CRANFIELD UNIVERSITY


DOROTEYA KAMENOVA VLADIMIROVA


TRANSFORMATION OF TRADITIONAL MANUFACTURERS
TOWARDS SERVITIZED ORGANISATIONS


SCHOOL OF APPLIED SCIENCES


PhD THESIS

Academic Year: 2011 – 2012


Supervisors:

Prof. Stephen Evans

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# ABSTRACT

In response to competitive and economic pressures, an increasing number of manufacturing firms are adding services to their traditional product offerings. However, companies are confronted with an arduous undertaking, and find it difficult to servitize successfully and profitably. This thesis investigates the transformation that traditional manufacturers undergo to become providers of integrated products and services, a phenomenon known as servitization. Servitization is considered a strategic re-direction of the manufacturing organisation and a major challenge for senior management.

The purpose of this study is to provide better understanding of the change that occurs when a manufacturer attempts servitization. The study adopts a qualitative theory building approach to investigate an under-researched phenomenon and a major managerial challenge. It follows a strategy of engaged scholarship to understand a complex organisational problem. The research utilised multiple case studies, action research, and focus groups to tackle a problem with significance to industry.

The findings reveal the nature of servitization as a complex transformative change which exposes the manufacturing company to its environment in new ways, and closely interlinks the organisation with a network of stakeholders through new dependencies. The transformation of traditional manufacturers towards servitized organisations is multi-dimensional and goes through eleven dimensions of transformation across the organisation and its network. In addition, thirty nine forces of change were found to influence the outcome of servitization, and were categorised into three sets of change drivers for servitization.

The results of the study led to the formation of a model for transformation towards a servitized organisation for use by industry practitioners to roadmap and facilitate their organisation's shift towards services. The model represents a novel approach to managing servitization. This research has addressed a literature gap and met an industrial need, and has made a significant contribution to knowledge about the change that traditional manufacturers experience to become servitized organisations.

**Keywords**

Servitization, Product-Service Systems, Transformation model, Organisational change, Change management, Engaged scholarship.

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# LIST OF PUBLICATIONS

1. Martinez, V., Kingston, J., Evans, S., Gaiardelli, P., Raffoni, A., Vladimirova, D. and Claes, B. (2011), *Organisational transformation for effective delivery of integrated products and services: thoughts on practice*, Cranfield University, Cranfield, UK.

2. Vladimirova, D., Evans, S. and Smart, P. (2011), "Servitization lessons learnt from a small furniture manufacturing company", in: *4th EurOMA International Service Operations Management Forum (SOMF)*, 19-20 September 2011, Florence, Italy.

3. Maiwald, K. and Vladimirova, D. (2011), "Communicating the product-service systems offering to the customer: a web content analysis", in: *4th EurOMA International Service Operations Management Forum (SOMF)*, 19-20 September 2011, Florence, Italy.

4. Vladimirova, D., Evans, S. and Martinez, V. (2011), "Drivers of transformation towards servitized organisational forms: a conceptual framework", in: *25th Annual British Academy of Management (BAM) Conference "Building and Sustaining High Performance Organisations in a Challenging Environment"*, 13-15 September 2011, Aston Business School, Birmingham, UK.

5. Vladimirova, D., Evans S. and Martinez, V. (2011), "Change drivers for transformation towards product-service systems", in: *18th International Annual EurOMA Conference "Exploring Interfaces"*, 3-6 July 2011, Cambridge, UK.

6. Vladimirova, D., Evans, S., Martinez, V. and Kingston, J. (2011), "Elements of change in the transformation towards product-service systems", in: *Functional Thinking for Value Creation, Proceedings of the 3rd CIRP International Conference on Industrial Product Service Systems (IPS2)*, Technische Universität Braunschweig, 5-6 May, 2011, Braunschweig, Germany, p. 21-26.

7. Vladimirova, D., Evans, S. and Martinez, V. (2010), "Conceptual transformation framework for servitization", in: *International Conference on Advances in Production Management Systems (APMS) 2010 "Competitive and Sustainable Manufacturing, Products and Services"*, 11-13 October 2010, Cernobbio, Como, Italy.

8. Vladimirova, D., Evans, S. and Martinez, V. (2010), "Transforming the manufacturer into a servitized organisation", in: *3rd EurOMA International Service Operations Management Forum (SOMF) "New Directions in Service Operations Management"*, University of Bath School of Management, 20-21 September 2010, Bath, UK.

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# 1 INTRODUCTION AND PROBLEM STATEMENT

## 1.1 Introduction

In a challenging world of global competition, manufacturers of both industrial and consumer goods have sought growth in revenue and profits through increased sales of services. In the UK, manufacturers are being forced to seek and develop new and innovative ways to compete with producers from lower cost economies. Under such pressuring circumstances, the survival of the traditional manufacturing firm depends on its ability to change its historic existence and adapt to the new constraints and demands in the environment. One strategy is to strive towards creating value through the addition of increasing levels of services to products. This phenomenon has been defined as 'servitization', a term coined by Vandermerwe and Rada (1988) in their study of companies which bundle products and services to add value to their business offerings. Some twenty years later servitization is described as the strategic innovation of an organisation's capabilities and processes to shift from selling goods to selling an integrated goods and services offering that delivers value in use (Baines et al., 2007; Neely, 2008). Martinez et al. (2010) add on that servitization is the journey or transformation process whereby an organisation enables its product-service offerings.

Academic interest in services in manufacturing has seen a particular rise in the last two decades although the influx of services in manufacturing companies is a phenomenon which can be traced back to the 1850s with manufacturers seeking to expand into services to reduce their reliance on distributors and increase the strength of their customer relationships (Schmenner, 2009). Over the past twenty years, academic researchers have consistently suggested economic (Wise and Baumgartner, 1999) and strategic benefits (Chase and Garvin 1989; Mathieu, 2001a; Davies et al., 2006), as well as improvements in organisations' environmental performance (Mont, 2002a; Tukker, 2004) that can be achieved from the integration of services into traditionally goods based offerings. However, it has also been acknowledged that servitization poses its

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own special challenges for top management. Research to date shows that the transformation of a traditional manufacturing firm towards a servitized organisation is a formidable undertaking (Manzini and Vezzoli, 2002) which is still poorly understood (Miller et al., 2002; Martinez et al., 2010), and most manufacturing companies find it extremely difficult to increase revenues through services (Gebauer et al., 2006; Reinartz and Ulaga 2008).

In this chapter the background to the research project is introduced to reveal why this research is relevant for management practice and for the emerging field of servitization. The problem faced by the organisations and the industry need to solve the problem are identified. The academic gap where this research strives to contribute is established. The research aim and objectives, and the context of the research are presented. Finally, the scope and structure of the thesis are outlined.

## 1.2 The problem faced by organisations

### 1.2.1 Industry need

In response to increasing global competition, the economic rise of emerging economies, and rising fuel and materials prices, the means by which firms in many Western economies maintain and develop competitive advantage is changing (BERR, 2008). The global manufacturing trends in which UK companies will compete in the next 15-20 years are considered to be: striving for resource efficiency; creating efficient and effective manufacturing systems, creating innovative products through the integration of new materials; developing new, agile, and more cost-effective manufacturing processes; and building new business models to realise superior value systems (TSB, 2012). In order to compete for higher-margin business manufacturers need to move to occupy areas of innovation that can distinguish them from new entrants; develop even closer relationships with customers and suppliers; and find ways to build value-added services around their products, even in entirely commoditised lines of business (KPMG, 2012a).

As a natural consequence of a low-growth environment and technological advances, many global manufacturers are expected to become more service-oriented and provide additional services related to their products, and move closer to their customers, who in return come to expect more as a result (KPMG, 2012b). Some companies have enjoyed success in combining manufacturing and service activities, increasingly blurring the distinctions between the two (BERR, 2008), and setting the trend of servitization. Servitization represents a tendency particularly of high-value durable goods manufacturer to extend the scope of their offerings towards services that accompany products throughout their lifecycle (Sawhney et al., 2004). Such examples are General Electric, IBM, Alstom, ABB, and Xerox, which report to have achieved a significant share of their revenues from services (Davies et al., 2006; Martinez et al., 2010). A well-known case of successful servitization is Rolls-Royce Aerospace, which over the past couple of decades has transformed itself from a pure manufacturer of aero engines to a provider of aerospace solutions, and currently competes by providing airlines with "power by the hour" (Cohen et al., 2006; Davies et al., 2006; Neely, 2008; Spring and Araujo, 2009).

However, not all product manufacturers are so fortunate in their servitization efforts. Most manufacturing companies find it extremely difficult to exploit successfully the financial potential of services in their traditional goods businesses (Gebauer, et al., 2005; Reinartz and Ulaga, 2008). While the introduction of services leads to an increased range of service offerings and higher costs, it does not necessarily result in the expected higher returns, a phenomenon described as a 'service paradox' in manufacturing companies (Gebauer, et al., 2005). To be able to develop a profitable business, prospective product-service providers must overcome a number of obstacles to change (Davies et al., 2006). The 'service paradox' is contributed to the inability of manufacturing companies to overcome the challenges posed by servitization (Gebauer, et al., 2005; Davies et al., 2006; Neely, 2008). Companies seeking to servitize observe that the transformation from a product-centric mode of

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operations to one that incorporates services is still poorly understood and remains a new and complex concept (Martinez et al., 2010).

For every success story, at least five cautionary tales remind us that manufacturing companies struggle to servitize successfully (Reinartz and Ulaga, 2008). There is a lack of knowledge in industry on what servitization entails and how the transformation of the manufacturing firm can be carried out in practice. Therefore, managers must obtain a good understanding of the scale and the scope of change, and the risks involved with the introduction of services in order to prepare and lead their organisations through successful servitization.

### 1.2.2 Academic gap

Even though servitization of manufacturing appears to be a major contemporary trend among manufacturers, research indicates that only few manufacturing companies have been successful in the transfer towards services (Oliva and Kallenberg, 2003). Since Vandermerwe and Rada (1988) first introduced the notion of servitization, there has been a flow of research papers on the implications of integrating products and services. Empirical evidence in the published studies show that servitization is not a trivial undertaking and still remains a major managerial challenge characterised by high levels of uncertainty and risk (Oliva and Kallenberg, 2003; Brax, 2005; Baines et al., 2007; Baines et al., 2009a; Neely, 2008; Spring and Araujo, 2009; Martinez et al., 2010). Manufacturing firms have to overcome a number of obstacles in order to start providing services, for example, develop new value propositions for customer outcomes, form new partnerships, guarantee delivered value, and go through uncomfortable organisational change (Foote et al., 2001). It is often argued that during this transformation from selling products to delivering a combined product-service offering, organisations are likely to incur significant costs, change their strategies, structures, operations and value chains, technologies, processes, people expertise, and system integration capabilities (Mont, 2002a; Oliva and Kallenberg 2003; Davies et al., 2006; Araujo and Spring, 2006).

While a series of studies have examined various challenges of servitization, there is little research on how the transformation can be carried out in practice. Several studies indicate that the shift from a traditional manufacturer to a provider of integrated product-service offerings is commonly interpreted as incremental rather than radical change. This is based on the view that servitization evolves in stages and proceeds along a continuum, starting from selling products to selling total solutions, during which the manufacturer adds services to its offering, and, as the service offerings accumulate, servitization is achieved (Vandermerwe and Rada, 1988; Oliva and Kallenberg, 2003; Tukker, 2004; Gebauer et al., 2005). However, Brax (2005), suggests that in practice, the "evolutionary" transformation from product-based towards service-oriented businesses could be more hazardous than the "revolutionary" approach even though a steady change is often perceived as being cautious, and therefore safer and easier, whereas large and sudden changes appear risky and difficult (Brax, 2005). There is a clear gap in knowledge about servitization as a change phenomenon. Moreover, a vast body of change literature exists that provides a number of theoretical models but very little in support of the servitization of manufacturers (Martinez et al., 2010).

Given the considerations for manufacturers, there is a need to understand the change that companies undergo to become product-service providers (Baines et al., 2007; Neely 2008). Academic researchers acknowledge that this topic is under-researched and has yet to receive detailed attention and clarity. Indeed, even contemporary management literature gives insufficient treatment to the detailed integration of manufacture and services to deliver the servitized offering (Heineke and Davis, 2007). The servitization literature is still surprisingly sparse and does not pay attention to the nature of the transformation from stand-alone products to solutions (Oliva and Kallenberg, 2003; Brax, 2005).

Research on how traditional manufacturers transform to become servitized organisations appears to be lagging behind. This gap in knowledge prompts the importance of conducting research which will facilitate manufacturing

companies in their efforts to integrate services into their traditionally goods-based businesses.

## 1.3 Research aim and objectives

The purpose of the thesis is to address the industry need and the academic gap previously identified, and to inform and support practitioners who are facing servitization. The research aim of this PhD project, therefore, is:

> *To increase understanding of the transformation that traditional manufacturers undergo to become servitized organisations; whereby traditional product-centric manufacturing organisations which focus on the manufacture and sale of products embrace a service orientation to become providers of integrated products and services.*

In addition, the research aims to advance the emerging field of servitization. The objective of this research is to gain insights into the servitization phenomenon, and provide a comprehensive view of the change that occurs when manufacturing firms attempt to increase revenues through services.

The objectives of the project can be therefore summed up as:

> A. To develop theory on the transformation of manufacturing organisations into providers of integrated products and services offerings, and provide empirical evidence.

> B. To build a model which defines the parameters of change during servitization, and facilitates companies as they transform from product-centred manufacturers towards servitized organisations in practice.

Servitization can take many forms and is wholly dependent on the context of the manufacturing firm (Martinez et al., 2011). The scope of this research is bound to product-centric manufacturers who seek to integrate more services into their traditional goods-based offerings. The study focuses on organisations which determine their company's position at various degrees of product-service integration (e.g. an organisation is already an integrated solutions provider; it

has servitized to some degree; or it has not servitized yet). It also focuses on companies which strive to achieve a higher degree of servitization whether the aspirations of the organisation are to achieve a basic level of product-service integration or to serve the market with a fully integrated offering.

## 1.4 Research context

The importance of services that move UK manufacturing up the value chain to provide high added value manufacturing business opportunities was acknowledged by a £7.85 million investment by the UK Engineering and Physical Sciences Research Council (EPSRC) on research into manufacturing technologies and Product-Service Systems. Cranfield Innovative Manufacturing Research Centre [IMRC 154] invested over £4 million to develop five major themes of product-service systems research. Each theme was funded significantly in collaboration with industry over at least a three year period. Cross theme knowledge transfer and collaboration was promoted and managed proactively.

This PhD study was carried out in the context of one of the five themes, namely a 3-year project entitled 'Transformations to Servitized Organisational Forms'. As part of the 'Transformations' theme, the study was exposed to continuous internal and external peer review process to ensure it meets the demands and the standards of the main stakeholders of the research: EPSRC, Cranfield IMRC, and the participating industry collaborators.

In this research context, and to meet the objectives of the funding bodies, the author's work for this thesis has been partially published in international peer-reviewed conferences and a field book.

## 1.5 Thesis structure

This thesis is comprised of eight parts. Summary of the forthcoming chapters is presented below.

Chapter 2    Outlines the research methodology. It sets out the research strategy and the philosophical perspective of the study. A

methodological fit is found, and a research design developed. The chapter further discusses research methods employed in this study. The overall research process is outlined, and a set of research quality criteria highlighted.

Chapter 3    Establishes the theoretical framework of the research. It reviews and analyses literature across multiple bodies of literature relevant to the research. It identifies and classifies the challenges posed to servitizing organisations, and discusses drivers of servitization. It defines the types of change organisations can face, and outlines traditional change management, as well as philosophies of change approaches to managing organisational change. Finally, concepts from organisational theory are drawn into the study.

Chapter 4    Develops a conceptual model based on the findings from the cross-disciplinary literature review. The model brings together multiple concepts from the literature to form the theoretical foundation for the further empirical research. Four research questions to guide the study are identified

Chapter 5    Concerns the process of collection and analysis of empirical data. It reflects on the overall study and research design. The techniques for data collection, and procedures for data analysis engaged in this study are presented.

Chapter 6    Provides the empirical core of the research. The results from the within-case analysis of five case studies and two focus groups, conducted in two empirical phases of the study, are presented.

Chapter 7    Advances the theory building, and increases understanding of the servitization phenomenon. It starts with cross-case analysis; then builds the *Model for transformation towards a servitized organisation*. The findings are discussed in terms of the value of the model and in relation to existing knowledge and. The quality of the findings is considered.

Chapter 8    Sums up the findings and identifies the thesis' contribution to knowledge: primary contribution to the field of servitization, and secondary contribution to the field organisational change. It looks at the implications of the research for management practice and the use of the model in industry. This is followed by discussion of the limitations of the study. Lastly, opportunities for further research are identified.

In summary, this chapter introduced the concept of servitization, its emergence, and growing importance in industry and academia. Managerial problems related to establishing a service orientation in traditional manufacturing companies have been identified, and gaps in theory established. The industry need and the academic gap that were identified have founded the thesis' purpose, research aim and objectives, i.e. to increase understanding of how manufacturers transform to become servitized organisations. This would be achieved through building theory and a model for use in practice. The research context of the study was described. The PhD thesis structure was finally presented.

# 2 RESEARCH METHODOLOGY

The purpose of this chapter is to provide the rationale behind the research strategy adopted in this study. The research perspective of the researcher and how this perspective frames the study are discussed. The chapter further focuses on selecting a methodological approach which fits the overall research problem, and devising a suitable research design to achieve the aim and objectives of the study. The methods for acquiring data for the research are presented. The overall research process for the study is outlined. Lastly, the quality criteria which guide this research are elaborated.

## 2.1 Research strategy

As stated in Chapter 1, the research in this thesis belongs to the academic field of servitization, and the aim of the study is:

> To increase understanding of the transformation that traditional manufacturers undergo to become servitized organisations; whereby traditional product-centric manufacturing organisations which focus on the manufacture and sale of products embrace a service orientation to become providers of integrated products and services.

The purpose of the research is two-fold: to advance understanding of the phenomenon of servitization and to facilitate manufacturing firms looking to become product-service providers. The challenge of such a research project is to impact both academia and practice. This study, therefore, adopted a strategy of engaged scholarship (Van de Ven and Johnson, 2006; Van de Ven, 2007) as a means of knowledge production and collaborative inquiry between scholars and practitioners to address the real world problem of the transformation of traditional manufacturers into providers of integrated products and services. Engaged scholarship is recommended when researchers are faced with a "big" real world question, or when the problem is too complex to be captured by any one investigator or perspective (Van de Ven and Johnson, 2006). The aim of

the study was to create a participative form of research for obtaining the perspectives of key stakeholders (researchers, users, clients, sponsors and practitioners) to understand a complex real world problem (Van de Ven, 2007), and to make research relevant to practitioners by bridging the gap between theory and practice (Barge and Shockley-Zalabak, 2008). Given the old dichotomy of theory and practice, a wider and deeper form of engagement between researchers and practitioners is needed in the co-production of knowledge (Pettigrew, 2001).

Van de Ven (2007) proposes that research should be an engaged form of inquiry where researchers involve others and leverage their different perspectives to learn about a problem or phenomenon. In this way the likelihood of advancing knowledge for academia and industry increases by engaging with practitioners and other stakeholders. This is accomplished in four iterative steps: (i) ground the problem/question in reality up close and from afar; (ii) develop alternative theories to address the question; (iii) collect evidence to compare models of theories; (iv) communicate and apply findings to address the problem/question (see Figure 2-1 Engaged scholarship model (Van de Ven, 2007).

There is no flawless methodology for social and organisational research, and engaged scholarship is not immune to criticism. For example, McKelvey (2006) suggests that the concept of engaged scholarship comes across as "pluralistic" and "idealistic". However, given the research problem and the research context of this study presented in the previous chapter, the utility of engaged scholarship as a research strategy outweighs its shortcomings. Moreover, the author has ensured that the research was conducted in a systematic and rigorous manner under the scrutiny of a wider research community, and in accordance with a set of research quality criteria specified further in Section 2.3 of this chapter.

**Study Context:** *Research problem, purpose, perspective*

**Research Design**
Develop variance or process model to study theory

Engage methods experts & people providing access & information

Criterion – Truth (Verisimilitude)

**Theory Building**
Create, elaborate & justify a theory by abduction, deduction & induction

Engage knowledge experts in relevant disciplines & functions

Criterion - Validity

**Model**

**Theory**

**Solution**

Research Design / Theory Building / Problem Solving / Problem Formulation

*Iterate & Fit*

**Problem Solving**
Communicate, interpret & negotiate findings with intended audience.

Engage intended audience to interpret meanings & uses

Criterion - Impact

**Reality**

**Problem Formulation**
Situate, ground, diagnose & infer the problem up close and from afar

Engage those who experience & know the problem

Criterion - Relevance

**Figure 2-1 Engaged scholarship model (Van de Ven, 2007)**

## 2.1.1 Research perspective

A philosophy of science, which informs about the nature of an examined phenomenon (ontology) and the methods for understanding it (epistemology), is underlying any form of research (Van de Ven, 2007).

The underlying philosophy of engaged scholarship is critical realism (Van de Ven, 2007). This view takes an objective ontology and a subjective epistemology, and is based on the following principles (Van de Ven, 2007; Easton, 2010):

- There is a real world out there (consisting of material, mental, and emergent products), but our individual understanding of it is limited. In general, physical material things are easier to understand than reflexive and emergent social processes.

- All facts, observations and data are theory-laden implicitly or explicitly. Social sciences have no absolute, universal, error-free truths or laws as any scientific knowledge.

- No form of inquiry can be value-free and impartial; each is value-full. Some methods are better warranted than others depending on the phenomenon.

- Knowing a complex reality demands use of multiple perspectives.

- Robust knowledge is a product of theoretical and methodological triangulation where evidence is not necessarily convergent but might also be inconsistent or even contradictory.

- Models that better fit the problems they are intended to solve are selected allowing an evolutionary growth of knowledge.

To define the research perspective of this study, the author acknowledged and considered alternative philosophies of science in relation to the research problem. Guba and Lincoln (1994), for example, provide analysis of four research paradigms in social sciences: positivism, postpositivism, critical theory and constructivism. Whereas Johnson and Duberley (2000) distinguish among four philosophies of science: positivism, relativism, pragmatism, and realism.

The nature of this research, however, is to solve a complex real world problem which is under-researched, and to generate new theory through multiple methods of observation, collaboration, and action in order to advance an academic field, and to use and apply the new knowledge in industry. As critical realism is considered to be the way forward for problem-solving research (Easton, 2010), the adoption of critical realism makes a perfect fit with the nature of the research problem formulated for this study. Critical realism, therefore, has also become this researcher's choice and view of the world in conducting the research.

## 2.1.2 Methodological fit

This research addresses the theoretical and practical problem of traditional manufacturers that undergo change to become providers of integrated products

and services. The overriding methodological orientation to this research is to build new knowledge 'in the context of application' (Gibbons et al., 1994). This is a phenomenon-driven research, where the researcher has to frame the research in terms of the importance of the phenomenon and the lack of plausible existing theory.

The approach chosen for this research is qualitative theory building. Gephart (2004) describes qualitative research as multi-method research that studies phenomena in the environments in which they naturally occur and uses social actors' meanings to understand the phenomena. Qualitative research addresses questions about how social experience is created and given meaning and produces representations of the world that make the world visible (Gephart, 2004).

The main reason for selecting theory building is the lack of existing theories which could have been used as a foundation for enquiry into the transformation of manufacturers into product-service providers. Despite an acknowledged importance of services in manufacturing which has resulted in a series of empirical studies, the servitization literature appears much lighter on theory (Claes and Martinez, 2011). This can be attributed to the relative novelty of the field of servitization. On the other side, change literature provides a number of theoretical models but very little in support of the servitization of manufacturers. Therefore, the theoretical maturity of organisational change and transformation literature in the context of servitization of manufacturers can be regarded as nascent. As Edmondson and McManus (2007:1161) suggest, nascent theories are those that "received little research or formal theorising to date or else that represent new phenomena in the world". They also provide a range of methodological choices in relation to the state of a previous work in the field summarised in Table 2-1.

In order to achieve a methodological fit (Edmondson and McManus, 2007; Yin, 2009) between the state of prior theory, research method, analysis and expected contribution, this study adopts an exploratory qualitative theory

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building approach which is realised through multiple methods including case studies, action research, and focus groups.

**Table 2-1 Archetypes of methodological fit in management field research**

| State of prior theory and research | Nascent | Intermediate | Mature |
|---|---|---|---|
| Research questions | Open-ended inquiry about a phenomenon of interest | Proposed relationships between new and established constructs | Focused questions and/or hypotheses relating existing constructs |
| Type of data collected | Qualitative, initially open-ended data that need to be interpreted for meaning | Hybrid (both qualitative and quantitative) | Quantitative data; focused measures where extent or amount is meaningful |
| Illustrative methods for collecting data | Interviews; observations; obtaining documents or other material from field sites relevant to the phenomena of interest | Interviews; observations; surveys; obtaining material from field sites relevant to the phenomena of interest | Surveys; interviews or observations designed to be systematically coded and quantified; obtaining data from field sites that measure the extent or amount of salient constructs |
| Constructs and measures | Typically new constructs, few formal measures | Typically one or more new constructs and/or new measures | Typically relying heavily on existing constructs and measures |
| Goal of data analysis | Pattern identification | Preliminary or exploratory testing of new propositions and/or new constructs | Formal hypothesis testing |
| Data analysis methods | Thematic content analysis coding for evidence of constructs | Content analysis, exploratory statistics, and preliminary tests | Statistical inference, standard statistical analyses |
| Theoretical contributions | A suggestive theory, often an invitation for further work on the issue or set of issues opened up by the study | A provisional theory, often one that integrates previously separate bodies of work | A supported theory that may add specificity, new mechanisms, or new boundaries to existing theories |

Source: Edmondson and McManus (2007)

## 2.1.3 Research design

A fundamental distinction that determines how we approach the study of change is whether an organisation is viewed as consisting of things or

processes (Tsoukas and Chia, 2002). This distinction can be traced back in antiquity to the differing philosophies of Democritus and Heraclitus (Rescher, 1996). Van de Ven and Poole (2005) summarise this distinction as follows. Democritus pictured all of nature as composed of stable material substance or things that changed only in their positioning in space and time whereby the identity or substance of things does not change, only their development and adaptation in relation to other dimensions and properties. In contrast, Heraclitus viewed reality, not as a constellation of things, but, one of processes. Heraclitus argued that substantialising nature into enduring things (substances) is a fallacy because they are produced by varied and fluctuating activities (Van de Ven and Poole, 2005).

These two views are reflected in the two definitions of change that are applied in contemporary organisation studies: (i) an observed difference over time in an organisational entity on selected dimensions; (ii) a narrative describing a sequence of events on how development and change unfold (Poole et al., 2000). Based on these two fundamental concepts, Van den Ven and Poole (2005) propose a typology of four approaches to guide researchers in their attempts to study and empirically understand the phenomenon of change and transformation as shown in Table 2-2. Approaches I and II adopt variance and process methods, respectively, to study change in an organisational entity that is viewed as a real social actor with an enduring identity. Approaches III and IV adopt variance and process methods, respectively, to study processes of organising.

It is their definition of 'Approach I – Variance study of change in organisations' that was applied to the design of this research, and for the analysis of data. The variance method focuses on variables that represent the important dimensions or attributes of the subject under study, which in this research is the servitizing manufacturer. Approach I was also selected in order to understand the occurrence and magnitude of change during servitization; as well as comprehend the effects of servitization on other variables.

**Table 2-2 A Typology of approaches for studying organisational change (Van de Ven and Poole, 2005)**

| | | **Ontology** An organisation is represented as being: | |
|---|---|---|---|
| | | A noun, a social actor, a real entity ('thing') | A verb, a process of organising, emergent flux |
| **Epistemology** (Method for studying change) | Variance method | **Approach I** Variance studies of change in organisational entities by causal analysis of independent variables that explain change in entity | **Approach IV** Variance studies of organising by dynamic modelling of agent-based models or chaotic complex adaptive systems |
| | Process narratives | **Approach II** Process studies of change in organisational entities narrating sequence of events, stages or cycles of change in the development of an entity | **Approach III** Process studies of organising by narrating emergent actions and activities by which collective endeavours unfold |

## 2.1.4 Research methods

This study used a variety of methods and sources for gathering information. These methods are presented in the following four sections.

### 2.1.4.1 Literature review

Eisenhardt and Graebner (2007) state that sound empirical research begins with a strong grounding in related literature. Moreover, a priori constructs in new theory building are used to focus the research efforts and provide better grounding of construct measures (Eisenhardt, 1989). Van de Ven (2007) suggests that in the pursuit of engaged scholarship, multiple theories and models should be employed.

This study, therefore, incorporated a cross disciplinary review of servitization, organisational change and transformation, and organisational theory bodies of literature which collectively contributed to the development of a conceptual model. The purpose of the literature review was to identify issues and gaps,

build a priori constructs before going into the field, and strengthen the theoretical foundation of the study. Further details on the literature review approach and the literature synthesis are presented in Chapter 3.

### 2.1.4.2 Case studies

As the purpose of the research is to gain explorative, qualitative, real-life insight in order to build theory, case study research is seen as the most appropriate empirical method (Yin, 2009). Eisenhardt (1989) states that theory developed from case study research is likely to have important strengths like novelty, testability, and empirical validity. In a field where the theoretical base is light and the environment under study is messy, a case study approach is particularly advantageous in dealing with an under-researched and context-dependent phenomenon like the subject of this thesis (Parkhe, 1993; Meredith, 1998; Yin, 2009). This research is guided by the definition of a case study as provided by Yin (2009):

- A case study is an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident.
- The case study inquiry copes with the technical distinctive situation in which there will be many more variables of interest than data points, and as one result relies on multiple sources of evidence, with data needing to converge in a triangulating fashion, and as another result benefits from the prior development of theoretical propositions to guide data collection and analysis.

The research employed a multiple case study research method. The logic underlying the use of multiple case studies is replication, analogous to that used in multiple discrete experiments (Yin, 2009). Multiple cases enable comparisons that clarify whether an emergent finding is simply idiosyncratic to a single case or consistently replicated by several cases (Eisenhardt, 1991). Multiple cases also create more robust theory because the propositions are more deeply grounded in varied empirical evidence (Eisenhardt and Graebner, 2007). The

challenge with multiple cases, however, is their theoretical sampling. The choice of cases should be based less on the uniqueness of each individual case, and more on the contribution to theory development within the set of cases (Eisenhardt and Graebner, 2007).

The choice of cases for this study, therefore, was based on three criteria:

(i)     cross-industry selection, i.e. each case had to represent a different industry;

(ii)    various levels of servitization, i.e. each company had to describe itself to be at a different level of servitization varying from 'the company is considering services' to 'the company is completely servitized';

(iii)   access to senior levels in the organisation, i.e. each case company had to provide access to its senior executives, as servitization is considered to be a top management problem.

### 2.1.4.3 Action research

Action research, or intervention, is one particular method that can be adopted when working with case study research (Gummesson, 2000). It is an established research method in the social sciences that can be traced back to 1940s when Kurt Lewin coined the term action research. Lewin (1946) argued that research for social practice should be concerned with "the diagnosis of specific situations". The researcher is taking action, which is itself an experimental treatment on an organisation and can be studied to see whether or not the systems or problem is transformed (Dickens and Watkins, 1999). The derivation of theory relies on the principle that the intervention is of genuine importance to the practitioners involved (Huxham and Vangen, 2003). Action research tends to begin by diagnosing a particular problem or need, whereby to the extent possible, the researcher utilises whatever knowledge is available from basic or design science to understand the problem (Van de Ven, 2007).

Action research offers particular opportunities for theory development that other methods do not. In particular, intervention settings can provide rich data about what people do and say, and what theories are used and usable, when faced

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with a genuine need to take action. Each intervention provides an opportunity for the researcher to revisit theory in order to design the intervention and develop it further as a result (Deising, 1972).

Action research is thus also uniquely placed in developing theory that is of relevance to practice, which is one of the main goals of this research. One case study in the form of action research was performed in this study. Following a diagnosis of a particular problem at one of the collaborating companies, the researcher carried out an intervention. Further details of the active case study are presented in Chapter 6 (Section 6.1.3.4).

### 2.1.4.4 Focus groups

Central to engaged scholarship is building relationships between academics and practitioners through the creation of joint forums, researcher/practitioner gatherings and focus groups that consider issues of concern to both academics and practitioners (Bartunek, 2007). Focus groups can attain information from people with different perspectives about a problem; furthermore, they can provide an overall appreciation of a problem that rarely emerges from other data collection methods like individual interviews or surveys (Van de Ven, 2007).

This study incorporated two focus groups which were organised in the form of industry workshops with the participation of senior level managers and academic experts. Each event evolved around a carefully structured group process for gathering of data to ground the research problem and minimise bias (Van de Ven, 2007). Further descriptions of the two focus groups are provided in Chapter 5 (Section 5.2.2) and Chapter 6 (Section 6.1.1.1 and Section 6.1.3.5).

## 2.2 Research process

This study proceeded in three iterative stages entitled for this thesis as: (i) foundation; (ii) development, and (iii) model. The research process that was followed in the study is summarised in the research roadmap diagram in Figure 2-2 Research roadmap diagram.

### 2.2.1 Foundation

The foundation stage of the research was devoted to a background review and the formulation of the research problem. The research strategy geared towards addressing the research problem was devised. Multi-disciplinary review of the literature was performed across the fields of servitization, organisational change and transformation, and organisational theory. Key emergent themes and issues in the servitization literature were defined. Theories and concepts from the change and organisational theory bodies of knowledge to help address these issues were identified. The collective findings from the three bodies of literature contributed towards the development of a conceptual model. The model consisted of a set of general a priori constructs for further conceptual and empirical elaboration. Based on the established theoretical framework, the research questions to guide the research were derived. The planning and the preparation for the next empirical stage of the research also took place in this stage, as the findings from the literature review built up. A semi-structured interview questionnaire, which reflected the key themes from the literature, the constructs in the conceptual model and the research questions, was developed. Different data collection and data analysis techniques were considered.

### 2.2.2 Development

The second stage of the research entitled 'development' established the empirical core of the study. It evolved in two phases.

The first phase was concerned with empirically informing the research while the review of the literature was taking place in parallel. The objective of this phase was to clarify the key emergent themes and concepts found in theory while building the conceptual model and formulating the research questions. Phase I included two empirical studies - a focus group and a case study based on archival empirical data. Each of the two studies focused on the two key emergent themes from the servitization literature respectively. This was the time when further elaboration and distinction of the emergent concepts took place

The second phase was devoted to building new knowledge. Phase II included multiple studies whereby three descriptive case studies, one intervention through action research, as well as a second focus group were carried out. Within-case analysis of the data was performed for each individual study. 'Thick' descriptions of the emergent themes from the empirical data were developed. Continuous iteration and validation of the findings through triangulation of the multiple methods and sources employed in the research was carried out. In addition, multiple sets of interim results were presented to peer reviewers.

## 2.2.3 Model

The third stage of the research entitled 'model' saw the cross-case analysis of the results from the individual studies through. Themes emerging across all seven studies were identified, and their labels refined. The findings from the cross-case analysis contributed to the composition of a model for transformation towards a servitized organisation. The model integrated the conceptual and the empirical sides of the study generating constructs which constituted the new theory produced in this study. The model was developed for application and use in industry.

## Foundation

**Background review**

**Problem formulation**

**Research strategy**

**Literature review**
**Servitization**
**Organisational change**
**Organisational theory**

**Key themes in literature**
**Conceptual model**
**Research questions**

**Data collection tools**
**Interview protocol**
**Data analysis tools**

## Development

**Phase I
Informing the research**

**Clarifying key themes**
**Focus group 1**
**Case study A**

**Phase II
Building new knowledge**

**Case study B**
**Case study C**
**Case study D**
**Case study E**
**Focus group 2**

**Within-case data analysis**
**Triangulation of findings**

**Peer reviews**

## Model

**Cross-case analysis**

**Generating integrated constructs**

**Model composition**

**Application and use in practice**

**Figure 2-2 Research roadmap diagram**

## 2.3 Quality and validity of the research

Validity and reliability of research are concepts that trace their origins to the natural sciences (Ritchie and Lewis, 2003). Judgements on the validity and reliability of qualitative research, therefore, should be exercised with caution due to its different epistemological base. Miles and Huberman (1994: 277) state that issues of quality in qualitative studies deserve attention on qualitative researchers' own terms. They draw five criteria as standards for the quality of qualitative research taking a "critical realist" position (Miles and Huberman, 1994):

1. The **objectivity/confirmability** of the research refers to the relative neutrality and freedom from bias and to the replicability of the study by others. Issues of objectivity/confirmability are addressed with explicit description of methods and procedures; clear linking of conclusions to condensed data displays; and self-awareness of biases by the researcher.

2. The **reliability/dependability/auditability** of the research is whether the process of the study is consistent, reasonably stable over time and across researchers and methods. Issues of reliability/dependability/ auditability are addressed with setting up clear research questions and explicit researcher's role; specifying basic paradigms and analytic constructs; performing data quality checks; as well as exposing research findings to peer reviews.

3. The **internal validity/credibility/authenticity** criterion refers to the 'truth value' of the research findings, i.e. whether the findings of the study make sense; whether they are credible to the informants and to the reader; and whether the results authentically portray the object of the study. Issues of internal validity/credibility/authenticity are addresses with the use of triangulation among complementary methods and data sources; by developing "thick" descriptions, and seeking agreement of conclusions by original informants.

4. The **external validity/transferability/fittingness** relates to the transferability and applicability of the findings into other contexts. Issues of external validity/transferability/fittingness are addressed with a diverse sampling of cases, explicit identification of settings and informants, connecting findings to prior theory, and suggesting settings for further testing of results.

5. The **utilisation/application/action orientation** criterion refers to the "pragmatic validity" of the research, i.e. whether the findings of the study enhance the level of understanding and sophistication; and whether participants and stakeholders are able to take action during and after the inquiry. Issues of utilisation/application/action orientation are addressed with producing usable and accessible knowledge which enables the users of the new knowledge to learn, solve a problem, develop new capacities, or catalyse actions.

The author has carefully considered each of these criteria in the preparation and the execution of the research. Throughout the duration of the study, the researcher has taken regular steps back to reflect on "how good is this piece of work?" The quality and validity of the research in this thesis are discussed in further detail in Chapter 7.

In summary, this chapter presented the philosophical and methodological considerations that formed a viable research methodology for the study. The next chapter presents the review of the literature that frames the theoretical basis for this thesis.

# 3 LITERATURE REVIEW

Research in servitization is multidisciplinary and such is the nature of this study. This chapter is derived from a range of research fields and lays down the theoretical basis for the thesis.

The literature review for this dissertation spreads across multiple bodies of literature as follows. Firstly, an investigation into the Servitization literature is conducted in order to identify gaps, issues and major themes around the experience of traditional manufacturers in order to become servitized organisations. In parallel to the servitization literature, several other streams of the literature further specified, which bear similar concepts and discuss issues encountered by manufacturers when attempting services, are also scrutinised. The purpose of the servitization literature review is to capture critical challenges to servitization, analyse and classify them in order to build a holistic view and a comprehensive picture of the change that occurs when a manufacturing organisation becomes servitized. Further to identifying and mapping key managerial challenges, this part of the literature review aims to establish the drivers for successful servitization.

Secondly, an extensive review of the organisational change literature is undertaken in order to obtain knowledge about the types and characteristics of change, identify concepts, models and theories which increase the understanding of the servitization as a new change phenomenon and help address the challenges of servitization, while also strengthening the theoretical foundations of the findings. Similarly to the previous one, this part of the literature review incorporates several streams of literature, namely organisational change, organisational transformation, enterprise transformation, and change management.

Thirdly, the literature review looks into concepts and definitions from organisational theory in order to gauge what type of organisation is the servitizing manufacturing company.

## 3.1 Servitization literature review

As an emerging body of knowledge, the literature on servitization is fragmented and dispersed. In conducting this review, the researcher identified and analysed several streams in the academic literature that describe the phenomenon of integrating products and services by manufacturers seeking to increase revenues through new combined offerings and discuss its various aspects and issue. This phenomenon is referred to as: "servitization" (Vandermerwe and Rada 1988; Slack, 2005; Neely, 2008), "going downstream" (Wise and Baumgartner, 1999), "product-service systems" (Mont, 2002a; Tukker 2004; Baines et al., 2007), "solutions" (Miller et al., 2002; Galbraith, 2002), "integrated solutions" (Davies et al., 2006; Johnstone et al., 2008), "industrial services" (Brax, 2005), "winning in the aftermarket" (Cohen et al., 2006), "new service model" (Antonacopoulou and Konstantinou, 2008), and "service imperative" (Bitner and Brown, 2008). All these definitions share basic concepts and principles, however, they are found in different publications including *International Journal of Operations & Production Management, The Service Industries Journal, Industrial Marketing Management, Journal of Cleaner Production, Journal of Engineering Design, Harvard Business Review, MIT Sloan Management Review,* government and United Nations reports. The researcher's approach to reviewing the literature, therefore, was one of 'conceptual synthesis' (Nutley et al., 2002). It initially began with key papers in the field and subsequently branched to identify further relevant literature in order to identify key themes and debates in the field of servitization, consolidate previous discussions, and move the academic discussion forward.

### 3.1.1 Challenges in the servitization of manufacturers[1]

When Vandermerwe and Rada (1988) first introduced the notion of servitization, they also recognised the fact that servitization poses its own special challenges for top management. Since then, despite the various definitions and publication outlets, *the challenges* which traditional manufacturers have to overcome when they attempt to provide services to complement a product offering, have evolved to become a major common theme in the literature discussion. The challenges of the transformation of manufacturing companies towards servitized organisations have also been referred to as barriers (Manzini and Vezzoli, 2002; Mont and Lindhqvist, 2003), factors (Mathieu, 2001b; Neu and Brown 2005), steps (Reinartz and Ulaga, 2008), success factors (Gebauer et al., 2006), and factors of change (Williams, 2007). A series of studies have identified different sets of challenges, examples of which are presented in Table 3-1.

