Create an infrastructure that provides employees and the customer with visibility and access to the people, information, equipment and facilities involved in service delivery.</p>

DoC / AVC*	Competence	Capacity	Culture	Systems	Structure	Infrastructure
Behavioural transformation	<p>Def: The level and type of institutional knowledge and skills which seeks to be able to influence and adapt customer behaviour for more effective co-production.</p> <p>Actions: Training in leadership and people management for firm employees, joint governance and training policies with customer.</p>	<p>Def: The identification and allocation of resources required to transform customer behaviours as part of the delivery processes.</p> <p>Actions: Ensure sufficient numbers of staff are competent in leadership and people management. Ensure sufficient technology resources exist to support employees in transforming customers.</p>	<p>Def: The collective assumptions, behaviour and values of employees in the firm that strive for openness to change and willingness to be involved in orchestrating improvements in service delivery by changing customer behaviour.</p> <p>Actions: Nurture a culture that strives for continuous improvement through empowerment and reward incentives.</p>	<p>Def: The processes, procedures and tools utilised to transform inputs into outputs together with the customer with a formal approach and tools for auditing customer behaviours as well as managing any necessary change activity.</p> <p>Actions: Develop regular customer behaviour audit as a standard operating procedure. Develop an approach for managing customers through behavioural change.</p>	<p>Def: A set of governance mechanisms and activities that include the transformation of the customer as part of the firm's due process.</p> <p>Actions: Create governance mechanisms that encourage staff to influence change in customer behaviour where service delivery and/or service outcome benefits can be realised.</p>	<p>Def: The utilisation of IT and communications technologies to effectively support the company in changing customer behaviour.</p> <p>Actions: Develop facilities and technologies that provide the tools and means to support company staff in changing customer behaviour.</p>

The organisational *infrastructure* to co-create value is defined as the material, equipment, IT and physical environment that effectively support service delivery in accordance with the seven attributes, as demonstrated in Table 5.1. The firm should strive to create an infrastructure that utilises IT and the physical environment to effectively support communication and data sharing amongst the stakeholder community which will in turn help ensure congruence of expectations and behavioural alignment. The IT and communications infrastructure should also be capable of mapping and communicating interface processes, roles and responsibilities thus strengthening the process alignment. The infrastructure should effectively support collaboration and skills sharing and thus strengthen complementary competencies. It is important to create an infrastructure that allows the customer visibility and access to the people, information, equipment and facilities involved in service delivery as this will promote empowerment and control within the customer.

The framework (Table 5.1) which maps the six dimensions of capability to the seven attributes of value creation provides a prescriptive tool with which practitioners can begin to assess and diagnose the firm's capability to co-create value. Whilst in its current form the framework does not provide detailed guidance or measures with which to interrogate the firm, it is sufficient to form an initial analysis. An assessment can be carried out by comparing the organisation to the definitions laid out in the framework; any significant differences being areas requiring attention in order to enhance the organisation's capability to co-create value. It

is important to understand the assessment provides only a perceptual indication of the firm's capability as it is reliant on the opinions, observations and knowledge of individuals within the firm.

Moving beyond assessment, firms seeking to enhance their capability to co-create value can use the actions included within the framework to direct activity within and across the firm. As with its diagnostic abilities, the current framework falls short of providing detailed guidance on coordinating improvement activity but nonetheless provides an indication of how individual constructs (cells within the framework) can be enhanced. This section has demonstrated how the firm can reconfigure its six dimensions of capability to facilitate the seven attributes of value co-creation to maximise benefits for all parties. It has also highlighted some key actions that firms can adopt in order to better configure service design and delivery to enhance the benefits arising from the co-creation of value.

5.5 Conclusion

Service transformation is beginning to bring about substantial benefits to businesses, leading traditional design and manufacture firms to invest in transforming into service firms capable of managing the customer and the co-creation of value in new ways. However current literature places the emphasis more on relationships and less on organisational or service design that could facilitate such relationships. Hence the emergence of knowledge for firms to reconfigure their capability to effectively manage service delivery is still slow.

