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THE IMPACT OF PHENOMENOLOGICAL METHODOLOGY DEVELOPMENT IN SUPPLY CHAIN MANAGEMENT RESEARCH

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Abstract

Purpose – The purpose of this paper is to demonstrate the non-academic impact in supply chain management research through the application of three distinctive approaches to phenomenological methodology in different contexts.

Design/methodology/approach - Evidence based examples from three case studies employing interpretivist, social constructivist and critical realist methodologies are presented. They reflect non-positivist approaches commonly used in phenomenological methodology and adopted in SCM investigative research.

Findings - Different types of non-academic reach and significance from each research methodology are discussed to illustrate the non-academic impact benefits from each case. The three distinctive phenomenological approaches have been shown to contribute to innovative research methodology development on their own philosophical merit and produced novel contributions to supply chain management research in particular.

Research limitations/implications - The non-academic impact examples have been shown to have wider influence and implication to business, the economy and society at large.

Originality/value - The paper highlights the relevance of phenomenological research methodology for supply chain management. It also contributes to the development of the supply chain management subject area and will hope to encourage further reporting of non-academic impact supply chain research.

Keywords - Research Methodology; Research Philosophy; Supply Chain Management; Non-Academic Impact; Qualitative Research.

Introduction

Supply Chain Management (SCM) has developed into a multi-disciplinary research field, which has been evolving since the late 1990s (Croom *et al.*, 2000; Ellram and Cooper, 2014). Based on the understanding that virtual networks of suppliers combine with intermediaries and producers to add value to the end customer, many internal and external factors, such as technological advances, reduced lead times, price pressures and ethical issues create dynamic and constantly evolving supply networks (Pehlivan *et al.*, 2013; Perona *et al.*, 2016; Wu and Pagell, 2011). The movement of materials and associated information flows is important for the integration activity within the supply network and is central to the implementation of SCM along with marketing, and inter- and intra-business partnerships (Croom *et al.*, 2000; Farooqa and O'Brien, 2015). Customer needs, product supply, information considerations and relationships across all supply chain partners are key components to its effective implementation but there seems to be little consensus regarding the conceptual and methodological basis of SCM (Burgess *et al.*, 2006; Carter *et al.*, 2015). To gain a greater understanding and insight into the complex systems of SCM non-positivist methodologies have an important role to play and that a combination of deduction and induction will inevitably end up being followed due to the importance of understanding participants' phenomenological experiences (Kovács and Spens, 2005).

Within the evolving exploratory research into supply chain management there has been a variety of non-deductive research methodologies applied that are phenomenological in nature. These have been employed in attempts to gain a greater understanding and meaning of the research area, particularly when applied to different experiences, contexts and/or sectors, such as fashion garments (Macchion *et al.*, 2017), food or automobiles (Sadala and Adorno, 2002). It is this particular motivation that leads us to consider the application of a range of methodologies now being considered as part of the phenomenological paradigm within SCM, i.e. studying more intimate experiences via open-ended, contextual and holistic means (Holstein and Gubrium, 1994). The continually emerging nature of SCM research creates a moving knowledge frontier that demands more exploratory-based methodologies to investigate this key knowledge gap.

The paper is framed within inductive phenomenology which addresses the meaning, structure and essence of the lived experience, particularly gaining an understanding of complex issues in SCM

that may not be immediately apparent from a superficial perspective (Goulding, 2005). Applying phenomenological research approaches of Interpretivist using induction, Social Constructivist using Resource Based Theory (RBT) and Critical Realism using abduction in the manner described in this paper to a number of real world case studies demonstrates a novel approach for gaining insight and identifying new knowledge from the use of a metaphorical wide lens. It will also be of practical benefit for researchers to understand the non-academic impact possibilities that can be gained by applying each approach. Indeed, the contemporary understanding of SCM is being built on emerging new meaning; meaning that enhances prior knowledge consistent with a phenomenological epistemology (Adamides *et al.*, 2012). The positioning enlarges and deepens understanding of the range of immediate experiences through developing a schema for describing and classifying subjective experiences for what Husserl (1970) termed the “lifeworld”. According to Welman and Kruger (1999, 189) “the phenomenologist understands social and psychological phenomena from the perspectives of people involved.” A researcher applying a phenomenological research methodology investigates the lived experiences of the people involved (Greene, 1997), describes the phenomenon whilst refraining from any pre-given framework and remains true to the facts (Hycner, 1999).