The next part of the literature review builds on these studies by analysing the findings on challenges to servitization and mapping them into several large categories in order to start building the picture of servitization. The various challenges have been grouped and classified in the following five sections.

### 3.1.1.1 Organisational challenges

The organisational challenges of servitization are widely discussed and can be easily recognised in the literature. Oliva and Kallenberg (2003) state that the

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[1] This section of the literature review was partially published in:

Vladimirova, D., Evans, S., Martinez, V. and Kingston, J. (2011), "Elements of change in the transformation towards product-service systems", in: *Functional Thinking for Value Creation, Proceedings of the 3rd CIRP International Conference on Industrial Product Service Systems (IPS2)*, Technische Universität Braunschweig, 5-6 May, 2011, Braunschweig, Germany, p. 21-26.

Vladimirova, D., Evans, S. and Martinez, V. (2010), "Conceptual transformation framework for servitization", in: *International Conference on Advances in Production Management Systems (APMS) 2010 "Competitive and Sustainable Manufacturing, Products and Services"*, 11-13 October 2010, Cernobbio, Como, Italy.

Vladimirova, D., Evans, S. and Martinez, V. (2010), "Transforming the manufacturer into a servitized organisation", in: *3rd EurOMA International Service Operations Management Forum (SOMF) "New Directions in Service Operations Management"*, University of Bath School of Management, 20-21 September 2010, Bath, UK.

product manufacturer is confronted with new organisational principles, structures and processes in order deliver services, while Johansson et al. (2003) suggest that the manufacturer has to realign its entire organisation.

Creating, developing and fostering a service culture appear to be one of the major challenges to the traditional manufacturing organisation (Gebauer et al., 2005; Bitner and Brown, 2008; Neely, 2008; Goedkoop et al., 1999; Manzini and Vezzoli, 2003; Oliva and Kallenberg, 2003; Neely, 2008; Baines et al., 2009b). Servitization is described as an uncomfortable organisational change (Foote et al., 2001) which requires a shift from manufacturing culture to service culture (Mathieu, 2001b). The servitizing manufacturer has to overcome its embedded product culture (Martinez et al, 2010), and abandon the manufacturing mind-set (Rust and Miu, 2006), as some companies still think of themselves primarily as manufacturers with 'add on' services, rather than service companies whose offerings include manufactured products (Slack, 2005).

**Table 3-1 Sample of academic studies on servitization challenges**

| Author(s) | Servitization challenges |
|---|---|
| Gebauer et al. (2005) | • Establish market oriented and clearly defined service development process<br>• Focus service offers on the value proposition to the customer<br>• Initiate relationship marketing<br>• Define clear service strategy<br>• Establish separate service organisation<br>• Create service culture |
| Davies et al. (2006) | • Changing the mind-sets of employees<br>• New organisational structure: front-end customer-facing units, back-end capability providers and strong strategic centres<br>• Rethink organisational structure<br>• Control access to the customer, gain control of the channel to market<br>• Build modular offerings on the back end<br>• Define the role of the strategic centre<br>• Build new capabilities<br>• Systems integration |

| Baines et. al (2007) | • Shift mind-set to ownerless consumption<br>• Pricing<br>• Absorbing risks<br>• Shifts in the organisation<br>• Change organisational structures<br>• Early involvement with the customer<br>• Design PSS from client perspective |
|---|---|
| Neely (2008) | • Shifting mind-sets of marketing, sales, and customers<br>• Timescales: multi-year partnerships; long-term risk; profitability implications of long-term partnerships<br>• Business model and customer offerings: understand value; capability to design and deliver services; develop a service culture; embed all of the above into a service organisation<br>• Increased investment required and changed risk profile |
| Reinartz and Ulaga (2008) | • Recognise that you are already a service company<br>• Industrialise the back office<br>• Create a service-savvy sales force<br>• Focus on customers' processes |
| Martinez et al. (2010) | • Embedded product-service culture<br>• Delivery of integrated offering<br>• Internal processes and capabilities<br>• Strategic alignment<br>• Supplier relationships |

Another group of challenges discussed in the literature relate to the strategic choices of the organisation (Gebauer et al., 2005; Tukker and Tischner, 2006a; Martinez et al., 2010). The manufacturing company has to develop a service strategy and implement service management principles (Mathieu, 2001a). Servitizing companies often fail to deploy successful service strategies (Oliva and Kallenberg, 2003), as manufacturers have to manage new patterns of location and coordination of geographically dispersed activities (Araujo and Spring, 2006,). They have to identify what types of solutions they will provide, the scale and the scope of the solution, decide about location of resources, prioritize resource utilization, and plan for contingencies (Cohen et al., 2006).

In order for the company to make the right strategic choices, leadership has been identified as critical to servitization (Galbraith, 2002). It is suggested that companies have to hire and develop leaders with service expertise, who have the vision and believe in the economic potential of the of the service component to their product (Bitner and Brown, 2008; Oliva and Kallenberg, 2003).

Servitization requires the manufacturing company to develop a new business model where the emphasis changes from transaction- to relationship-based (Oliva and Kallenberg, 2003; Spring and Araujo, 2009; Neely, 2008). The manufacturer has to select business models to support service products, and use different models for different products and life cycle stages (Cohen et al. (2006). In order to be successful, the company has to generate a variety of revenue streams from both product and service transactions and find new ways of making services tradable (Araujo and Spring, 2006).

Developing services business also requires new structure and new forms of organisation in the company (Araujo and Spring, 2006; Cook et al., 2006; Baines et al., 2007). Davies et al. (2006) suggest that the new organisational structure should consist of front-end customer-facing units, back-end capability providers and strong strategic centres. Gebauer et al. (2005) state that the manufacturer should establish a separate service organisation. There is an agreement in the literature that integrating services into existing product systems create a new organisational complexity (Cohen et al., 2006; Williams, 2007; Antonacopoulou and Konstantinou, 2008; Johnstone et al., 2008; Tukker and Tischner, 2006a; Bitner and Brown, 2008; Baines et al., 2009c). It is generally recognized that the integration of service processes poses different challenges to those involved in the integration of physical processes (Slack, 2005). The manufacturer has to establish market oriented and clearly defined service development process Gebauer et al. (2005), and manage various partners that are needed in the service process (Auramo and Ala-Risku, 2005).

The servitized organisation creates a new demand for a service-savvy sales force (Reinartz and Ulaga, 2008), and new talent for account managers and project managers due to the closeness of the relationship with the customer (Galbraith, 2002). Neu and Brown (2005) found that successful service delivery in goods-dominant firms requires first adapting frontline roles and then investing heavily in strategies to develop and retain employees who possessed the characteristics to perform those roles. Employee engagement and commitment

are found critical to the successful servitization (Johnstone et al., 2009; Gebauer and Friedli, 2005).

Manufacturers face communication challenges when they have no established processes to obtain and utilize feedback from their customers (Brax, 2005). The organisation has to improve its internal communication across functions as well as change its external marketing (Tukker and Tischner, 2006a; Bitner and Brown, 2008) to implement clearer and sharper communications to support the product-services offering (Mathieu, 2001b).

Servitization poses new competence and capabilities challenges to the manufacturing company (Oliva and Kallenberg, 2003; Windahl et al., 2004; Davies et al., 2006; Martinez et al., 2010). Traditional manufacturers would typically lack knowledge and experience in terms of service design methods and tools to assess and implement services, service management systems, entrepreneurial personnel who are skilled in service development and provision, life-cycle costing methods, and sometimes lack of knowledge about the product-service concept in general (Manzini and Vezzoli, 2002; Mont and Linqhvist, 2003). Therefore, the organisation has to build new relational and technical skills (Mathieu, 2001b) and develop the capability to design and deliver services rather than products (Neely, 2008). It has to find new ways to connect sets of capabilities within and across suppliers and customers' boundaries (Araujo and Spring, 2006) and to ensure that the firm possesses the skills and resources to deliver service offering (Mathieu, 2001b).

### 3.1.1.2 Financial challenges

Servitization poses financial challenges and certain risks to manufacturing companies. These challenges include the need for an increased investment into the integrated product-service offering and redistribution of resources within the organisation (Araujo and Spring, 2006; Oliva and Kallenberg, 2003). The servitizing company often faces difficulties with Identifying financial, strategic and marketing benefits from services (Mathieu, 2001a), and quantifying the savings from the new product-service offering in economic and environmental terms (Manzini and Vezzoli, 2002). The pricing of the new offering is a major

challenge for manufacturing organisations (Baines et al., 2007), as they struggle with perceptions that prices for provision of services are excessively high (Mont and Lindqhvist, 2003). Even though services are considered to be an opportunity to survive or a way of gaining entry to a new sector (Manzini and Vezzoli, 2002), the management of traditional manufacturers have to overcome an inherent disbelief in the financial opportunities of services and a risk aversion in exploiting strategic opportunities (Gebauer and Fleisch, 2007). Managers prefer risk free outcomes from investing resources in products, to the uncertain outcome of investing in services. Both risk aversion and economic potential explain managerial bias against investing resources in services (Gebauer and Friedli, 2005). The manufacturing company changes its risk profile as new risks are inherent in diverting financial resources away from other activities, larger than expect cost of establishing service networks, and the cost of investing in market positioning (Spring and Araujo, 2009; Slack, 2005). The provider has to understand the perceived costs of undertaking services (Tukker, 2004) and their impact on existing internal activities as well as the impact on customers' core processes (Windahl and Lakemond, 2006). The transforming organisation is in a position where it has to manage and control long-term risk and exposure, new goals, metrics and incentives (Neely, 2008).

### 3.1.1.3 Customer challenges

The 'customer challenges' in the servitization literature generally refer to developing a new relationship with the customer, one of cultural and cognitive proximity (Mathieu, 2001b). The relationship challenge arises from the changing nature of the relationship between the provider and the customers where the implicit transaction-oriented business philosophy of the manufacturer does not support the new service offerings (Brax, 2005). As they begin to serve the customer, manufacturers have to establish a new customer focus and orientation (Galbraith, 2002; Rust and Miu, 2006; Johnstone et al, 2009; Antonacopoulou and Konstantinou, 2008; Tukker and Tischner, 2006b). The focus should be on finding solutions to customer needs and achieving high degree of customer involvement (Isaksson et al., 2009) from early stage of

designing the service (Baines et al., 2007). Bitner and Brown (2008) summarise the new customer focus as "know your customer, dream with your customer, co-create services with your customers, design and deliver services from the customer's perspective, consider the customer's total experience". The manufacturing company has to better understand what value means to its customers (Neely, 2008; Neu and Brown, 2005; Araujo and Spring, 2006) and focus its service offers on the value proposition to the customer (Gebauer et al. 2005). The value proposition should be one that creates especially desirable outcomes for clients with a unique capability to deliver those outcomes (Miller et al., 2002). The provider has to build value propositions for customer outcomes and guarantee delivered value (Foote et al., 2001). Manufacturers are also advised to choose the customers to whom they will offer services (Foote et al., 2001; Miller et al., 2002). Johansson et al. (2003) further suggest that companies should servitize one customer at a time. The reason behind this careful approach lies in the fact that customers (business customers in particular) would typically lack understanding of the new combined product-service concept and the new life cycle costs of product ownership (Mont and Lindqhvist, 2003). Customers may fear providers gaining access to their' facilities and to sensitive information, and may struggle to accept consumption that is not based on owning material products (Manzini and Vezzoli, 2002; Mont and Lindqhvist, 2003; Williams, 2007; Neely 2008). With services, the manufacturer is viewed to be taking a whole new set of responsibilities, and in some cases even taking over customer operations (Oliva and Kallenberg, 2003).

### 3.1.1.4 Supply chain challenges

The supply chain challenges relate to a new alignment and strategic span in the supply chain (Baines et al., 2009a; Slack, 2005), where the relationship between the manufacturer and its suppliers become one of co-operation and partnership as opposed to transaction (Tukker and Tischner, 2006a). The servitizing manufacturer has to form new partnerships (Foote et al., 2001; Mont, 2002b; Martinez et al., 2010), sometimes even collaborate and implement

partnerships with potential competitors (Mathieu, 2001a). This new situation requires new relationship skills in the supply chain where the manufacturing company has to manage a supply chain of products and services rather than only products (Slack, 2005). The manufacturer takes up new responsibility to involve and manage and co-ordinate more actors in the service process (Mont and Linqhvist, 2003; Auramo and Ala-Risku, 2005; Johansson et al., 2003) and the ties between the different actors involved become stronger (Windahl and Lakemond, 2006). In this process, new competitive dynamics are established and sometimes a shift of power is created (Vandermerwe and Rada, 1988; Wise and Baumgartner, 1999; Brax, 2005).

### 3.1.1.5 Market challenges

The market challenges refer to conditions and elements of the market which hinder the success of servitization. These could be existing service providers already in the market; conflicts of interest between actors in the value chain; the market demand for services and solutions, or the lack of market demand for some offerings (Manzini and Vezzoli, 2002; Mont, 2002b; Mont and Lindhqvist, 2003). The transforming organisation needs to be aware of the threat of substitute products and new entrants; it has to consider developing a service offering which is not easily replicated by competitors (Manzini and Vezzoli, 2002; Tukker, 2004). Public policies or legislation can also be a factor in the servitization process. These could be existing legislation or upcoming regulations; lack of capital investments in the area and involvement of financial institutions, usually due to the lack of knowledge about the new service opportunities and lack of understanding the risks and liabilities coming with services (Mont and Lindhqvist, 2003). Oliva and Kallenberg (2003) suggest that the manufacturer has to manage two tightly-coupled markets of products and services: on the one hand, increasing service quality and scope might extend the product's useful life, thus reducing its replacement sales; on the other hand, increasing the quality and durability of products might reduce future service revenues. Neu and Brown (2005) sum up the shift from products to services as "a move into a highly complex market".

### 3.1.2 Drivers of servitization[2]

While 'challenges' in the servitization of manufacturers is the major theme emerging from the analysis of the literature, a sub-theme that surfaces, albeit of no lesser importance, is that on *drivers* of servitization (Vladimirova et al., 2011). The challenges and the barriers to servitization have been extensively examined as already discussed; however, the enabling factors of successful servitization appear to have received less attention from researchers: a gap that this research aims to replenish.

The literature refers to the existence of various factors that positively influence the successful introduction of services in addition to material products, described as drivers or enablers (Mont and Lindhqvist, 2003; Baines et al., 2009b).

Manufacturing companies are often considered to be adding services in order to protect their market share or in response to a legislation threat, customer demands and expectations, and competitor's dominance (Goedkoop et al., 1999).

Wise and Baumgartner (1999) suggest that selling goods has become less attractive for manufacturing companies as general demand for products has stagnated. At the same time, the installed base of products has been expanding steadily due to the accumulation of past purchases and longer product life spans, leaving many industries with a number of units in the installed base far greater than the number of products sold annually (Wise and Baumgartner, 1999; Oliva and Kallenberg, 2003). Therefore, the installed base of products with a long life cycle, from which substantial revenue can be generated, becomes a driver for servitization. Another factor is that market players focus on core competencies and increasing technological complexity that leads to a

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[2] This section of the literature review was published in:
Vladimirova, D., Evans, S. and Martinez, V. (2011), "Drivers of transformation towards servitized organisational forms: a conceptual framework", in: *25th Annual British Academy of Management (BAM) Conference "Building and Sustaining High Performance Organisations in a Challenging Environment"*, 13-15 September 2011, Aston Business School, Birmingham, UK.

higher specialization, and outsource the rest under pressure to downsize and become more flexible organisations (Oliva and Kallenberg, 2003; Tukker and Tischner, 2006a). There is also a competitive driver for servitization when a manufacturing company aims to escape from a commodity market and searches for unique selling points by offering services. Services become a sustainable source of competitive advantage, by being less visible and more labour dependent, and much more difficult to imitate (Goedkoop et al., 1999; Oliva and Kallenberg, 2003).

Servitization is also a way of finding new possibilities for growth and extending the range of existing offers into services (Mont, 2002b; Baines et al., 2009). For many companies financial savings and revenues generated from shifting to service-oriented offerings ranging from efficiency services to leasing and closed loop systems are an important driver (Mont, 2002b). The top management decision is often named as the decisive factor in defining whether the company will explore possibilities of providing service and to what extent, alongside with improvement of the environmental performance of the company, and sometimes seeing potential for creating an improved company image (Mont, 2002b; Tukker and Tischner, 2006a; Goedkoop et al., 1999). Other enablers of servitization could be the company's openness to new ideas; service-oriented capabilities that are already available in the organisation; company's experience in building up new competencies and/or leveraging capabilities with new business partners; company's experience with product service development; company leadership that endorses client-oriented culture via incentive systems; as well as public support structures and funding for change, e.g. innovation centres, business clubs, training centres (Tukker and Tischner, 2006a).

## 3.2 Organisational change and transformation literature review

An extensive investigation into the organisational change and transformation literature is performed in order to identify theories and concepts which can help explain and address the challenges of the transformation of traditional manufacturers towards servitized organisations, and strengthen the theoretical foundations of the research.

### 3.2.1 Types of change

Research suggests that change initiatives fail at a rate as high as up to 80% of attempted organisational change efforts (Whelan-Berry and Somerville, 2010). Therefore, better understanding of the nature of change, its characteristics, and choices about and during the change contribute to its successful implementation.

#### 3.2.1.1 First- and Second-order change

The organisational change literature distinguishes two types of change that organisations can experience. The first type of change represents adjustments within the system, and is referred to as first-order (Watzlawick, 1974; Bartunek, 1984) or continuous, convergent, incremental change (Tushman et al., 1988). The second type of change embodies qualitative changes to the system itself and is referred to as second-order (Watzlawick, 1974; Bartunek 1984), discontinuous, divergent or frame-breaking change (Tushman et al., 1988). The second-order change is further described as strategic (Pettigrew, 1987), and transformative (Levy and Merry, 1986; Romanelli and Tushman, 1994). The two types of change have been also variously described as "incremental change" versus "reinvention" (Goss et al., 1998); "incremental change" versus "radical change" (Baden-Fuller and Stopford, 1995); and "realignment" versus "transformation" (Balogun and Hope-Hailey, 2008).

The first-order, convergent or incremental, is the type of change all organisations tend to experience either as a part of their daily functioning or as a planned effort; it is typically small in scale and in the form of gradual modifications (Bartunek and Moch, 1994). First-order change is a logical linear

process designed to improve the organisation's effectiveness or efficiency while still maintaining its current operations, assumptions and paradigm (Archer, 2002). Incremental or continuous changes keep the basic structure and vision of the organisation intact (Sottolano, 2000).

The second-order change is a large scale of changes in culture or individual behaviours in an organisation, typically accompanied by the change of management paradigms (Vollmann, 1996). Levy and Merry (1986) describe the fundamental nature of transformation: "transformation is the response to the notion that the organisation cannot continue functioning as before; in order to continue to exist it needs a drastic reshuffling in every dimension of its existence" (Levy and Merry, 1986). Second-order change has much greater intensity than first-order change in terms of the discontinuities it creates within the organisation (Nadler and Tushman, 1989). Organisations, therefore, should not undertake such changes lightly and without preparation (Sottolano, 2000). The characteristics of first- and second-order change are summarised in Table 3-2.

**Table 3-2 Characteristics of First- and Second-order change**

| First-Order Change | Second-Order Change |
|---|---|
| • Organisations are discrete focal units | • Organisations are multiple overlapping systems |
| • A change in one or a few dimensions, components, or aspects | • Multidimensional, multicomponent, and multiaspectual |
| • A change in one or a few levels (Individual and group levels) | • Multilevel change (individuals, groups, the whole organisation) |
| • Change in one or two behavioural aspects (attitudes, values) | • Changes in all behavioural aspects (attitudes, norms, values, perceptions, beliefs, world view, behaviours) |
| • A quantitative change | • A qualitative change |
| • A change in content | • A change in context |
| • Change improves organisational performance and individual development | • Change improves internal organisational performance and individual development and interlinks purposes with business partners and society |
| • Continuity, improvements, and development in the same direction | • Discontinuity, taking a new direction |
| • Incremental changes | • Revolutionary jumps |
| • Logical and rational | • Seemingly irrational, based on different logic |
| • Does not change the world view, the paradigm | • Results in new world view, new paradigm |
| • Within the old state of being (thinking and acting) | • Results in a new state of being (thinking and acting) |

*Based on Levy and Merry (1986) and Chapman (2002)*

### 3.2.1.2 Enterprise Transformation

In recent studies, the concept of 'enterprise transformation' has evolved to address the challenges of today's large and complex organisations (Rouse, 2011; Purchase et al., 2011). As companies increasingly have to address complex business challenges, they recognise the need to achieve an integrated perspective within and across organisational boundaries where no longer the single organisation but the entire enterprise becomes the unit of transformation (Purchase et al. 2011; Valerdi and Nightingale, 2011; Kotnour, 2011). Purchase et al. (2011) define the enterprise as "a complex system of interconnected and interdependent activities undertaken by a diverse network of stakeholders for

the achievement of a common significant purpose". A successful enterprise transformation, therefore, requires a holistic approach that crosses organisational boundaries and integrates viewpoints of multiple stakeholders, methods, and tools (Valerdi and Nightingale, 2011).

Purchase et al. (2011) further describe enterprise transformation as a shift within a defined enterprise that is: (i) a response to radical changes in the economic, market, or social environment; (ii) a fundamental alteration of context, i.e. a fundamental change that substantially alters an organisation's relationships with one or more key constituencies, e.g. customers, employees, suppliers, and investors; moreover, it can involve new value propositions in terms of products and services offerings, new ways of delivery and support of these new offerings, and new ways of organising the enterprise to deliver these offerings; sometimes it can also involve old value propositions provided in fundamentally new ways. (iii) a step change in performance, i.e. the transformation relates to the magnitude of results achieved and a conscious and sustainable transition to a significantly higher level of business performance and organisational health, based on a fundamental shift in underlying capabilities, systems and processes (Purchase et al., 2011).

### 3.2.2 Managing organisational change

One of the renowned thinkers in the organisational change field, Andrew Pettigrew (1987), suggests that in order to fully understand the complexities of strategic (transformative) change, it needs to be considered in terms of its content, context, and process. Pettigrew (1987) defines 'content' as the particular areas of transformation under examination, or the "what" of change. Thus the firm may be seeking to change technology, manpower, products, geographical positioning, or indeed corporate culture. The 'context' of transformation is defined as the 'outer' context, which is concerned with the macro- and microenvironment within which the organisation operates, and the 'inner' context which is concerned with the structure, corporate culture, and political context of the organisation. The 'process' refers to the actions,

reactions, and interactions from the various interested parties as they seek to move the firm from its present to its future state (Pettigrew, 1987). Pettigrew and Whipp (1991) further emphasise that successful change is a result of the continuous interplay between the three dimensions (see Figure 3-1 Framework for studying change and transformation (Pettigrew, 1987).

**Context:**
**The *Why?* of change**

**Outer**

**Inner**

**Content:**
**The *What?* of change**

**Process:**
**The *How?* of change**
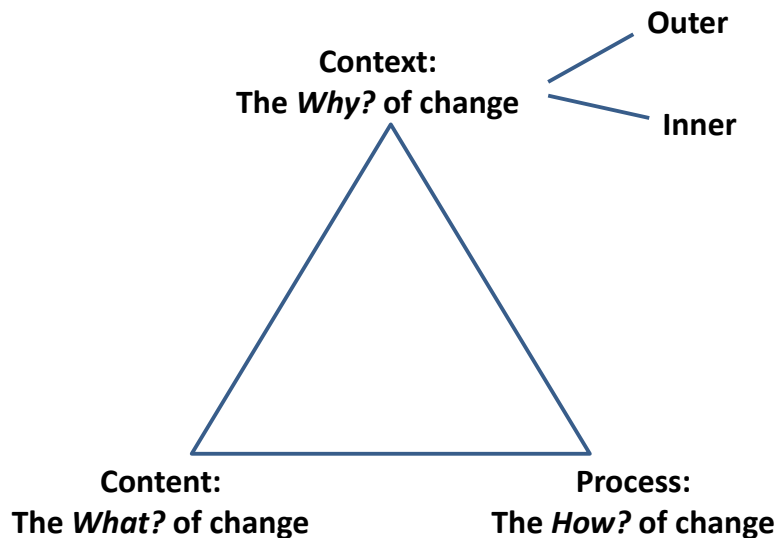
**Figure 3-1 Framework for studying change and transformation (Pettigrew, 1987)**

In this section, the researcher adopted and used Pettigrew's framework as a meta-level structure for understanding the academic literature on organisational change and transformation.

### 3.2.2.1 Content of change – What?

Academic literature reveals different components which can comprise the content or the *what* of change and transformation.

Wischenvsky (2004) stipulates the individual dimensions of transformation in his definition of 'organisational transformation' as strategy, structure, and power distribution, adding that other organisational dimensions of transformation can be culture or control systems. According to Bititici et al. (2010) business processes and the supporting information and communications technology

infrastructure that would need to be re-engineered; different strategies that would be adopted along with the competencies and capabilities that underpin these strategies; and the need for behavioural and cultural changes can make up the content of change.

Further dimensions of transformation are clearly identified in the content frameworks of Levy (1986), Mintzberg et al. (1998), and Bititci (2007) as the dimensions of organisations that would need to change and that constitute the content of transformation shown in Figure 3-2 The content (What) of second-order change (Levy,1986) Figure 3-3 The change cube (Mintzberg,1998) and Figure 3-4 The business transformation formula (Bititci, 2007)respectively.
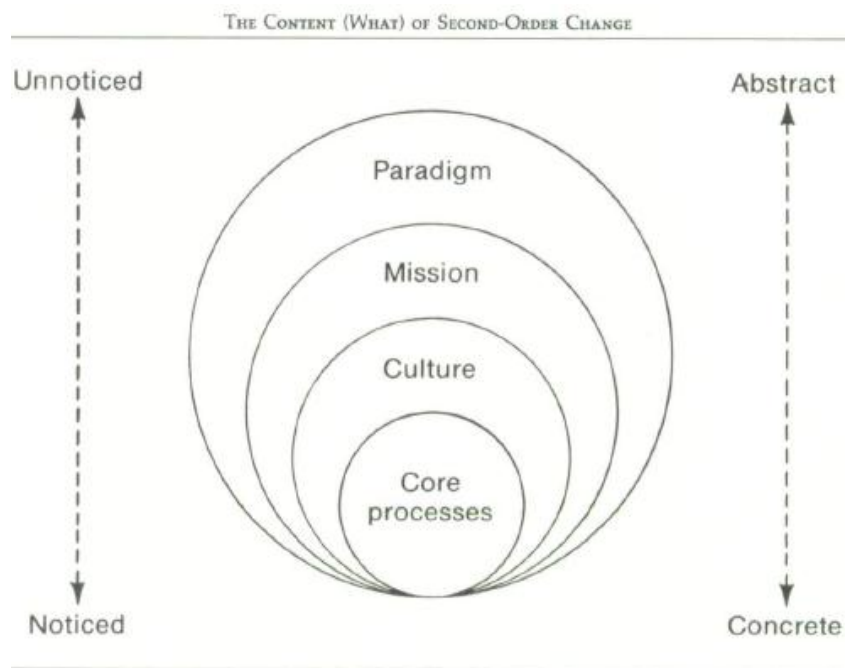


**Figure 3-2 The content (What) of second-order change (Levy,1986)**
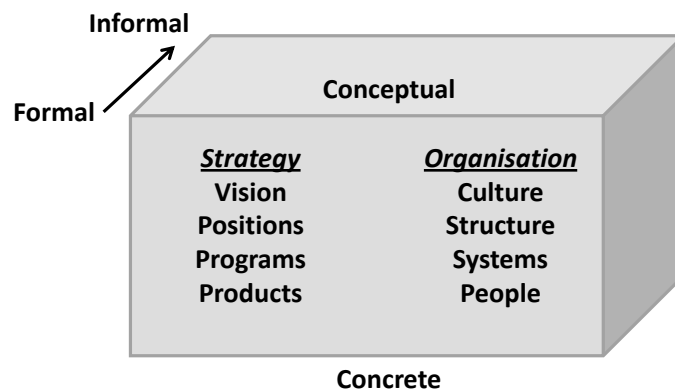
**Figure 3-3 The change cube (Mintzberg,1998)**
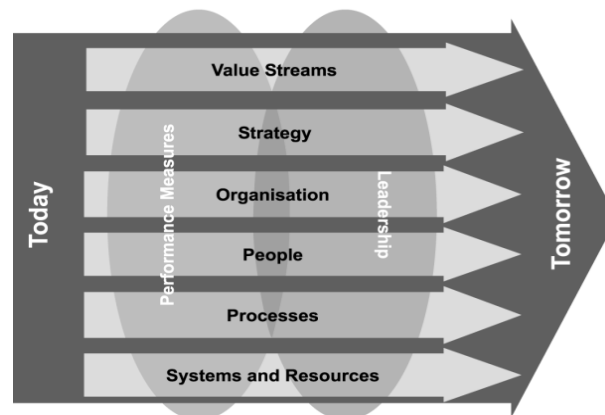


**Figure 3-4 The business transformation formula (Bititci, 2007)**

### 3.2.2.2 Context of change – Why?[3]

Why do organisations change? What are the driving forces that cause organisations to move from one form to another? There has been a long going discussion in the change literature on the contextual factors that enable organisational change and transformation (Pettigrew et al., 2001; Bititci et al.,

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[3] This section of the literature review was published in: Vladimirova, D., Evans, S. and Martinez, V. (2011), "Drivers of transformation towards servitized organisational forms: a conceptual framework", in: *25th Annual British Academy of Management (BAM) Conference "Building and Sustaining High Performance Organisations in a Challenging Environment"*, 13-15 September 2011, Aston Business School, Birmingham, UK.

2010). Lewin (1952) set the tone of this discussion in his 'Force field analysis' where he viewed organisations as systems in which the present situation was not a static pattern but a dynamic balance of forces working in opposite directions. Lewin looked at the factors or forces that influence a situation, and stated that in order for any change to be successful, the driving forces which push for change must exceed the restraining forces (Vladimirova et al., 2010a,b).

Since Lewin's seminal work, there has been a flow of models in the literature incorporating factors which drive change in various contexts and circumstances (Vladimirova et al., 2011b). Lundberg's model of transformational transitioning, for example, specifies the driving forces for organisational transformation as: (i) internal permitting conditions or aspects of the organisational situation that allow transformation to occur, e.g. leadership, or a surplus of resources for managing the change; (ii) external enabling conditions, such as the degree of threat to the survival of the organisation posed by its competitors, economic situation or consumer; (iii) precipitating conditions which bring pressures to bear on an organisation for transformation, such as the tendency of the organisation to grow/decline, real and perceived crisis, changes in shared beliefs and meanings; and (iv) triggers which are such events in the environment that abruptly create calamity (e.g. sharp recessions, unexpected innovations by competitors) or events that create opportunity like technological breakthroughs, and unexpected market niches (Lundberg, 1984).

Oakland and Tanner (2007) categorise the drivers for change into external and internal: external ones being customer requirements, demands from other stakeholder such as the government, regulatory demand, market competition and shareholders; internal drivers include improving operational efficiency; the need to improve the quality of products and services, process improvement. They conclude that the internal drivers were considered to be manifestation of external drivers for change (Oakland and Tanner, 2007). Bititci (2007) explicitly identifies leadership and performance measures as contextual factors that enable transformation. Other key enabling contextual factors found in literature

are culture, management style, leadership, knowledge, and skills (Miles, 1997; Mintzberg et al., 1998).

The existence of change drivers is widely acknowledged in the organisational change literature as discussed in this section. However, interpretations vary to what they are and how they are categorised. In a comprehensive study of change drivers, Whelan-Berry and Somerville (2010) summarised that the term "change drivers" has been used in two recurring ways in the existing organisational change literature. The first is defined as "events, activities, or behaviours that facilitate the implementation of change", i.e. there are change drivers that facilitate the implementation of change throughout the organisation and, specifically facilitate individual adoption of change initiatives. The other use of the term identifies "whatever gave birth to the desire or need for change", i.e. drivers of the necessity for a change. Such drivers include, for example, increasing globalisation, emerging new internet capabilities and changes in consumer behaviour, new leadership, laws, regulations and competitors (Whelan-Berry and Somerville, 2010).

### 3.2.2.3 Process of change – How?

The change literature contains considerable discourse on the process or the *how* of change. Pettigrew and Whipp (1991) argue that when it comes to managing change there is no universal approach. This argument is further reinforced by a continuous debate of planned vs. emergent change which dominates the literature (Bamford and Forrester, 2003).

The planned approach to organisational change emphasises the importance of understanding the different states which an organisation will have to go through in order to move from an unsatisfactory state to an identified desired state (Eldrod II and Tippett, 2002). The founder of the planned approach to change Lewin (1952) proposed that before change and new behaviour can be adopted successfully, the previous behaviour has to be discarded. A successful change project, therefore, involves the three steps of: (i) unfreezing the present status, (ii) moving to the new state and (iii) refreezing this new state (Lewin, 1952). This three-step model has been largely adopted as a general framework for

understanding the process of organisational change albeit the model is rather broad (Eldrod II and Tippett, 2002). Several authors seem to be in general agreement on 'how' change occurs and have extended Lewin's work in an attempt to make it more practical (Bullock and Batten, 1985; Kanter et al., 1992; Kotter, 1996; Mento et al., 2002; Luecke, 2003). Table 3-3 provides an overview of their approaches to managing change, and the stages through which change is assumed to progress.

Although the planned approach to change is long established and held to be highly effective (Bamford and Forrester, 2003; Burnes, 2004), there are several main criticisms to the planned approach as follows. Its emphasis is on small-scale and incremental change, and it is, therefore, not applicable to situations that require rapid and transformational change (Senior, 2002; Burnes, 2004). It assumes that organisations operate under constant conditions, and that they can move in a pre-planned manner from one stable state to another (Bamford and Forrester, 2003) whereas the real world fast-changing environment only weakens this theory. It views change as a set of pre-determined discrete and self-contained events as opposed to an open-ended and continuous process (Burnes, 2004). By attempting to lay down timetables, objectives and methods in advance the process of change becomes too dependent on senior managers (Wilson, 1992). Critics also argue that the planned approach to change presumes that all stakeholders in a change project are willing and interested in implementing it, and that a common agreement can be reached, ignoring organisational politics, conflicts, and resistance to change (Bamford and Forrester, 2003).

In response to the criticisms of the planned approach to organisational change, the emergent approach has gained ground. Rather than seeing change to be top down driven, the emergent approach tends to see change driven from the bottom up (Bamford and Forrester, 2003; Burnes, 2004). The emergent approach to change emphasises that change should not be perceived as a series of linear events within a given period of time, but as a continuous, open-ended process of adaptation to changing circumstances and conditions (By,

2005). It stresses the unpredictable nature of change, and views it as a process that develops through the relationship of a multitude of variables within an organisation (By, 2005). To cope with the complexity and uncertainty of the environment it is suggested that organisations need to become open learning systems where strategy development and change emerges from the way a company as a whole acquires, interprets and processes information about the environment (Dunphy and Stace, 1993). Burnes (1996: 13) argues that "successful change is less dependent on detailed plans and projections than on reaching an understanding of the complexity of the issues concerned and identifying the range of available options". It can, therefore, be suggested that the emergent approach to change is more concerned with change readiness and facilitating for change than to provide specific pre-planned steps for each change project and initiative (By, 2005).

**Table 3-3 The process (How) of change**

| Lewin (1952) | Bullock and Batten (1985) | Kanter et al. (1992) | Kotter (1996) | Mento et al. (2002) | Luecke (2003) |
|---|---|---|---|---|---|
| Unfreeze | Exploration phase | Analyse organisation and need for change | Establish a sense of urgency | Define the change initiative | Mobilise energy and commitment through joint identification of business problems and their solutions |
| | Planning phase | Shared vision and common direction | Form a powerful guiding coalition | Evaluate climate for change | Develop a shared vision of how to organise and manage for competitiveness |
| | | Separate from past | Create a vision | Develop a change plan | Identify the leadership |
| | | Sense of urgency | | Find a sponsor | Focus on results not activities |
| | | Strong leader | | Prepare target audience | |
| | | Political sponsorship | | | |
| | | Implementation plan | | | |
| Move | Action phase | Enabling structures | Communicate the vision | Create cultural fit | Start change at the periphery, then let it spread to other units without pushing it from the top |
| | | Communicate and involve | Empower others to act on the vision | Develop change leader team | |
| | | | Plan for creating short-term wins | Create small wins | |
| Refreeze | Integration phase | Reinforce and institutionalise | Consolidate improvements | Communicate the change | Institutionalise success through formal policies, systems, and structures |
| | | | Institutionalise new approaches | Measure progress | Monitor and adjust strategies in response to problems in the change process |

*Based on By (2005) and Bititci et al. (2010)*

### 3.2.3 Philosophies of organisational change

This section introduces an alternative contemporary view on managing organisational change through philosophies of change approach. It brings further perspectives on organisational change, in line with the research strategy. The purpose is to better understand the nature of servitization as a change phenomenon, and extend the theoretical foundation of the study.

Van de Ven and Poole (1995) describe a philosophy as a way of looking at change; whereby change philosophies should be viewed as motors of change which incorporate metaphors, paradigms and theories.

In a comprehensive study of organisational change theories, Smith and Graetz (2011) review and identify nine main philosophies found in literature. These philosophies include long held change perspectives like the rational philosophy (Kanter et al., 1992; Van de Ven and Pool, 1995; Kotter, 1996); the biological philosophy (Hannan and Freeman, 1974; McKelvey and Aldrich, 1983; Kezar, 2000); the institutional philosophy (DiMaggio and Powell, 1991; Meyer and Rowan, 2006); the resource philosophy (Pfeffer and Salancik, 1978; Connor, 2002); the psychological philosophy (Lewin, 1952; Burke, 2002); the systems philosophy (Kuhn, 1974; Hatch, 1997; Senge, 2006), the cultural philosophy (Pettigrew, 1979; Schein, 1997), and the critical philosophy (Morgan, 1986; Buchanan, 2003).

In addition, a new emerging change perspective named dualities philosophy was introduced. The dualities philosophy argues for a multi-perspective approach to change as opposed to a simplistic uni-dimensional approach in which a single theory or model is applied (Smith and Graetz, 2011). The duality philosophy is based on the notion that competing approaches work together as found in the 'ambidextrous' (O'Reilly and Tushman, 2004) and the 'modular' (Pil and Cohen, 2006) theories. It assumes that change is unlikely to proceed through a step-by-step formula, and it is neither simple nor predictable. Instead, it captures the complexities and dynamics of organisations and embodies

continuous rather than static change processes. The challenge for managers is in encouraging both change and stability (Smith and Graetz, 2011).

The main characteristics of the nine philosophies of organisational change including their underlying assumptions on the nature of change; the strengths and weaknesses of each perspective; as well as the suggested managerial focus within each philosophy are presented in Table 3-3.

In summary, this section introduced a summary of nine philosophies of change as an alternative view and approach to managing change through a single theory or a model. It extended the theoretical framework of the research. Moreover, it equipped the researcher with a comprehensive suite of change characteristics and perspectives, and an overall better understanding of change to be utilised in the study of servitization.

**Table 3-3 Philosophies of organisational change**

| Philosophy | Nature of change | Strengths | Weaknesses | Management focus |
|---|---|---|---|---|
| **Rational** 'changing plans' | Directed and planned | Emphasises controllable aspects of change | Ignores or sidesteps external pressure | Strategy and planning |
| **Biological** 'changing organisms' | Ecological, organic and evolutionary | Explains life-cycle, fitness and survival | Heavy emphasis on environment; fails to explain deliberate change | Environmental positioning; find industrial niche; progression of organisation through the life-cycle; growth |
| **Institutional** 'changing conformity' | Determined by institutional (industry) pressure | Reveals importance of industrial environment and pressures to conform | Lack of focus on need to find advantages against competitors | Industrial standards and benchmarks |
| **Resource** 'changing opportunities' | Determined by access to resources | Shows need to acquire resources to initiate and sustain change | Assumes change cannot occur without internal resources | Acquiring and discharging resources; core competencies, particularly of management |
| **Psychological** 'changing minds' | Embedded in minds of those affected | Highlights individual impacts and stresses of change | Can ignore systemic aspects of change in organisation (e.g. structure) | Managing employee transitions and psychological adjustments to change |
| **Systems** 'changing everything' | Interconnected with all aspects of organisation | Avoids the trap of assuming that change is contained in one organisational area | Complexities of keeping track of relationships between organisational areas | Change to all constituents and components of an organisation |
| **Cultural** 'changing values' | Determined by entrenched values | Shows importance of collective beliefs and norms | Difficult to address directly | 'Deep' rites, rituals and values |
| **Critical** 'changing reality' | Conflict and power based; rejection of universal rules | Demonstrates role of power ad clashing ideology; juxtaposition of old and new explain contradiction in change | Assumes all change manifests through power; can result in no approach to change at all and confusion about nature of change | Acquiring power bases; flexibility, empowerment and responsiveness |
| **Dualities** 'changing tensions' | Dynamic, complex | Abandons the need for balance in favour of performance | Demands an understanding of all philosophies | Managing the tensions between change and continuity |

*Based on Graetz and Smith (2010) and Smith and Graetz (2011)*

## 3.3 Organisational theory

As identified in the research design in Chapter 2 (2.1.3), the subject of this study is the servitizing manufacturing organisation, which is viewed as a real social actor with an identity. This part of the literature review investigates concepts and definitions from organisational theory in order to gauge the characteristics and the type of organisation that is the servitizing manufacturing company.

### 3.3.1 The Organisation

Scott (2002) provides the following three prominent definitions of organisations:

(a)    Rational system: Organisations are collectivities oriented to the pursuit of relatively specific goals and exhibiting relatively highly formalised social structures.

(b)    Natural system: Organisations are collectivities whose participants share a common interest in the survival of the system and who engage in collective activities, informally structured, to secure this end.

(c)    Open system: Organisations are systems of interdependent activities linking shifting coalitions of participants; the systems are embedded in – dependent on continuing exchanges with and constituted by – the environment in which they operate.