This chapter developed knowledge with which organisations can more effectively configure the organisation as well as design and deliver service in such a way that it promotes the effective co-creation of value with the customer. Through integrating the dimensions of capability with the attributes of value co-creation a new method of developing and enhancing service capability is proposed. This new approach to service transformation now provides organisations with a tangible framework for transforming organisational capability, service design and delivery, thus presenting a significant step forward in developing effective service capability. The framework is void of any bias towards a particular industry, organisational size, type or sector. In fact the approach to service transformation provides a means for any organisation to improve its ability to co-create value, no matter the nature of the value it seeks to co-create or its current ability to do so. In this respect it presents a significant contribution for organisations seeking to deal with the practical implications of value co-creation. The key revelations this chapter presents to practitioners are:

1. The firm cannot create value, instead it must be co-created through relationships and interactions within a complex service system that includes the customer within that system
2. The ability to manage the service system for effective co-creation of value with the customer requires a particular organisational capability, *a service capability*, one that would provide a significant competitive advantage
3. The service capability to effectively co-create value requires firms to be agile in adapting to changing circumstances of customer use contexts and the ability to work across functional and organisational boundaries

The framework presented here is only the beginning; further research is needed to enable empirical assessment of the capability to co-create value (i.e. how do organisations compare to the framework) and to provide a method for subsequently enhancing capability in a coherent and coordinated manner (i.e. how organisation's can improve their capability in line with the framework). Research is underway to address these requirements and a toolkit is currently being developed to enable the practical application of the framework and its thinking.

5.6 Chapter Summary Questions

This chapter has proposed that an organisation needs to be configured in such a way that it can effectively co-create value. The framework presented above uses six dimensions of capability as the basis for organisational design and poses them against the six attributes required for effective co-creation of value. With these in mind we pose a number of questions to organisations:

- Does the organisation have the right type and level of skills to address the attributes of value co-creation?
- Does the organisation's culture reflect the need to address the attributes of value co-creation?
- Does the organisation have the processes and tools in place to address the attributes of value co-creation?
- Is the organisation structured (including governance and control mechanisms) to provide the flexibility required to address the attributes of value co-creation?
- Does the organisation have the right type and level of infrastructure to support it in addressing the attributes of value co-creation?