Baum and Rowley (2002) further elaborate that in the rational and natural system views, organisations and their environments are separate entities with clear boundaries. In the open system perspective, however, this distinction is not so obvious, and focus is placed on the relationship and interdependencies between organisations and environments. Open systems models conceive organisations as both systems of internal relationships and as inhabitants of a larger system encompassing the environments in which they operate and on which they depend for resources. If the rational view projects a machine image and the natural systems view an organic one, the open system view suggests an organism analogy – organisations are adaptive and interdependent systems,

comprised of various interrelated – possibly conflicting subsystems – attempting to meet and influence the dynamic demands of the environment (Scott 2002; Baum and Rowley, 2002).

Gulati and Kletter (2005) suggest that contemporary top-performing organisations are centred around their relationships, and they utilise particular strategies to achieve superior performance by optimising the architecture of their network of relationships (Figure 3-5). The relationship-centric organisation has higher willingness to engage with, and a greater focus on increasing the longevity of the relationships with their customers, suppliers, alliance partners, and internal business units; which clearly sets sustained performers apart from their peers (Gulati and Kletter, 2005). The relational capital unleashed through collaboration not only improves operating performance, but its vehicles - be they solutions, strategic outsourcing agreements, alliances, or acquisitions - help companies leverage assets more effectively, expand into new markets, mitigate risk, and increase market agility (Gulati and Kletter, 2005). The next step of the study, therefore, is to investigate the concept of 'network' in organisational theory.
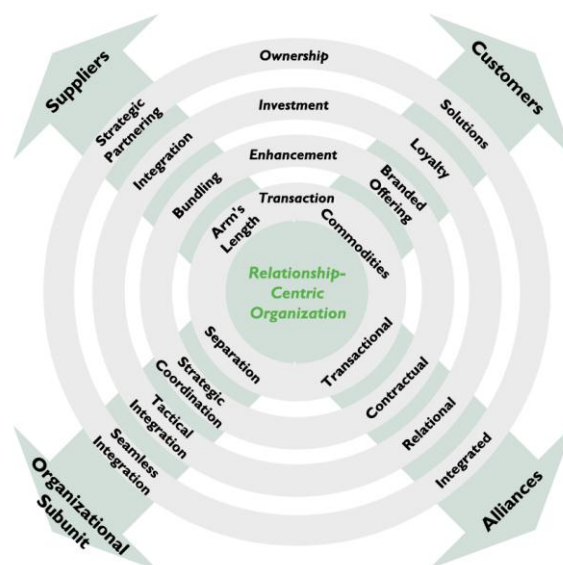


**Figure 3-5 Relationship-centred organisation (Gulati and Kletter, 2005)**

### 3.3.2 The Network paradigm in organisational theory

The study of networks has a long history in organisational theory and is concerned with how organisational practices are developed in a social setting, and with how they are constrained by that setting (Baum and Rowley, 2002). The network paradigm is phenomenological, in the sense that it focuses on the content of networks of interpersonal and inter-organisational relations and the meaning of action as defined by the network (Baum and Rowley, 2002).

Borgatti and Foster (2003) describe a network as a set of actors connected by a set of ties. The actors (often called "nodes") can be persons, teams, organisations or concepts. Ties connect pairs of actors and can be directed (i.e. potentially one-directional, as in giving advice to someone) or undirected (as in being physically proximate) and can be dichotomous (present or absent, as in whether two people are friends or not) or valued (measured on a scale, as in strength of friendship) (Borgatti and Foster, 2003).

Gulati et al. (2000) highlight that the conduct and performance of organisations is influenced in important ways by the strategic networks in which they are embedded. They argue that incorporating networks into the analysis of firms leads to a more comprehensive understanding of behaviour of organisations (Gulati et al., 2000); and this study strives to achieve such comprehensiveness in understanding servitization.

## 3.4 Summary

Little attention has been paid to understanding how a manufacturer becomes a service provider in the servitization literature, despite a broad discussion on the challenges and drivers of servitization. The nature of the change experienced by manufacturers looking to become product-service providers is not clear, which increases the risk associated with implementing services within a traditional product-based environment.

Organisational change and transformation constitute a vast body of literature the development of which has spanned over the past sixty years. Having reviewed this body of knowledge, the researcher found a lack of literature that

explains and addresses the specific change faced by manufacturing companies during servitization. Certain change theories and models, however, can be drawn to support the understanding of servitization. Moreover, concepts found in organisational theory can increase the comprehensiveness of the study.

This research, therefore, moves the academic discussion in the servitization literature forward by building on multiple concepts from servitization, organisational change and transformation, and organisational theory bodies of knowledge to better understand servitization as a new change phenomenon, while also strengthening the theoretical foundations of the findings. This approach is realised in the development of a conceptual model presented in the next chapter of the thesis.

# 4 CONCEPTUAL MODEL FOR TRANSFORMATION TOWARDS A SERVITIZED ORGANISATION

The purpose of this chapter is to develop a conceptual model as the theoretical foundation of the research. The model draws on multiple concepts from the literature to establish the general constructs to be studied, and which would subsume the particulars from the forthcoming field research. As a direct step from establishing the theoretical foundation of the study, four research questions are formulated at the end of the chapter.

## 4.1 Building the model

As presented in Chapter 2 (2.1) this study adopted strategy of engaged scholarship which advocates the utilisation of multiple perspectives and theories in order to address the research problem. In this theory building research, therefore, the conceptual model for transformation towards a servitized organisation is a theoretical construct based on the interplay of three sets of theory: servitization, organisational change and transformation, and organisational theory.

### 4.1.1 Servitization as a change phenomenon

In the synthesis of the servitization literature, it was proposed that traditional manufacturers have to overcome major organisational, financial, customer, supply chain, and market related hurdles in order to become successful providers of integrated product-service offerings. Based on the knowledge obtained on the challenges to servitization, and further, on the types of change that organisations can generally experience, and on the nature of organisations in general presented in Chapter 3, it can be suggested that the servitization of manufacturing companies exhibits the characteristics and can be described as:

> *A complex multidimensional change of transformative nature that causes significant discontinuities within the manufacturing firm. It increases the levels of risk for the servitizing organisation in relation to the cost of introducing*

*services within a traditional product-based environment, and in relation to the increased exposure of the traditional manufacturing firm to its external environment. It stretches beyond the boundaries of the organisation, and creates new links and dependencies between the servitizing manufacturer and various stakeholders. The outcome of servitization is affected by forces of change.*

This new understanding about servitization is depicted in the conceptual model devised in this chapter.

### 4.1.2 The servitizing organisation

In the context of servitization and for the purpose of the conceptual model, this study views the servitizing organisation as an open system which is closely interlinked with its environment, in line with Scott's (2003) open system view of organisations. Furthermore, the concept of 'relational' organisation based on Gulati and Kletter's (2005) work can explain some of the challenges to servitization, and the need for new relationships which the manufacturing company has to develop with its customers and suppliers in the process of delivering integrated products and services.

### 4.1.3 The network

One special circumstance that needs to be understood in order to construct a comprehensive transformation model is that servitization is not limited within the boundaries of the manufacturing organisation. The servitizing firm closely inter-relates with various stakeholders, and new connections and dependencies are established with customers, suppliers, and other market players. This creates the necessity to bring the notion of 'network' from organisational theory into the model drawn from the works of Baum and Rowley (2002) and Borgatti and Foster (2003) on 'network' in organisational studies.

### 4.1.4 Dimensions of transformation towards a servitized organisation

An extensive set of challenges to servitization were identified in the literature and classified by the author in Chapter 3 (3.1.1) as organisational, financial, customer, supply chain, and market related challenges. Certain challenges identified in the servitization literature, e.g. service culture, new structures, and new competencies, appear analogous to dimensions of transformation discussed in the 'Content of change' part of Chapter 3 (Section 3.2.2.1). However, the complete list of 'challenges' cannot be translated directly into 'dimensions of transformation' as some of the challenges found in the literature refer to the organisation's context, e.g. the market challenges.

On the other hand, the change literature reveals different components which can comprise the content of change. However, the discussion is of general nature, and while it establishes some generic dimensions of transformation, it does not directly relate to the phenomenon of servitization.

Therefore, the dimensions of transformation in servitization require further in-depth study, and hence form part of the conceptual model. The dimensions of transformation within the organisation and the network domains would be formulated based on empirical evidence, and the findings mapped onto the model.

### 4.1.5 Change drivers for servitization

As established in Chapter 3 (Section 3.1.2), drivers of servitization have been acknowledged but only discussed to a limited extent in the literature on manufacturers becoming providers of integrated products and services offerings to deliver more value. On the other side, there is a long-going discussion of driving forces in the organisational change literature presented in the *Context of change* part of Chapter 3 (Section 3.2.2.2). However, the latter discussion is of general nature, and while it establishes some generic factors enabling change, it does not directly relate to the phenomenon of servitization. Therefore, the

concept of change drivers for servitization requires further in-depth study, and forms part of the conceptual model.

Three fundamental groups of change drivers can be extracted from theory and further elaborated in the next empirical stage of the research. Based on the work of Lundberg (1984), *triggers* and *conditions* enabling transformation deserve particular attention. In addition, based on the work of Whelan-Berry and Somerville (2010), the research also strives to identify change drivers which facilitate the actual implementation of change, entitled for this study as *facilitators* of servitization. Analysis of the data would be performed through the lens of these three categories of change drivers in order to develop a comprehensive understanding, and a set of factors enabling successful servitization.

The theoretical lenses and the main categories and sub-categories for the forthcoming data analysis are mapped in Figure 4-1 Theoretical lenses and categories for analysis of qualitative data.
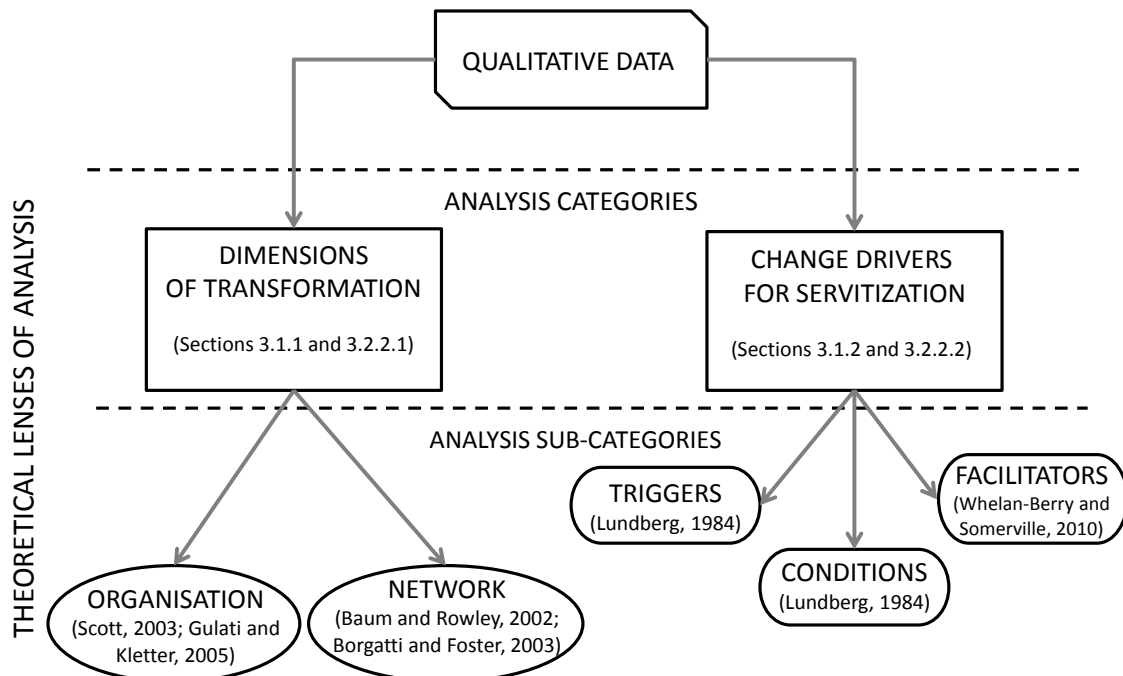


**Figure 4-1 Theoretical lenses and categories for analysis of qualitative data**

In summary (Figure 4-2), the conceptual model proposes that servitization takes place within the manufacturing company but also across a network of stakeholders, whereby the servitizing organisation and its network are closely interconnected. It is important to note, however, that while a manufacturer's network appears to be an integral part of servitization, this study is carried out from the perspective of a manufacturing company that attempts to servitize. Next, the model sets to identify the dimensions of transformation, i.e. the variables within the servitizing organisation and within the network that constitute the transformation. Lastly, three groups of change drivers classified as triggers, conditions, and facilitators are empirically investigated.
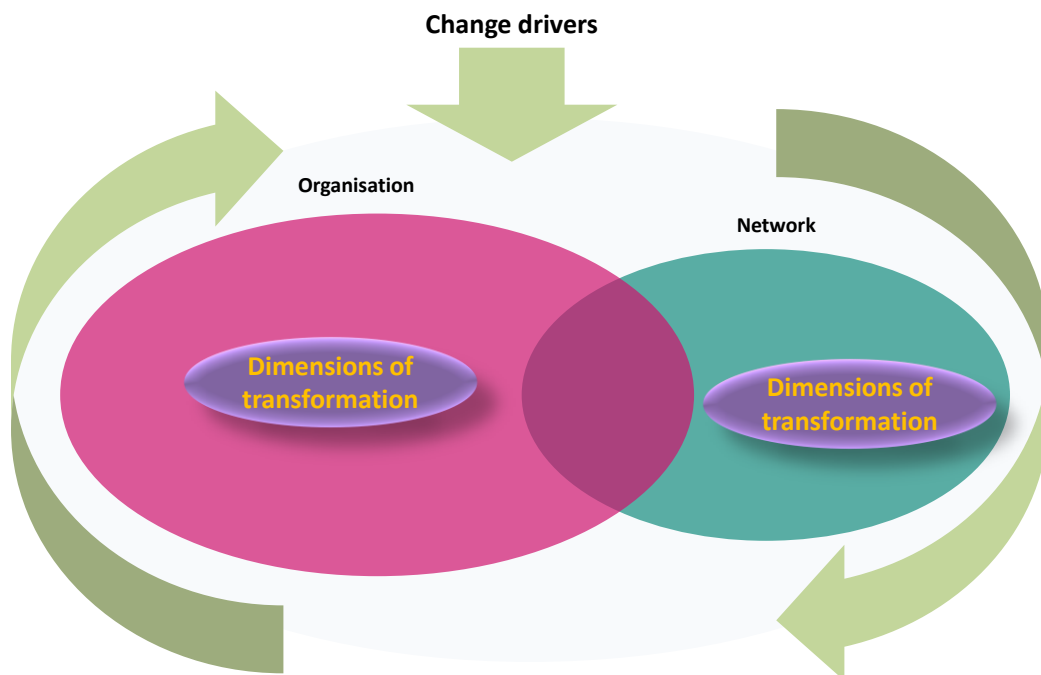
**Figure 4-2 Conceptual model**

## 4.2 Research questions

Based on the findings from the literature review and the conceptual model devised in this chapter, four research questions are set out to investigate the servitization of manufacturing. The first question relates to establishing the

challenges which manufacturers are confronted with when they undergo the transformation into a product-service provider. This leads to the second question, which investigates the dimensions of change in servitization. The third question deals with the driving forces behind the servitization phenomenon. The fourth, and last question, takes a pragmatic stance on the successful introduction of services in manufacturing firms.

- **Research Question 1: What are the challenges that manufacturing companies have to overcome to become servitized organisations?**

Since *the challenges* is already a predominant theme in the servitization literature, this research project is set out to move the academic discussion forward, obtain a comprehensive holistic view of the obstacles which manufacturers experience during servitization, as well as gather empirical evidence to identify key sets of challenges to manufacturing firms that undertake servitization.

- **Research Question 2: What are the dimensions of transformation in the servitization of traditional manufacturers?**

This question stems from the previous one, as certain challenges to servitization reveal the components of change that servitization brings to manufacturing. In order to define the dimensions of transformation that manufacturing organisations undergo during servitization, the research strives to uncover what areas and aspects of the manufacturing business experience change when services are integrated into the company offerings.

- **Research Question 3: What are the change drivers for servitization?**

The purpose of this question is to reveal the forces driving the servitization phenomenon, and tackles a number of issues. Namely: why do manufacturing companies servitize, i.e. what triggers manufacturing organisations to consider services as part of their businesses; under what conditions can servitization thrive; and what factors facilitate the actual implementation of the new service direction?

- **Research Question 4: How can manufacturers manage servitization better?**

It has been established from the literature that servitization is a challenging and uncomfortable change. Furthermore, organisational change and transformation theories suggest that there is no one best way of managing change. The purpose of this research question, therefore, is to learn from the findings from the previous three questions, and develop guidance for industry practitioners on how servitization can be managed better, i.e. with less risk and disruption than it is currently observed.

In summary, this chapter built on the literature review presented in the previous one, and a conceptual model for further empirical work was devised. Four research questions for conducting the research were formulated.

# 5 DATA COLLECTION AND ANALYSIS

This chapter briefly reflects on the overall study and the adopted research design in Section 5.1, before it proceeds further with the empirical findings in the following Chapter 6. The approach to data collection and procedures for data analysis are outlined in Section 5.2 and Section 5.3 respectively.

## 5.1 Reflection on the study

The previous chapters of the thesis so far introduced the problem and the aim of the research. The research methodology developed for the study was outlined. Literature relevant to this research across the fields of servitization, organisational change and transformation, and organisational theory was reviewed and synthesised. This led to the development of a conceptual model for transformation towards a servitized organisation. The research questions guiding the study were derived.

This section provides a 'quick factsheet' about the study summarised in Table 5-1. The purpose of this reflection is to give the reader the key features of this study, and to provide the link between the theoretical and the empirical parts of the research.

**Table 5-1 Overview of the study**

| Research aim |
| --- |
| • To increase understanding of the transformation that traditional manufacturers undergo to become servitized organisations; whereby traditional product-centric manufacturing organisations which focus on the manufacture and sale of products embrace a service orientation to become providers of integrated products and services. |
| **Research questions** |
| • *RQ1:* What are the challenges that manufacturing companies have to overcome to become servitized organisations? <br> • *RQ2:* What are the dimensions of transformation in the servitization of traditional manufacturers? <br> • *RQ3:* What are the change drivers for servitization? <br> • *RQ4:* How can manufacturers manage servitization better? |

| Philosophical perspective |
|---|
| • Critical realism. |
| **Research methodology** |
| • Research strategy: engaged scholarship. |
| • Research design: variance, exploratory, qualitative, theory building. |
| • Research method: multiple case studies, action research, focus groups. |
| • Sampling logic: manufacturing organisation, cross-industry, multi respondent, senior management level (President; Vice-President; Chairman; Chief Executive Officer; Managing Director; Director; Head/Manager of Department). |
| **Data collection and analysis** |
| • Data collection:<br>  o **5 case studies**: total number of interviews 49: 22 archive interviews (Phase I) + 27 interviews (Phase II) + 1 intervention/action research (Phase II), and<br>  o **2 focus groups**: total number of expert participants 63: 41 participants in focus group 1 (Phase I) + 22 participants in focus groups 2 (Phase II):<br> • Data analysis technique: within-case thematic conceptual matrix; cross-case conceptually ordered meta-matrix (Miles & Huberman, 1994). |

## 5.2 Data collection

Gathering of data for this research took place between June 2009 and September 2011. An overview of the data collection is presented in Table 5-2. The two main empirical approaches were case studies and focus groups. Excerpts from original data gathered for this research are shown in Excerpts from original data gathering in Focus group 1 and Excerpts from original case study data.

## 5.2.1 Case studies

The multiple case study research used several data collection techniques. Namely, semi-structured interviews, archival content, and action research were employed in this study. Interviews were the main source of data; supplemented with archival data, and company reports. In addition to the interviews, one intervention was carried out by the researcher. Five case

studies were conducted altogether: one in Phase I and four in Phase II of the empirical part of the research. Specifics of the case studies are described below.

Phase I of the research utilised content analysis of archival interview transcripts and company reports for the ServJet case study. Kripendorff (2004) claims that content analysis is "potentially one of the most powerful techniques in social science". Neuendorf (2002) suggests that the methodology of content analysis is best applied to textual matters, e.g. written and transcribed words. Content analysis of archival transcribed interviews was also considered for this case study due to the richness of the data available on the topic of the thesis in the interviews and company documents.

Data collection in Phase II of the research utilised semi-structured interviews to provide the flexibility needed to explore the under-researched phenomenon of servitization. Semi-structured interviews are widely used in qualitative designs. Robson (2002) recommends that semi-structured interviewing should have predetermined questions but the order can be modified based upon the interviewer's perception of what seems most appropriate. Additional questions can also be posed which further explore the response to the predetermined questions (Robson, 2002). The interviews in this research followed a protocol based on the emergent themes in the literature and the preliminary findings in Phase I of the empirical research (see Appendix B). The protocol was used flexibly in order to encourage the emergence of data relevant to the research, hence, some probing questions were asked during the interviews. Semi-structured interviews were conducted at ABC Remanufacturing Services, ServPrint, MAN Truck & Bus UK Ltd, and Vitsœ.

In the case of MAN Truck & Bus UK Ltd, the interviews were carried out in a team of multi-disciplinary researchers from Cranfield University. Hence, in addition to the interviews, the author took part in subsequent peer debriefs and discussions. As suggested by Van de Ven (2007), this allowed the

researcher to gain additional perspectives on the case from the other interviewers.

In the case of Vitsœ, following an initial round of interviews, a diagnosis of a specific problem at the organisation was done. It prompted action from the researcher to solve the diagnosed problem in a collaborative manner with the participating company. This intervention allowed the researcher to revisit theory and to apply knowledge from previous field work in a new setting as advised by Miles and Huberman (1994).

In all case studies, consent for the interviews to be recorded was obtained from all participants in the interviews. The interviews were subsequently verbatim transcribed. All participants in the study were ensured anonymity. In the cases of ServJet, ABC Remanufacturing Services, and ServPrint, the real names of the organisations were changed for this thesis in response to the requests for confidentiality by the participating companies.

Further description and detail of each case study is provided in the following chapter (Chapter 6).

## 5.2.2 Focus groups

This research also incorporated two focus groups as a means of knowledge production and collaborative inquiry between academic experts and industry practitioners where the author was a participant observer. According to Robson (2002) participant observation occurs in particular groups where the researcher becomes a part of the 'thing' that is being observed. Data collection group processes were devised prior to each event and reflected the maturity of the research. Each data gathering event took the form of a workshop where a group data gathering process was structured as suggested by Van de Ven (2007); data were recorded on workshop sheets and personal notes, and subsequently transcribed.

**Table 5-2 Data collection overview**

| Data collection event | Industry | Country represented | Data gathering | Duration of the study |
|---|---|---|---|---|
| Phase I: Empirically informing the research | | | | |
| **Focus group 1** | Defence Transport Steelmaking Water Cable | UK Ireland Italy France USA | 41 Participants Participant observation Workshop sheets | June 2009 |
| **Case study A** ServJet | Aerospace | UK | 22 Archive interview transcripts | October 2009-January 2010 |
| Phase II: Building new knowledge | | | | |
| **Case study B** ABC Remanufacturing Services | Remanufacturing | UK | 4 Semi-structured interviews Company reports Industry reports | June-July 2010 |
| **Case study C** ServPrint | Document imaging equipment manufacturing and document management | UK | 7 Semi-structured interviews Company press releases | May 2010-February 2011 |
| **Case study D** MAN Truck & Bus UK Ltd | Commercial vehicles and transport | UK | 12 Semi-structured interviews Company reports | November 2009 – June 2011 |
| **Case study E** Vitsœ | Design furniture manufacturing | UK | 4 Semi-structured interviews Action research Company documents Company website | June-August 2011 |
| **Focus group 2** | Defence, Construction and mining, Commercial vehicles and transport, Commercial refrigeration, Oil & Gas equipment, Laundry, Home appliances, Document imaging equipment and document management | Italy Switzerland UK Germany | 22 Participants Participant observation Workshop notes | September 2011 |

In summary, this research was based on a total number of 49 interviews and supported by various company documents: (i) 27 interviews were conducted during this study which generated over 500 pages of transcripts and (ii) further 22 archival interview transcripts exceeding 400 pages made part of the research. The two focus groups in the study held a total number of 63 participants who were different from the interviewees in the case studies. All recorded interviews were verbatim transcribed, using a professional transcription service. All workshop sheets and notes from the two focus groups, action research and observations were transcribed by the author.

## 5.3 Data analysis

The data analysis process followed Miles and Huberman (1994) and Yin (2009) guidance on tabulating, displaying, and analysing qualitative data obtained from interviews, archival records, action research and participant observation. All interview transcripts, supporting documents, and personal notes were imported and coded using NVivo 9.0 software. The purpose of using NVivo was to allow the management of a large volume and variety of qualitative data which was characteristic for was this study. Data was analysed by case for the identification of emerging patterns through the theoretical lenses established in Chapter 4 (Figure 4-1). As shown in Figure 5-1, the 183 emergent themes from the individual case data were grouped thematically, according to whether they are related to a 'component' of change that would constitute dimensions of transformation or to a 'force' of change, i.e. change drivers for servitization. A process of clustering was undertaken, based on the instances of coding in the seven individual studies, which resulted in a total of 92 sub-themes.  A further round of clustering led to the emergence of the final 50 themes: eleven dimensions of transformation (seven related to the organisation and four to the network), and thirty nine change drivers for servitization (eight triggers, seventeen conditions, and fourteen facilitators). Summaries of the individual within case data analysis displays, and the cross-case data analysis display are presented in Chapter 6 and Chapter 7 respectively.

QUALITATIVE DATA
Interview transcripts
Workshop sheets
Action/observation notes
Company documents

EMERGING THEMES
183 'components' and
'forces' of change

DIMENSIONS
OF TRANSFORMATION
104 themes

CHANGE DRIVERS
FOR SERVITIZATION
79 themes

ORGANISATION
22 sub-themes

NETWORK
11 sub-themes

TRIGGERS
11 sub-themes

FACILITATORS
26 sub-themes

CONDITIONS
22 sub-themes

7 final
themes/
labels

4 final
themes/
labels

8 final
themes/
labels

17 final
themes/
labels

14 final
themes/
labels
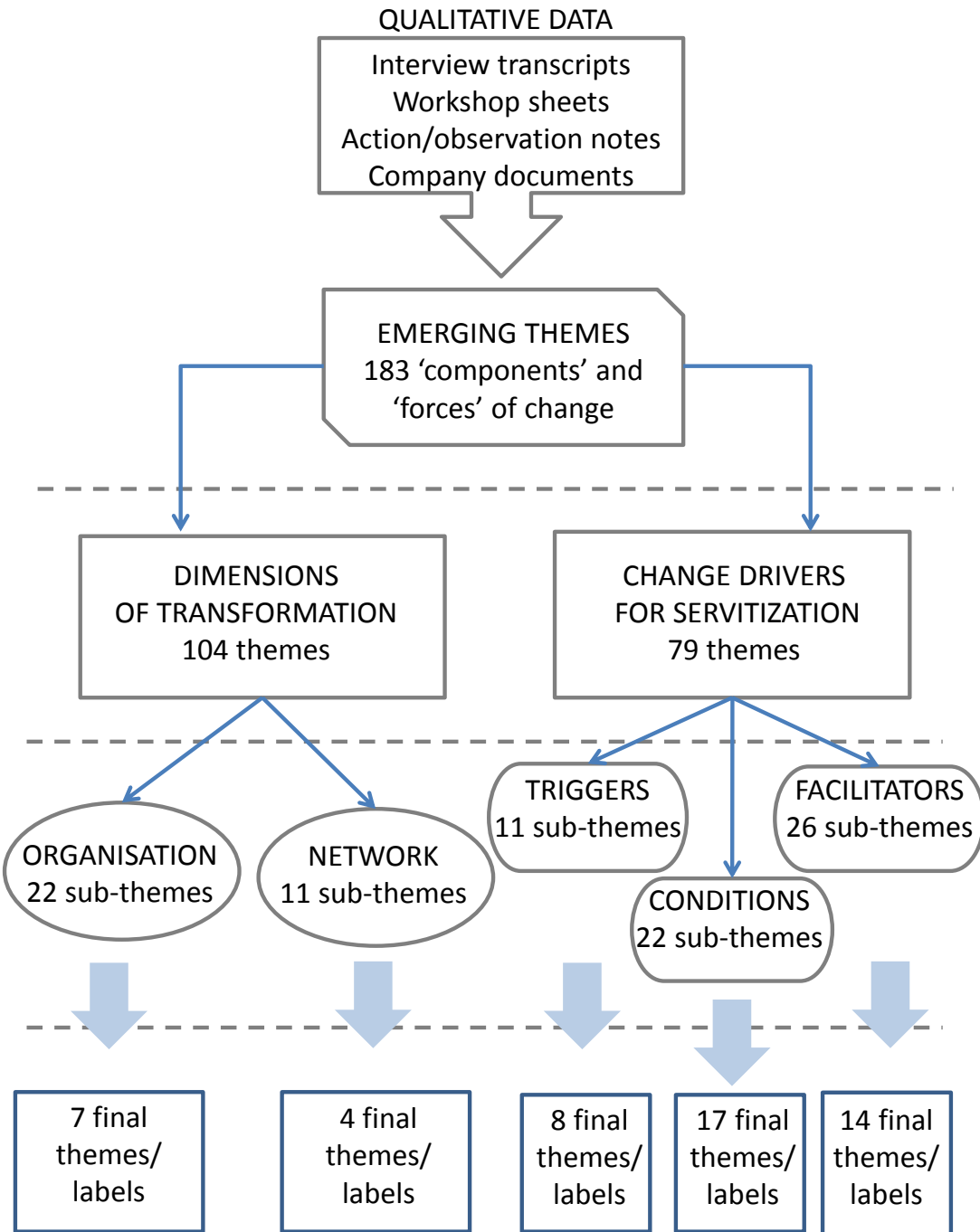
**Figure 5-1 Thematic clustering**

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The data analysis went through several levels of data reduction. In line with the research design, it followed variable-oriented data analysis techniques for individual case analysis, and for cross-case analysis of multiple cases, as suggested by Miles and Huberman (1994). First, within case analysis was performed for each of the seven individual studies in this research. Narratives for each case and focus group were developed. Second, each case data analysis was summarised and displayed in a thematic conceptual matrix (Miles and Huberman, 1994). Third, a variable-oriented cross-case analysis was performed, and data was organised in a conceptually ordered meta-matrix (Miles and Huberman, 1994). Summaries of the individual within case data analysis displays, and the cross-case data analysis display are presented in Chapter 6 and Chapter 7 respectively.

The data analysis in this study was carried out in parallel with the data collection, and the process of data analysis involved a continuous interplay between theoretical ideas and empirical evidence (Van de Ven, 2007). The analysis of the data focused on the identification of emerging themes and patterns. However, each individual study was framed and written through the lens of the conceptual model devised in Chapter 4. The data analysis went through numerous iterations, as advised by Van de Ven (2007), in order to achieve clarity of concepts and labelling.

The author, throughout the entire process of data collection and data analysis, made every attempt to conduct the research in a systematic and rigorous manner. The quality and validity of the research in this thesis are discussed in more detail in Chapter 7.

## 5.4 Data collection and analysis challenges

The process of data collection and analysis in this research has not been immune to some of the typical challenges of such studies; in particular, the following aspects should be noted.

### 5.4.1 Data collection challenges

Firstly, securing access to top level management of servitizing large high-value manufacturing organisations was a major obstacle throughout the duration of the research. Initial introductions and exploratory interviews were conducted with four large high-value manufacturing firms, leaders in their industries, namely, in spacecraft manufacturing, submarine manufacturing, train manufacturing and transport, and steelmaking. While interest was expressed, and initial access was offered by the companies, subsequent access for performing case studies was not granted.  As a result, the exploratory data collected at these potential case study companies did not make part of this study due to its incompleteness.

Secondly, securing access to the case study companies included in the study proved to be time consuming and inconsistent. The data collection faced certain scheduling challenges whereby rescheduling of interviews by participants was not an exception in the process. Moreover, some collaborating companies (in particular organisations market leaders in their respective industries) had certain reservations in terms of disclosing information. This ultimately had an impact on the overall number of interviews performed. As a result, in those organisations fewer people were interviewed than the researcher would have preferred. The other collaborating companies, however, allowed extensive access and assisted with scheduling the interviews in their organisations.

### 5.4.2 Data analysis challenges

Despite the difficulties in securing access to senior level managers in some manufacturing firms, the researcher was able to gather a large volume of rich qualitative data obtained from interviews performed at the case companies which took part in this study; from archival interview transcripts; workshops sheets; company documents and reports, as well as personal contextual observations and action. Managing and analysing such a large volume and variety of data posed its own challenges. For example, in the process of data

analysis a set of 16 interviews were judged to have no sufficient value to the research and were left out of the final analysis due the lack of quality data in them, i.e. no confirmative or rejection data was found in them. Hence, these interviews did not make part of the study.

Throughout the entire data collection and analysis process, therefore, the researcher had to balance sufficiency and richness, as well as quantity and quality of the data in order to produce comprehensive results within the timeframe of the research.

In summary, this chapter links the theoretical and the empirical parts of the study. It reflected on the key features of the study before it moves to the outline of the data collection and data analysis procedures followed, and challenges in this process. The next chapter presents the findings from the two empirical phases of the research.

# 6 FINDINGS

This chapter presents data analysis findings obtained from a series of seven empirical studies in two phases of the research: (i) empirically informing the research, and (ii) building new knowledge. The findings for each study are presented individually in line with the research design. Each study produces an empirically derived structure of themes and subthemes.

## 6.1 Phase I: Empirically informing the research

Phase I of the research was conducted in parallel with the literature review and the development of the conceptual model presented in Chapter 4. The purpose of this part of the study was to empirically inform the research and clarify concepts found in theory while building the conceptual model for transformation towards servitized organisations. Phase I of the research provides a deeper understanding of the two main themes emerging in the servitization literature on 'challenges' and 'drivers' as discussed in Chapter 3 (Section 3.1). Firstly, challenges to the servitization of manufacturers were tackled in a focus group study. Secondly, change drivers for servitization were identified through content analysis of interview data.

### 6.1.1 Focus group 1[4]

For the purpose of this study, the researcher took the role of a co-organiser, facilitator, and participant observer of an international workshop entitled "Transformations towards servitized organisational forms" in which 41 industry practitioners and academics from the UK, Ireland, Italy, France and the USA took part. The industrialists represented companies which had achieved a certain level of servitization or were considering a shift towards services in their organisations from the following high-value manufacturing industries: Defence,

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[4] This study was published as: Vladimirova, D., Evans, S., Martinez, V. and Kingston, J. (2011), "Elements of change in the transformation towards product-service systems", in: *Functional Thinking for Value Creation, Proceedings of the 3rd CIRP International Conference on Industrial Product Service Systems (IPS2)*, Technische Universität Braunschweig, 5-6 May, 2011, Braunschweig, Germany, p. 21-26.

Transport, Steelmaking, Water and Cable. The academic participants were active researchers in the field of servitization and product-service systems. The purpose of gathering this panel of experts was to obtain experience-based insight from the practitioners in a collaborative learning community with diverse perspectives. The main research question posed in the workshop was:

*What are the challenges in transforming an organisation from a product-oriented into a servitized one?*

The panellists were divided into four groups and tasked to discuss and answer the research question. Each group had the same ratio of academic vs. practitioner representation to minimize influence and bias, and had to identify and prioritize the most relevant and critical challenges to servitization. All groups then reconvened in a panel form to discuss the findings in light of the criticality and frequency of these challenges. The group discussions and the panel discussions were typed and coded by the author, and finally the qualitative data from the workshop were analysed through an inductive approach. Findings were presented back to a selected group of participants to check their validity.

**Challenges in the transformation towards servitized organisations**

The workshop yielded a long list of 147 challenges and a short list of 15 top challenges, which included duplicate concepts in the groups' results. Analysis of the data showed that collectively the four groups ranked the following nine challenges as the most critical to the successful shift to a product-service mode of business: Service culture, Customer, Contract, Value, Supply chain, New product-service offering, Service delivery system, Performance measurements, and Service risk. The Service culture category appeared in all four groups' short lists of top challenges and the Customer challenge appeared in three out of the four groups' short lists of most critical factors. The remaining seven challenges were only found once in the short lists. Therefore, it can be argued that the participants weighted Service culture and Customer as being the two most critical factors in the transformation of a traditional manufacturer towards a servitized organisation. The rest of the top challenges appear to be of a

somewhat lesser importance to the transformation outcome, albeit, still making it into the collective top challenges list. Analysis of the original participants' lists of challenges was conducted, in order to outline the characteristics for each of the top challenges (Vladimirova et al., 2011d). Excerpts from the original data gathering are presented in 8.5Appendix A.

*Service culture*

The shift of organisational culture from features-led to value-based and from technology-led to service-oriented is a major challenge in the process of transformation of the manufacturer into a servitized organisation. Legacy of product-based organisations can inhibit service thinking. There is a historic lack of trust for information sharing among various functions within the organisation. The original equipment manufacturers' functional strength inhibits service responsiveness and agility. Service delivery predisposes a different operating environment, for example different working hours. Changing the mind-set of people and integrating the two cultures: of product and of service, is part of the transformation. In conventional manufacturing organisations, engineers generally still hold an 'invention' or technology perspective, and are not interested in support. Moving away from core technical strengths to understanding service performance excellence can be difficult. Products have to be designed with a customer perspective and in view of the future product support and total cost of ownership. The mind-set shift affects not only the engineering functions, but also sales and marketing. A change of culture takes place within their organisation but it can also affect its customers. Customers can find the shift of ownership challenging, as they move from owning the product to using the service and can fear loss of control over assets and decisions.

The change of mind-sets can be facilitated by a clear strategy and strong commitment of organisational leadership; training and developing new skills; by financial incentives and reward motivation. The mentality change can also be facilitated with improved and continuous communication between units of the

company and outside stakeholders. The emerging service culture has to be then protected and supported throughout the entire transformation.

*Customer*

The customer poses a special set of challenges during servitization. The manufacturer has to build a new type of relationship with its customers - a relationship which is a dynamic partnership - in order to take the customer on the transformation journey. Services require, but also enable, closer customer relationship. However, this new relationship involves continuous collaboration, improved communication, and better understanding of customer's requirements. Lack of knowledge about customer processes and product lifecycle at customer locations, a narrow communication channel to the customer, as well as the traditional slow speed of the provider's response in the provision of services can be difficult to resolve. The provider has to recognise the diversity in the customer needs which the product-service offering can potentially meet, and use methodologies and tools to identify customer needs which can be addressed and translated into a service proposition. The manufacturer also has to realize that the product is the start, not the completion of the offering and re-orientate from designing a product into thinking along the customer perspective. Involving the customer in the actual design and development of the product-service system, and better understanding of how product, service and client interrelate to form a part of a system, can facilitate the transformation to a less product-centric organisation. The new product-service offering has to be affordable for the customers who also have to be convinced that they are receiving "value for money". The manufacturer has a role to educate the customer, and the market if needed, as it is important to demonstrate to the customer the value of the integrated product-service offering and translate that into the contract.

*New product-service offering*

Designing and managing the new combined product-service offering is part of the organisation's transformation. The manufacturer has to identify and quantify

a profitable service opportunity, define the right level of service and build the business case for the new offering. Service innovation is critical, as some manufacturers could lack the commercial imagination to go beyond warranty support and maintenance. Convincing various stakeholders of the organisation and defining the scope of their involvement in the development and the delivery of the new offering can be difficult. Understanding the value of the new offering requires gathering information, obtaining new knowledge, capturing and analysis of product data which can bring new knowledge management issues. The manufacturer has to overcome the static view of the product and begin to consider the complete product life cycle and changes to product design may be required. A balance between product features and services should be sought, as well as better understanding of the capabilities of the organisation to offer the most suitable product-service offering. As the company moves from product management to service management, it is also important to integrate the new offering with the existing processes within the organisation.

*Value*

Understanding, assessing and communicating the value of the new product-service offering to internal and external stakeholders are critical for the successful transformation towards servitization. The provider has to identify and quantify the value from a potential service offering. It is often challenging to define the business case internally in the organisation and to incentivize product development teams to appreciate the value from service provision. A new value management approach has to be established where the provider develops the capability to understand the full value chain in service and co-create value with the stakeholders. Measuring and communicating the value of the new product and services offering to the customer are critical.

*Contract*

The manufacturing company has to establish a new contract that delivers and enables the service element of the offering. The nature of service requires a closer relationship with the customer, which often enables and leads to the

establishment of trust between the provider and the customer. Therefore, a new relationship governance type of contract has to be designed and agreed with the customer for the provision of the combined product-service offering. The existing product sales contract is inappropriate for service delivery as it normally contains product incentives and penalties related to the volume of product sales, and does not contain sufficient information on new sharing of responsibilities. It is also important that the provider understands the contract performance measures and the risk prior to signing a service contract.

*Service delivery system*

The traditional manufacturer has to set up a service delivery system in order to deliver the new product-service offering. The challenge is to overcome the rigidity of the existing infrastructure and traditional processes and establish a new system and new processes for service delivery. This requires certain reorganisation and typically involves creating new organisational structures where the manufacturing company has to define and position a service unit into the organisational chart, and structuring a service network. The provider also has to create an 'account management' structure in the service unit as the customer facing function of the business. Lack of experience in service delivery can be costly and influence the company's bidding success. The sales force, therefore, has to develop new service-related skills and account management competencies which can be a large training and education load. Communication and cross functional integration within the company are important to align the various functions in the company to deliver the new product-service offering. Once established, the new service delivery system should not be viewed as a static capability but as one that is capable to adapt over time to accommodate changes in the service value provision.

*Supply chain*

The supply chain has to be restructured and new relationships established for the delivery of the new product-service offering. The provider needs a better understanding of its suppliers as the supply chain has to be structured and re-

aligned for the delivery of the service element of the offering. This increases the complexity of the relationships in the supply network and creates a shift of power towards the suppliers. As a result, new governance mechanisms, incentives and performance indicators have to be put in place. The manufacturer has to move away from the "one off" transaction attitude towards suppliers, to developing a relationship for a long-term future collaboration.

*Performance measurements*

The transforming manufacturer has to quantify and measure the impact of the new product-service offering to the organisation. The shift from 'product' to 'service' measures of success requires a new set of financial criteria. The traditional manufacturer needs clear objectives and growth projections for the new combined products and services sales. New key performance indicators have to be established along with metrics for business performance. The company's accounting principles have to reflect the new pay structure and incentives for the sales force, as well as consider the influence of technology and account for upgrades. In addition, new criteria also have to be incorporated in the new contract.

*Service risk*

Servitization can impose certain risks to the traditional manufacturing company, and the outcome of transformation can be determined by the organisation's risk averseness. The company first has to establish an appreciation of the potential benefits and risks involved in the transformation towards services. The financial impact on the organisation's performance has to be assessed and measured and new capabilities to measure risk have to be developed. The new product-service offering requires an investment that has to be quantified and sourced within the organisation. The costs involved in the transformation have to be identified and the right pricing of the new offering has to be established. In the long term, the manufacturer faces the challenge of losing revenue from its product sales. In the marketplace, the transforming manufacturer can face

competition from established service providers or, in some cases, start competing with its own customers.

**Summary of findings**

In this focus group study, nine themes emerged from the analysis of the data to show the most critical challenges to servitization a summary of which is presented in Table 6-1. Two of the nine themes were identified as the most critical challenges to servitizing manufacturers: 'service culture' and 'customer'. Firstly, the manufacturing firm has to move away from its traditional product-centric culture and develop service thinking and value-based service culture in the organisation. Secondly, the manufacturing firm has to develop new knowledge and understanding of its customers, and establish closer relationships with them.

The outcome of the transformation of a manufacturer towards a servitized organisation is also determined by overcoming a further set of seven challenges. The manufacturing company has to develop a new integrated product-service offering; define and communicate its value proposition; set up the right contract to reflect the new offering and the new relationship with the customer; create an integrated system to deliver the service; bring in new metrics and measure performance; and manage the risk that comes with the introduction of services in the company.

**Table 6-1 Thematic conceptual summary for Focus group 1**

| Challenges | Characteristics |
|---|---|
| **Service culture** | • Shift organisational culture from product to service and from features-led to value-based.<br>• Change mindset of engineering, sales and marketing functions.<br>• Overcome legacy to develop service thinking and environment.<br>• Develop new operating environment that is more responsive and agile.<br>• Devise clear servitization strategy.<br>• Demonstrate leadership commitment.<br>• Set up training programmes to increase change awareness and enhance service sales skills.<br>• Encourage mentality change with financial incentives.<br>• Protect emerging service culture. |
| **Customer** | • Establish a new relationship of dynamic partnership with the customer.<br>• Recognise customer needs and understand customer processes and requirements.<br>• Adopt a customer perspective and involve the customer when designing the product and the new service.<br>• Collaborate continuously and improve communication with the customer.<br>• Educate the customer and demonstrate the value of the product-service offering. |
| **New product-service offering** | • Identify and quantify profitable service opportunity.<br>• Build the business case for the new offering and define the right level of service.<br>• Innovate for service to go beyond warranty support and maintenance.<br>• Engage various stakeholders in the development of the new offering.<br>• Understand the value of the new product-service offering.<br>• Change product design to consider the complete product lifecycle if required.<br>• Establish balance between product features and service.<br>• Integrate the new product-service offering with existing processes. |

| | |
|---|---|
| **Value** | • Identify and quantify the value from the product-service offering.<br>• Define the business case and incentivise the organisation internally to appreciate the value from service.<br>• Establish a new value management approach to understand the value chain and co-create value with stakeholders.<br>• Communicate the product-service system value proposition to the customer. |
| **Contract** | • Develop a new contract to deliver and enable the product-service system.<br>• Design a relationship governance type of contract to enable the new relationship with the customer.<br>• Establish service-based incentives in the contract.<br>• Understand performance measures and risks prior to signing the contract. |
| **Service delivery system** | • Overcome existing infrastructure rigidity.<br>• Establish new system and processes for service delivery.<br>• Create and position a service unit in the organisation.<br>• Create an account management structure in the service unit.<br>• Develop new service-related skills and account management competencies.<br>• Boost internal communication and cross functional integration.<br>• Manage information flow, data capture and analysis. |
| **Supply chain** | • Improve understanding of company's suppliers.<br>• Develop new relationships in the supply chain.<br>• Restructure / re-align the supply chain for the delivery of the new product-service offering.<br>• Establish new governance mechanisms, incentives and performance indicators in the supply network. |
| **Performance measurements** | • Measure the impact of the product-service system to the organisation.<br>• Develop new financial criteria and performance measures.<br>• Set new sales projections and objectives to reflect sales of service.<br>• Adapt accounting principles to reflect new pay structure and incentives for the sales force. |
| **Service risk** | • Assess organisation's risk aversion.<br>• Understand the potential benefit from the product-service system.<br>• Quantify the costs involved and invest in the transformation.<br>• Price the new product-service offering correctly.<br>• Assess and measure the financial impact of the product-service system on company's performance.<br>• Manage competition from established service providers and/or own customers. |

## 6.1.2 Case study A: ServJet[5]

ServJet is an Original Equipment Manufacturer that designs and manufactures high-value capital equipment for the aerospace sector. Over the past couple of decades ServJet has transformed itself from a lossmaking firm into the world's second-biggest maker of large jet engines. The company currently operates globally and generates over 50% of revenues from the provision of services that are closely coupled to its products. ServJet started its servitization in the early 2000s in response to customer demands. In doing so, it deliberately blurred the lines between making things and offering services. Its revenues almost doubled in the decade. The company has made significant progress and is at a relatively advanced stage of servitization for a traditional manufacturer. In particular, the company has convinced its customers to pay a fee for every hour that an engine runs, promising in turn to maintain it and replace it if it breaks down. The service is provided with or without transferring the ownership of the engine to the customer. The idea is not unique, but ServJet has been offering this service for more than a decade; more than half of its engines in service are covered by such contracts, as are about 80% of those it is now selling (Martinez et al., 2011).

For the purpose of this case study (Vladimirova et al., 2011c), the researcher conducted content analysis of archival original transcripts of interviews carried out at ServJet by a multi-disciplinary team of academic experts in a wider Product-Service Systems programme (Cranfield University, 2007) with the objective of developing a deep understanding of servitization in international manufacturers of complex engineered products. The author analysed the interview data through the lens of the three categories of change drivers -

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[5] This study was published as: Vladimirova, D., Evans S. and Martinez, V. (2011), "Change drivers for transformation towards product-service systems", in: *18th International Annual EurOMA Conference "Exploring Interfaces"*, 3-6 July 2011, Cambridge, UK.

This study was partially published in: Martinez, V., Kingston, J., Evans, S., Gaiardelli, P., Raffoni, A., Vladimirova, D. and Claes, B. (2011), *Organisational transformation for effective delivery of integrated products and services: thoughts on practice*, Cranfield University, Cranfield, UK.

triggers, conditions, and facilitators - from the conceptual model set out in Chapter 4. Findings were presented back to a selected group of experts who conducted the interviews at ServJet to check their validity.

**Change drivers for servitization**

*Triggers*

In the case of ServJet, the servitization journey was initiated by a combination of change drivers. The forces that triggered the transformation were the customer frustration by escalating costs of purchasing the products over time, and identifying a business opportunity in services by the company, as captured in the following quotes:

> *"We've got lots of customers who are now so [annoyed] that we have to do it, maybe that's what it takes." (ServJet, Repair Engineering Manager)*

> *"The idea that we can act as an enabler for other people to do business, and can share in the money flows... well, there's something we can do here." (ServJet, Services Innovation Manager)*

*Conditions*

The conditions which had an impact on the outcome of the servitization of ServJet emerging from the data are presented next and supported with the most relevant quotes from the interviews.

The new product-service offering was developed in response to unmet business needs:

> *"[The new offering] came about because of business need." (ServJet, Operations Centre Manager)*

The senior managers of the company recognised a degree of readiness and willingness in the organisation to endure the change which they utilised to progress the transformation:

*"In the last six months I've seen more change and we're just going for it.... I've seen more change in the last six months than I've seen in the last five or six years." (ServJet, Repair Engineering Manager)*

The company, however, was struggling with its organisational growth and often lacked the resources in the servitization process.

*"We are now a global company and we are going through huge growing pains, I mean absolutely enormous growing pains, we are struggling, our supply chains are struggling… There's never enough assets to do what you want to do." (ServJet, Repair Engineering Manager)*

The change for enabling the product-service offering started off as too radical and adjustments had to be made in order for the organisation to cope with it:

*"A guy who came from [another company] with the intent that he was going to create integrated services...and basically it was a transplant company objective, his proposals were too radical, they cut across too many territorial and emotional boundaries into ego positions and that doesn't work in ServJet, so he was basically crushed." (ServJet, Human Resource Manager)*

The organisation had to overcome its engineering legacy and traditional slow speed of adopting change.

*"I think it was traditional ... ponderously slow in the way that we did things… we were I think the grade we are, extremely, legacy, heritage, dominated company, we look back as often as we look forward, everybody knows we're 104, 105 years old and there is an awful lot on legacy." (ServJet, Human Resource Manager)*

The threat from losing customers and from competitors exploiting the value of the new combined offering was another condition that created pressure for the company:

*"We were the victims of the increased reliability and quality of our product... We needed to ensure that our competitors couldn't come in*

*and steal the value or exploit this value and we just needed to be close to our customer." (ServJet, Human Resource Manager)*

External pressures from customers to reduce the through life costs and internal financial pressures became precipitating conditions to the shift towards integrating products and services:

*"What the customer wants is reduced cost of ownership through life and availability...There were internal drivers which was the need to make more money and pull strings to fund these hugely expensive R&D programs that were like 5 and 6 billion pounds each." (ServJet, Human Resource Manager)*

The organisation encouraged change in shared beliefs whereby design engineers and manufacturing engineers had to change their perspective on designing not only for performance but also in a cost effective manner:

*"That was a big push from ServJet as in to get design engineers and manufacturing engineers together to say, don't just design it to perform fantastically design it so that we can actually make it more cost effective." (ServJet, Service Operations Director)*

***Facilitators***

The drivers that emerge to have facilitated the implementation of the change at ServJet are the following.

Engaging with the customer was critical for the development and the delivery of the new product-service offering. The personal experience of the service alongside with the customer was important to increase the understanding of the customers and their needs.

*"We went to the 'head of the snake'." (ServJet, Services Innovation Manager)*

*"I think if this organisation is ever going to be able to integrate with our customers we've just got to talk like a customer does." (ServJet, Customer Services Manager)*

Senior management realised that the transformation of the company into a product-service provider was a large-scale change and should not be taken lightly. Hence, planning for the implementation of servitization was important for its success.

> *"This whole question of change, you cannot deliver a services business of the scale and the volume that we have now as a hobby, as an enthusiastic hobby, it needs to be a thought out, equally determined adequately resourced and effectively organised and managed business activity and that requires elements of giving up resource and ownership and opportunity because it is a growing part of the business." (ServJet, Human Resource Manager)*

In the process of change implementation, the company had to reduce the complexity that it had created in designing and developing the product-service offering.

> *"We've moved on in capturing all these design characteristics...but you've probably over done it as in you've lost the simplicity of, you know you've got all this data, all this analysis against the gated process that's not a gated process and the time goes like that, you know the engineer hasn't got the time." (ServJet, Service Operations Director)*

Commitment from the leadership and the employees of the servitizing organisation was another facilitator in the transformation.

> *"You need the seniors to see that it's important and if they don't - they are traditionally focused on the old product attributes, the performance, cost and weight and you need to tell them that reliability, maintainability and repairability are important... I think it's ownership, I make it my business to make these sessions work because they're my responsibility... When push comes to shove and the heat's on and you've still got to promise you'll finish the design - so that cultural change of getting everyone on board and understanding this ethos and*

*the behaviours associated with that, I think that's still a challenge."*
*(ServJet, Human Resource Manager)*

*"Obviously you try and, as a leader of change there's one other thing you have to adopt behaviour which is lead by example." (ServJet, Service Operations Director)*

Establishing a channel of communication and the flow of information throughout the organisation was necessary in order to convey feedback from customer to the engineering function.

*"The customer facing areas have not spent enough time and know enough about how they get the voice of the customer back in the engineering function, they are both guilty of living in the here and now quite parochially and that will change." (ServJet, Human Resource Mananger)*

The servitizing organisations had to integrate its functions and align its structures and processes.

*"[We have] a small but very effective and influential core team that is working to share best practice, to ensure some system integration of process... We need an integrated co-ordinated owned services business that has all the skills and resources needed to deliver, whereas previously customer interface is a very good customer business, the technical variance and technical from resolutions embedded in TS&O technical services and operations, the aftermarket compact management embedded in the aftermarket, the point service engineers were embedded in customer services management, so it was all over the place and it only came together at far too high a level." (ServJet, Human Resource Manager)*

Setting up a company-wide training programme on the issues of the organisational transformation was also a driver for successful servitization.

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*"By the end of this year we'll have 3.5, maybe 4,000 people for a one day training program and we're now looking at the next generation of that...We developed a culture change program with an education communication training based around those four behaviours but the culture change program started with the burning platform, why do we need to change, why is this important, what's happened, what's different that we need different behaviours, then there was this obviously education and communication that we rolled out using the existing internal comms and government training." (ServJet, Human Resource Manager)*

**Summary of findings**

Three sets of change drivers emerged from the analysis of the data, which were classified as triggers, conditions and facilitators for servitization. A summary of the findings is presented in Table 6-2. In the case of ServJet, the transformation from a manufacturer into a servitized organisation was carried over a period of ten years. Triggered by the customer frustration at escalating costs of purchasing the products over time, and by identifying a business opportunity in services, ServJet developed its service side of the business in response to unmet business needs. The conditions that further determined the outcome of the transformation at ServJet were the organisation's readiness and willingness to endure change; the natural growth of the organisation, and availability of resources in the servitization process; the degree of radicalness of change; overcoming company's engineering legacy and traditional slow speed of adopting change; the threat from competition and from losing customers; pressures from external and internal stakeholders; and the change in shared beliefs among engineers of the importance of service.

The change drivers that facilitated the implementation of change at ServJet were continuous engagement with the customer; planning for the implementation of change; simplifying company's processes and the new product-service offering; leadership and employee commitment; establishing a channel of communication and flow of information throughout the organisation;

aligning and integrating existing and new functions and processes; and setting up a company-wide training programme on the issues of the organisational transformation.

**Table 6-2 Thematic conceptual summary for Case study A: ServJet**

| Categories | Change drivers for servitization |
|---|---|
| **Triggers** | • Customer frustration<br>• Identifying a business opportunity in services |
| **Conditions** | • Unmet business needs<br>• Readiness and willingness to change<br>• Organisational growth<br>• Availability of resources<br>• Radicalness of change<br>• Speed of change<br>• Degree of threat to the organisation<br>• Stakeholders pressure<br>• Change in shared beliefs |
| **Facilitators** | • Engaging with the customer<br>• Planning<br>• Reducing complexity<br>• Commitment of leadership and employees<br>• Communication and information flow<br>• Alignment of structures and processes<br>• Training |

## 6.1.3 Phase I: Implications for the research

Prior to summarising the findings, it must be emphasised that the results of Phase I of the research should be treated as tentative. This part of the study has given a preliminary insight of challenges and drivers for servitization. The scope and purpose of the two enquiries conducted in this phase were aimed at empirically informing the research and clarifying theoretical concepts emerging from the literature. However, the findings from Phase I of the research contributed to the cross-case analysis presented in Chapter 7 in order to increase the comprehensiveness and qualitatively derived richness of the

research, and achieve a more complete understanding of the phenomenon of servitization.

The results show that manufacturing firms have to overcome a number of challenges in order to become providers of integrated products and services. Developing a service culture, and new understanding and relationship with its customers emerge to be the two most critical factors in the transformation of a traditional manufacturer towards a servitized organisation. Furthermore, the manufacturing company has to develop a new integrated product-service offering; define and communicate its value proposition; set up the right contract to reflect the new offering and the new relationship with the customer; create an integrated system to deliver the service; bring in new metrics and measure performance; and manage the risk that comes with the introduction of services in the company.

It was found that servitization can be triggered in a number of ways. Customer frustration and uncovering the business opportunity of services emerge to be triggers for organisational transformation. The outcome of the servitization efforts of a traditional manufacturer are determined by the organisation's readiness and willingness to endure change; the natural growth of the organisation, and availability of resources; the degree of radicalness of change; the threat from competition and from losing customers; external and internal stakeholders' pressures; and the change in shared beliefs in the company. The implementation of change is facilitated by engaging with the customer; planning for the implementation of change; simplifying company's processes and the new offering; leadership and employee commitment; overcoming company's engineering legacy and traditional slow speed of adopting change; establishing a channel of communication and flow of information throughout the organisation; aligning and integrating existing and new functions and processes; and setting up a company-wide training programme on the issues of the organisational transformation.

After completing Phase I of the empirical research, the author re-examined the collective findings on challenges and drivers for servitization from the literature

and from the two empirical enquiries. The following was concluded at the end of this phase of the study which had implications for Phase II of the research.

In their essence, the concepts of 'challenges' and 'drivers' represent factors (or variables) which contribute to the outcome of servitization either negatively or positively. The use of the two concepts in the servitization literature, however, has not been clear-cut as previously discussed in Chapter 4 (Sections 4.1.4 and 4.1.5). Some of the challenges identified in the Focus group 1 empirical study could be classified as drivers. For example, performance measurements are typically considered to be drivers of change (Bititci, 2007). These two concepts, therefore, required further elaboration and distinction.

This opportunity for clarification implied that higher level of conceptual sophistication could be achieved in the next phase of the empirical research. More specifically, in Phase II of the research the variables found to contribute to the outcome of servitization would be divided and categorised into:

(i)     components of change that constitute the dimensions of transformation in the organisation and the network during servitization; and

(ii)    forces of change, i.e. change drivers for servitization further classified into triggers, conditions, and facilitators.

In summary, Phase I of the empirical research advanced the conceptual model devised in Chapter 5 by adding further clarity to the categories in the model which became the lens for analysis of data in Phase II of the empirical study.

## 6.2 Phase II: Building new knowledge

Phase II of the empirical research is focused on building new knowledge towards the development of the Model for transformation towards servitized organisations. Three case studies (ABC Remanufacturing Services, ServPrint, and MAN Trucks and Bus UK Ltd), one intervention/action research (Vitsœ), and one focus group study were conducted to develop dimensions of transformation, and change drivers for servitization. Through this phase of the research, data analysis was conducted in parallel with data collection and underwent numerous iterations. This equipped the researcher with an extensive set of findings for further field research.

Each case study is presented in the following format. The study first lays out the industrial environment within which each of the studied companies operates. The intention of this description is to demonstrate various industrial contexts of servitization, and to comply with the cross-industry intent of the research. This is followed by a description of the organisation and the transformation it has undergone, or is currently undergoing, to become a servitized organisation. The intention of this description is to include in the research companies at different stages of their servitization journey, and to demonstrate compliance with the case sampling logic explained in Chapter 2. The case study findings are then outlined to reveal the themes emerging from the analysis of the data. The analysis of the data is conducted through the lens of the conceptual model developed in Chapter 4. Relevant quotes from interviewees and participants are provided in support of the findings. The results are presented individually for each case in line with the research design for within-case analysis and display in this phase of the research.

### 6.2.1 Case study B: ABC Remanufacturing Services[6]

**Industrial context: Remanufacturing**

Remanufacturing is considered to be the "ultimate form of recycling" (TRI, 2011), whereby a used product is returned to at least original-equipment-manufacturer performance specification, and the resultant product is given a warranty that is at least equal to that of a newly manufactured product (Sundin et al., 2009). Remanufacturing operations can produce a part for much less and most are sold from between 45% and 65% of new parts price, which makes the remanufacturing industry a very profitable venture as parts can be repaired and brought to "like new" condition for a significantly lower cost (Adler et al., 2007). Remanufacturing industry is estimated to be worth £5 billion per year in the UK and has been identified as a potential major contributor to sustainable development (OHL, 2004). However, the actual practice of remanufacture is limited and still generally a niche practice with a small number of leading high profile global remanufacturers like General Electric, Boeing, Caterpillar, John Deere, Xerox, Navistar, IBM and Flextronics that have created business models in which capital goods remanufacturing is an integral part (Giuntini and Gaudette, 2003; Gray and Charter, 2007).

Remanufacturing is described as a product-related service, and shows potential as a business model for "green" servitization, whereby, in addition to direct sale of the product, the provider offers services related to the use phase, e.g. maintenance, extended warrantees, financing, supply of consumables, and take-back (USEPA 2009).

**The organisation: ABC Remanufacturing Services**

Company ABC is one of the world's largest producers of construction and mining equipment and has been remanufacturing its products since the 1970s. Its global remanufacturing business is currently one of the largest in the world in

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[6] This study was partially published in:
Martinez, V., Kingston, J., Evans, S., Gaiardelli, P., Raffoni, A., Vladimirova, D. and Claes, B. (2011), *Organisational transformation for effective delivery of integrated products and services: thoughts on practice*, Cranfield University, Cranfield, UK.

terms of volume. Remanufacturing Services has become one of ABC's fastest growing divisions with annual revenue reputedly growing at 20% a year, and accounts for 15% of ABC's revenue.

ABC Remanufacturing Services was originally part of the Company ABC as an internal product support unit where it provided product support to machines within the organisation. The remanufacturing function was considered a side line and something the company had to do until management realised it represented a hidden business opportunity. The internal unit then got involved in other industries and OEMs outside its main industry, and evolved into a different business which became a separate profit centre, and a separate organisation with a separate strategy. Currently, it is a separate division within Company ABC and a substantial business in its own right with significant global turnover, and significant resources. The transformation from an internal support unit into a separate servitized organisation was carried over ten years, and the organisation has become biased towards external services as opposed to internal services. During the transformation, the company has acquired specialist skill sets and areas of expertise in other businesses and other sectors. By acquisition, it has gone into new sectors like automotive and rail, for example, while at the same time internally it developed investment in terms of capital and facilities. Currently, ABC Remanufacturing Services commands a global service delivery system, which delivers from a local solution for local componentry to truly global solutions which require complex logistics and reverse logistics, a variety of routes to the different markets, and expertise in different local legislations (Martinez et al., 2011).

The subject of this case study is ABC Remanufacturing Services' organisation. The company describes itself as "almost 100% servitized", in the words of one their top managers. The company does not differentiate between products and services and defines its offering as completely integrated remanufacturing solutions.

**Dimensions of transformation in the Organisation**

Four themes emerged from the analysis of the data which define the dimensions of transformation within the servitizing organisation. In order to become servitized, the company has had to develop a completely integrated product-service offering, acquire new capabilities, establish an integrated service delivery system, and embrace sustainability.

*Integrated product-service offering*

The company describes what it offers to its customers as "fully integrated remanufacturing solutions" which range from the production of an individual remanufactured component through to a complete end to end solution for remanufacture of the customer's own components range. The offering is highly customisable and the company is open and flexible to the different types of customers, and their varied business needs. The offering can be a small (weighing less than a kilogram) remanufactured part directly to an end user; or it can be a remanufacturing solution for a range of products either on a global or a territorial basis for a multinational company.

There is no actual differentiation between the 'product' and the 'service' because remanufacturing only works if the company has the logistics and the administrative support behind the production. In that sense, the product-service offering can be considered completely integrated, certainly at the large corporate solutions end.

*Capabilities*

In order to become able to deliver its integrated product-service offerings to outside customers the company has acquired specialist skill sets and areas of expertise in other businesses and other sectors. By acquisition, it has gone into new sectors like automotive and rail. At the same time internally ABC Remanufacturing Services has developed investment in terms of capital and facilities. The company has had to develop new capabilities in terms of setting up physical facilities and acquiring new knowledge in order to become able to deliver the integrated product-service offering to outside customers.

*Service delivery system*

The company has realised that remanufacture is not only dependent on the capability to make the product but it is the complete package where some of the hardest pieces are the administration and the processes behind it. The challenges of offering a remanufacture solution are in terms of the technical product and the entire system to remanufacture, i.e. the support services, the infrastructure, the management of core process, inspection definition. All of these challenges had not existed before when there was only internal support product, and the company has had to find a way of integrating these capabilities. The transformation from an internal product support unit towards a remanufacturing services business has become successful as the company has found the synergy fit in terms of the industry, the component, the technical capability, and aligned those elements to their existing experience and expertise to create an integrated service delivery system.

> *"…the one that fits right in the middle is the integrity of a system that works, what constitutes a pass/fail rate on a component. The whole element of repatriation of the component, how you handle it, how you get it through from a customer in a machine, on a jobsite, in a geographical territory right the way through a dealership, inward shipping, logistics, inspection to a specific facility specialising in a certain area that's quite a cumbersome process." (Commercial Director, ABC Remanufacturing Services)*

*Sustainability*

Sustainability is at the core of remanufacturing; and remanufacturing is at the heart of sustainable manufacturing. Regulatory requirements are driving recycling, and remanufacture is part of that process by definition. Sustainability is driven by meeting recyclability standards in terms of efficiency and wastage of raw materials, e.g. mineral extraction. In remanufacture, the necessity to extract raw materials to put into steel works, as well as the waste of energy that goes in the produce the raw material itself, are eliminated. Therefore, going

'green' has been inherent in the development of the remanufacturing services business.

**Dimensions of transformation in the Network**

In this case study, the most critical dimension of transformation in the network of the servitizing organisation emerges to be the 'customer'; in particular the interpretation of customer needs by the company in order to develop its new product-service offering, and the customer relationship.

*Customer*

In the early days of remanufacturing at Company ABC, remanufacture was an internal service in support of the company's own products. While still a service to internal customers, it has also become a globally marketed third party solution to other customers. The company has effectively taken the business opportunity to develop the product offering into a competitive service which has enabled the business to offer an alternative to new components, and to prevent displacing customers.

Remanufacturing services are not considered to be attracting new customers, but to be making sure that the company has an equivalent competitive product-service offering to stop them going to competitors. The offering is highly customisable and the company is open and flexible to the different types of customers, and their varied business needs. The customer is given a choice between a new component with a new warranty and a remanufactured product at a lower cost but with a reduced warranty. This challenge, however, is outweighed by the advantage of providing customers with a cheaper alternative which prevents them from looking for that cheaper alternative somewhere else, and retaining them as long-term customers.

Customer relationship is another aspect of the 'customer' dimension of transformation. At ABC Remanufacturing Services, customers are often referred to as partners. It is said that in the process of servitization the company has developed a number of partnerships with "very willing partners" and have established a relationship of trust with them. Other relationships are established

on a pure commercial basis where the driver is purely financial. The depth of the customer relationship depends on the customer organisation, the extent of the remanufacturing process provided, and the ability and the structure of the partner organisation.

## Change drivers for servitization

### Triggers

In the case of ABC Remanufacturing Services, two change drivers emerge to have triggered the servitization transformation. Namely, uncovering a hidden opportunity in services and realising its economic potential and environmental regulations.

### Identifying a business opportunity in services

The transformation of the organisation from an internal support services function into a separate cost unit, and finally a separate company, was triggered by identifying a business opportunity and realisation of the economic benefits from offering a lower cost competitive solution supporting the company's own products. As new-equipment orders were falling amid a plunge in the industrial economy, revenues and profits from services continued to climb and management realised that this handful of ancillary factories represented a hidden opportunity.

### Environmental regulations

Apart from the economic potential of services, environmental regulations have also been a critical driver for servitization. While regulations can be a barrier in new product manufacturing, in remanufacture regulations are actually a trigger of the process as remanufacturing provides an environmental solution to regulatory requirements.

### Conditions

The conditions which have had an impact on the outcome of the transformation of the internal product support unit into a remanufacturing services business have been the tendency of the organisation to grow; utilizing advancements in

technology; lack of competition; overcoming negative market perception of remanufacture; and provision of continuous quality to customers.

*Organisational growth*

The natural organisational growth of the business has been a condition for successful servitization. Company ABC constantly looks at continued growth and expansion. It acquired various businesses inside and outside its sector and the natural evolution has been to provide support to those allied sectors. The continued expansion in additional products, territories, further customer bases, as well as becoming "smarter" in terms of new technologies and new processes, and capitalising on regulatory requirements have established the conditions in which the remanufacturing services business can thrive in the form of a separate organisation ABC Remanufacturing Services.

*Technology advancement*

Technology advancement has been another enabling condition and right at the forefront of developing the remanufacturing services business as evident from the following quote:

> *"…the capability's evolving all the time because new processes and new technologies are coming along which didn't exist ten years ago, so in terms of the ability to actually do things that we couldn't before, that's always changing. Recent examples are cold plasma spray, for example…So technology is a differentiator and it's right at the forefront of it." (Commercial Director, ABC Remanufacturing Services)*

*Lack of competition*

Lack of competition has further driven the positive outcome of the servitization efforts. ABC Remanufacturing Services has a series of competitors operating in specific industries on a regional or semi-global basis, but not of the same footprint. The lack of significant competition has enabled the company to reach its current state of "almost 100%" servitized.

*Market perception*

The organisation has had to overcome the market perception of what remanufacturing is and turn that perception around by providing and original warranty, or a complete end to end solution. In the past remanufacture has been seen as a lower cost way to provide a similar component. However, what the company actually offers is totally different, i.e. the remanufacture of a component back to its original state. In other words, the component is not repaired, it is not a make-do component, or a second rate component; it is a fully remanufactured component back to its original tolerances, original warranty and original state 'in every shape of the word' and that was used by the company to change the perception of the remanufacturing.

*Quality*

Quality is another important condition, and a key differentiator in remanufacture. Quality is the one factor that defines whether the company provides repair, rebuild or remanufacturing services. Only if it has the right quality, the company can stand behind it with the right warranty; and only with the right warranty it can differentiate and sell its offering. It is said that quality goes about everything that the company does, i.e. quality of the process, quality of the system, quality of the engineering, and not only the remanufacturing of the component.

**Facilitators**

Several change drivers have emerged from the data which have facilitated the implementation of the service direction at Company ABC. These include a clearly defined strategy, methodical planning, commitment from top management, and performance measurements have played critical role for the outcome of the transformation.

*Service strategy*

Company ABC had a very clearly defined service strategy in support of its own products. When it decided to take the internal services to third party companies and set up a remanufacturing services business, there was a clear strategy in

terms of product fit, synergy of operation, synergy of technology, capability and the type of companies that would be approached.

*Planning*

The company has implemented this strategy through methodical planning. It applies regimented gateway reviews, regimented disciplines from commercial, marketing, planning, operational and engineering. The remanufacturing services business utilises Six Sigma, and every individual project has a Six Sigma scope where the analysis is from the ground upwards, with very clear timelines and gateways, and allocation of resources within various skill sets.

*Top management commitment*

The transformation towards a remanufacturing services business evolved over a period of ten years, with various group presidents during that time. There has not been one single project manager, but a team-led approach from an existing system within the mother company.  It has been a team effort at a director's level and continuous commitment from top management.

*Performance measurements*

The company builds risk analysis and assessment into every single project in each sector, as part of its project plans. Each project plan contains six gateways, and each gateway includes a series of risk assessments such as commercial risk assessment, market acceptance assessment, and repatriation. The company has developed a comprehensive suite of performance measurements which go beyond measuring profit and loss to ensure the successful delivery of its offering.

**Summary of findings**

Several key findings are drawn from this case study, a summary of which is presented in Table 6-3. The transformation of an internal product support unit at Company ABC into an independent remanufacturing services business organisation ABC Remanufacturing Services was a large-scale change which was carried over a period of ten years. It was originally triggered when a side

line remanufacturing function uncovered a hidden business opportunity, and the company had to meet certain environmental requirements. The service unit evolved into a different business which became a separate profit centre, and a separate organisation with a separate strategy, turning into a separate division within the mother company, and a substantial business in its own right with significant global turnover, and significant resources.

The transformation towards a servitized organisation in this case, went through five critical dimensions: four within the organisation and one in its network. Firstly, the new remanufacturing services company developed a completely integrated product-service offering which ranges from the production of an individual remanufactured component through to a complete end to end solution for remanufacture of the customer's own components range, and which can be customised to individual customer needs. Secondly, in order to be able to deliver this offering, the company had to acquire new capabilities in terms of facilities and skills. Thirdly, it developed an integrated service delivery system whereby the solution goes beyond the making of the technical product to the entire capability to remanufacture. Fourthly, sustainability and environmental concern have been inherent in the development of the remanufacturing services business.

Remanufacturing services are offered to internal customers, but also globally marketed as third party solution to other customers, which prevents those external customers from switching to cheaper competitive providers of lower cost solutions. Interpretation of customer needs, and establishing and maintaining partnerships with customers have been critical for the development of the remanufacturing services business.

The conditions that enabled the transformation are the organisation's growth, advancement of technology for remanufacture, lack of competition, overcoming negative market perception of remanufacturing, and sustaining quality of organisation's processes and service delivery. The change was implemented through a clearly defined service strategy, methodical planning, commitment from top management, and effective use of performance measurements.

**Table 6-3 Thematic conceptual summary for Case study B: ABC Remanufacturing Services**

| Dimensions of Transformation | | Change Drivers for Servitization | | |
|---|---|---|---|---|
| Organisation | Network | Triggers | Conditions | Facilitators |
| **Integrated product-service offering**<br>• completely integrated products and services<br>• end-to-end solution | **Customer**<br>• customer needs interpretation<br>• provide customers with alternative cheaper solution<br>• retain customers for long-term<br>• develop customer relationships<br>• customers as partners<br>• build trust | **Identifying a business opportunity in services** | **Organisational growth**<br>• organisational expansion<br>• doing things smarter | **Service strategy**<br>• clearly defined strategy for the future of the service business |
| **Capabilities**<br>• acquisition of skills and expertise<br>• investment in facilities and knowledge | | **Environmental regulations** | **Technology advancement**<br>• utilisation of new technologies and processes | **Planning**<br>• methodical planning and project management |
| **Service delivery system**<br>• integrate structures, functions and processes | | | **Lack of competition**<br>• no competition on the same scale | **Top management commitment**<br>• team effort at director's level<br>• continuous commitment |
| **Sustainability**<br>• recyclability, efficiency and elimination of wastage | | | **Market perception**<br>• overcome negative market perception | **Performance measurements**<br>• comprehensive suite of metrics |
| | | | **Quality**<br>• of components, engineering, processes | |

## 6.2.2 Case study C: ServPrint

**Industrial context: Document imaging equipment and document management**

It has been estimated that the UK market for document imaging equipment was worth £2.23 billion in 2010, after increasing by 13.4% over a 5-year review

period; a further 12.9% growth is expected between 2011 and 2015 (KeyNote, 2011a). This growth is driven by a number of factors: rise in volume sales, as companies begin to replace older, out-dated models with newer versions; as well as rising input costs, which push up the price of peripheral equipment (KeyNote, 2011a). In addition, over the past decade, the industry has been going through a transformation whereby major players are moving from product development and sales into the sphere of asset management. As companies begin to reign in their spending and look for new cost effective ways of managing their offices, as a way of cutting costs, many opt to rent otherwise expensive machinery or outsource some of their business processes and document management (KeyNote, 2011a). As a result, traditional technology-led and product-centric document imaging equipment manufacturers like Hewlett Packard, Canon, Epson, and Xerox are looking into ways of serving their customers better, and expanding the services side of their business.

**The organisation: ServPrint**

Once a purely technology-driven manufacturer of copying and printing machines, DocuServ has been recently accelerating its services business. The company has seen faster growth of its services by expanding globally and diversifying its offerings. As a result, more of its total revenue now comes from services than technology. In 2011, the company's revenue from services grew by six per cent and reached 48% of the total company revenue. This has largely been achieved through strategic and niche acquisitions of service businesses.

DocuServ is a global company with a large and complex organisational structure. The unit of analysis for this case study is the division which is defined as DocuServ's office group, and named ServPrint for this case study. ServPrint is a part within the DocuServ organisation that focuses on office-based solutions. It mainly sells products and some services, and the related supplies. The products range from small desktop printers that are under $200 through to high-value sophisticated multi-purpose devices which are sold almost exclusively on an indirect channel based model through resellers. ServPrint's product-service offering is based around a payment per page model, called

PagePack, for the way in which the customer uses the equipment or pays for the printing that is carried out by the equipment.

ServPrint began their transformation towards selling services that surround the equipment and complement the way in which the equipment provides its output in the early 2000s. These services have grown very slowly over an eight-year period; and were said to grow slightly more vigorously at the time of the interviews for the case study were conducted. Servitization is said to be currently an area of focus for the company.

**Dimensions of transformation in the Organisation**

In the case of ServPrint, the transformation of the organisation from making and selling printing equipment towards providing integrated products and services has occurred through three critical dimensions: defining and conveying the value proposition, developing new capabilities in the organisation, and building and maintaining an integrated service delivery system.

*Value proposition*

ServPrint's value proposition is providing cost benefits to customers. By purchasing a printer and all of the related services at the same time, the customer receives considerable reduction to the cost of buying the individual elements. Typically the customer is offered to buy a printer at a reduced price while also signing a contract that provides all of the other elements of producing print (excluding paper). The contract can include a mixture of the ink and toner that the customer will need, all of the service, any other automatic service parts that are required, and maintenance. A customer could possibly save 30-90% of the cost of running the equipment on a traditional model. Furthermore, a customer is confident that all of the service and consumables will be bought from ServPrint and not from alternative third party suppliers.

Despite the clear financial benefits to the customer, the challenge for the company is how to convey the value proposition more effectively. This includes educating their customers, partners and sales teams about the benefit to both the customer, but also to the reseller channel:

*"There are difficulties in conveying the value proposition around why it's worth making this change, what is the benefit to both the customer and importantly the reseller because both of them have to have a benefit if the message and the sale is to be transferred out to the market. So there are value proposition issues…" (Interviewee, ServPrint)*

One way of addressing this challenge has been to simplify the way in which the value proposition is communicated, i.e. putting forward the simpler elements of the value proposition, and leaving the more complex pieces until a sale has been started. Another approach has been allowing customers to 'test' the cost benefits of the value proposition in an interactive web tool that allow visitors to see very quickly what sort of savings or benefits they might be able to achieve by changing to a PagePack mode of doing business.

*Capabilities*

ServPrint has had to develop a set of new capabilities in order to be able to deliver its services successfully. One way of achieving this has been through acquisition of businesses which brought some unique technologies that allowed ServPrint to go down the route of services. Furthermore, the acquired companies brought into the business a different range of skills and knowledge, which have been particularly important for sectors of the market where ServPrint did not have as much experience. The acquired businesses brought a strong niche capability in their part of the marketplace which has been a key factor to enabling the servitization process to develop, and to achieve customer acceptance.

In addition to developing capabilities through acquisitions, ServPrint has had to develop internal capabilities through its own human capital. The company has set up 'country champions' within the organisation, and trained a number of people to become specialists in the sale of the service, even though they were not actually selling the service. Their job has been to champion services to the company's partners. The country champions would go out and train the

partners, making the first service sale alongside the partners so that they become confident and familiar with the process. Setting up this capability within the organisation has proven to be critical for servitization. However, it has also been one of the most difficult to sustain because keeping the skill level and transferring the skills as people move roles has proven to be a very difficult.

*Service delivery system*

ServPrint has a very unique service delivery system which is made of its concessionaire channel of the company's mono-brand resellers, multi-brand independent resellers, and ServPrint's own functions. The mono-brand resellers are tied entirely to ServPrint, and in many instances they are run by the company's former sales people. These resellers have a very close relationship with ServPrint, and often with its customers. Based on this longstanding trust relationship, they are able to understand and convey the complexity of the value proposition of PagePack. The mono-brand resellers are also trusted enough by the customers to try the product-service offering out for the first time and find out whether it actually does work for them, and therefore, it is worth developing further. The other side of the channel is constituted of multi-brand resellers, e.g. companies like Amazon. The multi-brand resellers have a completely different approach which is a very low customer touch, and a transactional relationship. Generally they do not have a relationship with the customer in the sense of knowing what the customer is trying to achieve. While the product-service offering is sold and measured by a reseller (mono- or multi-brand), the print calculation and setting up the contract lies with ServPrint. Furthermore, the delivery of the service and the provision of all of the ancillary products, like the toner, etc. are also done by ServPrint.

ServPrint has realised that in order to move from selling products to selling integrated products and services, the company has to integrate these various players and parts within its organisation, which are quite comfortable operating entirely separately, into an integrated product-service delivery system. The challenge has been to ensure that the existing structures work together, and understand that any changes they make have implications on the other parties.

ServPrint has identified that in order to achieve integration and better information flow in the system, their resellers have to improve their ability to capture information and feedback from customers. ServPrint has also considered bringing in new players, or a fourth party, into the product-service delivery system to improve the flow of information and administer the service delivery.

**Dimensions of transformation in the Network**

Changing the customer perspective and setting up the right contract for each customer emerge to be the two critical dimensions of transformation in the network of ServPrint.

*Customer perspective*

ServPrint's customers for PagePack are principally small and medium sized businesses. These businesses typically do not have a very big population of print equipment within their organisations, and they are not refreshing it on a very regular basis.  Furthermore, they don't have a specialist within their company who knows about photocopying and printing, the cost and the relative variations in the way in which they might manage that portfolio and the costs. Therefore, the ability of customers to understand the benefit of the change in adopting ServPrint packages, the risks associated with it, and how to mitigate these risks is significantly reduced. On the other hand, ServPrint's sales channel has the knowledge, but does not necessarily want to take the risk which makes the transformation on the customer side more difficult to achieve. Although ServPrint has had some success with changing their customers' perspective, it has not had the level of success it would have expected when it started out down the track of servitization eight years ago. This makes the 'customer' dimension of the transformation a critical challenge which is yet to be carried through completely in order to achieve a shift of customer's mind-set.

*Contract*

The contract emerges to be another critical dimension in the servitization of ServPrint. In order to set up a contract, the company has to estimate print

volume and amount of ink to be used by the customer. The company works hard to ensure that calculations of use for each customer are made effectively at the outset. The danger of not setting the right contract for the customer at the beginning is that instead of saving money, they can find that they have to pay for a mass of printing that was not included in the contract. It is not always an easy balance to strike, especially when the modelling and the selling has to be done well by a reseller.