5.7 References

- Anderson JC, Narus JA (1995) Capturing the value of supplementary services. *Harvard Bus Rev* Jan-Feb:75-83
- Ballantyne D, Varey RJ (2006) creating value-in-use through marketing interaction: The exchange logic of relating, communicating and knowing. *Marketing Theory* 6(3):335-348
- Bolton RN, Lemon KN, Verhoef PC (2008) Expanding business-to-business customer relationships: modeling the customer's upgrade decision. *J Marketing* 72(January):46-64
- Brodbeck PW (2002) Implications for organisation design: teams as pockets of excellence. *Team Performance Management* 8(1/2):21-28
- Chamberlain N (1968) *Enterprise and environment: The firm in time and place*. McGraw-Hill, New York
- Christensen C, Andrews K, Bower J (1973) *Business policy: Text & cases*. Irwin, Homewood Ill
- Christensen C, Andrews K, Bower J (1978) *Business policy: Text & cases*. Irwin, Homewood Ill
- Constantin J, Lusch R (1994) *Understanding resource management*. The Planning Forum, Oxford, OH
- Drago WA (1998) Mintzberg's 'pentagon' and organisational positioning. *Management Research News* 21(4/5):30-40
- Grönroos C (2004) The relationship marketing process: Communication, interaction, dialogue, value. *J Bus Ind Mark* 19(2):99-113
- Hamel G and Prahalad C (1990) The core competence of the corporation, *Harv Bus Rev* 68(3): 79-91
- Helfat C (2000) Guest editor's introduction to the special issue: The evolution of firm capabilities. *Strategic Manage J* 21:955-959
- IBM Research (2005) *Services science: A new academic discipline?*. IBM Research, Armonk, NY
- Joshi AW (2009) Continuous supplier performance improvement: Effects of collaborative communication and control. *J Marketing* 73(January):133-150
- Kothandaraman P, Wilson DT (2001) The future of competition – value creating networks. *Ind Market Manag* 30(4):379-389
- Lengnick-Hall CA (1996) Customer contributions to quality: A different view of the customer-oriented firm. *Acad Manage Rev* 21(3):791-824
- Lenz R (1980) Strategic capability: A concept and framework for analysis. *Acad Manage Rev* 5:225-234
- Leseure M, Birdi K, Bauer J, Denyer D, Neely A (2004) Adoption of promising practice: A systematic review of the literature. Advanced Institute of Management Research
- Lewin AY, Long CP, Carroll TN (1999) The coevolution of new organisational forms. *Organ Sci* 10(5):535-550
- Maglio PP, Spohrer J (2008) Fundamentals of service science. *J Acad Market Sci* 36(1):18-20
- Marion R, Bacon J (2000) Organisational extinction and complex systems. *Emergence* 1(4):71-96
- Marshal A (1927) *Principles of economics* (1890). Reprint, Macmillan, London
- Neely A (2007) Servitization of manufacturing. 14th International Annual EurOMA Conference, Turkey
- Ng, ICL, Williams J, Neely, A (2009) Outcome-based contracting: Changing the boundaries of B2B customer relationships. Advanced Institute of Management (AIM) Research Executive Briefing Series.
- Ng ICL (2009) A demand-based model for the advanced and spot pricing of services. *Journal of Product and Brand Management* 18(7):517-528
- Ng ICL, Maull RS (2009) Embedding the new discipline of service science: A service science research agenda. The Fifth IEEE International Conference on Service Operations, Logistics and Informatics
- Ng ICL, Nudurupati SS, Tasker P (2009) Value co-creation in the delivery of outcome-based contracts for business-to-business service. Discussion Paper Series, IFM, University of Cambridge, UK
- Ng ICL, Nudurupati SS (2010) Challenges of outcome-based contracts in B2B service delivery. *journal of service management* (in revision)
- Normann R, Ramirez R (1993) from value chain to value constellation. *Harvard Bus Rev* 71(4):65-77
- Oliva R, Kallenberg R (2003) Managing the transition from products to services. *Int J Serv Ind Manag* 14(2):160-172
- Payne A, Storbacka K, Frow P (2008) Managing the co-creation of value. *J Acad Market Sci* 36(1):83-96
- Porter ME (1985) *Competitive advantage: Creating and sustaining superior performance*. Free Press, New York
- Prahalad C, Hamel G (1994) Strategy as a field of study: Why search for a new paradigm? *Strategic Manage J*, 15:5-16
- Prahalad CK (2004) *The fortune at the bottom of the pyramid: Eradicating poverty through profit*. Wharton School Publishing, Upper Saddle River, NJ
- Prahalad CK, Ramaswamy V (2004) *The future of competition: Co-creating unique value with customers*. Harvard Business School Press, Boston
- Ramirez R (1999) Value co-production: Intellectual origins and implications for practice and research. *Strategic Manage J* 20(1):49-65
- Rouse W (2005) A theory of enterprise transformation. *J Syst Eng* 8(4):279-295
- Sawhney M and Prandelli E (2000) Communities of creation: Managing distributed innovation in turbulent market, *California Manag Rev* 42(4): 24-54

- Schendel D, Hatten K (1972) Business policy or strategic management: A broader view for an emerging discipline. Krannert School, Purdue University
- Strauss A, Corbin J (1990) Basics of qualitative research: grounded theory procedures and techniques. Sage, Beverly Hills, CA
- Thomas DRE (1978) Strategy is different in service business. Harvard Bus Rev 56(Jul-Aug):158-165
- Tuli KR, Kohli AK, Bharadwaj SG (2007) Rethinking customer solutions: From product bundles to relational processes. J Marketing 71(July):1-17
- Ulaga W (2001) Customer value in business markets an agenda for inquiry. Ind Market Manag 30(4):315-319
- Ulrich D, Lake D (1991) Organisational capability: Creating competitive advantage. The Executive, 5:77-92
- Vargo SL, Lusch RF (2004) Evolving to a new dominant logic for marketing. J Marketing 68:1-17
- Vargo SL, Lusch RF (2008) Service-dominant logic: Continuing the evolution. J Acad Market Sci 36:1-10
- Woodruff RB, Flint DJ (2006) Marketing's service-dominant logic and customer value. In: Lusch RF, Vargo SL (eds) The Service Dominant Logic of Marketing: Dialog, Debate and Directions. ME Sharpe, Armonk, NY, 183-195