It is an interesting finding, however, that once set up correctly, the contract emerges to be an effective factor in building up trust with the customer without having to have previous depth of relationship between provider and customer. It is said that in the case of ServPrint, the contract defines the relationship with the customer:

> *"The contract is what's driving the relationship…absolutely."*
> *(Interviewee, ServPrint)*

Therefore, the company considers the possibility to establish more trust with the customers with greater openness and transparency of the modelling and the estimates built into its contracts.

**Change drivers for servitization**

*Trigger*

*Opportunity for differentiation*

ServPrint has identified an opportunity to differentiate its offering from its competitors and set out to provide extended services in addition to its printing equipment. An opportunity for differentiation emerges to have triggered the transformation which has been further defined by the conditions and facilitators discussed here.

*Conditions*

In the case of ServPrint, the outcome of the transformation towards a servitized organisation is said to be defined by a number of conditions, namely quality of service, previous service expertise in other parts of the company, certain

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technology advantages, and the market perception of integrated products and services offered by traditional manufacturers of printing equipment.

*Quality of service*

The quality of the service emerges to be a critical condition for the outcome of the servitization of ServPrint, and a factor that was strongly emphasised during the conducted interviews. However, providing continuous quality of service has also been a challenge for the company. From customers' perspective, if they have all services prepaid, then they should have less down time when a machine breaks down. The customer has bought and expects to receive ink or toner whenever they require it to be provided on an order basis at no cost; an engineer to be available to come and fix any repairs as and when they occur again without any cost; and the standard maintenance of the product to be planned and done in a regular manner. However, the quality of providing that service by ServPrint has been an issue particularly whilst maintaining or reducing the cost of those service elements. The company has gone through a process of trying to drive costs down by finding lower cost provisions which has led to bad customer experiences. From the company's perspective, quality of service is the most critical driver because without providing it their own sales people are reluctant to offer the product-service package.

> *"…of all the issues that I've come across, the one that I've seen the most resistance created by is the quality of service." (Interviewee, ServPrint)*

*Previous service expertise*

An enabling condition for shifting the business from selling printers to offering PagePack has been the company's already competitive position, and a strong background in service-based offerings in other parts of the DocuServ organisation, e.g. photocopier business. As a result, the company has adopted in their smaller printer business, some physical mechanisms for measurement of print and ink quantities, and has been able to calculate service package costs vs. the charge customers would normally bear in buying the physical

replacement of the equipment. Although other competitor manufacturers have now caught up, for quite a long time ServPrint had the ability to do something that would not be a standard process in the equipment manufacture approach. It is said, therefore, that the company's previous service expertise gained in other parts of the business has been a strong, early stage enabler.

*Technology advantage*

Technology has been another enabling condition for the servitization of ServPrint in two aspects. Firstly, the company has developed some unique product features for the process of ink delivery in its machines which is unique to ServPrint. Although these unique product features apply to part of the product range, it is considered very important because it is one of the most profitable parts of the company product range. With these unique product features, ServPrint has not had the same level of competition from other manufacturers; which allowed the company to develop a profitable value proposition in a marketplace without alternative service provisions. It is said that unique product features have allowed the company to be able to proceed faster and have less competitive pressure in the process of servitization.

Secondly, ServPrint has adopted a health monitoring system for its printing equipment which provides feedback on the state of the equipment. In order to drive the transformation and continue to provide additional value as part of the new service model, ServPrint has developed a range of software based tools for the customer. These tools automatically help the customer to know that the requirement for more ink or toner is coming up, which they can set to auto order, and the delivery arrives before they have run out of supply. Similarly, ServPrint has a system which is on the servicing side of the equipment, and which monitors the machine state and calls out service assistance without it actually getting to the stage of having a fault.

Both of these technologies are not necessary for the service provision, but by having them the company enhances the value, and therefore the reason why a customer would transfer from a product-based to a product-service offering.

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*Market acceptance*

ServPrint's pay-per-page offering initially endured a rather sceptical acceptance in the market which is best described by the following quote:

> *"..If you bring something completely new to the market, then people want to know what the catch is, because in theory, they will save a lot of money by doing this, but if you go, well actually, if you say I can save a lot of money by doing it, why aren't your competitors doing this? It's quite a difficult question to answer." (Interviewee, ServPrint)*

The company has realised that they were the first, and possibly too early in the market whit this offering. From a market point of view, not having the dominant player (a ServPrint competitor) sending any similar messages in the marketplace, meant that there was a much lower acceptance and awareness of the ServPrint product-service offering. ServPrint was selling something that was new, and there were no comparisons. Furthermore, PagePack was launched in a market where the print equipment manufacturers have traditionally made their largest profit from selling consumables, and hence, were reluctant to move into services quickly. The general market acceptance, therefore, is said to be an important condition for the outcome of the company's servitization efforts.

### Facilitators

The drivers that emerge to have facilitated the implementation of the change at ServPrint are correct pricing of the product-service offering, effective communication, and training of the sales force.

*Pricing*

ServPrint has faced pricing issues around how the company establishes the right price positioning for the product-service offering compared to the same product without services wrapped around it, and without changing the positioning of that product with the service compared to other products in the portfolio. The company has been very wary of potentially destroying part of its overall price model by bringing in products that have a change (service) to them

which therefore effectively change the total cost of ownership. This pricing challenge, however, has been addressed with a tiered model for pricing, i.e. introducing three and four tiers of consumption levels and prices. By having tier pricing, the company can differentiate quite effectively what it is offering and why this is different from buying the equipment and all of the support that is required to meet various customers' printing needs:

> *"..by having the tiering it helps to clarify with people: Okay, well you could be at …let's say base cost minus 15% if you were printing up to 2000; if you were printing up to 4000 you might be at base cost minus 20%, so it starts to, if you like, break away from the fact that this is different from buying the equipment." (Interviewee, ServPrint)*

*Communication*

Effective communication is said to be a key driver in the implementation of the product-service offering, however, it is still a challenge to be overcome. This includes conveying the value proposition to customers in an effective manner by the sales force, in particular the resellers' sales force. Furthermore, the speed and ease of the flow of information, and the ability to communicate quite large amounts of information in a secure, straightforward, and very timely manner are also critical for implementing service-related changes in the company.

*Training*

ServPrint has realised early on in the transformation, and has tried to improve the level of training for the people who are involved in the sale of the product-service offering. The company's aim has been to ensure that the people within the reseller channel are much clearer with prospects about what the contract requires and what the overruns could potentially mean. Continuous training of the sales force has been a clear facilitator in the company's servitization efforts.

*Performance measurement and rewards system*

In the experience of ServPrint, establishing a transparent performance measurement and related rewards system is seen as a driver for change. The

initial lack of transparent performance and service quality metrics has caused the reluctance of sales people to actually sell the product-service package. Having established performance measurements later on, the company has then had to overcome the perception within its organisation that the performance measurement system is not efficient.

Another fundamental challenge has been the way in which the company rewards the delivery of the service. Currently, sales people are incentivised to sells equipment and supplies following from that sale, and they would get benefit from both of those sales. However, the incentives for selling services are not as strong. There is still a balance to be achieved between rewarding sales of products vs. sales of integrated products and services.

**Summary of findings**

Several key findings are drawn from this case study, a summary of which is presented in Table 6-4. The transformation of ServPrint from manufacturing and selling printing equipment towards selling and delivering integrated products and services has been carried over a period of eight years, and is currently still undergoing at the company. It was originally triggered as an opportunity to differentiate the company's offering from its competitors. The transformation towards servitization in this case, has gone through five critical dimensions: four in the organisation and one in the network of ServPrint. The case study also provides a picture of the current challenges to the company as it is moving towards more servitized.

Firstly, the company has had to define and communicate effectively the value of its product-service offering. Secondly, setting up the right contract for each customer has been a critical dimension, as it emerges that the contract drives ServPrint's relationships with its customers. Thirdly, in order to deliver combined products and services, the company has developed additional capabilities through acquisitions of external services businesses, and internally through setting-up a 'services champions' structure. ServPrint's internal organisation is closely interlinked with its network largely due to the structure of the company's distribution channel which consists of mono- and multi-brand resellers.

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Therefore, building and maintaining an integrated service delivery system is a critical dimension in the servitization of the company.

In the company's network, the 'customer perspective' presents a critical dimension of transformation as customers have to undergo a shift of mind-set in accepting the servitization of ServPrint and changing its traditional way of buying a printer and supplies into paying for the outcome. This mind-set change can be facilitated by setting up the right contract for each customer which gives customers confidence.

The conditions that have defined the transformation are the quality of the service provided by ServPrint; certain technology advantages that the company has developed over its competitors; and the general market acceptance of the product-service offering. The drivers considered to have facilitated the implementation of the change are the correct pricing of the product-service offering, effective communication with customers and partners, training of the sales force about the integrated offering, and setting up an integrated performance measurement and rewards system to reflect the importance of selling services in addition to products.

**Table 6-4 Thematic conceptual summary for Case study C: ServPrint**

| Dimensions of Transformation | | Change Drivers for Servitization | | |
|---|---|---|---|---|
| Organisation | Network | Triggers | Conditions | Facilitators |
| **Value proposition**<br>• convey the value proposition effectively<br>• simplify the message to customer | **Customer perspective**<br>• change customer mind-set | **Opportunity to differentiate**<br>• differentiate company's offering from the competition | **Quality of service**<br>• ensure quality of service while keeping costs down | **Pricing**<br>• price positioning of the product-service offering<br>• tier pricing |
| **Capabilities**<br>• acquisition of technology<br>• acquisition of skills<br>• internal investment in people | **Contract**<br>• set the right contract to build trust<br>contract as a relationship driver with the customer | | **Previous service expertise**<br>• transfer knowledge from other servitized parts of the organisation | **Communication**<br>• effective communication with customers<br>• ensure information flow |
| **Service delivery system**<br>• integrate various external partners and internal organisational structures<br>• improve information flow bring new partners | | | **Technology advantage**<br>• unique product features<br>• equipment health monitoring system | **Training**<br>• of sales force |
| | | | **Market acceptance**<br>• product-service offering first on the market<br>• comparison with the competition | **Performance measurement and rewards system**<br>• transparent performance metrics<br>• rewards for sale of services |

### 6.2.3 Case study D: MAN Truck & Bus UK Ltd[7]

**Industrial context: Commercial Vehicles and Transport**

The competitive landscape of the UK truck market has undergone considerable changes since the Second World War whereby the number of actors in the market has been reduced from 74 British truck manufacturers to six dominant players. The market was dominated by British brands like Bedford, Leyland, ERF and Foden up to the 1970s when the first foreign trucks of Volvo, Scania, and Mercedes Benz started to appear on the UK market. In the 1980s whilst Bedford was first taken over by Leyland, who in turn is taken over by DAF, Ford/Iveco became market leaders. In the 1990s-2010, the market has largely been dominated by DAF which holds 30% of the market share, followed by Mercedes Benz, Volvo, MAN, Scania, Iveco and Renault. In terms of the truck fleet, the market in the UK in 2010 consists of around 525,000 vehicles. On average 45,000 to 50,000 new vehicles are sold every year creating a market of approximately GBP 200 billion.

In the same period of time, the margins of the truck supplies have been continuously squeezed. Contemporary trucks require less and less service as technology has become more reliable. Over time, business has become much less straightforward and the elements of the once traditional product offering have changed: the truck has become commoditized, and standard mechanical services are less needed and required. MAN Truck & Bus UK Ltd operates in an industry where competition is relatively strong from peer players. Hence, continuous innovation and quality offering are necessary to make the company retain its position in the market.

**The organisation: MAN Truck & Bus UK Ltd**

MAN is one of the leading manufacturers of commercial vehicles in Europe, and MAN Truck & Bus UK Ltd (MTBUK) is its wholly owned subsidiary in the UK.

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[7] This study was partially published in: Martinez, V., Kingston, J., Evans, S., Gaiardelli, P., Raffoni, A., Vladimirova, D. and Claes, B. (2011), *Organisational transformation for effective delivery of integrated products and services: thoughts on practice*, Cranfield University, Cranfield, UK.

MTBUK was established in the early 1990s when it started out as an importer of commercial vehicles in the UK. At the time, the company had a market share of about 2%, less than 100 employees, and a very simple offering based on the selling of trucks only; the number of trucks sold was lower than 1,000 units. However, over the past 20 years the company has developed significantly both in terms of size and offering.  Currently, it has a 13% market share and a GBP 650 million turnover. It is responsible for selling and servicing trucks, coaches, buses and special vehicles in Great Britain and Northern Ireland while manufacturing activities are performed outside the UK (Germany, other European countries, and India). The company's strategy is centred on offering high-quality products and service packages able to help its customers in managing the whole life of a truck. MTBUK's objective is no longer selling trucks solely but supporting the customer to look after its operations (e.g. reducing fuel consumption, increase efficiency, reducing breakdowns, increasing trucks utilization), through a range of after-sales services. MTBUK would like to be considered as an essential part of the customer's business with customers coming to them because they can help them make their business better, in terms of profitability or in terms of customer service. In their view it is ultimately not about their truck, or their ability to change the oil on a truck, it's about helping the customer do what is required (Martinez et al., 2011).

The company's offering consists of a bundle of products and services. In terms of products, it sells light, medium, heavy trucks, buses, coaches and specialist products. As for services, it provides a wide portfolio of alternatives including spare parts, 3-year comprehensive warranties, additional warranties, repair and maintenance packages, rental, finance packages and fleet management service. While the top management envisions the company as a 'transport solution provider', a number of hurdles emerge from the analysis of the data which are yet to be overcome in order for the company to transform into a fully servitized organisation.

This case study focused on the truck side of the business of MTBUK. The interviews at MTBUK were conducted in a team of multi-disciplinary researchers

whereby observations and notes were shared and discussed by all peers after the interviews. The findings from the case study were presented back to the company to check their validity.

**Dimensions of transformation in the Organisation**

Three major dimensions of transformation are observed within the organisation: moulding the traditional product-centric culture of the company towards a service culture, developing a range of new capabilities for the successful delivery of services, and setting up an integrated service delivery system.

*Service culture*

MTBUK has a long heritage in technology and engineering excellence:

> *"MAN, with its history, has been renowned for an engineering company…and when you look at all the things that have achieved, air suspension, turbo charging, building their own engines…" (International Key Account Director, MTBUK)*

Its trucks have traditionally been sold based on reliability, durability and performance (e.g. low fuel consumption). At present however, mechanical reliability and performance are assumed by the market and business, hence doing business it is not about manufacturing product excellence anymore but the value proposition. It is said that it has taken about ten years to evolve the service culture in the company. During that period a number of senior managers who had moulded themselves according to the old product thinking left the business and have been replaced by individuals who were recruited in the new service culture of the company, which is one that is co-operative, team-based, and customer-focused. The CEO clearly describes this process as:

> *"You can't just change people, you need to help people see the need for change, but getting people to see the necessary change is arguably the most difficult task and should not be underestimated" (CEO, MTBUK)*

Developing a service culture has been a challenge, and certain remnants of the traditional product mind-set are still holding back the servitization of the company. Products and products' features like technology and fuel efficiency are still seen as relevant factors in differentiating the company from the competition. Across the sales force product's characteristics are still used as a selling argument:

> *"We're trying to change the behaviour particularly of our sales execs from selling metal to selling the solution." (HR Director, MTBUK)*

*Capabilities*

MTBUK has been developing a set of capabilities in order to be able to offer services together with products. The most critical ones are said to be the company's finance, consultancy, after-sales, and fleet management capabilities.

The company has developed the capability to offer support financing as a service to its customers. However, the challenge is still the ability of the sales force to sell the finance package. This requires not only a clear knowledge of the finance package but more importantly, the ability of the sales people to understand the customers' financials and identify accordingly what package might meet better its needs:

> *"Guys who are strong from an engineering background with R&M are not [strong with finance]. I think finance is probably our weakest area, and that's something that most of the guys wouldn't have been exposed to in any way, shape or form." (Regional Sales Director, MTBUK)*

It has been recognised in the company that developing consultancy capabilities is critical to servitization. Sales executives should become "transport consultants" in order to drive the selling of service packages. Further to understanding the balance sheet of customers, the transport consultants should be able to understand the customer's business, its operations and selling the company's offering on the basis of Total cost of ownership.

After-sales capabilities of sales representatives and dealers are still seen as a challenge in the company. For example, part sales representatives need to understand better customers' parts buying behaviour and adopt a more proactive approach in selling parts as well as services. The challenge is selling parts on value as opposed to price. People who have traditionally sold parts are not always able to understand the workshop business in order to start selling workshop hours. Furthermore, dealers should have the ability to meet customers' service requirements. This capability is yet to be completely developed across the network as customers still perceive differences.

Lastly, fleet management capabilities are also seen as a crucial for the outcome of the servitization efforts, as they are interpreted as a key differentiating factor from the competition.

*Service delivery system*

MAN Truck and Bus UK Ltd sells directly to customers and provides a range of parts and services through a net of dealerships. In the second half of the 1990s, the company sought further expansion through developing the dealer network through building out existing dealerships and acquiring new ones. Currently, the dealership network consists of 17 wholly owned and 51private capital (or franchised) dealerships.

In the past, the traditional set-up for selling trucks has consisted of an importer or manufacturer who brought trucks into the market through own production or from abroad. A dealer network throughout the country subsequently took care of the sales and service of the trucks. Whilst the importer held the responsibility for corporate communication and guarantee related issues, each dealership was responsible for their own sales and marketing strategy.

However, the company has centralised the sales of trucks, and there is a separation between sales and after-sales functions. Currently, MTBUK sales people sell trucks together with services, whereas dealers are responsible for selling and providing services.  This centralisation of sales has been done with the aim to maintain a consistent message of the value proposition to customers.

The challenge of this fragmentation of customer-facing units (salesman, service manager, parts manager) is the multiple touch points at the company for customers. Moreover, dealers often adopts "reactive" instead of "proactive" approach to services and parts selling. Keeping the entire service delivery system aligned requires additional efforts:

*"These are people from my department; these are the field managers, the regional managers, technical customer support. Their role is very much working with the dealers to improve standards, deal with any customer complaints, deal with any … it's really to maintain the relationship between the customer and the dealer, the customer and MAN and the dealer and MAN." (Head of UK Service Support, MAN Truck & Bus UK Ltd)*

**Dimensions of transformation in the Network**

Developing a new customer focus emerges to be a main dimension of transformation in the network of MTBUK.

*Customer focus*

It is evident from the conducted interviews that a lot of effort has been dedicated to instilling a mind-set that the business is customer driven, and that "the customer was the number one priority" (CEO, MTBUK). Building closer relationships with customers has positively supported the servitization:

*"... you build a stronger relationship and you become more of an account manager. So you're not just turning up to a customer when they want to buy something." (Regional Sales Director, MTBUK)*

The challenge for MTBUK, however, is the management of information at customer level and understanding customer's needs:

*"Just part of my vision, each of these sales people would have their own laptop and they'd have a customer database…sales history, broken down by product group. You could then give them the right brief to create a focus, and then they go and do their visit and they type in after*

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*the visit, 'I went to see [the customer] today, he's not buying batches because of …' [Currently] all these people go and see customers but we don't capture any data. So what I'm saying is there's no accountability. Unless you can understand why people aren't buying, then you're foxed really." (Head of UK parts, MTBUK)*

## Change drivers for servitization

### *Trigger*

*New leadership*

The main trigger for the organisation's changes towards servitization is said to be the present CEO of the company. The transformation was set off in the early 1990s when he joined the company as sales and marketing director. He is described as 'a maverick in the industry', and someone who embraces change. Despite being the main driving force for servitization, this transformational leadership is also suggested to be one of the organisations weaknesses. Firstly, no apparent successor to the current CEO has been identified in the company; and secondly, change efforts require time and the support of the entire organisation in order to be successful:

*"It's a long way from the CEO to the technician working in Aberdeen, that's a big change." (HR Director, MTBUK)*

### *Conditions*

In the case of MTBUK, the outcome of the transformation towards a servitized organisation is said to be largely determined by the market perception of the total cost of ownership concept in the product-service offering.

*Market perception*

An important obstacle to the organisation's effort to adopt a total cost of ownership perspective and offer a more integrated product-service offering is the customer's perception of the offering. Customers are often not capable of fully understanding and appreciating the value of the offer that is made to them.

These customers are more interested in the list price of the vehicle than a package which includes repair and maintenance, tyres, road tax, insurance.

Another perceived problem is the fact that in many companies the decision to buy is no longer taken by those who use or maintain the truck but rather by someone with a financial responsibility. Whilst traditionally the sales people talk to the fleet engineers on a personal level, the people who finally make the decisions are accountants or purchasing managers. Yet at the same time those finance based decision makers oftentimes seem to ignore important cost drivers such as fuel consumption. The market of commercial vehicles overall appears to be still immature in the adoption of the total cost of ownership perspective.

### *Facilitators*

The drivers that emerge to be essential for the implementation of the change in this case study are consistent and co-ordinated intra- and inter-organisational communication, commitment of the company's employees, utilisation of information systems, and setting up a performance measurement and rewards system.

### *Communication*

Consistent intra- and inter-organisational communication of the product-service offering, and information flow and coordination have been found to positively influence the transformation of MTBUK towards a servitized organisation. However, the company has faced some challenges in the communication of service and TCO strategy within its internal departments, the dealer network, and the market. Communication within the internal departments can become more coherent and consistent. For example, TCO and service packages represent a key component of company's strategy and are at the basis of sales force training. However, market share in terms of trucks sold is still highly emphasised in sales meetings, or newsletters contain success stories of truck sales. Similar is the situation with customer facing units in the dealer network and communication is still perceived as a challenge:

*"I believe it is communication. They need to hear more from us. If I was investing a few million pounds in a dealership, I'd want to know what the mother ship is saying, more regularly. And I do believe we do have to do that. You asked me what we need to do. I do think we need to communicate more with them."* (UK Retail Sales Director, MTBUK)

The communication to the market is another aspect of the challenge. Marketing activities are spread across Product and After-sales marketing departments. In the promotion of the product-service offering, product and technical excellence tend to still play a major role. Comprehensive vertical and horizontal information flow and coordination among all parties (incl. dealers and customers) is also said to be essential for the implementation of the product-service strategy in order to avoid fragmented and contradictory explanation and implementation of servitization.

*Employee commitment*

It is said that what sets MAN apart from other truck manufacturers are its people. Employee commitment from people with will and passion is a condition for successful change at the company. Despite triggered from the top, servitization is considered to be the result of a team effort:

*"I think, nine years ago, we as a company, a lot of managers were asked for their input and the staff was asked for their input. And there's a lot of teamwork..."* (Retail Sales Operations Manager, MTBUK)

*Information systems*

Currently MAN Truck & Bus UK Ltd has some five different information databases in use. Information systems are mentioned as a challenge in the company's ability to get the most out of the market. The problem with the information systems seems most acutely observed in the After-sales side of the company where it is felt that the organisation is not making the best use of marketing time. It is further perceived that the data that is available doesn't facilitate people to really sell the whole solution:

*"We don't have the best IT platform that you've ever seen… heavily designed for the control environment, as opposed to an operational dealer network, it's not user friendly… It's a fantastic tool for the people in the finance department,… but they can't actually tell you how to make the business easier, and it's extremely complex and tough and hard."* *(After Sales Director, MTBUK)*

*Performance measurement and rewards system*

In the experience of MTBUK, the company's performance measurement system and related incentive programs has been a significant driver of the product-service integration. In particular, the two different sets of measures and incentives put in place for the sales force (Star Program) and dealers (UTP and Service Provider of the Year - SpoTy) represent key determinants in supporting the shift towards a more servitized business as captured in the following quotes:

*"The sales executives, we do incentivise them quite heavily, to sell the support packages for both finance and repair and maintenance… they can see money coming in, that tends to focus their minds and sharpen up the way they go to market with the customers."* *(Regional Sales Director, MTBUK)*

*"We decided that the only way that we could raise the bar and raise the standards, was by taking certain KPIs and insisting a minimum benchmark level in our dealerships... And when we introduced it, it was a bit difficult to get going with it, because we were asking the dealerships to really raise their game. But to get to a standard that was industry leading, shall we say, we achieved that in about two years."* *(Head of UK service network, MTBUK)*

**Summary of findings**

Several key findings are drawn from this case study, a summary of which is presented in Table 6-5. The transformation of MTBUK towards an organisation that sells and delivers integrated products and services was originally triggered by the transformational leadership of a new leader at the company, and it is still

highly dependent on that individual which is a key consideration for the business. The servitization of the business has been carried out over a period of ten years, and is still on-going at the company. Hence, the case study also reflects current challenges to the company as it is moving towards a more servitized state.

Four critical dimensions of transformation emerge in this case study: three in the organisation and one in the network of MTBUK. Firstly, there has been a strong emphasis on the need to change company culture and develop a service culture in the organisation. The long-standing engineering heritage of the company has represented a major challenge to changing people's mind-set; one that has required huge efforts as well as a long period of time. Secondly, the company has identified the capabilities it needs in order to deliver services. It has set out to develop new capabilities in terms of finance, consultancy, after-sales and fleet management which are deemed critical for establishing the company as a product-service provider. Thirdly, MTBUK internal organisation is closely interlinked with its network largely due to the structure of its sales operations, i.e. direct sales of trucks by own sales representatives, and sale and provision of services via an extended dealer network. Therefore, building and maintaining an aligned service delivery system is a critical dimension in the servitization of the company.

A newfound customer focus has further defined the transformation of the organisation. The company has dedicated its efforts to making the customer number one priority. The challenge is still with managing customer data and understanding customer needs better.

The company still has to overcome the negative market perception of the integrated product-service offering and the slow adoption of a total cost of ownership perspective by customers.

The drivers that emerge to be essential for the implementation of the change in this case study are consistent and co-ordinated intra- and inter-organisational communication, employee's drive and commitment to carrying the change

through, effective use of information systems, and a performance measurement and rewards system which reflects the company's strategy of selling services in addition to products.

**Table 6-5 Thematic conceptual summary for Case study D: MTBUK**

| Dimensions of Transformation | | Change Drivers for Servitization | | |
|---|---|---|---|---|
| Organisation | Network | Triggers | Conditions | Facilitators |
| **Service culture**<br>• overcome technology and engineering legacy<br>• recruit new service-thinking people<br>• shift product mind-set of sales force to selling solutions<br><br>**Capabilities**<br>• finance<br>• consultancy<br>• after-sales<br>• fleet management<br><br>**Service delivery system**<br>• set up a dealer network: build out existing dealerships and acquire new ones for delivery of services<br>• direct sales to customers<br>• services delivered by dealer network | **Customer focus**<br>• customer becomes priority<br>• build closer relationships<br>• understand customer needs<br>• capture feedback from customer | **New leadership** | **Market perception**<br>• lack of understanding of the product-service offering slow adoption of TCO perspective in the market | **Communication**<br>• consistent communication within the organisation, to dealers, and to customers<br>• information flow and co-ordination<br><br>**Employee commitment**<br>• people with will and passion<br>• team effort<br><br>**Information systems**<br>• utilisation and effective use of information systems and data<br><br>**Performance measurement and rewards system**<br>• performance measurement system for sales force and for dealers<br>• related incentive programs |

## 6.2.4 Case study E: Vitsœ[8]

**Industrial context: Furniture manufacturing**

The UK furniture manufacturing industry is a large and mature sector with an estimated 6,370 furniture manufacturing businesses based within the UK, and a furniture market worth an estimated £4.6 billion in 2010 (KeyNote, 2011b). The industry has notably experienced financial difficulties since 2008 as a result of the downturn in the economy. Furthermore, UK furniture manufacturers are also increasingly coming under pressure from low-cost imports as many retailers and wholesalers prefer to source products from overseas (KeyNote, 2011b). As a result, some furniture manufacturing firms are looking to innovate their offerings, and change the way they traditionally conduct their businesses.

**The organisation: Vitsœ**

The empirical evidence in the academic research on servitization has predominantly been obtained from large engineering companies which manufacture capital goods (Oliva and Kallenberg, 2003; Davies et al., 2006; Baines et al., 2011) There are very few empirical examples in the literature on how small- and medium-sized enterprises (SMEs) from the manufacturing sector develop service businesses (Gebauer et al., 2010). Little is known about how servitization emerges and evolves in smaller firms, and whether important lessons about this phenomenon can be drawn from the transformation journey of small- and medium-size manufacturers. This case study is an attempt to address this gap in knowledge while advancing the overall research on the shift in manufacturing towards services. The focus of the study is on the transformation journey of Vitsœ, a small-size UK-based furniture manufacturing

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[8] This study was published as: Vladimirova, D., Evans, S. and Smart, P. (2011), "Servitization lessons learnt from a small furniture manufacturing company", in: *4th EurOMA International Service Operations Management Forum (SOMF)*, 19-20 September 2011, Florence, Italy.

This study was also partially published in: Martinez, V., Kingston, J., Evans, S., Gaiardelli, P., Raffoni, A., Vladimirova, D. and Claes, B. (2011), *Organisational transformation for effective delivery of integrated products and services: thoughts on practice*, Cranfield University, Cranfield, UK.

firm, from a product-centric to a servitized organisation. This is the final of the series of cross-industry case studies performed for this research.

Founded in Germany in the 1950s, Vitsœ is a small design furniture manufacturer that sells high quality furniture around the world directly to customers via the internet, allowing its customers to live better with less, that lasts longer. The company and production have been operating in London since 1995, after the company experienced financial hardship in Germany and had to transform itself into a successful product-service business. Currently, Vitsœ employs about 50 people including planners, production workers and installers. The company's product range comprises a shelving system and a chair programme designed by a famous German industrial designer. Its main product is a configurable system, which has been continuously developed since it was first launched in the early 1960s, and all new components are compatible with the original system. The products hold an iconic status and retain their value well over time (Vladimirova et al., 2011a; Martinez et al., 2011). Vitsœ has also built a reputation of a sustainable business due to the functional and aesthetic longevity of its products, and the company's focus on reuse as opposed to recycling or disposal of the product at end of life (Rose, 2010).

Vitsœ's transformation is an interesting case of servitization whereby the company does not report separate revenue from services but nonetheless describes itself as a service business. Revenue is generated from the sale of products although extensive services like planning, installing, dismantling, reinstalling, repairing and refurbishing are also provided. The cost of services is typically included in the price of the products, or if charged separately, services are priced just to cover costs. This service strategy is successful as half of the company business derives from existing customers (Tan, 2010). Profit is considered the result of lifelong relationships with customers (Vitsœ 2008).

For the purpose of this case study, the researcher took upon the role of an action researcher at Vitsœ's head office in London, UK. The researcher utilized the new knowledge built through the research project in order to identify current servitization challenges at the company. The study initially employed

observation, interviews, and content analysis of company documents. This was followed by collaboratively diagnosing current transformation challenges with the top management of the company. An intervention by the researcher was then carried out to address some of the challenges the company was experiencing at the time of the study. In particular, communicating the value proposition, and visualising Vitsœ's customer journey on the company website. Findings from the case study were presented back to the company to check their validity.

**Dimensions of transformation in the Organisation**

In the experience of Vitsœ, the transformation of a furniture manufacturer into a product-service provider has undergone through four critical dimensions. Firstly, the company has evolved its service thinking into a service culture in the organisation. Secondly, it has clearly defined its value proposition. Thirdly, an integrated service delivery system has been set up. Lastly, the company has continuously developed its capabilities for the delivery of services in terms of people's skills and competencies, and technical capabilities.

*Service culture*

Although Vitsœ's current business is based on the sale of products, the company has service thinking in the organisation that is essential for the servitization of the organisation. The company is actively promoting its business as 'not selling furniture but allowing you to buy its use'. The top management consciously nurtures a culture of serving the customer, and looking after customer's best interest as captured in the following quote:

> *"All of our team of planners are trained to undersell to the customer and they are taught to the point where they say 'well, we will just take a row of shelves off, leave those out this is more expensive, you can add that later, in a couple of years' time we will still be here, we can still supply you one of those'. So that the customer goes 'oh okay, they are on my side, they are not just trying to make this week's commission or sales target', and they will genuinely say no, just do it for the long term*

*because we are trying to build that long term relationship, and trust is at the heart of that." (Managing Director, Vitsœ)*

*Value proposition*

Vitsœ's value proposition is that it 'matches people's belongings to the space people have, and brings order and organisation to customers' lives. The company promotes 'the art of living better with less that lasts longer'. Vitsœ's concept is for people to reuse their furniture, and it sees recycling as a defeat. The company views the service it offers along with its quality products as something customers deserve to receive but do not necessarily receive elsewhere.

Since Vitsœ is one of the few businesses on the market that offer a combined product-service offering, the challenge is in educating the market about the service that comes with the product. The company's efforts are on making customers aware what they get upfront, and realise the value of the service. The challenge is to communicate effectively the value proposition to the customer, particularly on the company's website which is the main communication and sales channel.

*Integrated service delivery system*

Vitsœ delivers its products and the services around it directly to its customers without going through a retailer or a distributor. Based on past negative experience with distributors who failed to convey the company's value proposition, this direct approach has been set out from the beginning of the company's UK operations. A milestone in Vitsœ's transformation is considered to be stitching together a process whereby the customer can interact with the company online in real time, aligning the business processes with a seamless contact with the customer while constantly reducing the time involved in the process.

The company has connected the front-end planning team with the back-end systems to create fully integrated processes throughout the organisation with quality control at every stage. By aligning the entire process from customer

interaction, to design, to production and delivery, it has created a service delivery system whereby every customer benefits from personalised service and the creation of a unique product tailored to their life.

*Capabilities*

In order to transform the organisation from a furniture manufacturer to a genuine service business, the company has cultivated a talented team of design professionals with a deep understanding of the product and a true commitment to customer service. The company benefits from a lean, well-trained staff of planners who know the "ins- and-outs" of the Vitsœ product – how it should be designed, made, delivered and explained to the customer; and how it is meant to function in daily life. The company has also continuously developed its technical capabilities:

> *"We are using sophisticated software which we have built ourselves with developers over many years and constantly evolved.  So, the software, but first and foremost, we are using intelligent, trained human beings that we call planners because they are planning it for you; and they are using that software, their training and the web to make that match between what you want to do with the shelves, drawers, table, and all the stuff that you have got to store." (Managing director, Vitsœ)*

**Dimensions of transformation in the Network**

Three themes have emerged from the analysis of the data to define the dimensions of transformation in Vitsœ's network. These are strong customer focus, establishing an informal contract and trust with customers, and developing close supplier relationships.

*Customer relationship*

Vitsœ sells and delivers directly to its customers and aims to establish a relationship of trust with them. There is a strong sense of identity with the customer in the company, and it cares about its customers before and after the sale:

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*"Just simple things like firstly being concerned about customers, about wanting to give them a product that lasts a long time because the company wants to develop a relationship with the customer, grow the relationship." (Planner, Vitsœ)*

The company tries to get to know its customers and tailors the product for them. Vitsœ employees do not push sales but try to establish a long-term relationship with the customer. For example, planners do not talk about the sale but about what the customer needs are, and what products they want to put on the shelves. Feedback from customers is taken on board and it often helps the company change and improve, and sometimes develop a new product. As a result, it has much happier and more satisfied customers who are often prepared to pay in advance.

*Informal contract*

Vitsœ's physical contract has become more complex over time. However, the contract has not caught up with the combined product-service offering and the value proposition, and does not reflect the relationship side of the deal offered by the company. The company tries to push it back, and heavily relies on the 'informal contract' with its customers, i.e. the trust Vitsœ aims to establish with its customers from the outset of the relationship:

*"Trust is at the heart of what we do as a business. We persuade our customers to trust us, our suppliers to trust us, our employees to trust us, and various advisors around us to trust us...and only if we set the ground rules to encourage everybody to trust, that is critical." (Managing Director, Vitsœ)*

*Supplier relationship*

Vitsœ works with suppliers that are small businesses, and for whom they are the major customer. The company has built a lean network of suppliers who are local to the company, and with whom they have established and maintained long-term relationships. For example, Vitsœ has worked with its steel shelves supplier for 17 years. It has persuaded the supplying company to invest into its

production in order to meet the high quality criteria of Vitsœ's products. During Vitsœ's transformation, suppliers have had to change, invest in new capabilities, and grow its business alongside its major customer. On the other side, Vitsœ's management views suppliers as critical and the company often works through its suppliers' financial and other problems.

## Change drivers for servitization

### *Trigger*

*New leadership*

When the company experienced financial hardships in the early 1990s and went through receivership in Germany, it took a new manger occupied with new ideas to move the business to the UK, set up manufacturing operations from scratch, and trigger the transformation for Vitsœ to become a servitized organisation.

### *Conditions*

Two important conditions for the success of Vitsœ's transformation towards a servitized organisation are said to be the emergence and advancement of internet technology, and setting up local operations by the company.

*Technology advancement*

Vitsœ operates in the market for design furniture which is characterised by low technology developments. Yet the company strongly embraces technology advancement. In particular, information technology which has been adopted from the early days of commercial internet in the 1995-1996 as a means of getting closer to its customers, and communicating and selling directly to them.

> *"I would say [the website is] absolutely critical in all respects because we sell the product and ergo service through the website but as well as that I think everyone who comes into the shop has some encounter with the website as well. So it might be how they learn about our existence or if they've found out through other means then they still need to use the website in order to progress through the process when planning and*

The company is also looking into ways of making the website more personal to customers so that they get the sense of human beings behind it who will help them through the process.

*Local operations*

Local manufacturing operations and a local supply chain have ensured and sustained the high quality of the manufactured products. Local operations and have facilitated consistent successful delivery of the product-service offering over the years.

**Facilitators**

The factors that emerge to have facilitated the implementation of the change at Vitsœ are clear vision for the future of the business, and direct communication with customers.

*Vision*

From the early days of his time at the company in 1986, Vitsœ's managing director has had a clear vision and a strategy for the company to become world's number one manufacturer of shelving systems, and to deliver directly to customers. Defining a clear vision and following that vision through has supported the servitization of the business.

*Communication*

Direct communication with the customer has been found to be critical for the servitization Vitsœ. Communication has enabled the company to get closer to its customers, establish long-term relationships with its customers, and ultimately serve customers better. Whilst realising the benefits of direct communication with its customers, it has been observed that the company still experienced challenges with its communication strategy:

*"Our challenge for the business is constantly making people aware that this stunning service comes with it and often customers only really*

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*discover how good the experience is afterwards; and for us to frontload that process and make it very clear to them what they are going to get upfront is very difficult, because nobody believes you really upfront. So customer testimonials are very, very important, on our website, in our brochures, and in the social networking arena for people to be saying how much they value us. That is most the difficult thing for us is to get across: the value of the service offering that we have." (Managing Director, Vitsœ)*

During the course of this study, the researcher engaged in a collaborative project with the company to help address the challenge of communicating the value proposition, and visualising Vitsœ's customer journey on the company website.

**Summary of findings**

Several lessons in servitization can be drawn from the transformation of a small furniture manufacturer into a servitized business, a summary of which is presented in Table 6-6. In the case of Vitsœ, the transformation has spanned over fifteen year, and has gone through four dimensions in the organisation, and three dimensions in the network of the company. However, Vitsœ is continuously looking to improve its customer experience.

It has been critical for the company to develop its service thinking and establish a service culture in the organisation. The value proposition has had to be defined and communicated effectively, in order for the customers to appreciate the value of service, especially in such a traditionally product-centric industry as furniture manufacturing. The company has removed distributors and retailers from the value chain, and has seamlessly aligned functions and processes to create an integrated service delivery system. The company is reliant on the skills and competencies of its employees, and company's technical capabilities to deliver its product-service offering.

There is a strong customer focus and sense of identity with the customer whereby customers are cared for before, during and after the sale. Customers

are more likely to embark on the servitization journey with the manufacturer if an informal contract and trust have been established. The company has also developed long-term close relationships with its suppliers which are local small firms themselves.

Vitsœ's transformation was initiated and carried through by a new leader in the organisation who developed a strategy for the future of the business. Advancement in technology has played a major role in the servitization of the company, in particular, the internet as an enabler and a platform for communication and direct sales to customers. Setting up local operations for the business in terms of manufacturing and supply chain has been a further condition for success. The drivers that have facilitated the implementation of the change at Vitsœ are clear vision of top management; and direct communication with customers.

The key learning from the intervention carried out at Vitsœ was that servitization is indeed a transformative change based on the term and magnitude of change, and a fundamental shift from manufacturing to service thinking. However, it is also a continuous change, in the sense that the organisation continuously makes changes and looks for improvements (sometimes very small and undisruptive ones) in the overall effort to become more servitized and serve customers better.

**Table 6-6 Thematic conceptual summary for Case study E: Vitsœ**

| Dimensions of Transformation | | Change Drivers for Servitization | | |
| --- | --- | --- | --- | --- |
| Organisation | Network | Triggers | Conditions | Facilitators |
| **Service culture**<br>• promote service thinking<br>• look after customer's best interest | **Customer relationship**<br>• sense of identity with customers<br>• establish long-term relationships with customers | New leadership | **Technology advancement**<br>• commercial internet technology<br>• company website as direct sales and communication channel | **Vision**<br>• define and communicate clear vision for the future of the business |
| **Value proposition**<br>• communicate value proposition effectively | **Informal contract**<br>• build trust | | **Local operations**<br>• local manufacturing<br>• local supply chain | **Communication**<br>• direct communication with customers |
| **Integrated service delivery system**<br>• direct sales channel<br>• fully integrated processes<br><br>**Capabilities**<br>• people's skills<br>• technical capabilities | **Supplier relationship**<br>• establish long-term relationships with suppliers | | | |

## 6.2.5 Focus group 2

For the purpose of this focus group study, the researcher took the role of a participant observer in an international workshop entitled "Customer-centricity and servitization: managing change in durable goods companies". The focus group consisted of 22 industry representatives and academics from Italy, Switzerland, UK, and Germany. The industrialists were C-level executives who represented companies which had achieved a certain level of servitization in their organisations from the following durable goods manufacturing industries: Defence, Construction and mining, Commercial vehicles and transport, Commercial refrigeration, Oil & Gas equipment, Laundry, Home appliances, and

Document imaging equipment and document management. The participating companies reported to have achieved between 20% to 70% revenue from services in their respective organisations; following a complex and lengthy transformation spanning over ten to fifteen years. The academic participants were active researchers in the field of servitization and service operations management.

Similar to Focus group 1, the purpose of gathering of this panel of experts was to obtain experience-based insight from the practitioners in a collaborative learning community with diverse perspectives. The focus of the study was on issues related to the development of service/solutions businesses and servitization challenges, opportunities and drawbacks. Each participant had to answer a set of questions stimulating a discussion between company top managers and researchers. The guiding questions of the discussion were:

*1) What is the role of services in your company? What kind of servitization strategies does you company adopt?*

*2) Which are the different paths to servitization, for instance companies can develop capabilities for offering and delivering services internally or, conversely, externally (mergers and acquisitions, outsourcing)?*

*3) Which are the enablers or inhibitors to the paths towards servitization (cultural, organisational, technological, operational, others)?*

*4) What are the outcomes and results?*

The panel discussions were typed and coded by the author, and the qualitative data from the workshop were analysed through the lens of the conceptual model devised in Chapter 4. Findings from the study were presented back to a selected group of participants to check their validity.

**Dimensions of transformation in the Organisation**

Three dimensions of transformation in the organisation of a traditional manufacturer emerge from the analysis of the data. Manufacturers need to

overcome their product-centric mind-set and develop a service culture; they have to develop additional capabilities, and set up a service delivery system.

*Service culture*

Developing a 'service culture' in the organisation is critical for the outcome of the transformation of traditional manufacturers towards servitized businesses. Service culture evolves once manufacturing companies overcome their product-centric mind-set, define what service entails in their context, and "start to see themselves as a service company" (CEO and Chairman, CGT CAT). The challenge of developing a service culture is changing the mind-set in the organisation towards selling services as captured in the following quote:

> *"First problem: to change mentality of management from selling machines to selling franchise. Second problem: to train our dealers to sell projects and not just products." (CEO, Lavapiù)*

*Capabilities*

In order to start delivering integrated products and services, the traditional manufacturing company has to develop additional capabilities. This can be achieved through acquisitions and through internal investment. For example, one participant company has had to acquire a business whose main focus is on capturing customer needs. Internal investment in people and extending people's competencies is another way of developing capabilities for the delivery of combined products and services. This includes finding the 'right' people and investing in people's competencies. In a servitized organisation, service engineers have to become representatives for their company and act as consultants to the customer, which is still seen as a challenge:

> *"If we could hire 50 top service people, we'd do that tomorrow!" (CEO and Chairman, CGT CAT)*

*Service delivery system*

Traditional manufacturers have to set up a system to ensure the successful delivery of services. This can be achieved several ways: firstly, by establishing

a designated service structure in the organisation, i.e. a service unit focused entirely on services and which acts as the company's face to the customer:

> *"Our strategy was about following the customer, we started with aftersales; today we have a service unit." (Chairman, Nuovo Pignone Spa - Ge Oil & Gas)*

> *"We set up one-stop shop: we can offer a package offer for financing, repair, service; all in one place." (Managing Director, DAF)*

Secondly, if the manufacturing internal organisation is not ready to deliver services, acquiring an external service company can be a solution. Thirdly, outsourcing the service network can ensure successful and cost-effective delivery of services.

**Dimensions of transformation in the Network**

In this focus group study, the most critical dimension of transformation in the network of the servitizing organisation emerges to be a newfound focus on the customer.

*Customer focus*

It is said that during servitization, the traditional manufacturer develops a new customer focus and embraces the customer in a different way:

> *"We need to find a different way of servicing the customer, re-engineer the service station, and we work together with our service partners to find new ways of serving the customer." (CEO, Electrolux)*

The provider has to understand the customer needs better, as customers cannot always summarise their problem. Furthermore, customers do not always understand a sophisticated proposition and the manufacturer has to educate them about the value of the product-service offering. The manufacturer has to respond to customer requirements, and meet the demands of the customer's business environment while keeping in mind the maximum limit it can reach out into the customer business.

**Change drivers for servitization**

*Triggers*

The servitization transformation is specific to each organisation's context, and can be triggered in a number of ways as demonstrated in the quotes below:

> *"Trigger was the financial downturn in 1990s, in response to which we decided to go into services." (CEO and Chairman, CGT CAT)*

> *"Two years ago we changed strategy: in response to competition with strong competitors, we wanted to do different things to the competition." (CEO, Lavapiù)*

> *"Fifteen years ago the service journey began when we realised service will give us a competitive advantage." (Chairman, Nuovo Pignone Spa - Ge Oil & Gas)*

> *"Our strategy was to survive and find money from somewhere. Service was internal, then we set up a service unit focused entirely on service and not product, and things took off." (CEO, Océ)*

*Conditions*

The success of the transformation towards a servitized organisation is said to be defined by the market regulations under which the manufacturing business is operating.

*Market regulations*

Market regulations can provide the conditions under which services are delivered by manufacturers. Services often have to comply with safety regulations. In some cases, manufacturing companies have to work with political forces to change laws and regulations in order to be able to deliver their services.

*Facilitators*

The change drivers that emerge to have facilitated the implementation of servitization at the participant organisations are training of the sales force,

partnering with external service partners, correct pricing of the product-service offering, and timing of the delivery of services.

*Training*

Training of staff and dealers is strategic to promoting the way the manufacturing company sells its combined products and services. Training focuses the attention on standards and what good service is, and extends people's skills.

*Partnering*

Partnering is another driver facilitating the implementation of change. For example, by giving more opportunities to service partners to extend warranty and service parts sales, manufacturers reduce the risk of undertaking servitization.

*Pricing*

Pricing the integrated product-service offering correctly is critical and seen as a challenge. Manufacturers have to overcome a number of obstacles starting with educating the customer that service is chargeable and not free. Setting the right market price which covers the cost of service can be an obstacle as sometimes the cost of repair for example can be less convenient than the cost of repurchasing.

*Timing*

Timing is another facilitator for servitization as the manufacturing company has to move from reactive to proactive delivery of services:

> *"Timing… first, it's important to be there when the supermarket owner decides to change fridges, and second, service is an anticipation of the problem in the fridge." (CEO, Epta)*

**Summary of findings**

Several key findings are drawn from this study, a summary of which is presented in Table 6-7. In the experience of the companies represented in Focus group 2, the transformation from traditional manufacturing towards

delivery of integrated products and services is a complex arduous change that is carried over a period of ten to fifteen years.

**Table 6-7 Thematic conceptual summary for Focus group 2**

| Dimensions of Transformation | | Change Drivers for Servitization | | |
| Organisation | Network | Triggers | Conditions | Facilitators |
| --- | --- | --- | --- | --- |
| **Service culture**<br>• overcome product-centric mind-set<br>• realise it is a service company<br>• change mind-set of management and dealers from selling products to selling services | **Customer focus**<br>• find new ways of serving the customer<br>• understand customer needs better<br>• meet customer demands | **Financial crisis** | **Market regulations** | **Training**<br>• of staff<br>• of dealers |
| **Capabilities**<br>• acquisition of competencies<br>• internal investment in people | | **Immediate threat from competition** | | **Partnering**<br>• with external service partners |
| **Service delivery system**<br>• establish a service unit<br>• acquire a service company<br>• outsource the service network | | **Opportunity to differentiate** | | **Pricing**<br>• educate the customer service is not free<br>• set the right price to cover service costs |
| | | **Threat to the survival of the organisation** | | **Timing**<br>• move from reactive to proactive delivery of services |

A servitized organisation is the result of overcoming the product-centric mind-set and developing a service culture; developing additional capabilities through acquisitions and investment in people; setting up a service delivery system; and adopting a new customer focus.

The transformation can be triggered by a financial crisis, by an immediate threat from competition, by identifying an opportunity to differentiate a company's offering from its competitors, or by an economic threat to the survival of the organisation. Market regulations provide a condition that can enable and define the transformation. The factors facilitating the implementation of the change are training of staff and dealers, partnering with external service partners, correct pricing, and timing of services.

## 6.2.6 Phase II: Summary

Phase II of the empirical research presented the analysis and findings from four case studies (ABC Remanufacturing Services, ServPrint, and MAN Trucks and Bus UK Ltd), including one intervention/action research (Vitsœ), and one focus group. The purpose of this stage of the research was to generate a volume and depth of data for new theory building. The results were presented individually for each study in line with the research design before they contribute to the cross-case analysis in the next chapter. This section also concludes the presentation of data analysis and findings from the seven individual studies in this research.

Chapter 6 laid out the findings from Phase I and Phase II of the empirical research. The results would contribute to the cross-case analysis and the composition of the Model for transformation towards a servitized organisation in Chapter 7.

# 7 MODEL FOR TRANSFORMATION TOWARDS A SERVITIZED ORGANISATION

This chapter presents the cross-analysis of the individual studies conducted in Phase I and Phase II of the research, and presented in Chapter 6 (Section 7.1). In Section 7.2, the Model for transformation towards a servitized organisation is built based on the results from the cross-case analysis. This is followed by discussion of new theory in Section 7.3.

## 7.1 Cross-case analysis

In Chapter 6, each case and focus group study was presented first in the form of a narrative description, and second as a summary tabulation of emerging dimensions of transformation and change drivers for servitization. The purpose of this section is to take the analysis to a next level of data reduction through cross-case analysis. The aim is to express the findings of the study in the form of an emerging theory which is generated from all seven studies.

The cross-case analysis was performed in line with the research design. This means that the cross-case analysis is variable-oriented and organised in a conceptually ordered display (Miles and Huberman, 1994). A summary of the results is presented in a content-analytic summary table (Table 7-1).

Fifty themes emerged across the seven individual studies. The results have been structured to subsume the categories in the conceptual model devised in Chapter 4. The themes within each category have been organised by the number of appearances in the individual studies. It is pertinent to note that the order of the findings does not reflect the critical importance of each theme, nor does it contribute to any statistical generalisability of the findings; rather it reflects the number of occurrences of the theme across the individual studies and contributes to the conceptual generalizability of the study.

The labels of the fifty themes have been refined from the ones originally emerging in the individual studies to reflect the more general nature of the cross-case findings. For example, the theme Customer in the cross-case

analysis incorporates the themes 'customer perspective', 'customer focus', and 'customer relationship' emerging in the individual cases.

In the Organisation category of the conceptual model, seven dimensions of transformation have been synthesised. These are: Service-delivery system; Capabilities; Value; Product-service offering; Service risk; and Sustainability. The 'service-delivery system' theme appears six times, followed by the 'capabilities' theme which appears five times across the within-case analyses in Chapter 6. The next theme is 'service culture' which appears four times in the individual analyses. 'Value' is the next theme which is found three times, followed by 'product-service offering' appearing two times. 'Service risk' and 'sustainability' are each found once in the results from the within-case analysis in the previous chapter.

Within the Network category of the conceptual model, four dimensions of transformation have been identified. These are: Customer; Contract; Supply chain; and Informal contract. The 'customer' theme is found six times in the individual studies. This is followed by the 'contract' and the 'supply chain' themes coming up twice. Lastly, 'informal contract' is a dimension emergent from one individual study.

Eight change drivers for servitization have been found in the Triggers category of the conceptual model. These are: identifying a business opportunity in service; opportunity to differentiate; new leadership; customer frustration; environmental regulations; immediate threat from competition; and threat to the survival of the organisation. The change drivers that appear two times in the individual studies are 'identifying a business opportunity in services', 'opportunity to differentiate', and 'new leadership'. The remaining triggers for servitization are only found once in the analysis of the data.

Within the Conditions category, seventeen themes across the individual studies have emerged. These are topped by the 'market perception' which appears three times in the individual case studies. This is followed by 'organisational growth', 'quality', and 'technology advancement' which have been found two

times in the results. The remaining twelve conditions appear once in the data analysis and include the following: unmet business needs; readiness and willingness of the organisation to change; availability of resources; radicalness of change; speed of change; degree of threat to the organisation; stakeholders' pressure; change in shared beliefs; lack of competition; previous service expertise; technology advantage; local operations; and market regulations.

Fourteen factors have been found to drive the implementation of change in servitizing manufacturers and included in the Facilitators category. 'Performance measurement and rewards system' and 'communication and information flow' are the change drivers which appear four times in the individual studies. These are followed by 'commitment' and 'training' found three times in the analysis of the data. The facilitators 'planning' and 'pricing' emerge two times across the individual studies. The remaining nine themes represent facilitators which have been found once in the data analysis. These include the following: engaging with the customer; reducing complexity; alignment of structures and processes; service strategy; information systems; vision; partnering; and timing.

The overall theory arising from this study is expressed in the form of a model. The next section presents the composition of a Model for transformation towards a servitized organisation. The model translates and synthesises the emerging themes from the individual studies into conceptual constructs; and further summarises them diagrammatically.

**Table 7-1 Content-analytic summary table: emergent themes from cross-case analysis**

| Dimensions of Transformation | | Change Drivers for Servitization | | |
|---|---|---|---|---|
| **Organisation** | **Network** | **Triggers** | **Conditions** | **Facilitators** |
| Service delivery system [1,3,4,5,6,7] | Customer [1,3,4,5,6,7] | Identifying a business opportunity in services [2,3] | Market perception [3,4,5] | Performance measurement and rewards system [1,3,4,5] |
| Capabilities [3,4,5,6,7] | Contract [1,4] | Opportunity to differentiate [4,7] | Organisational growth [2,3] | Communication and information flow [2,4,5,6] |
| Service culture [1,5,6,7] | Supply chain [1,6] | New leadership [5,6] | Quality [3,4] | Commitment [2,3,5] |
| Value [1,4,6] | Informal contract [6] | Customer frustration [2] | Technology advancement [3,6] | Training [2,4,7] |
| Product-Service offering [1,3] | | Environmental regulations [3] | Unmet business needs [2] | Planning [2,3] |
| Service risk [1] | | Financial crisis [7] | Readiness and willingness to change [2] | Pricing [4,7] |
| Sustainability [3] | | Immediate threat from competition [7] | Availability of resources [2] | Engaging with the customer [2] |
| | | Threat to the survival of the organisation [7] | Radicalness of change [2] | Reducing complexity [2] |
| | | | Speed of change [2] | Alignment of structures and processes [2] |
| | | | Degree of threat to the organisation [2] | Service strategy [3] |
| | | | Stakeholders pressure [2] | Information systems [5] |
| | | | Change in shared beliefs [2] | Vision [6] |
| | | | Lack of competition [3] | Partnering [7] |
| | | | Previous service expertise [4] | Timing [7] |
| | | | Technology advantage [4] | |
| | | | Local operations [6] | |
| | | | Market regulations [7] | |

[1] Focus group 1. [2] Case study A: ServJet. [3] Case study B: ABC Remanufacturing Services. [4] Case study C: ServPrint. [5] Case study D: MAN Trucks & Bus UK Ltd [6] Case study E: Vitsœ. [7] Focus group 2.

## 7.2 Composition of the Model for transformation towards a servitized organisation

The fifty themes emerging form the empirical research define the dimensions and the driving forces for the transformation of a traditional manufacturer towards a servitized organisation. The dimensions and change drivers are mapped onto the conceptual model devised in Chapter 4 to form the 'Model for transformation towards a servitized organisation'. The model sees the servitizing organisation closely interlinked with its network, and overall environment. Seven dimensions of transformation are placed in the organisation side of the model, and four dimensions are positioned in the network side. Each dimension constitutes changes that occur during servitization; and servitization is the summation of changes across the eleven dimensions. The change drivers for servitization represent forces that set the organisation up for transformation and provide pressures for change. The change drivers are divided into three categories of triggers, conditions, and facilitators. The content for each category is devised next, and the integrated model is depicted in Figure 7-6.

### 7.2.1 Dimensions of transformation in the Organisation

The synthesis of case-specific themes resulted in the final identification of seven generic key dimensions of transformation in the manufacturer's organisation. The final labelling and definition of the seven dimensions of transformation in the organisation, and their aggregated key characteristics are presented below and shown in Figure 7-1.

#### 7.2.1.1 Service delivery system

The service-delivery system dimension of the transformation contains changes that occur in relation to setting up organisational structures, functions, and processes to ensure the manufacturer's ability to deliver integrated products and services. Services require a designated organisational structure which is responsible for their delivery. This structure can be formed in three ways: (i) by creating a designated service unit within the manufacturing organisation focused entirely on services and which acts as the company's face to the

customer; (ii) by acquiring an external service company; (iii) by outsourcing the service network to ensure successful and cost-effective delivery of services. The approach depends on the size of the business and the nature of the industry. For instance, some manufacturers' argument for setting up a direct and centralised sales channel to customers is to ensure effective and consistent communication of the value proposition to the customer. In either case, an account management structure with service-related skills and account management competencies has to be developed. The company has to find the synergy fit in terms of industry, product, capabilities and expertise, and integrate them to create a service delivery system. A milestone in the manufacturer's transformation is aligning company's business processes with seamless customer interaction. The provider has to create a service delivery system whereby every customer benefits from personalised service, This requires cross functional integration from customer contact, to design, production and delivery which can be facilitated by boosting internal communication, improving data capture and analysis, and managing the information flow.

### 7.2.1.2 Capabilities

The capabilities dimension of the transformation represents the new capabilities that the manufacturing company needs in order to be able to deliver integrated products and services. The company has to develop additional capabilities in terms of setting up financial and physical facilities, and acquiring new knowledge and expertise. This can be achieved through internal investment and/or through acquisitions.

Internal investment in people's competencies is one way of developing capabilities for the delivery of combined products and services. Cultivating talented teams; recruiting service experts; training sales people to become customer consultants, and service engineers to become representatives for the company; and assigning service champions to promote the sale of services within the organisation and among partners are all approaches which can be adopted by manufacturing firms. While highly effective, however, developing the skill level and transferring the skills as people move roles can be difficult to

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sustain. Apart from developing its human capital, the manufacturer has to develop its technical capabilities in terms of unique technologies, specialist software, and product health monitoring systems. All of these become integral to the delivery of services. Setting up a finance facility in terms of the ability of the manufacturer to offer financing to its customers is another desired capability.

In addition to internal investment, the manufacturing firm can obtain new capabilities through acquisitions of specialist skill sets and areas of expertise in other businesses. By acquisition the manufacturer can bring in unique technologies or niche capabilities that enable services. It can extend into new sectors and acquire a new range of skills and knowledge in areas of the market where the company does not have prior experience. The manufacturer can also acquire businesses to deliver parts of the new offering where it lacks the internal capability.

### 7.2.1.3 Service culture

The service culture dimension of the transformation represents changes to the culture of the organisation arising from the nature of services. Servitization creates a need to change the traditional product culture of the company and adopt service thinking. Traditional product culture typically stems from long-standing engineering heritage and technical excellence of manufacturers. Service culture evolves once manufacturing firms overcome their product-centric mind-set and start to see themselves as service companies. A culture of serving the customer and looking after customer's best interest should be consciously nurtured. The company should also actively promote its business as not selling products but allowing customers to buy their use; whereby the sale is no longer based on features but on value instead. The change of mind-set has to spread across all functions of the organisation, including engineering, sales and marketing. Transforming peoples' mind-set is a change that requires huge efforts and a long period of time. This mentality change, therefore, has to be encouraged by raising the change awareness in the organisation, and by demonstrating commitment from leadership. Devising a clear servitization

strategy, applying financial incentives, and enhancing people's service sills can further foster the new service culture.

### 7.2.1.4 Value

The value dimension of the transformation incorporates steps taken by the manufacturer in order to create value for its customers, and define and communicate its value proposition. The manufacturer has to identify the value from adding services to its products. The value can be in providing cost benefits to the customer, or in solving a particular problem experienced by the customer. The provider has to define the value proposition and incentivise the organisation internally to appreciate the value from service; it then has to translate the value proposition into an offering and a contract. The value proposition has to be conveyed to the internal sales teams and external partners as value is often co-created with stakeholders. It is critical that the value proposition is communicated effectively to the customer even in in the cases when the benefits for the customer are obvious. The manufacturing firm has to educate its customers, and find ways to demonstrate the value to the customers. This can be done through simplifying the value proposition message, or through simulation of the benefits. Consistent message of the value proposition should be put forward through all communications channels of the company.

### 7.2.1.5 Product-service offering

The product-service offering dimension of the transformation sums up the changes a traditional manufacturer undertakes in relation to its offering. Before embarking on servitization, a profitable service opportunity should be identified, and the value of the new product-service offering well understood. The company has to engage various stakeholders in the development of the new offering, and innovate for the service to go beyond basic services like warranty support and maintenance. In some instances, changes to product design should be made with considerations for the complete product lifecycle and the total cost of ownership. The products and services have to be integrated in the new offering but it is also advantageous if the new offering is flexible enough to accommodate various customers' needs and appeal to a broader customer

base. If the manufacturer sets itself to offer a complete end to end solution, the products and services should be completely integrated without making a distinction between the two. In which case, the manufacturer has to ensure that behind the solution it has all processes in place for its delivery.

### 7.2.1.6 Service risk

The service risk dimension of the transformation represents changes to the risk profile of the company that can occur in relation to the introduction of services. The traditional manufacturing firm has to assess its general aversion to risk as servitization does impose certain risks to the organisation. Moreover, the company has to develop a clear understanding of the potential economic benefits from offering services in addition to its products as servitization can be a costly undertaking. The company further has to quantify the investment involved in the transformation. This includes developing additional capabilities in terms of facilities and expertise through direct investment or through acquisitions of external businesses. Continuous assessment and measurement of the financial impact of servitization on company's performance is needed throughout the entire process. The manufacturing firm also has to increase it risk awareness regarding competitors, existing service providers, or new players on the market that can compete in the sphere of the new offering.

### 7.2.1.7 Sustainability

The sustainability dimension of the transformation reflects changes to the state of sustainability of the manufacturing firm as a result of the introduction of services in addition to products. The sale of use as opposed to the sale of products can be the answer to customers' frustration at escalating costs of purchasing goods over time, in particular high-value capital goods. Furthermore, servitization can be the answer to increasing costs of raw materials, and to wastage. While environmental regulations push recycling and energy efficiency standards higher and higher, traditional manufacturers can utilize the economic benefits of the ever increasing demands for sustainability through developing end-of-life services. Sustainability is inherent to servitization of traditional manufacturers in certain industries like remanufacturing where substantial

reductions in energy, material and water throughput are achieved through the delivery of services.
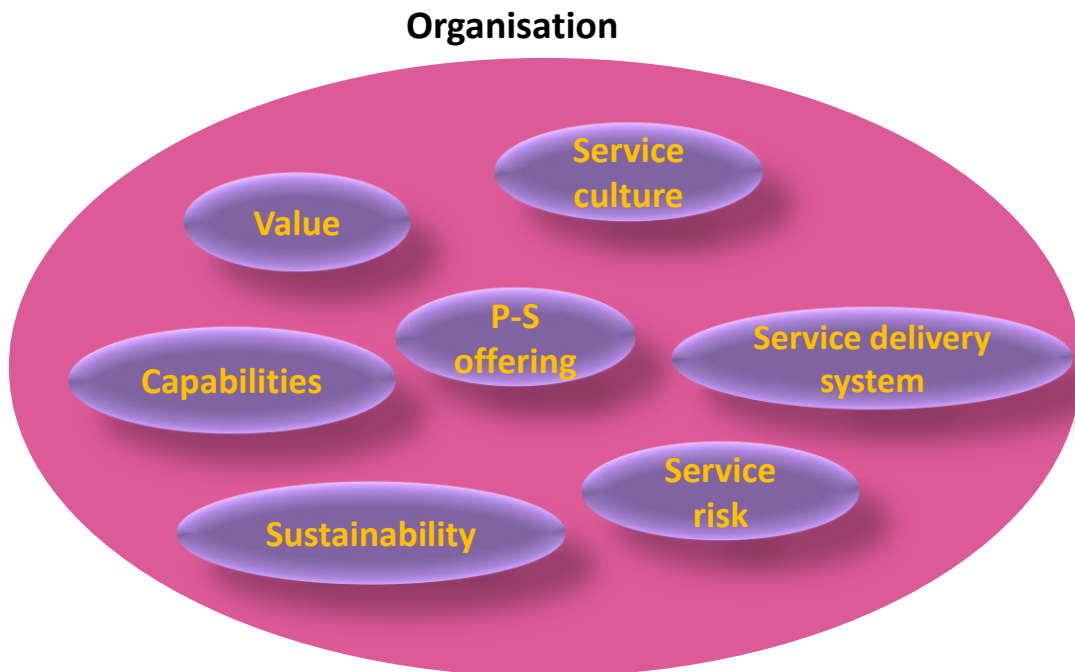
**Organisation**



**Figure 7-1 Dimensions of transformation in the servitizing organisation**

## 7.2.2 Dimensions of transformation in the Network

The synthesis of case-specific themes resulted in the final identification of four generic key dimensions of transformation in the manufacturer's network. The final labelling and definition of the four dimensions of transformation in the network, and their aggregated parameters are presented next and shown in Figure 7-2.

### 7.2.2.1 Customer

The customer dimension of the transformation represents changes to the manufacturer's involvement with its customers, and changes that customers endure as part of the servitization of the provider. The company has to adopt a new customer perspective whereby it recognises and interprets customer needs better even when customers cannot identify the essence of their problem. The manufacturer has to understand customer processes, be responsive to

customer requirements, and meet the demands of the customer's business environment. Services require that customers are cared for before, during and after the sale. The manufacturer, therefore, has to establish and maintain a new relationship of dynamic partnership with the customer. This involves continuous collaboration and communication between the provider and the customer. The servitizing company has to educate customers and demonstrate the value of the product-service offering as customers do not always understand a sophisticated proposition especially when such offering has never been present on the market before. Customers, on their side, have to undergo a shift of mind-set in accepting the servitization of the manufacturer. They have to change their traditional way of buying products into paying for integrated products and services, and for outcome. Servitization also exposes customers as it allows the provider to reach further out into the customer business.

### 7.2.2.2 Contract

The contract dimension of the transformation constitutes changes that have to be made to the contract between the manufacturer and the customer for the successful delivery of an integrated product-service offering. The servitizing company has to develop a new contract which is no longer based purely on sale of products but incorporates the service side of the offering. The contract has to establish new prices, performance measures, and service-based incentives. The danger of not setting the right contract for the customer from the outset is twofold. On one side the customer can incur costs for usage and services that have not been premeditated by the provider. On the other side, the provider can bear additional costs if the pricing of the offering is not correct. The manufacturing company, therefore, has to consider greater openness and transparency of the modelling and the estimates built into its contracts. Once set up correctly, the contract becomes the foundation of an effective relationship between provider and customer. Relationship governance built into the contract can further enable the new relationship with the customer.

### 7.2.2.3 Supply chain

The supply chain dimension of the transformation represents changes to the supply chain of the servitizing organisation. The manufacturing company has to develop new appreciation, and improve its understanding of company's suppliers as they become integral to the manufacturer's ability to deliver integrated products and services. Servitization fosters new relationships in the supply chain which prompts the establishment of new governance mechanisms, incentives and performance indicators. The manufacturing firm has to build a network of suppliers who are willing to change, invest in capabilities, and transform their businesses alongside its customer. This process is often accompanied with restructuring and reshuffling of the existing supply chain, and bringing in new partners if required for the delivery of the new offering. Establishing and maintaining long-term relationships with suppliers can facilitate the development of integrated products and services, and contribute positively to the outcome of the organisation's servitization endeavours.

### 7.2.2.4 Informal contract

The informal contract dimension represents changes to the manufacturer's relationships with its customers, suppliers, and other partners during servitization. With servitization, the physical contract becomes more complex over time in order to reflect the more sophisticated offering and the new risk. Manufacturers, therefore, have to focus their efforts on establishing an informal contract with their partners which is based on trust and empathy. The nature of services enables closer relationships between the provider and the customer. Furthermore, it fosters closer partnerships with suppliers. Establishing trust is critical for building organisation's long-term relationships, and for retaining customers and partners. The informal contract can be as critical to the success of transformation as the written one, as customers and partners are more likely to embark on the servitization journey with the manufacturer.
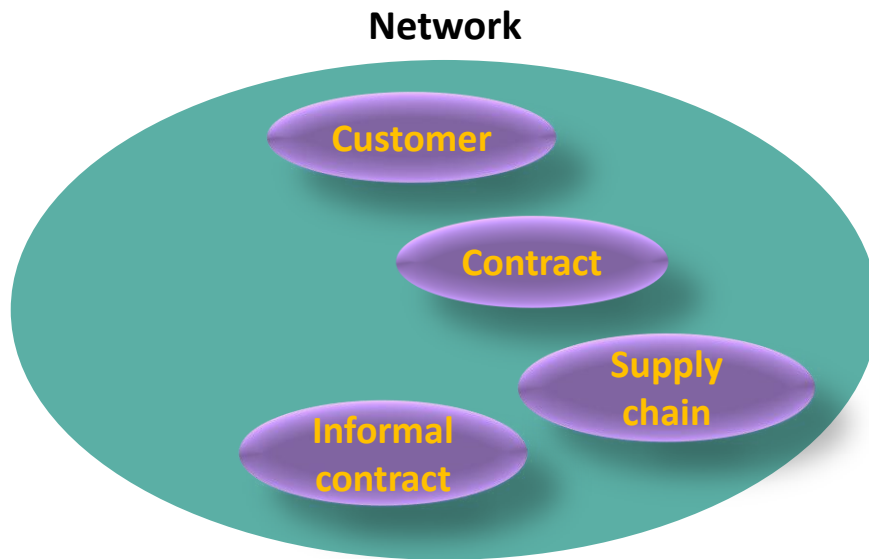
**Figure 7-2 Dimensions of transformation in the network of the servitizing organisation**

## 7.2.3 Change drivers for servitization

The synthesis of case-specific themes resulted in the final identification of a comprehensive set of change drivers for servitization classified under three categories: triggers, conditions, and facilitators. The aggregated parameters of each category of change drivers are shown below.

### 7.2.3.1 Triggers

The triggers category of change drivers for servitization represents events or discontinuities in the internal or external environment of the manufacturer which set off change. Servitization can be triggered by a single event or person, or by a combination of forces and pressures. Transformation can begin when the manufacturing firm identifies a business opportunity in services and wants to realise the economic benefits of offering services in addition to products. Another reason for considering servitization is the company's ambition or need to differentiate its offering from its competitors. New leadership can bring a new direction of the business and set off servitization. The threat to the economic survival of the organisation caused by poor performance of the organisation can also be another internal trigger. External discontinuities which can cause

servitization to begin include customer's demands and frustration at escalating costs of purchasing high-value products over time; a financial crisis and economic downturn; new environmental regulations and targets; and an immediate threat from a competitive offering. These are all triggers (depicted in Figure 7-3) that the manufacturing company has to acknowledge and anticipate to appear in its internal or external environment.

# Triggers

*Business opportunity*
*Opportunity to differentiate*
*New leadership*
*Customer frustration*
*Environmental regulations*
*Financial crisis*
*Threat from competition*
*Threat to organisation's survival*

**Figure 7-3 Change drivers for servitization: Triggers**

### 7.2.3.2 Conditions

The conditions category of the change drivers for servitization focuses on the forces that permit, enable, precipitate or constrain the transformation of a traditional manufacturer into a product-service provider. One major constraint that has an impact on servitization efforts is the customer reluctance to embrace the new offering. Manufacturing companies can face a negative market perception of the integrated product-service offering which they have to

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overcome. This can be due to the novelty of the offering on the market, the lack of understanding of the benefits by customers or because of general slow adoption of a total cost of ownership perspective. The outcome of servitization is further determined by the natural growth of the organisation and the availability of resources which can be employed for the change. Quality is another critical condition for servitization, and it relates to the quality of the organisation's process, and the quality of services provided by the manufacturer. General technology advancements also have an impact on the transformation, e.g. the advancement of internet technology, or other disruptive innovations which companies can apply in new manufacturing processes and services. The outcome of the transformation is also determined by further a set of conditions. The list includes the organisation's readiness and willingness for change. Servitization is more likely to be successful in manufacturing companies which observe such readiness and willingness for change in their organisations. The degree of radicalness and the speed of change are also conditions that affect the manufacturer's transformation. Radical changes can have a negative impact within the organisation, and change speed that is too fast or too slow can impede the progress of servitization; whereas continuous small and well-paced improvements can increase the chances of success. Threats from competition and from losing customers, and financial pressures from external and internal stakeholders can precipitate change. Lack of competition, in terms of product-service offering or scale, is an enabling condition for servitization. Change in traditional shared beliefs, i.e. changed perspectives among engineers regarding services can further enable the transformation. Technology advantages over competition, like unique product features and equipment health monitoring system, can enable the development of services. Setting up local manufacturing and supply chain operations can allow organisations to go through change more successfully. In certain industries, market regulations can enable the development and the delivery of services, in particular when services relate to safety.

These are all conditions shown in Figure 7-4 that the manufacturing company has to recognise and anticipate in its change endeavours.



*Market perception*
*Organisational growth*
*Quality*
*Technology advancement*
*Unmet business needs*
*Readiness and willingness to change*
*Availability of resources*
*Radicalness of change*
*Speed of change*
*Degree of threat*
*Stakeholders' pressure*
*Change in shared beliefs*
*Lack of competition*
*Previous service expertise*
*Technology advantage*
*Local operations*
*Market regulations*
**Conditions**

**Figure 7-4 Change drivers for servitization: Conditions**

### 7.2.3.3 Facilitators

The facilitators' category of change drivers for servitization contains drivers that facilitate the actual implementation of change in the servitizing organisation. A key driver linked to the success of servitization is setting up an integrated performance measurement and rewards system which reflects the company's strategy of selling services in addition to products. With the introduction of services, the manufacturing company has to develop new financial criteria, and set new sales projections and objectives to account for the sales of services. Moreover, the company has to adapt accounting principles to reflect new pay structure and incentives for the sales force. Alongside the performance criteria, employee's incentives and rewards, both formal and informal, should be aligned with the organisational change initiative in order to send the message about the importance of servitization. It is critical to price the new product-service offering correctly in view of the pricing position of the new offering in the company's portfolio of products and services; the costs of services in the new offering; and in view of its competitive position on the market. The manufacturing company has to establish a clear vision on servitization, and devise a service strategy which has to be communicated internally and externally. Communication is another key driver to facilitate the implementation of change. The manufacturer has to establish a consistent and co-ordinated channel of communication, and improve the flow of information throughout the organisation, and towards and from customers and partners. Communication related to servitization should be used to make the change more understandable in order to be accepted by employees, customers, and partners. This is further facilitated by an effective use of information systems. Commitment to servitization by leaders and employees of the company can further contribute to the success of the change efforts. Once commitment is demonstrated by top management, the company is more likely to engage employee's drive and enthusiasm for change. This can be facilitated by setting up company-wide training programmes on the issues of servitization and related changes.

**Facilitators**

Performance measurement
& rewards system

Communication
& information flow

Commitment

Training

Planning

Pricing

Alignment

Timing

Vision

Partnering

Service strategy

Information systems

Engaging with customer

Reducing complexity

**Figure 7-5 Change drivers for servitization: Facilitators**

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In addition, training should be provided to dealers and partners to ensure their acceptance and participation in the transformation. Continuous and methodical planning throughout the implementation of servitization is critical. The implementation of servitization is also facilitated by a further set of change drivers. This includes continuously engaging and partnering with customers, suppliers and external partners. Simplifying company's processes and the new product-service offering, and aligning and integrating existing and new functions and processes can further facilitate servitization. The manufacturer has to realise that services require better timing and responsiveness.

These are all facilitators (depicted in Figure 7-5) that the manufacturing company has to consider and utilise for the implementation of servitization.
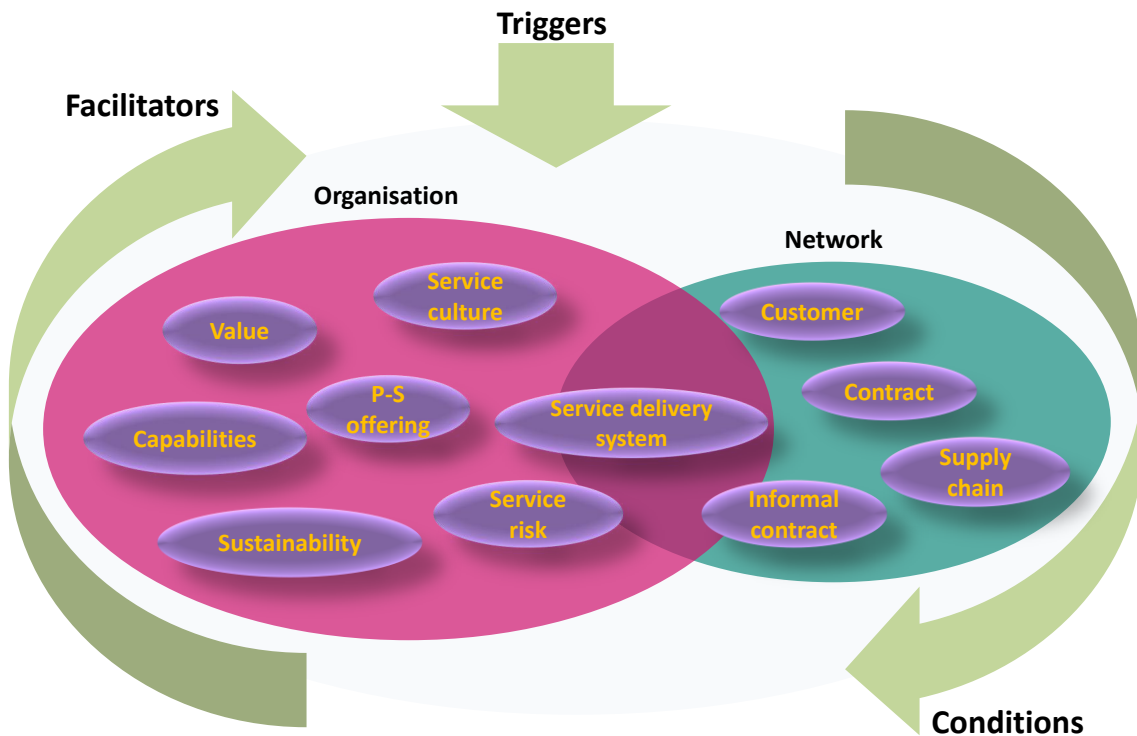
**Figure 7-6 Model for transformation towards a servitized organisation**

## 7.3 Discussion

This section discusses the results of the study in light of the value offered by the *Model for transformation towards a servitized organisation* composed in the previous section for managing servitization better. It also discusses the findings in relation to existing knowledge. Furthermore, it discusses the quality of the results from the critical realist perspective of the research.

### 7.3.1 The value of the model for managing servitization

The approach to servitization with the *Model for transformation towards a servitized organisation* is pragmatic. It recognizes that servitization is context specific, and that each manufacturing organisation enters the transformation at a different state; some companies are more advanced in their service development than others, and each company will have a different focus at a particular time. The model also shows that servitization is not a lone undertaking; rather it involves a network of partners and relationships.

The utility of the eleven dimensions of transformation in the model is that they correspond to the various starting points for change that different manufacturers adopt according to their specific circumstances - some companies start with setting up a service delivery unit, some with designing a new product-service offering, others with building closer relationship with their customers. It is important to appreciate that any of these starting points affect the remaining dimensions, and change is not limited to a small self-contained area of operation. For example, building a service delivery system requires that the manufacturer develops additional capabilities; or the change of the customer mind-set is facilitated with setting up the right contract, and building up trust. Different manufacturers can go through a different sequence of changes, and changes across dimensions are likely to occur in parallel. Another utility of these eleven dimensions, therefore, is that they provide a checklist that ensures consistency of the servitization efforts throughout the organisation and the network. The lesson is that in order truly to understand servitization it is essential to see it from all eleven perspectives.

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Servitization is triggered by a variety of internal and external discontinuities. The outcome of the change efforts is further determined by a series of change drivers which provide the conditions and facilitate the actual implementation of change. The existence of these forces that can progress or halt the transformation requires anticipation, and the implications of the change drivers should be well understood. These are factors which the manufacturing company can prepare for, and utilise for a positive outcome of its servitization efforts.

In summary, the model shows that the entry point to transformation and the sequence of changes are less important; rather it examines the essence of servitization. The value of the model is to ensure that traditional manufacturing firms grasp the concept of servitization and comprehend the magnitude of change.

## 7.3.2 Findings in relation to existing knowledge

A wide spread perception of servitization in the literature is that it proceeds in a linear fashion with manufacturing companies adding further services along a continuum until they become servitized (Vandermerwe and Rada, 1988; Oliva and Kallenberg, 2003). Brax (2005) questions the notion of linear evolutionary change and suggests that servitization is rather 'revolutionary' in its nature. However, no further elaboration on servitization as a change phenomenon has been developed.

Furthermore, the servitization literature to date has focused on individual aspects of servitization. For example, Vandermerwe and Rada's (1988) definition of servitization focuses on the product-service offering alone. Dainty (2007) focuses on the value of integrating products and services. Wise and Baumgartner (1999) focus on the customer dimension. Windahl and Lakemond (2006) focus on the network and state that relationships within the business network of the manufacturer play a key role in servitization. Davies et al. (2007) focus on the service delivery system. There has been a lack of a holistic comprehensive view on servitization.

An agreement exists in the literature, however, that servitization is difficult for manufacturers, and that there are factors that can determine whether servitization ends up as a success or failure. The challenges which traditional manufacturers have to overcome when they attempt to provide services to complement a product offering were found to be a major theme in the literature discussion. A set of organisational, financial, customer, supply chain, and market related challenges were identified in the literature. In addition, the drivers (enablers) of servitization surfaced as a second theme in the literature. However, the emerging themes of 'challenges' and 'drivers' needed clarification and conceptual distinction.

The gap in the literature was three fold and this study aimed at filling these gaps in knowledge, namely:

- Lack of understanding of servitization as a change phenomenon.
- Lack of a holistic comprehensive view on servitization.
- Lack of clarity of the concepts 'challenges' and 'drivers' of servitization.

The results of the study constituted fifty themes which emerged from the analysis of the data to reveal the variables that contribute to the outcome of servitization. Based on concepts found in change theory, these variables were classified as dimensions of transformation and change drivers for servitization. The dimensions represent the changes (or the components) that constitute the transformation. The change drivers for servitization represent the forces that progress or constrain servitization. The dimensions of transformation and change drivers for servitization were mapped onto the *Model for transformation towards a servitized organisation*. Concepts found in organisational theory contributed to establishing the nature of the servitizing manufacturing company. In servitization, a manufacturing organisation becomes a more open system exposed to a higher degree, and interconnected with, its network of customers and suppliers, and overall environment.