Publication 2:

Williams, M.D., Williams, J., Ng, I.C. (2010) Exploring the barriers to co-production in UK health policy. *Frontiers in Service Conference 10-13 June, Karlstad Sweden*

Exploring the barriers to co-production in UK health policy

Given the financial debt situation facing the UK government, spending on the National Health Service (NHS) is unlikely to keep up with inflationary pressures for the foreseeable future. At the same time, chronic and acute ill health is placing a growing demand on the NHS. Health policy over a number of years has sought to engage citizens in the co-production of improved health to reduce demand on the NHS but with marginal success. Recent government policy and think tank papers have advocated an even greater emphasis on co-production as a way to square the circle of increasing demand and limited resources.

This paper draws on emerging ideas of co-production and value co-creation and the need for organisations to transform themselves to achieve the capability needed to co-create value in complex business to business (B2B) environments (Ng, Williams and Neely, 2009; Ng, Williams and Nudurupati, 2010). We set out this capability in six dimensions (competence, capacity, infrastructure, culture, structure, systems) and map it onto the seven attributes of value co-creation (congruence of expectations on the firm, congruence of expectations on the customer, complementary competencies, process alignment, behaviour alignment, control and empowerment, behavioural transformation) (Ng, Nudurupati and Tasker, 2009) producing a co-production capability framework that describes how organisational capability can be configured and enhanced to enable effective service delivery in such complex environments.

The co-production capability framework points towards the need for a broader set of organisational capabilities, over and above collaborative relationships, for there to be successful co-production and co-creation of value. For example the organisational *structure* (one of the dimensions of capability) to co-create value is defined as the use of structure and governance mechanisms to maintain a core of stability whilst providing the ability to address and adapt to the seven co-creation attributes encountered across customer environments. (see extract from matrix below)

Using case studies of NHS acute hospitals and the examination of policy documents, the paper then contrasts the theoretical position derived from the capability framework with some of the current policy requirements which drive the NHS organisational capabilities. This shows that hospitals have a predominate orientation towards achieving performance targets and standards set by the Government. Such targets and standards do create benefits for patients in reduced waiting times and improved rates of infection. However, we argue that such performance orientated policies also build a culture within the NHS that mitigates against developing some critical co-creation capabilities, as identified by the capability framework. For example, the governance structures in the NHS are focused predominately on business risk and do not take account of patient competencies, resources, expectations or outcomes. The paper proposes a more flexible set of policies that take account of the patient's potential for co-production of health.

Extract from the co-production capability framework:

DoC \ AVC	Complementary competences	Congruence of expectations	Process alignment	Behavioural alignment	Empowerment & Control	Behavioural transformation
<p>STRUCTURE</p> <p>Defined as 'A set of governance structures and activities that maintain a core of stability and ability to ...</p>	<p>...learn about multiple customer competencies and environments; as well as a flexible and agile interface to manage changes in customer competency.</p>	<p>...learn about the customer competencies and environments; as well as a flexible and agile interface to manage changes in customer competency and to strategically decide and communicate what the organisation is or is not able to do within its structure.</p>	<p>...learn about the customer resources, assets and environment; as well as a flexible and agile interface to manage customer process changes.</p>	<p>...learn about and manage customer behavioural changes.</p>	<p>...allow effective dissemination of authority allowing service delivery to be controlled for better outcomes.</p>	<p>...that include the transformation of the customer as part of the firm's due process.</p>