The findings reveal the characteristics of a complex phenomenon of transformative nature. The observed change has multiple aspects, and spreads

across the organisation. It leads to new forms, behaviours, processes and metrics. Furthermore, it affects manufacturer's customers and supply chain, and requires new type of relationships and governance mechanisms among stakeholders. Servitization crosses the boundaries of the organisation and creates higher levels of interdependency of the manufacturing company with its environment. It alters the context of the organisation, and increases the levels of risk. This implies that the implementation of the transformation requires a holistic macro-level perspective and understanding of the scope of change, and the risks involved.

In Chapter 4 (4.1.1), this research proposed that servitization can be described as:

> *A complex multidimensional change of transformative nature that causes significant discontinuities within the manufacturing firm. It increases the levels of risk for the servitizing organisation in relation to the cost of introducing services within a traditional product-based environment, and in relation to the increased exposure of the traditional manufacturing firm to its external environment. It stretches beyond the boundaries of the organisation, and creates new links and dependencies between the servitizing manufacturer and various stakeholders. The outcome of servitization is affected by forces of change.*

At this stage of the study, this proposition still holds true. Moreover, based on the subsequent empirical findings, the following can be added to it:

> *Servitization is a large-scale long-term change which requires significant resources. While it is transformative in nature, it is best implemented through slow continuous co-ordinated modifications in all eleven dimensions of transformation across the organisation and the network. Anticipation and utilisation of change drivers for servitization increase the chances for successful outcome.*

In relation to how servitization comes about and proceeds, it can be argued that servitization has a dual nature, which is expressed in the following:

(1) Servitization contains both emergent and planned aspects of change. The emergent aspect is typically observed at the beginning of the servitization journey, and whenever a trigger or a condition would come into play during the transformation. The planned aspect appears in the actual implementation of servitization. While triggers and conditions can steer the organisation in a certain direction, there are also facilitators that can be utilised for the implementation of change in order to reduce the levels of risk and increase the chances of success.

(2) Servitization occurs through both discontinuity and continuity. Namely, it proceeds through changes that are fundamental, large-scale and long-term, but at the same time not radical and fast at any given time.

Eisenhardt pointed out that "simplicity is elegant but often untrue" (Eisenhardt, 2000). In agreeing with those lines of thought, this study strove to recognise and capture the complexity, ambiguity and 'messiness' of servitization, and produce knowledge that is comprehendible and usable.

In summary, the research moved forward the discussion in the servitization literature. It extended knowledge on the nature of servitization as a change phenomenon, and threw light on how manufacturing companies can manage servitization better.

### 7.3.3 Quality of the research

The author, throughout the course of this study, made every attempt to ensure transparency and rigour of the study by striving to conduct the entire research process, the analysis and attainment of the results in a methodical and systematic way. As mentioned in Chapter 2, Miles and Huberman (1994) define five criteria as standards for the quality of qualitative research from the "critical realist" epistemological position. Namely, objectivity; reliability; internal validity; external validity, and application of the research. These five quality aspects

together with the role of the researcher in this study are discussed in the following sections.

### 7.3.3.1 Objectivity

The objectivity/confirmability of the research refers to the relative neutrality and freedom from bias and to the replicability of the study by others (Miles and Huberman, 1994). To address the objectivity criteria of the study, the researcher developed clear descriptions of the research methods employed in this study and an overall research methodology. Advance procedures for data collection through data collection protocols rooted in prior theory were developed. The author kept an audit trail of all the activities that took place throughout the research. Consistent data analysis displays for within-case and cross-case analysis were created. The researcher ensured that transparent procedures for performing the research are developed and put in place.

However, certain bias, from the perspectives of the collaborators and the researcher that stems from the nature of engaged scholarship should be acknowledged. During one-on-one interviews, the author was initially confronted with bias/reservations arising from the issue of openness, trust and confidentiality from the side of the industrial collaborators; in particular, from organisations which were market leaders in their industry. These reservations were subsequently minimised as the engagement between researcher and collaborator evolved. In the focus groups, bias from group thinking and potential group pressures to conformity had to be recognised. From the researcher's perspective, bias from seeking a solution to the problem and confirmatory evidence in an industry engagement due to substantial prior knowledge had to be rationalised during the research process.

### 7.3.3.2 Reliability

The underlying issue of the reliability/dependability/auditability of the research is whether the process of the study is consistent, reasonably stable over time and across researchers and methods (Miles and Huberman, 1994). To address this quality aspect, the researcher devised clear research questions and adopted

research design which is congruent with the research questions. Data across a range of settings and methods was collected and analysed in a consistent manner. Peers were debriefed after interviews and visits. In addition to recorded interviews, observations and personal notes were shared and discussed with colleagues in the field. Throughout the duration of the study, interim research findings were peer-reviewed and published to ensure on-going control of the quality of the produced results.

### 7.3.3.3 Internal validity

The internal validity criteria refers to the 'truth value' of the research findings, i.e. whether the findings of the study make sense; whether they are credible to the informants and to the reader; and whether the results authentically portray the object of the study (Miles and Huberman, 1994). To address the issue of internal validity, the researcher sought validation of the key research outputs by original informants and experts in the field. Moreover, continuous triangulation among the various data sources and the methods employed in the research was exercised. However, it should be noted that the nature of this research is exploratory and, therefore, it bears a degree of uncertainty to the internal validity of the findings. While this appears as a limitation to the research, it also provides an opportunity for further work to extend, test, and refine the results from this study.

### 7.3.3.4 External validity

The external validity criteria relate to the transferability of the findings into other contexts, and to the generaliseability of the research (Miles and Huberman, 1994). Although multiple qualitative studies do support external validity, it is not possible to make any statistical generalisations based on the cases in this thesis. However, it was possible to easily connect prior theory to the findings, and apply the conceptual model in each case and use it to structure and analyse the context of each study. This would lay claim to the generalisation of the model. The threats to external validity refer to whether the findings are specific to the selected cases and their circumstances. The selection of cases, therefore, was not random but based on a logic to sample diverse enough

cases to encourage broader applicability of the results. The challenge was to match the opportunities from companies that presented themselves during the project with the sampling logic. Nevertheless, the findings from this research can be further fruitfully tested and applied in other settings and contexts.

### 7.3.3.5 Application

The issue of application and utilisation refer to the "pragmatic validity" of the research, i.e. whether the findings of the study enhance our level of understanding and sophistication; and whether participants and stakeholders are able to take action during and after the inquiry (Miles and Huberman, 1994). The outcome of this study is an increased understanding of the transformation that traditional manufacturers undergo to become servitized organisations. This research produced a model for use and application in practice. Therefore, the level of usable knowledge is ranging from the development of insight into servitization to a model which guides action. The main consideration for the utilisation of the research results is that servitization is context specific. Therefore, users of the model should gear the knowledge from this research towards their particular setting and apply it accordingly.

In summary, Chapter 7 presented the results from the cross-case analysis of the seven individual empirical studies. The attained results led to the composition of the Model for transformation towards a servitized organisation. Discussion of the findings from the study was presented in relation to the value offered by the model and to existing knowledge. The quality of the research was reflected upon. This chapter prepared foundations for the discussion of key contributions of this work to the literature and to practice, which is accomplished in the next chapter.

# 8 CONCLUSIONS AND IMPLICATIONS OF THE RESEARCH

This final chapter draws together the conclusions of the study. The key contributions to knowledge made through this research are presented in Section 8.1. Section 8.2 examines the implications of the research and its contribution to practice. The limitations of the study are presented in Section 8.3. In Section 8.4, opportunities for further research are identified. The chapter ends in Section 8.5 with final remarks that conclude the thesis.

## 8.1 Contributions to knowledge

This section outlines the core contributions of this study, and discusses the primary and secondary contributions to knowledge.

### 8.1.1 Core contributions

The main outcome of this research is an increased understanding of the transformation that traditional manufacturers undergo to become servitized organisations. The study adopted a strategy of engaged scholarship to obtain the perspectives of industrial collaborators and stakeholders in this qualitative theory building research. Empirical evidence from a series of seven individual studies, including case studies, action research and focus groups, provided rich insight into the complex changes that servitization brings to a manufacturing organisation and its context.

The core contributions of the study are summarised as follows.

- A key set of nine challenges that traditional manufacturers have to overcome to become servitized organisations was empirically derived in Section 6.1.1.1 and summarised in Table 6-1.

- The notions of 'challenges' and 'drivers' found in the servitization literature were clarified and conceptually sophisticated in Section 6.1.2.

- Eleven constructs were developed which defined the dimensions of transformation during servitization - seven in the manufacturing organisation, and four in the organisation's network. The dimensions of transformation in the servitizing organisation included: service-delivery system; capabilities; service culture; value; product-service offering; service risk; and sustainability (Section 7.2.1). The dimensions of transformation in the network of the servitizing manufacturer included: customer; contract; supply chain; and informal contract (Section 7.2.2).

- An extensive set of thirty nine change drivers for servitization were identified and detailed. These were classified into three categories: triggers, conditions, and facilitators. Eight forces of change were found to trigger servitization in manufacturing organisations. Seventeen conditions were found to influence the outcome of servitization. Fourteen change drivers were found to facilitate the actual implementation of servitization (Section 7.2.3).

- The combination of the eleven dimensions of transformation and the thirty nine change drivers for servitization led to the formation of the *Model for transformation towards a servitized organisation* shown in Figure 8-1. The model represents a novel way of examining servitization and a new approach to managing servitization (Section 7.2 and Section 7.3.1).

- The study contributed towards the identification of the nature of servitization as a change phenomenon (Section 4.1.1 and Section 7.3.2). Servitization was revealed as a complex multidimensional change of transformative nature that causes significant discontinuities within the manufacturing firm and increases the levels of risk. It stretches beyond the boundaries of the organisation, and creates new links and dependencies between the servitizing manufacturer and various

stakeholders. It is a large-scale long-term change which requires significant resources. While it is transformative in nature, it is best implemented through slow continuous co-ordinated modifications in all eleven dimensions of transformation across the organisation and the network. Anticipation and utilisation of change drivers for servitization increase the chances for successful outcome. Servitization has a dual nature, i.e. it contains emergent and planned aspects of change. Furthermore, it occurs through both discontinuity and continuity, i.e. through changes that are fundamental, large-scale and long-term, but at the same time not radical and fast at any given time.
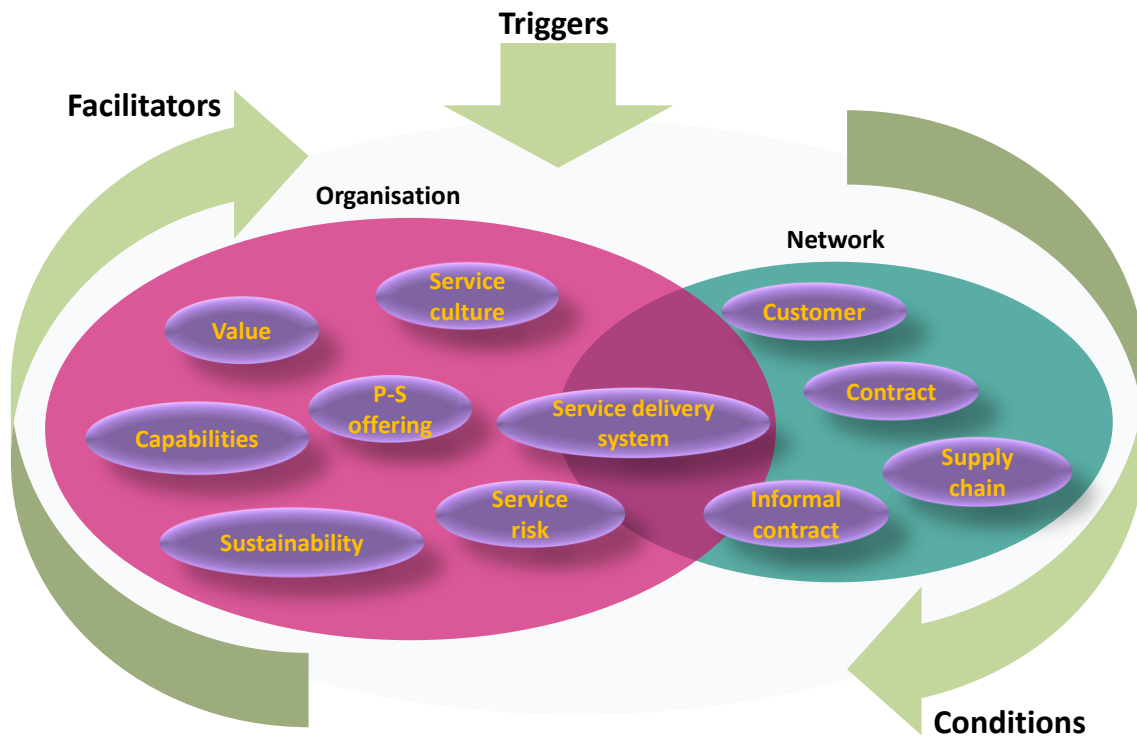


**Figure 8-1 Copy of Figure 7-6: Model for transformation towards a servitized organisation**

In its essence, this research advanced the emerging field of servitization, and contributed to the field of organisational change which is the focus of the next two sections.

### 8.1.2 Primary research contributions

The primary contribution of this research is to the field of Servitization. This study makes a significant contribution that it addresses an under-researched aspect of servitization, i.e. as a change phenomenon for traditional manufacturers. Furthermore, it strengthens the theoretical foundation of the servitization literature, which is found to be rich in empirical evidence but lighter in theory. Multiple theoretical concepts from the organisational change and transformation, and organisational theory bodies of knowledge are brought into the research of servitization to achieve this.

The research uncovers the characteristics of a large-scale, complex, resource- and time-demanding transformative change that traditional manufacturers confront when they attempt to become providers of integrated products and services. It is found that servitization exposes the manufacturing organisation to its environment in new ways, and closely interlinks the organisation with a network of stakeholders through new dependencies. The dimensions of the transformation are drawn out to reveal the parameters of change during servitization. The research further contributes to knowledge by identifying the forces that drive the transformation of a traditional manufacturer into a product-service provider. The resultant *Model for transformation towards a servitized organisation* depicts servitization in a novel manner, and lays the foundations for future theory extending and testing.

The primary focus of the contribution has been geared towards the field of servitization. However, the research simultaneously contributes to a wider body of literature associated with servitization which deals with the phenomenon of integrating products and services by manufacturers seeking to increase revenues through new combined offerings. These streams in the literature include product-service systems and service operations management.

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### 8.1.3 Secondary research contributions

The secondary contribution of this research is to the field of organisational change and transformation, and change management. The study contributes to knowledge in the following aspects.

First, the study identifies servitization as a change phenomenon which has not been previously researched in this body of knowledge.

Second, the research builds upon concepts from the organisational change and transformation literature to create a more thorough understanding of servitization. This novel approach to servitization sees the application of established change concepts in a new research field.

Third, the study resulted in the *Model for transformation towards a servitized organisation* which is a new transformation model. The model devises eleven dimensions of transformation and three comprehensive sets of change drivers that specifically relate to servitization, which distinguishes it from a generic high-level change model.

Fourth, the research provides a new change management tool, as the purpose of the model is to facilitate the management of the transformation of manufacturing companies towards servitized organisations in practice.

## 8.2 Implications of the research

The aim of the research project has been to advance academic research and to enlighten industry; hence, this study holds implications for theory and practice. Barge and Shockley-Zalabak (2008) warn researchers that it is tempting to equate the notion of engaged scholarship with action research, as it involves intimately working with practitioners and managing their participation in the design and conduct of the study. Van de Ven and Johnson (2006) note that engaged scholarship in both of its traditional forms of research (e.g. case studies and observation) and action research emphasise the importance of the following: "to learn to observe, to develop relationships with clients and the people being studied, to listen attentively, to elicit information in conversations

and interviews, and to use structured devices for gathering and analysing data''.
Van de Ven (2007) further suggests that engagement entails greater
responsibility to the stakeholders involved in the study. In line with these
principles, throughout the duration of the research the author made every
attempt to provide feedback to the stakeholders of the study: industry
practitioners, academic community, and research funding bodies. In that
respect, the following feedback activities were realised, and listed below in
chronological order:

- ✓ July 2009: "Learning points" from Focus group 1 were distributed to all participants in the focus group.
- ✓ September 2009: Poster presentation of the research to the Cranfield IMRC (funding body of this study) at Cranfield University, UK.
- ✓ January 2010: Poster presentation of the research to the UK EPSRC and Cranfield IMRC (funding bodies of this study), and international industrial and academic reviewers at the *Product-Service Systems International Review*, Cranfield University, UK.
- ✓ July 2010: Interim result of the study and a draft *Model for transformation towards a servitized organisation* were presented to ABC Remanufacturing Services (Case study B).
- ✓ September 2010: Conference presentation at the 3rd EurOMA International Service Operations Management Forum (SOMF) "New Directions in Service Operations Management", University of Bath School of Management, 20-21 September 2010, Bath, UK.
- ✓ September 2010: Poster presentation of the research to industry practitioners and academics at the Grand Challenge in Service Week, Cambridge Service Alliance, Institute for Manufacturing, University of Cambridge, 21-26 September 2010, Cambridge, UK.
- ✓ October 2010: Conference presentation "Conceptual transformation framework for servitization" at the International Conference on Advances in Production Management Systems (APMS) 2010 "Competitive and

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Sustainable Manufacturing, Products and Services", 11-13 October 2010, Cernobbio, Como, Italy.

✓ February 2011: Interim result of the study and a draft *Model for transformation towards a servitized organisation* were presented to ServPrint (Case study C).

✓ February 2011: Interim results of the study and a draft *Model for transformation towards a servitized organisation* were presented to academics on the ASSERPRO Project: Assessing the impacts of service business to industrial companies from VTT Finland at Cranfield University, UK.

✓ May 2011: Conference presentation "Elements of change in the transformation towards product-service systems" at the 3rd CIRP International Conference on Industrial Product Service Systems (IPS2), Functional Thinking for Value Creation, Technische Universität Braunschweig, 5-6 May, 2011, Braunschweig, Germany.

✓ July 2011: Conference presentation "Change drivers for transformation towards product-service systems" at the 18th International Annual EurOMA Conference "Exploring Interfaces", 3-6 July 2011, Cambridge, UK.

✓ August 2011: New communication strategies for improving the value proposition message and showcasing the customer journey on their website were presented to Vitsœ (Case study E).

✓ September 2011: Presentation of interim results to Cranfield IMRC (funding body of this study), Cranfield, UK.

✓ September 2011: Conference presentation "Drivers of transformation towards servitized organisational forms: a conceptual framework" at the 25th Annual British Academy of Management (BAM) Conference "Building and Sustaining High Performance Organisations in a Challenging Environment", 13-15 September 2011, Aston Business School, Birmingham, UK.

✓ September 2011: Conference presentation "Servitization lessons learnt from a small furniture manufacturing company" at the 4th EurOMA International

Service Operations Management Forum (SOMF), 19-20 September 2011, Florence, Italy.

✓ September 2011: Conference presentation "Communicating the product-service systems offering to the customer: a web content analysis" at the 4th EurOMA International Service Operations Management Forum (SOMF), 19-20 September 2011, Florence, Italy.

✓ December 2011: Final results from this study and the *Model for transformation towards a servitized organisation* were presented to Vitsœ (Case study E).

✓ December 2011: All industry practitioners who took part in this research were presented with a set of copies of a field book which contains results from this research entitled "Organisational transformation for effective delivery of integrated products and services: thoughts on practice", published by Cranfield University, UK, for use and application in their respective organisations.

✓ February 2012: Final results from the research were presented to MAN Truck & Bus UK (Case study D).

✓ February 2012: Final results from the research were presented to the UK EPSRC and Cranfield IMRC (funding bodies of the research), Cranfield, UK.

The findings in this thesis and the *Model for transformation towards a servitized organisation* can be used for a number of practical and theoretical purposes. Specific audiences who may use a comprehensive model for transformation of manufacturers into product-service providers are similar to those identified by Van de Ven (2007) as users of engaged scholarship, and as stakeholders in the servitization of manufacturing. This study is relevant to the following specific groups: (i) industry practitioners; (ii) academics; (iii) research funders and (iv) policy makers.

### 8.2.1 Industry practitioners

This research addresses issues of importance to practitioners as manufacturers strive to become more competitive in a turbulent global marketplace through

services. The evidence shows that industry practitioners considering servitization face a transformation which is multidimensional and resource intensive, and exposes the organisation to new risks. Moreover, the transformation permeates beyond the boundaries of the organisation into the sphere of organisation's customers and suppliers. Such large-scale organisational change, therefore, should not be taken lightly and without preparation. The author's model has been devised to help organisations manage their transformation towards effective delivery of integrated products and services. The purpose of the model is to help reduce the disruption that is currently observed in companies which move from product-centric to servitized. The model is intended as a guide for better understanding, analysing and planning the transformation into a product-service provider. It is hoped that it will generate new ideas, and facilitate decision making and problem solving during servitization. Industry practitioners can use the model in the following ways: (i) to analyse organisational options; (ii) for planning purposes; (iii) for implementation purposes and (iv) for monitoring progress. The organisation's context and servitization goals determine which of these uses are employed. The four distinct uses of the model provide manufacturing companies with greater knowledge with which they can engineer servitization efforts with improved chances for a successful outcome.

### 8.2.1.1 Use to analyse organisational options

Managers of traditional manufacturing firms are challenged by new circumstances that require new approaches to ensure the survival and the profitability of their organisations. This model is offered as a new method for executives of manufacturing firms to grasp the essence of servitization, and to understand the scale and the scope of organisational transformation. It can help a manufacturing company to understand the numerous and complex concepts associated with the servitization phenomenon; to start a debate as to whether servitization can be considered as an option for the organisation; to generate new ideas; and to expand the discussion within the management teams. Prior to undertaking servitization strategies managers should have a good

understanding of the organisation's current position in relation to the dimensions of transformation, as well as a clear understanding of their organisation's context in relation to the change drivers for servitization. Once the management of the company understands what servitization entails, it should have a clear answer to the question whether servitization is a suitable option for the organisation.

### 8.2.1.2 Use for planning purposes

Once the manufacturing company has recognised that adding a service component to its product offering may enhance its competitive position, it needs to establish the effects of servitization to the organisation's current and future state of operations. Managers have to develop scenarios of possible actions and outcomes during servitization. These scenarios should be modelled in relation to each of the dimensions of transformation and each category of change drivers for servitization in the model. For example, different scenarios should be developed on the different degrees of involvement of the manufacturer with the business processes of its customers. It is important to review the broadest range of scenarios and not exclude any options prematurely. Scenarios should also be reviewed in terms of the resources that their implementation would require. Evidence shows that embarking on servitization with insufficient resources may expose the organisation to unacceptable risks. At this stage, practitioners can use the model for signposting a servitization route, and for developing change management plans for implementing the change. It is critical that management assesses the organisation's readiness and availability of resources to undertake or continue the transformation towards a servitized organisation. It is important to understand that transformation success can be enhanced prior to the start of change activities with comprehensive preparation.

### 8.2.1.3 Use for implementation purposes

The model can be used for the actual implementation of servitization. It can be utilised to lay out a vision and a roadmap for the way forward, and to devise a clear company strategy for servitization. Managers have to communicate the

vision and the strategy internally in the organisation, and to their customers and suppliers. The dimensions of transformation and change drivers for servitization can be translated into a company-level action plan for moving towards the integration of products and services. The action plan should comprise a set of milestones found to be critical to the outcome of the transformation in this study, whereby each dimension of transformation represents a milestone in the servitization efforts, and each change driver is a force that has to be anticipated, managed or utilised for positive outcome. The top management has to assign members of the organisation who will drive the transformation forward in relation to each dimension of transformation. The model can be further adopted as a reference point to support teaching activities and training for employees of the organisation, as well as network partners in order to ensure their participation and contribution to the servitization of the manufacturing company. The model can be used to identify challenges during the implementation and overcome roadblocks to successful transformation. It can also be used to keep on course of servitization; to anticipate and avoid potential problems; or to detect and sidestep emerging problems throughout the implementation of change. The learning throughout the transformation can also be helpful to the manufacturing organisation in the future.

### 8.2.1.4 Use for monitoring progress

Managers can monitor servitization as it occurs using the model. They can assess progress and adjust direction if required. The model provides guidance in the review of the areas that are likely to be affected by the implementation of servitization through the dimensions of transformation and the change drivers for servitization. It helps to anticipate changes and address issues that may arise during the organisational transformation. Managers whose servitization efforts fall short of success can use the model to identify the reasons why their transformational attempts did not bear fruit and can revise their strategies and tactics accordingly. Alternatively, they may discover that the challenges to servitization are too great to overcome at a particular time, and can plan smaller

successful changes towards the development of services that can position the manufacturing company for future organisational transformation.

## 8.2.2 Academics

Academics are a second major group who can use the model. The model can be used by academics for research and for education purposes. This study enhances cross-disciplinary research with significance for practice, and can instigate discussion among academics from individual disciplines. Academics can use a comprehensive model for servitization as a tool for debate. The model can form a common ground for understanding of servitization, and can prompt talking points about the transformation of manufacturing companies. It can also further dialogue between academics and practitioners on the subject of servitization. Furthermore, academics and practitioners can identify parts of the model which can form new research areas.

It is the author's view that each dimension of transformation in the model and each change driver's category present a new area of research which can be further investigated individually in different contexts and from different perspectives. The evolved constructs then can be put back together into a next version of the model. Within academia, students can benefit from enhancements to teaching on MBA and MSc programmes arising from the new knowledge developed. The individual case studies and the model developed in this thesis can be used for teaching management of organisational change for servitization.

## 8.2.3 Research funders

Research funders can use the findings from this study to determine whether a particular area of research into servitization is useful in terms of funding further investigation. This could be one or more of the dimensions of transformation in the model. Another major use is as a core model for further research aimed at testing and refinement. It can also be researched for further extension in different contexts, from new perspectives, and as new information is obtained.

### 8.2.4 Policy makers

Manufacturing is critical to the success of the economy. Policy makers can use the model to identify current trends in manufacturing, and areas for future development. They can foresee challenges and opportunities that can influence three policy areas: skills, innovation and sustainability.

## 8.3 Limitations of the study

This study has several limitations that reflect imperfections in relation to the research design and the overall research. These limitations need to be acknowledged.

Although the chosen research design is aligned with the research problem and the purpose of the study, it has imposed certain limitations. The research approach followed was qualitative; and the research methodology was based on engaged scholarship which incorporated multiple methods for data collection. There are a number of well-known concerns arising from qualitative research. One such limitation is related to the ability of other researchers to replicate this study and the obtained results, which cannot be achieved as easily as when adopting a quantitative methodology. Therefore, the author has made every attempt to ensure transparency and rigour of the research following through a set of quality criteria.

A second limitation to this research has been access to case study companies, especially for collaborative research. This includes access to senior level executives of manufacturing companies considering or undergoing servitization within the timeframe of the project, in particular for conducting action research. The researcher would have preferred to have performed a second intervention at a large high-value manufacturing organisation, in addition to the action research carried out at a small-size furniture manufacturing company. This would have allowed further testing and refining of the model developed in the study. Despite continuous attempts from the researcher and vivid interest expressed by industry practitioners on the subject of servitization, further engagement from a large manufacturing company did not materialise during the

research process. Such intervention, especially at top company level, proved time consuming, and difficult to receive highest priority treatment by senior executives within the duration of the research. Fortunately, the conducted cross-industry case studies and high-profile focus groups have been sufficiently thorough to provide richness of data, and to ensure the breadth and depth of the study in order to build a comprehensive model.

The main limitation of the overall research is the novelty and the complexity of the research problem. The researcher was confronted with a 'big' real world problem faced by manufacturing organisations which was largely under-researched. Furthermore, the research required a grasp of and insights from multiple disciplines in order to start building new theory in a nascent domain. Therefore, further research is required in order to validate, extend, test and refine the results from this study.

The limitations acknowledged in relation to the research design and the overall research were largely unavoidable as part of the realisation of the study. However, it should be recognised that these limitations also represent opportunities for further research.

## 8.4 Opportunities for further research

The nature of this research has been exploratory and the study has been performed in order to build new theory. While the findings throw light on the transformation of manufacturers towards servitized organisations, they also lay the foundations for future work. The following is a list of areas with potential for further research. Three major opportunities were identified by the author.

### 8.4.1 Servitization from network perspective

The findings from this research show that the transformation that manufacturers undergo to become product-service providers permeates beyond the boundaries of the organisation into the sphere of organisation's customers and suppliers. The focus of the research has been the manufacturing company, and the study has been performed from the perspective of the manufacturer.

However, it was found that during servitization a series of changes occur in relation to the manufacturer's network of customers and suppliers; whereby customers and suppliers experience changes as a result of the provider's servitization efforts. This suggests that further work can be done to investigate servitization from the perspective of the network of the manufacturing organisation, i.e. from customer and supplier view. Case studies can be conducted at customers and suppliers of a servitizing manufacturer to understand better how the network is affected in the transformation.

### 8.4.2 Longitudinal case study

Given the exploratory nature of this research and the variance research design, this study outlined the dimensions of transformation and change drivers for servitization. Further research could take the form of a longitudinal case study of a manufacturing company undergoing servitization whereby the Model for transformation towards a servitized organisation is tested and refined. Moreover, a longitudinal case study can investigate the transformation in terms of events, i.e. in a process research design. While it provides an interesting research opportunity, however, a longitudinal case study may impose certain challenges due to the fact that the current observed average period of transformation is ten years. Therefore, before undertaking such research, it is important to recognise and consider the constraints of studying long-term transformative change in organisations over time.

### 8.4.3 Quantitative research

The findings of this research contributed to the formation of the Model for transformation towards a servitized organisation. The model incorporates eleven dimensions of transformation in the manufacturing company and its network. It also contains three groups of change drivers for servitization. The dimensions of transformation and change drivers for servitization were conceptually derived from a series of qualitative studies. Further work can be performed to assess and evaluate the individual contribution of each dimension and change driver towards successful transformation. This calls for a survey

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which weighs all dimensions and change drivers with the aim to assess and rank them in terms of importance and criticality to the outcome of servitization.

## 8.5 Final words

Throughout the duration of the project, this research has met with profound interest from academics and practitioners alike. Servitization is alive. It is a field where academics and practitioners are trying to learn from one another with a new sense of urgency. Enlightened managers are already practicing servitization, and have been for a number of years. However, they have also often found servitization to be a prolonged and cumbersome experience. They attribute the challenges that they face to the lack of knowledge about the changes ahead, and to the lack of guidance on how to manage their way through such intense transformation in their organisations. The challenge for academics has been to keep track of servitization, and to reflect and present new practices in a timely way so that servitization and learning progress together. The contribution of this research has been to take a step in that direction. There is no straight road to servitization. This thesis, however, has been written with the hope that it will make the journey better.

# REFERENCES

Adler, D., Ludewig, P., Kumar, V. and Sutherland, J. (2007), "Comparing energy and other measures of environmental performance in the original manufacturing and remanufacturing of engine components", *Proceedings of the 2007 International Manufacturing Science and Engineering Conference*, October 15-17, 2007, Atlanta, Georgia, USA.

Antonacopoulou, E. and Konstantinou, E. (2008), "The New Service Model: a review, a critique and a way forward", *The Service Industries Journal*, Vol. 28, No. 6, p. 845-860.

Araujo, L. and Spring, M. (2006), "Services, products, and the institutional structure of production", *Industrial Marketing Management*, Vol. 35, p. 797-805.

Archer, B. (2002), *Transformation in Public Organisations*, PhD Thesis, University of Southern California, Los Angeles, California.

Auramo, J. and Ala-Risku, T. (2005), "Challenges for going downstream", *International Journal of Logistics: Research and Applications*, Vol. 8, No. 4, p. 333-345.

Baden-Fuller, C. and Stopford, J. (1995), *Rejuvenating the Mature Business*, Routledge, London.

Baines, T., Lightfoot, H., Evans, S., Neely, A., Greenough, R., Peppard, J., Roy, R., Shehab, E., Braganza, A., Tiwari, A., Alcock, J., Angus, J., Bastl, M., Cousens, A., Irving, P., Johnson, M., Kingston, J., Lockett, H., Martinez, V., Michele, P., Tranfield, D., Walton, I. and Wilson, H. (2007), "State-of-the-art in product-service systems", *Proceedings of the Institution of Mechanical Engineers, Part B: Journal of Engineering Manufacture*, Vol. 221, No. 10, p. 1543-1552.

Baines, T., Lightfoot, H. and Kay, J. (2009)a, "Servitized manufacture: practical challenges of delivering integrated products and services", *Proceedings of the Institution of Mechanical Engineers, Part B: Journal of Engineering Manufacture*, Vol. 223, No.9, p. 1207-1215.

Baines, T., Lightfoot, H., Kay, J. (2009)b, "The servitization of manufacturing: a review of literature and reflection on future challenges", *Journal of Manufacturing Technology Management*, Vol. 20, No. 5, p. 547-567.

Baines, T., Lightfoot, Peppard, J., Johnson, M., Tiwari, A., Shehab, E. and Swink, M. (2009)c, "Towards an operations strategy for product-centric

servitization", *International Journal of Operations & Production Management*, Vol. 29, No. 5, p. 494-519.

Baines, T., Lightfoot, H. and Smart, P. (2011), "An exploration of vertical integrations and facilities practices within servitized operations", in: *18th International Annual EurOMA Conference "Exploring Interfaces"*, 3-6 July 2011, Cambridge, UK.

Balogun, J. and Hope-Hailey, V. (2008), *Exploring Strategic Change*, (3rd ed), Prentice Hall, London.

Bamford, D. R. and Forrester, P. L. (2003), "Managing planned and emergent change within an operations management environment", *International Journal of Operations & Production Management*, Vol. 23, No. 5, p. 546-564.

Barge, J. K. and Shockley-Zalabak, P. (2008), "Engaged Scholarship and the Creation of Useful Organisational Knowledge", *Journal of Applied Communication Research*, Vol. 36, No. 3, p. 251-265.

Bartunek, J. M. (1984), "Changing interpretive schemes and organisational restructuring: the example of a religious order", *Administrative Science Quarterly*, Vol. 29, p. 355-372.

Bartunek, J. M. (2007), "Academic-practitioner collaboration need not require joint or relevant research: toward a relational scholarship of integration", *Academy of Management Journal*, Vol. 50, No. 6, p. 1323-1333.

Bartunek, J. M. and Moch, M. K. (1994), "Third-order organisational change and the Western mystical tradition", *Journal of Organisational Change Management*, Vol. 7, No. 1, p. 24-41.

BERR (2008), *Manufacturing: new challenges, new opportunities*, report number 08/715, Department of Business Enterprise & Regulatory Reform and Department for Innovation, Universities & Skills, London, UK

Bititci, U. (2007), "An executive's guide to business transformation", *Business Strategy Series*, Vol. 8, No. 3, p. 203-213.

Bititci, U., Mendibil, K. and Maguire, C. (2010), "High value manufacturing: a case study in transformation", *Proceedings of the Institution of Mechanical Engineers, Part B: Journal of Engineering Manufacture*, Vol. 224, No. 10, p. 1599-1614.

Bitner, M. J. and Brown, S. W. (2008), "The service imperative", *Business Horizons*, Vol. 51, No. 1, p. 39-46.

Borgatti, S. and Foster, P. (2003), "The Network paradigm in organisational research: a review and typology", *Journal of Management*, Vol. 29, No. 6, p. 991-1013.

Brax, S. (2005), "A manufacturer becoming service provider - challenges and a paradox", *Managing Service Quality*, Vol. 15, No. 2, p. 142-155.

Buchanan, D. (2003), "Getting the story straight: illusions and delusions in the organisational change process", *Tamara: Journal of Critical Postmodern Organisation Science*, Vol. 2, No. 4, p. 7-21.

Bullock, R. J. and Batten, D. (1985), "It's just a phase we're going through: a review and synthesis of OD phase analysis", *Group and Organisation Studies*, Vol. 10, No. 4, p. 383-412.

Burke, W. (2002), *Organisational Change: Theory and Practice*, Sage Publications, Thousand Oaks, CA.

Burnes, B. (1996), "No such thing as ... a "one best way" to manage organisational change", *Management Decision*, Vol. 34, No. 10, p. 11-18.

Burnes, B. (2004), *Managing Change: A Strategic Approach to Organisational Dynamics* (4th ed), Prentice Hall, Harlow.

By, R. T. (2005), "Organisational change management: a critical review", *Journal of Change Management*, Vol. 5, No. 4, p. 369-380.

Chapman, J. A. (2002), "A framework for transformational change in organisations", *Leadership & Organisation Development Journal*, Vol. 23, No. 1, p. 16-25.

Chase, B. and Garvin, D. (1989), "The Service Factory", *Harvard Business Review*, Vol. 67, No. 4, p. 61-69.

Claes, B. and Martinez, V. (2011), "Servitization ecology: changing product-centric manufacturers to become product-service providers", in: *2010 Academy of Management Annual Meeting: Dare to Care: Passion and Compassion in Management Practice and Research*, 6-10 August 2010, Montreal, Canada.

Cohen, M., Agrawal, N. and Agrawal, V. (2006), "Winning in the aftermarket", *Harvard Business Review*, Vol. 84, No. 5, p. 129-138.

Connor, T. (2002), "The resource-based view of strategy and its value to practising managers", *Strategic Change*, Vol. 11, No. 6, p. 307-316.

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Cook, M., Bhamra, T. and Lemon, M. (2006), "The transfer and application of Product Service Systems: from academia to UK manufacturing firms", *Journal of Cleaner Production*, Vol. 14, No. 17, p. 1455-1465.

Cook, M., Bhamra, T. and Lemon, M. (2006), "The transfer and application of Product Service Systems: from academia to UK manufacturing firms", *Journal of Cleaner Production*, Vol. 14, No. 17, p. 1455-1465.

Cranfield University, (2007), Stage 'Zero Zero', Manufacturing matters, Cranfield Unviersity, Cranfield, UK http://www.cranfield.ac.uk/sas/pdf/stage00-1.pdf (accessed 13 January, 2011).

Dainty, A. (2007), "Achieving value through product-service integration: contexts and challenges", in *CIB Report: Publication 313*, The Netherlands

Davies, A., Brady, T. and Hobday, M. (2006), "Charting a path toward integrated solutions", *MIT Sloan Management Review*, Vol. 47, No. 3, p. 39-48.

Davies, A., Brady, T. and Hobday, M. (2007), "Organising for solutions: systems seller vs. systems integrator", *Industrial Marketing Management*, Vol. 36, No. 2, p. 183-193.

Deising, P. (1972), *Patterns of Discovery in the Social Sciences*, Routlege and Kegan Paul, London, UK.

Dickens, L. and Watkins, K. (1999), "Action Research: Rethinking Lewin", *Management Learning*, Vol. 30, No. 2, p. 127-140.

DiMaggio, P. and Powell, W. (1991), Introduction, in: W.W. Powell and P.J. DiMaggio (eds) *The New Institutionalism in Organisational Analysis*, p. 1-38, Chicago Press, University of Chicago, Chicago.

Dunphy, D. and Stace, D. (1993), "The strategic management of corporate change", *Human Relations*, Vol. 46, No. 8, p. 905-918.

Easton, G. (2010), "Critical realism in case study research", *Industrial Marketing Management*, Vol. 39, No. 1, p. 118-128.

Edmondson, A. C. and McManus, S. E. (2007), "Methodological fit in management field research", *Academy of Management Review*, Vol. 32, No. 4, p. 1155-1179.

Eisenhardt, K.M. (1989), "Building theories from case study research", *Academy of Management Review*, Vol. 14, No. 4, p 532-550.

Eisenhardt, K. (1991), "Better stories and better constructs: the case for rigor and comparative logic", *Academy of Management Review*, Vol. 16, No. 3, p. 620-627.

Eisenhardt, K. (2000), "Paradox, spirals, ambivalence, the new language of change and pluralism", *Academy of Management Review*, Vol. 25, No. 4, p. 703-705.

Eisenhardt, K. and Graebner, M. (2007), "Theory building from cases: opportunities and challenges", *Academy of Management Journal*, Vol. 50, No. 1, p. 25-32.

Eldrod II, P. D. and Tippett, D. D. (2002), "The "death valley" of change", *Journal of Organisational Change Management*, Vol. 15, No. 3, p. 273-291.

Foote, N., Galbarith, J., Hope, Q. and Miller, D. (2001), "Making solutions the answer", *The McKinsey Quarterly*, No. 3, p. 84-93.

Galbraith, J. R. (2002), "Organising to deliver solutions", *Organisational Dynamics*, Vol. 31, No. 2, p. 194-207.

Gebauer, H. and Fleisch, E. (2007), "An investigation of the relationship between behavioural processes, motivation, investments in the service business and service revenue", *Industrial Marketing Management*, Vol. 36, No. 3, p. 337-348.

Gebauer, H. and Friedli, T. (2005), "Behavioural implications of the transition process from products to services", *Journal of Business & Industrial Marketing*, Vol. 20, No. 2, p. 70-80.

Gebauer, H., Fleisch, E. and Friedli T. (2005), "Overcoming the service paradox in manufacturing companies", *European Management Journal*, Vol. 23, No. 1, p. 14-26.

Gebauer, H., Friedli, T. and Fleisch, E. (2006), "Success factors for achieving high service revenues in manufacturing companies", *Benchmarking: An International Journal*, Vol. 13, No. 3, p. 374-386.

Gebauer, H, Paiola, M. and Edvardsson, B. (2010), "Service business development in small and medium capital goods manufacturing companies", *Managing Service Quality*, Vol. 20, No. 2, p. 123-139.

Gephart, R. (2004), "Qualitative Research and the Academy of Management Journal", *Academy of Management Journal*, Vol. 47, No. 4, p. 454-462.

Gibbons, M., Limoges, C., Nowotny, H., Schwartzman, S., Scott, P. and Trow, M. (1994), *The New Production of Knowledge: The Dynamics of Science and Research in Contemporary Societies*, SAGE, London.

Giuntini, R., and Gaudette, K. (2003), "Remanufacturing: The next great opportunity for boosting us productivity", *Business Horizons*, Vol. 46, p. 41-48.

Goedkoop, M., van Halen, C., te Riele, H. and Rommens, P. (1999), *Product Service Systems, Ecological and Economic Basics*, Pre consultants: The Netherlands, available at: http://www.pre.nl/pss/download_PSSreport.htm (accessed 26th August 2009).

Goss, T., Pascale, R. and Athos, A. (1998), "The reinvention roller coaster: risking the present for a powerful future", in: *HBS Review Series Harvard Business Review on Change*, Harvard Business School Press, Boston, MA.

Graetz, F. and Smith, A. C. T. (2010), "Managing Organisational Change: A Philosophies of Change Approach", *Journal of Change Management*, Vol. 10, No. 2, 135-154.

Gray, C. and Charter, M. (2007), *Remanufacturing and product design: designing for the 7th generation*, Centre for Sustainable Design, Farnham, Surrey, UK http://www.cfsd.org.uk/Remanufacturing%20and%20Product%20Design.pdf (accessed on 2nd November 2011).

Guba, E. and Lincoln, Y. (1994), "Competing paradigms in qualitative research", *Handbook of Qualitative Research*, N.K. Denzin and Y.S. Lincoln (eds.), Sage, Thousand Oaks, 1994, p. 105-117.

Gulati, R. and Kletter, D. (2009), "Shrinking core, expanding periphery", *Business Network Transformation: Strategies to Reconfigure Your Business Relationships for Competitive Advantage*, Vol. 47, No. 3, p. 77-104.

Gulati, R., Nohria, N., and Zaheer, A. (2000), "Strategic networks", *Strategic Management Journal*, Vol. 21, No. 3, p. 203-15.

Gummesson, E. (2000), *Qualitative Methods in Management Research* (2nd ed), Sage Publications, California, USA.

Hannan, M. and Freeman, F. (1977), "The population ecology of organisations", *American Journal of Sociology*, Vol. 82, p. 929-964.

Hatch, M. (1997), *Organisation Theory: Modern, Symbolic and Postmodern Perspectives*, Oxford University Press, Oxford.

Heineke, J. and Davis, M. (2007), "The emergence of service operations management as an academic discipline", *Journal of Operations Management*, Vol. 25, No. 2, p. 364-374.

Huxham, C. and Vangen, S. (2003), "Researching organisational practice through action research: case studies and design choices", *Organisational Research Methods*, Vol. 6, No. 3, p. 383-403.

Isaksson, O., Larsson, T.C. and Rönnbäckc, A. Ö. (2009), "Development of product-service systems: challenges and opportunities for the manufacturing firm", *Journal of Engineering Design*, Vol. 20, No. 4, pp. 329-348.

Johansson, J.E., Krishnamurthy, C. and Schlissberg, H.E. (2003), "Solving the solutions problem", *The McKinsey Quarterly*, No. 3.

Johnson, P. and Duberley, J. (2000), *Understanding Management Research*, Sage, Thousand Oaks, CA.

Johnstone, S., Dainty, A. and Wilkinson, A. (2008), "In search of 'product-service': evidence from aerospace, construction, and engineering", *The Service Industries Journal*, Vol. 28, No. 6, p. 861-875.

Kanter, R. M., Stein, B. A. and Jick, T. D. (1992), *The Challenge of Organisational Change*, The Free Press, New York.

KeyNote (2011)a, *Document Imaging Systems Market Report 2011, Executive Summary*, http://www.keynote.co.uk/market-intelligence/view/product/10427/document-imaging-systems (accessed on 4th June 2012).

KeyNote (2011)b, *Household Furniture Market Report 2011, Executive Summary*, http://www.keynote.co.uk/market-intelligence/view/product/10398/household-furniture (accessed on 4th June 2012).

Kezar, A. (2000), *Understanding and Facilitating Change in Higher Education in the 21st Century*, Jossey-Bass, Washington, DC.

Kotnour, T. (2011), "An emerging theory of enterprise transformation", *Journal of Enterprise Transformation*, Vol. 1, No. 1, p. 48-70.

Kotter, J. P. (1996), *Leading Change*, Harvard Business School Press, Boston, MA.

KPMG (2012)a, *Achieving success, overcoming challenges,* KPMG - Research - Global manufacturing outlook,

http://www.kpmg.com/Global/en/IssuesAndInsights/ArticlesPublications/global-manufacturing-outlook/Pages/achieving-success.aspx (Accessed 26th February, 2013).

KPMG (2012)b, *Business models that bring the customer closer*, KPMG - Research - Global manufacturing outlook, http://www.kpmg.com/Global/en/IssuesAndInsights/ArticlesPublications/global-manufacturing-outlook/Pages/business-models.aspx (Accessed 26th February, 2013).

Krippendorff, K. (2004), *Content Analysis: An Introduction to Its Methodology* (2nd ed), Sage, Thousand Oaks, CA.

Kuhn, A. (1974), *The Logic of Social Systems*, Jossey-Bass Publishers, San Francisco.

Levy, A. (1986), "Second order planned change: definition and conceptualisation", *Organisational dynamics*, Summer, p. 5-20.

Levy, A. and Merry, U. (1986), *Organisational Transformation: Approaches, Strategies, Theories*, Praeger, New York

Lewin, K. (1946), "Action research and minority problems", *Journal of Social Issues*, Vol. 2, No. 4, p. 34-46.

Lewin, K. (1952), *Field Theory in Social Science: Selected Theoretical Papers*, Tavistock Publications Ltd., London

Luecke, R. (2003), *Managing Change and Transition*, Harvard Business School Press, Boston, MA.

Lundberg, C. (1984), "Strategies for organisational transitioning", Kimberly, J.R. and Quinn, R.E., New Futures: *The Challenge of Managing Corporate Transitions*, Dow-Jones-Irwin, Homewood, Illinois, USA, p. 60-82.

Manzini, E. and Vezzoli, C. (2002), *Product-Service Systems and Sustainability. Opportunities for sustainable solutions,* United Nations Environment Programme, Division of Technology Industry and Economics.

Manzini, E. and Vezzoli, C. (2003), "A strategic design approach to develop sustainable product service systems: examples taken from the 'environmentally friendly innovation' Italian prize", *Journal of Cleaner Production*, Vol. 11, No. 8, p. 851-858.

Martinez, V., Bastl, M., Kingston J. and Evans, S. (2010), "Challenges in transforming manufacturing organisations into product-service providers",

*Journal of Manufacturing Technology Management*, Vol. 2, No. 4, pp. 449-469.

Martinez, V., Kingston, J., Evans, S., Gaiardelli, P., Raffoni, A., Vladimirova, D. and Claes, B. (2011), *Organisational transformation for effective delivery of integrated products and services: thoughts on practice*, Cranfield University, Cranfield, UK.

Mathieu, V. (2001)a, "Service Strategies within the manufacturing sector: benefits, costs and partnership", *International Journal of Service Industry Management*, Vol. 12, No. 5, p. 451-475.

Mathieu, V. (2001)b, "Product services: from a service supporting the product to a service supporting the client", *Journal of Business & Industrial Marketing*, Vol. 16, No. 1, pp. 39-58.

McKelvey, B. (2006), "Van De Ven and Johnson's "Engaged Scholarship": nice try but…", *Academy of Management Review*, Vol. 31, No. 4, p. 822-829.

McKelvey, W. and Aldrich, H. (1983), "Populations, natural selection and applied organisational science", *Administrative Science Quarterly*, Vol. 28, p. 101-128.

Mento, A. J., Jones, R. M., and Dirndorfer, W. (2002), "A change management process: grounded in both theory and practice", *Journal of Change Management,* Vol. 3, No. 1, p. 45-59.

Meredith, J. (1998), "Building operations management theory through case and field research", *Journal of Operations Management*, Vol. 16, No. 4, p. 441-454.

Meyer, H.-D. and Rowan, B. (2006), *The New Institutionalism in Education*, SUNY Press, Albury.

Miles, M. B. and Huberman, A. M. (1994), *Qualitative Data Analysis: An Expanded Sourcebook* (2nd ed), Sage publications, Thousand Oaks, California.

Miles, R. H. (1997), *Leading Corporate Transformation: A Blueprint for Business Renewal*, Jossey-Bass, San Francisco, California.

Miller, D., Hope, Q., Eisenstat, R., Foote, N. and Galbraith, J. (2002) "The problem of solutions: balancing clients and capabilities", *Business Horizons*, Vol. 45, No. 2, p. 3-12.

Mintzberg, H., Ahlstrand, B., and Lampel, J. B. (1998), *Strategy Safari: A Guided Tour Through the Wilds of Strategic Management*, Prentice Hall, New York.

Mont, O. (2002)a, "Clarifying the concept of product-service system", *Journal of Cleaner Production*, Vol. 10, No. 3, p. 237-247.

Mont, O. (2002)b, "Drivers and barriers for shifting towards more service-oriented business: Analysis of the PSS field and contributions from Sweden", *The Journal of Sustainable Product Design*, Vol. 2, No. 3-4, pp. 89-103.

Mont, O. and Lindhqvist, T. (2003), "The role of public policy in advancement of product service systems", *Journal of Cleaner Production*, Vol. 11, No. 8, p. 905-914.

Morgan, G. (1986), *Images of Organisation*, Sage Publications, London.

Nadler, D. A. and Tushman, M. L. (1989), "Organisational frame bending: principles for managing reorientation", *The Academy of Management Executive*, Vol. 3, No. 3, p. 194-204.

Neely, A. (2008), "Exploring the financial consequences of the servitization of manufacturing", *Operations Management Research*, Vol. 1, No. 2, p. 103-118.

Neu, W. A. and Brown, S. W. (2005), "Forming successful business-to-business services in goods-dominant firms", *Journal of Service Research*, Vol. 8, No. 1, p. 3-17.

Nuendorf (2002), *The Content Analysis Guidebook*, Sage, Thousand Oaks, CA.

Nutley, S., Davies, H. and Walter, I. (2002), *Conceptual Synthesis 1: Learning from the diffusion of innovations*, Discussion paper, Research Unit for Research Utilisation, University of St Andrews, St Andrews.

O'Reilly, C.A. and Tushman, M.L. (2004), "The ambidextrous organisation", *Harvard Business Review*, April, p. 74-81.

Oakland, J.S. and Tanner, S. (2007), "Successful Change Management", *Total Quality Management & Business Excellence*, Vol. 18, No. 1, p. 1-19

OHL (2004), *Remanufacturing in the UK: A Significant Contributor to Sustainable Development?*, The Resource Recovery Forum, Skipton.

Oliva, R. and Kallenberg, R. (2003), "Managing the transition from products to services", *International Journal of Service Industry Management*, Vol. 14, No. 2, p. 160-172.

Parkhe, A. (1993), " "Messy" research, methodological predispositions, and theory development in international joint ventures", *Academy of Management Review*, Vol. 18, No. 2, p. 227-268.

Pettigrew, A. (1979), "On studying organisational cultures", *Administrative Science Quarterly*, Vol. 24, p. 570-581.

Pettigrew, A. (1987), "Context and action in the transformation of the firm", *Journal of Management Studies*, Vol. 24, No. 6, p. 649-670.

Pettigrew, A. (2001), "Management research after modernism", *British Journal of Management*, Vol. 12 (Special Issue), S61–S70.

Pettigrew, A. and Whipp, R. (1991), *Managing Change for Competitive Success*, Blackwell Publishers, Boston, MA.

Pettigrew, A., Woodman, R. and Cameron, K. (2001), "Studying organisational change and development: challenges for future research", *Academy of Management Journal*, Vol. 44, No. 4, p. 697-713.

Pfeffer, J. and Salancik, G.R. (1978), *The External Control of Organisations. A Resource Dependence Perspective*, Harper & Row, New York.

Pil, F.K. and Cohen, S.K. (2006), "Modularity: implications for imitation, innovation, and sustained advantage", *Academy of Management Review*, Vol. 31, No. 4, p. 995-1011.

Poole, M. S., Van de Ven A.H., Dooley K. and Holmes, M.E. (2000), *Organisational Change and Innovation Processes: Theory and Methods for Research*, Oxford University Press, New York.

Purchase, V., Parry, G., Valerdi, R., Nightingale, D. and Mills, J. (2011), "Enterprise transformation: why are we interested, what is it, and what are the challenges?", *Journal of Enterprise Transformation*, Vol. 1, p. 14-33.

Reinartz, W. and Ulaga, W. (2008), "How to sell services more profitably", *Harvard Business Review*, Vol. 86, No. 5, p. 90-96.

Rescher, N. (1996), *Process Metaphysics: An Introduction to Process Philosophy*, SUNY Press, Albany, NY.

Ritchie, J. and Lewis, J. (2003), *Qualitative research practice: A Guide for Social Science Students and Researchers*, Sage Publications, London.

Robson, C. (2002), *Real World Research: a Resource for Social Scientists and Practitioner-Researchers* (2nd ed), Blackwell Publishing, Oxford, UK.

Romanelli, E. and Tushman, M.L. (1994), "Organisational transformation as punctuated equilibrium: an empirical test", *Academy of Management Journal*, Vol. 27, p. 1141-1166.

Rose, G. (2010), *Life Cycle Assessment for Vitsœ Products*, MSc Thesis, University of Cambridge, Cambridge, UK.

Rouse, W. B. (2011), "Necessary competencies for transforming an enterprise", *Journal of Enterprise Transformation*, Vol. 1, No. 1, p. 71-92.

Baum, J. and Rowley, T. (2002), *Companion to Organisations: An Introduction*, Blackwell Publishing.

Rust, R.T. and Miu, C. (2006), "What academic research tells us about service", *Communications of the ACM*, Vol. 49, No. 7, p. 49-54.

Sawhney, M., Balasubramanian, S. and Krishnan, V. (2004) "Creating growth with services", *MIT Sloan Management Review*, Vol. 45, No. 2, p. 34-43.

Schein, E. (1997), *Organisational Culture and Leadership* (3rd ed), Jossey-Bass, San Francisco.

Schmenner, R. (2009), "Manufacturing, service, and their integration: some history and theory", *International Journal of Operations & Production Management*, Vol. 29, No. 5, p. 431-443.

Scott, W.R. (2002), *Organisations: Rational, Natural and Open Systems* (5th ed), Prentice Hall, London.

Senge, P. (2006), *The Fifth Discipline, The Art & Practice of The Learning Organisation*, Random House Business Books, UK.

Senior, B. (2002), *Organisational Change* (2nd ed), Prentice Hall, London.

Slack, N. (2005), "Operations strategy: will it ever realize its potential?", *Gestão & Produção*, Vol. 12, No. 3, p.323-332.

Smith, A.C.T. and Graetz, F. (2011), *Philosophies of Organisational Change*, Edward Elgar Publishing, Cheltenham, UK.

Sottolano, D. L. (2000), *Facilitating cognitive reframing and organisational readiness for large scale change: a model of leadership, structural and cultural dimensions*, PhD dissertation, University at Albany, State University of New York.

Spring, M. and Araujo, L. (2009), "Service, services and products: rethinking operations strategy", *International Journal of Operations & Production Management*, Vol. 29 No. 5, p. 444-467.

Sundin, E., Lindahl, M. and Ljomah, W. (2009), "Product design for product/service systems: design experiences from Swedish industry", *Journal of Manufacturing Technology Management*, Vol. 20, No. 5, p. 723-753.

Tan, A. (2010), *Service-oriented product development strategies*, PhD Thesis, DTU Management Engineering, Technical University of Denmark.

Technology Strategy Board (TSB) (2012), *A landscape for the future of high value manufacturing in the UK*, report number T12/009, TSB, Swindon, UK.

The Remanufacturing Institute (TRI) (2011), http://www.reman.org/AboutReman_main.htm (Accessed on 2nd November 2011)

Tsoukas, H. and Chia, R. (2002), "On organisational becoming: rethinking organisational change", *Organisation Science*, Vol. 13, No. 5, p. 567-582.

Tukker, A. (2004), "Eight types of product–service system: eight ways to sustainability? Experiences from SusProNet", *Business Strategy and the Environment*, Vol. 13, No. 4, p. 246-262.

Tukker, A. and Tischner, U. (2006)a, *New Business for Old Europe: Product-Service Development, Competitiveness and Sustainability*, Greenleaf Publishing, Sheffield, UK.

Tukker, A. and Tischner, U. (2006)b, "Product-services as a research field: past, present and future. Reflections from a decade of research", *Journal of Cleaner Production*, Vol. 14, No. 17, p. 1552-1556.

Tushman, M. L., Newman, W. H. and Nadler, D. A. (1988), "Executive Leadership and Organisational Evolution: Managing Incremental and Discontinuous Change", in *Corporate Transformation: Revitalizing Organisations for a Competitive World*, Ralph H. Kilmann and Teresa Joyce Covin, eds., San Francisco, Jossey Bass Publishers, p. 102-130.

USEPA (2009), *Green Servicizing for a More Sustainable US Economy: Key concepts, tools and analyses to inform policy engagement*, US

Environmental Protection Agency, Office of Resource Conservation and Recovery, Washington, D.C., USA.

Valerdi, R. and Nightingale, D. (2011), "An introduction to the Journal of Enterprise Transformation", *Journal of Enterprise Transformation*, Vol. 1, No. 1, p. 1-6.

Van de Ven, A. and Poole, M. (1995), "Explaining development and change in organisations", *Academy of Management Review*, Vol. 20, No. 03, p. 510-540.

Van de Ven, A. H. (2007), *Engaged Scholarship: A Guide for Organisational and Social Research, Oxford University Press*, New York.

Van de Ven, A. H. and Johnson, P. E. (2006), "Knowledge for theory and practice", *Academy of Management Review*, Vol. 31, No. 4, p.802-821.

Van de Ven, A.H. and Poole, M.S. (2005), "Alternative approaches for studying organisational change", *Organisation Studies*, Vol. 26, No. 9, p. 1377-1404.

Vandermerwe, S. and Rada, J. (1988), "Servitization of business: adding value by adding services", *European Management Journal*, Vol. 6, No. 4, p. 314-324.

Vitsœ (2008), *What is Vitsœ*, London, August 3, 2001, from http://www.vitsoe.com/store/assets/files/734/original/Press_Pack_UK.pdf

Vladimirova, D., Evans, S. and Smart, P. (2011a), "Servitization lessons learnt from a small furniture manufacturing company", in: *4th EurOMA International Service Operations Management Forum (SOMF)*, 19-20 September 2011, Florence, Italy.

Vladimirova, D., Evans, S. and Martinez, V. (2011b), "Drivers of transformation towards servitized organisational forms: a conceptual framework", in: *25th Annual British Academy of Management (BAM) Conference "Building and Sustaining High Performance Organisations in a Challenging Environment"*, 13-15 September 2011, Aston Business School, Birmingham, UK.

Vladimirova, D., Evans S. and Martinez, V. (2011c), "Change drivers for transformation towards product-service systems", in: *18th International Annual EurOMA Conference "Exploring Interfaces"*, 3-6 July 2011, Cambridge, UK.

Vladimirova, D., Evans, S., Martinez, V. and Kingston, J. (2011d), "Elements of change in the transformation towards product-service systems", in: *Functional Thinking for Value Creation, Proceedings of the 3rd CIRP*

*International Conference on Industrial Product Service Systems (IPS2), Technische Universität Braunschweig*, 5-6 May, 2011, Braunschweig, Germany, p. 21-26.

Vladimirova, D., Evans, S. and Martinez, V. (2010a), "Conceptual transformation framework for servitization", in: *International Conference on Advances in Production Management Systems (APMS) 2010 "Competitive and Sustainable Manufacturing*, Products and Services", 11-13 October 2010, Cernobbio, Como, Italy.

Vladimirova, D., Evans, S. and Martinez, V. (2010b), "Transforming the manufacturer into a servitized organisation", in: *3rd EurOMA International Service Operations Management Forum (SOMF) "New Directions in Service Operations Management"*, University of Bath School of Management, 20-21 September 2010, Bath, UK.

Vollmann, Thomas E. (1996), *The Transformation Imperative: Achieving Market Dominance through Radical Change*, Harvard Business School Press, Boston, MA.

Watzlawick, P., Weakland, J. and Fisch, R. (1974), *Change: Principles of Problem Formation and Problem Resolution*, W.W. Norton, New York.

Whelan-Berry, K.S. and Somerville, K.A. (2010), "Linking Change Drivers and the Organisational Change Process: A Review and Synthesis", *Journal of Change Management*, Vol. 10, No. 2, pp. 175-193.

Williams, A. (2007), "Product service systems in the automobile industry: contribution to system innovation?", *Journal of Cleaner Production*, Vol. 15, p. 1093-110.

Wilson, D. C. (1992), *A Strategy of Change*, Routledge, London.

Windahl, C. and Lakemond, N. (2006), "Developing integrated solutions: the importance of relationships within the network", *Industrial Marketing Management*, Vol. 35, No. 7, p. 806-18.

Windahl, C., Andersson, P., Berggren, C., Nehler, C. (2004), "Manufacturing firms and integrated solutions: characteristics and implications", *European Journal of Innovation Management*, Vol. 7, No. 3, pp. 218-228.

Wischnevsky, J. D. (2004), "Change as the winds change: the impact of organisational transformation on firm survival in a shifting environment", Organisational Analysis, Vol. 12, No. 4, p. 361-377.

Wise, R. and Baumgartner, P. (1999), "Go Downstream: the new profit imperative in manufacturing", *Harvard Business Review*, Vol. 77, No. 5, p. 133-141.

Yin, R. (2009), *Case Study Research: Design and Methods* (4th ed), Sage Publications, Thousand Oaks, California.

# Appendix A Excerpts from original data gathering in Focus group 1[9]

| SERVICE CULTURE | VALUE | SERVICE DELIVERY SYSEM |
|---|---|---|
| *• Mind-set change.*<br>*• Culture: Technology vs. Service.*<br>*• Shift of ownership.*<br>*• Incentives in the organisation.*<br>*• Clear strategy and leadership from the top.*<br>*• Educate the market and the customer.*<br>*• Organisational leadership, mind-set change.*<br>*• Educate sales.*<br>*• Product legacy inhibits service thinking.*<br>*• Engineers generally not interested in support.*<br>*• Lack of commercial imagination.*<br>*• Mentality change – reward motivation, incentives.*<br>*• Protect the emerging service culture.* | *• Develop a capability to understand the value chain and co-create value with the stakeholders.*<br>*• Identify and quantify value from a potential service offering.*<br>*• Value management.*<br>*• Making the business case internally.*<br>*• Measuring the value of the service.*<br>*• Understanding offering's value.*<br>*• Manage the offering rather than the product.*<br>*• Develop the capability to adapt over time regarding service value provision.* | *• Structuring the service network.*<br>*• Organisational structure.*<br>*• Rigidity due to infrastructure, processes, artefacts.*<br>*• Cross functional integration key to service optimization.*<br>*• Scale up the service delivery system.* |
| CUSTOMER | SUPPLY CHAIN | PERFORMANCE MEASUREMENTS |
| *• Customer collaboration.*<br>*• Different relationship – dynamic.*<br>*• 'Product' is start not completion.*<br>*• Understanding customer requirements (not just selling your product): build new type of relationship with your customer.*<br>*• Create an 'Account Management' structure.*<br>*• Educate the customer.*<br>*• Lack of knowledge about customer processes and product lifecycle at customer's locations.*<br>*• Affordability for the customer.*<br>*• OEM responsiveness slow – service fast.*<br>*• More understanding of how service product and user client interrelate to form part of a system that is less product-centric.* | *• Complexity of relationships.*<br>*• Supply chain alignment.*<br>*• Service-chain perspective - governance mechanisms, e.g. outsourcing, mechanisms of service network.*<br>*• Structuring the supply chain.* | *• Process and business measurement.*<br>*• Put appropriate business measurements KPIs (revenue/head, margin/head, utilization).*<br>*• Financial tracking and management - new metrics, new incentives, new costing.*<br>*• Shift of focus from product measures to service measures. Pay structure changes.*<br>*• Different measures of success.*<br>*• Identify and quantify a profitable service opportunity.* |
| CONTRACT | NEW PRODUCT-SERVICE OFFERING | SERVICE RISK |
| *• Contract: never right.*<br>*• Product incentives/penalties – contract inappropriate for service.*<br>*• Services require/ enable much closer customer intimacy. Really understand risks and performance prior to signing service contracts.*<br>*• Establish contracts which deliver/enable end service received.* | *• Define business case.*<br>*• Information, knowledge, data and analysis key to service.*<br>*• Link offering to process and organisation.*<br>*• Define overall level of service.* | *• Understanding the risk first.*<br>*• Develop new capabilities / measures of risk.*<br>*• Risk of competing with our own customers.*<br>*• Pricing risk.*<br>*• Assess the investment into PSS transformation.*<br>*• Loss of revenue from product sales.* |

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# Appendix B Case study interview protocol

Semi-structured interview questionnaire:

1) What is your name and company association?

2) How does your company define its Product-Service offering (what does it include and how are the product-services being integrated)?

3) What has been the company's motivation for wanting to transform itself to a servitized organisation?

   - What was the situation at the time? How was the change triggered? What happened?

4) What were the most critical challenges you encountered on your journey which you had to overcome (or you still currently face) during your transformation to a servitized organisation?

   - How would you rank these challenges in terms of their importance for the success of the transformation process?

   - What are your current/next issues in the transformation process that you have to tackle?

   - How do you plan to resolve these issues?

5) There are factors or elements inside and/or outside the servitizing organisation that would contribute to the success of the transformation process. From your experience, what facilitated the transformation in general? What were the change drivers? What hindered it?

6) Within the organisation, what specifically facilitated the transformation? What conditions existed that allowed the transformation?  What events took place that enabled the transformation (e.g. new CEO or setting up a new service department)?

7) Within your network of customers and suppliers, what conditions existed that allowed the transformation (e.g. trust)?  What events took place that enabled the transformation (e.g. you spotted an opportunity; there was pressure from the customer)?

8) What processes did you have to put in place in order for the transformation to happen? What conditions existed that allowed these processes to be established (e.g. organisation considering a new performance measurement system)? What events took place that enabled the transformation?

9) What other internal or external change drivers, which you haven't mentioned so far, do you think facilitated the transformation (e.g. legislation, decrease in revenue)?

10) How long has the transformation been going on/has taken? What phases of change has the company gone through en route to servitization/product-service offering? Can you identify certain critical periods or milestones of transformation?

# Appendix C Excerpts from original case study data

## C.1 Excerpt from transcript of interview conducted on 02/07/2010 for Case study C

Q      Right, first, we will define the scope of this conversation and also the scope of your expertise. I would like to talk to you about [ServPrint] and your work with them and I would like, yes, just to say what part of [ServPrint] you are involved with and what you do there.

A      Yes, that's fine. So I am involved with what [ServPrint] define as the Office group, so within the [ServPrint] organisation we have part of the organisation that focuses on office-based solutions, we have another part that is based upon specialised print room type equipment. And we have another piece that specialises in, what do we call it... it's called outsource solutions… it is taking over and running people's print operations.

So the part I am in involved in mainly sells products and some services and the related supplies. So we have an approach which is selling on that basis and [ServPrint] sells almost exclusively on an indirect channel based model. The company sell products that range from small desktop printers that are under $200 through to – you probably know all this already – but through to pretty sophisticated multi-purpose devices that I think sell, for $50-60,000. So it is a very wide range of scope that we cover.

Q      And you have already said that you are selling some services?

A      Some services as well as the products.

Q      Are you looking to sell more of the services, to add more services?

A      Yes, to some degree. [ServPrint] started to add services around – so let me just define services for a moment. We have sold the follow-on services, so maintenance and support of equipment and any associated software, obviously from the time that we have been selling equipment because that is a requirement. We have started to sell services that

surround the equipment and complement the way in which the equipment provides its output about eight years ago, I think it was, this part, in this sort of space. And those services have grown very slowly over most of that period and are starting to grow slightly more vigorously at the moment and are an area of focus for us.

Q    So you said that you have sold printers, copiers and some services. How would you define the product service offering of [ServPrint] or the part of the [ServPrint] section involved?

A    Okay. Principally it's based around payment per page model for the way in which the customer uses the equipment or pays for the printing that is carried out by the equipment. So there are... if we just start there for a moment. So there is a break between, traditionally, between the photocopier business and the printer business, and in the photocopier business there has been a fairly longstanding approach across many players that work on the basis that you pay on the basis of the amount that you actually produce. So that is not particularly unusual, I don't and have not worked for [ServPrint] long enough to know whether [ServPrint] were at the forefront of that, but my understanding is that [ServPrint] were pretty much there at the outset of that approach. That model continues pretty much without a great deal of change to it, to this day.

If you look at the printer side of the business, then traditionally the model has been the opposite, which is that you buy the piece of equipment and you buy everything else that you require to use the equipment – so the inks or toners, the paper, the maintenance services, the fuser kits that have a limited life within the life of the printer itself, and all of the things are the responsibility of the customer to buy as and when they need them.

What [ServPrint] has been trying to do over the last say six to eight years is to try and make some inroads into changing some elements of that model. So we produce a system or a service combination which we call

PagePack which unlike the photocopier model where you take a contract, you don't actually buy or ever own the equipment, you simply pay for everything on a contract. On this model you still buy the printer for a reduced price but you sign a contract and that contract then provides a mixture of all of the ink and toner that you will need, all of the service, any other automatic service parts that are required, and maintenance. So all of the services that you would normally want to buy and most of – part from paper – all of the other elements of the cost of producing print.

The way that that is calculated if you like, so that it makes good economic sense for the customer, is [ServPrint] look at and calculate, or the resellers look at and calculate with the customer, how much their printing, what sort of ink coverage they currently use as an estimate, and that is both for colour ink and black and white, and black ink. So they do two separate assessments and then they have, well depending on the area of the business, two or three different schedules. They will then offer the customer a contract where they will pay a monthly amount and they can print up to a certain amount of colour or black pages based on that contract. If they print more than is in the contract then they pay a little more. So a bit like if you hire a car on a lease agreement, provided you don't go over the total mileage, then you don't pay anything more but if you do, then you pay incrementally above that. So that is basically what the offering is.

The benefit to the customer is that by buying all of this service at the same time, [ServPrint] offers considerable reduction on the cost of buying the individual elements. So it would be possible to save anything from 30-90% of the cost of making that or running that equipment on the more traditional model. The benefit to [ServPrint] is that we have a customer who is tied in for a long period of time and we know that all of the service and consumables and so on will be bought from [ServPrint] and not from alternative third party suppliers. So we get a strong benefit in our

business model and the customer gets a cost benefit in theirs. So it works well.

So why haven't lots of people taken it up? It is the interesting question. Because it does not have a high market penetration and here you have to start looking at how the market divides up. Is this information that will be useful to you?  Sorry I am not conscious that I want to tell you the things that you want to know, not rambling off in some vague direction.

Q    Oh yes, that's fine.

A    Okay, so that service has been available across, let's say across most of the office equipment range in what [ServPrint] call A three printing. So printers that can print up to A three size paper, for most of this time and has been reasonably successful. So I think the penetration in that area – I will have to check the figures in detail - but is in the order of 20%.  But that area is sold by a very unique channel which is [ServPrint] concessionaire channel and this concessionaire channel is mono-brand resellers. So they aren't selling anyone else's printing solutions, they are tied entirely to [ServPrint] and in many instances they are run by ex-[ServPrint] sales people. So they have a very intimate relationship with both [ServPrint] and often with their customers. So they have a longstanding trust relationship, they are able to convey some of the complexity of the value proposition around the way in which this works or will work for the customer, and they are trusted enough by their customer to if you like try this out for the first time and find out that it actually does work and therefore is worth developing further.

So in that part of the 'go to market' model for [ServPrint], it has been relatively successful and in that part of the product range, the larger format printers, those machines tend to be a bit more like photocopiers and so again, to some extent, the .....   (interruption)

So we got to the concessionaires and why their model for selling what's called PagePack.

Q   Payment per page?

A   Yes, payment per page, but the name of the particular product is PagePack and so they are familiar with photocopier sales and some of their clients are. So selling printers or larger scale printers that are a bit like photocopiers on something that's a bit like a photocopier contract is an easier thing to do. As you move away from A3 printers and into the A4 … I'll call it desktop work; it's not entirely a desktop market because you get some quite large A4 machines, but then the market penetration drops dramatically to often only 1%. This is [ServPrint] market penetration so if you took the whole market I dread to think; it would be a tiny amount … 0.05 probably, then the percentage drops quite dramatically. There are a couple of sub markets where there is more penetration, but on the whole it's very low and that's for several reasons I think.

One, the value proposition remains as complex so you have to get across to people why and how it makes sense. It's often a value proposition that's being produced for the customer or the prospect by a multi-brand reseller so they are selling a range of different products. [ServPrint] is only one of the options that they'll have within their print portfolio and this is an exception across the marketplace. So for their sales people to take an interest in it is quite difficult. They've got to be quite specifically interested to do that and then they take a risk because they're going to try and make a slightly more complex sale than the sale that they're used to making so they're taking a risk again by doing that. And the depth and length of relationship between those sales people and their companies and their customers is much shallower, so they may see those companies once or twice a year or once or twice every three years in order to engage on making sales in that space. So the level of trust ….

Q   Who is the customer of the A4 printing?

A   They're principally small and medium sized businesses. I'll come back to large corporate businesses, but most of these are in the small and

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medium sized market space. So we're looking at companies with five to 250/500 employees. So they don't have a very big population of print equipment within their organisations typically and they're not refreshing it on a very regular basis. They don't have a specialist within their company who knows about photocopying and printing and the cost and the relative variations in the way in which they might manage that portfolio and the set of costs. So the whole dynamic of what's needed in order for people to understand the benefit of the change, understand that there are some risks associated with it, but what they are and how to mitigate those on both sides is significantly reduced. The prospect and customer doesn't have the knowledge and the sales channel has the knowledge, but doesn't necessarily want to take the risk so it becomes a much more difficult thing to achieve. So although [ServPrint] has had some success with this it's not had the level of success I think expected when it started out down this track eight years ago.

Q    So if you look back at why did the company decide to go into a service offering with the printing business, what was the company's motivation? Was it the customer that prompted it or was it that you saw an opportunity or was it someone in the company, the CEO …?

A    I don't know the absolute answer to that. I have asked people about this and I think again we don't really know the answer. There's not a very clear understanding of what was the strategic thought behind it, a genesis.

Q    Okay. So what do you think were the most critical challenges and difficulties that the company has encountered and is encountering at the moment?

A    Okay. I think you could put them under several headings. There are difficulties in conveying the value proposition around why it's worth making this change, what is the benefit to both the customer and importantly the reseller because both of them have to have a benefit if

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the message and the sale is to be transferred out to the market. So there are value proposition issues and we can come back to those.

There are pricing issues so there are issues around how do you establish the right price positioning for this offering compared to the same product without this service wrapped around it, without also changing the positioning of that product with the service compared to other products in the portfolio. So there are some issues around how you make sure that you're not potentially destroying part of your overall price model by bringing in some products that have a change to them which therefore really effectively change the total cost of ownership. So that's another set of issues.

There are issues around the way that the contract operates so part of the contractual issue is that at the outset … I'll explain what happens, is that you set an estimated volume and amount of ink to be used and if you get that wrong with the customer at the outset then instead of them saving money they can find that they're having to pay for a whole mass of printing that wasn't included in the contract. So making sure that that calculation is made effectively at the outset is a really critical factor and for that to be done right the modelling and the selling has to be done well by the reseller, not always an easy balance to strike.

Then the fourth area is actually providing the quality of service. And what I mean here is what the customer's bought and expects to receive is ink or toner whenever they require it to be provided on an order basis, but with no cost and an engineer to be available to come and fix any repairs as and when they occur again without any cost and the standard maintenance of the product, so someone to come in and if it's a laser printer replace the fuser unit or whatever it may be, also to be planned and done in a regular manner and one of the benefits that's sold to the customer is less down time. If you've got all of these things pre-paid you should have less time when it breaks down and you have to then go, "Oh

I haven't got a service contract, how can I get this sorted out?" or, "Where was that service …?"

So all of those … and the quality of providing that service has been an issue particularly whilst maintaining or reducing the cost of those service elements. So [ServPrint] has gone through a process of trying to drive costs out of there by finding lower cost provision in there and that hasn't been done well. So that's led to some bad customer experiences. So those would be I think probably the four areas which I think I would say … that would be the most difficult.

## C.2 Excerpt from transcript of interview conducted on 14/06/2011 for Case study E

Q     How would you define your offering today? When a customer walks in and asks what can you offer, how would you define your product service offering today?

A     So the proposition that we are putting to our customers is that we can bring order, organisation to their lives. And so normally a customer is coming to us with a problem, a pile of boxes, all of their stuff and a space, a wall space, a room space in which they want to organise their life. And what we are matching is what the person wants to do in that room, what they've got to store and display in that room. We are matching that to their space and using our product to match those two constraints together. And, therefore, we are using sophisticated software which we have built ourselves with developers over many years and constantly evolved. So the software but first and foremost, we are using intelligent, trained human beings that we call planners because they are planning it for you. And they are using that software, their training and the web to make that match between what you want to do with the shelves, drawers, table, and all the stuff that you've got to store. It's that simple, it's what we're doing, but it's very increasingly unusual these days that companies want to offer you that service, rather than just trying to sell you the product. And our challenge for the business is constantly making people aware that this stunning service comes with it and often customers only really discover how good the experience is afterwards. And for us to frontload that process and make it very clear to them what they're going to get upfront is very difficult, because nobody believes you really upfront. So customer testimonials are very, very important, and you've probably seen them on our website, they're in our brochures, etc., and in the social networking arena for people to be saying how much they value us. And that's most the difficult thing for us is to get across the value of the service offering that we have.

Q	In your journey, what would you define to be your milestone? Like say, things that brought you where you are today.

A	Absolutely stitching together end to end the process where the customer can interact with us online, we can check stock with them in real time. And then ultimately, once we and the customer have agreed that is what they want, that at any time, they can buy that, pay for it online, the assembly list appears here automatically in our workshop, and we can then get on and build that, despatch it, either deliver it to them directly wherever they are, for them to install it or somebody to install on their behalf, or us to deliver it in our own van and us to install it.  So stitching that together end to end and, therefore, constantly reducing the time involved in the steps of those processes. But I would say, therefore, there's been some really significant steps, particularly software wise, where we've had to overcome some major hurdles to align the processes of the business to that desirability of the seamless contact from the customer, back to us in the business.

Q	Do you think you've established this service delivery system, do you feel as if it's now running and functional, or do you still experience some challenges?

A	No, always experience the challenges, both within the mechanics of making it work, but as we just mentioned, in I think our key problem is explaining it to customers, letting them understand the true value of it, that they're not just buying our shelf at maybe £50 a shelf or whatever it might be, and they can go somewhere else and get a shelf for £25, well they'll just go somewhere else and buy the shelf for £25. That they…. to let them understand that they are getting so much more than a shelving system when they come to us. And they genuinely are, that's not just us saying it. Because once customers get in it, they do it, they experience it, customers turn around to us and say ah this is wonderful, it's brilliant, I didn't expect I was going to get this and that and the other, and you were

so helpful, if something went wrong, you sorted it out. So they completely understand it, but only after they have experienced it.

Q    In the cases where this was successful, you said it's only after, but were there cases where they would know about it just because you established a certain relationship with them of trust?

A    Well you were the first person to mention the word trust in this discussion. For me, trust is at the heart of what we do as a business, because we are having to persuade our customers to trust us, our suppliers to trust us, our employees to trust us, and various advisors around us. And only if we set the ground rules to encourage everybody to trust, that is critical. So for example, all of our team of planners are trained to undersell to the customer and they are taught to the point where they say well we'll just take a row of shelves off, leave those out this is more expensive, you can add that later, in a couple of years' time we'll still be here, we can still you supply you one of those. So that the customer goes oh okay, they're on my side, they're not just trying to make this week's commission or sales target or whatever, and they'll genuinely say no, just do it for the long term because we're trying to build that long term relationship, and trust is at the heart of that.

Q    In terms of your suppliers, who are your suppliers, what kind of businesses?

A    It's generally small businesses and, therefore, businesses for whom we are quite important because we are often their number one customer. And they're virtually all in the UK… we don't make anything like enough virtue of how local our supply chain is. And so it is local and they are, for example, the supplier of the steel shelves here, fabricated steel shelves, we've worked with them for seventeen years. I found them right back as we were starting the production. That was while I was out in Germany and we were managing all the problems in Germany, and knowing that we were going to have to set ourselves up for production here, so getting

it all ready. And we have worked together all the way through that. There have been times when they've struggled to keep up with us, and so we've had to go and look for another source, and then persuaded them to say spend half a million pounds on the next laser cutting piece of machinery or a new powder coating line. Both of those elements, I've had to persuade them to do, so that the product we're now buying from them is so much better quality than the product we were buying from them a dozen or fifteen years ago. They've had to grow with us.

So I see supplier relationship absolutely as a partnership, as trust, as critical... Yeah, we've got one where we've got major… well we've got major problems with two suppliers at the moment because they're in financial trouble, because there is so much trouble going on out there. and we have to work through that. There's one, we're meeting their accountants and all sorts, to try and work through and protect our supply chain.

Q    So the biggest challenge, if you were to pick one, what would that be, of delivering the service?

A    The biggest challenge of delivering the service? I think I have to be consistent with what I've said already, is explaining to the customers that that service exists and the value inherent in that service, rather than you go in and just source expensive shelves. Because the customer looks at it and just sees the product, they don't see the service.

# Appendix D List of Abbreviations

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| CEO | Chief Executive Officer |
| EMEA | Europe, Middle East and Asia |
| EPSRC | Engineering and Physical Sciences Research Council |
| HR | Human Resources |
| IMRC | Innovative Manufacturing Research Centre |
| KPI | Key Performance Indicators |
| OEM | Original Equipment Manufacturer |
| PSS | Product-Service Systems |
| SME | Small- and medium-size enterprise |
| TCO | Total Cost of Ownership |
| UK | United Kingdom |
| USA | United States of America |