There has been a growing focus on disseminating non-academic knowledge, known as impact beyond the confines of the academic community. This is addressed in this paper by showing that company-based SCM focussed research can add value to businesses, makes a substantial difference to their capabilities and performance as well as providing significant demonstrable contributions in a non-academic context (Wolff, 2010). This leads us to the aim of the paper, which is to apply three distinctive approaches to phenomenological methodology in different contexts and demonstrate its non-academic impact in SCM research. In each example, the research experience involves participation in the study environment as a consequence of being an expert in the systems and processes being researched and can recommend, facilitate and implement change on a first-person subjective basis.

The remainder of the paper is organised as follows: firstly, an overview of three phenomenological research paradigms is given with reference to SCM, presenting some guidance and insights in relation to the use and application of each approach. Secondly, using different non-positivist

research philosophies and methodologies in each case, three SCM case studies are presented providing some understanding for researchers and practitioners regarding the benefits and development of the associated novel research methodology utilised. Key discussions and lessons learnt are then highlighted followed by conclusions and suggestions for future research.

Literature Review - The Phenomenological Paradigm

Phenomenological philosophy postulates that the world we live in is constructed by human interpretation to which an important contributory factor has been the discovery that the subject is mediated by understanding the language, symbols, history and culture and the subsequent interpretation of the analysis contributing to a greater knowledge (Petrovici, 2013). The phenomenological lens is concerned with the interpretation of understanding (Gadamer, 1989), emphasizing that all understanding is linguistic in that “through it experience is filtered, encoded and communicated in dialogue” (Arnold and Fischer, 1994, p.58). The basic phenomenological assumption being that a person’s life is a socially constructed totality in which experiences interrelate coherently and meaningfully. The relevance of non-positivist SCM research is grounded in the understanding of what is to be understood from the researcher’s real life investigation through sharing their gained knowledge with the human objects of their inquiry in the virtual networks of connected supplying organisations. It also refines our understanding of the phenomenological approaches used in social science research by exploring how the subject-object dichotomy may be bridged by an interpreter focusing on the context and the text (Farooqa and O’Brien, 2015).

Phenomenological paradigms emphasise the subject’s lived experience and the inextricable bond between them and the environment as the basis of human behaviour and actions (Sandberg, 2005). According to Habermas (1971), the understanding of meaning is achieved when the interpreter relocates themselves within the world from which a fact derives its meaning, especially if they can participate as an expert contributor to the environment. This stresses the connection between the knower and the known and the subjective nature of understanding the meaning of the various phenomena. The approaches that span the philosophical areas of non-positivist inquiry (adapted from Guba and Lincoln, 1994) have been used to demonstrate different methodologies for gaining insight and meaning within each case study. Three distinctive approaches of Interpretivist using

induction, Social Constructivist using RBT and Critical Realism using abduction are employed to gain a greater understanding in three SCM case studies. They provide a novel approach for gaining insight and identifying new knowledge from the use of a metaphorical wide lens. The basic beliefs of these research inquiry paradigms are summarised in Table 1 providing a focus on the critical issues relating to the research design and approach.

Item	<i>Interpretivist</i>	<i>Social Constructivist</i>	<i>Abductive</i>
Ontology	Recreate the experience of others within oneself. Reality is a mind dependent dualist approach.	Relativism – local and specific co-constructed realities.	Rational rule based set of beliefs with naïve realism – ‘real’ reality but apprehensible through experience.
Epistemology	Social science based; meanings placed within a context, value relevance.	Knowledge is believed to be acquired through involvement with content. Transactional/subjectivist; created findings.	Prior theoretical knowledge/theory matching moderated by reflexivity.
Methodology	Hermeneutic process with no absolute beginning and end points. Context bound from lived facts.	Hermeneutics/ dialectical through me, you and cultures of people derived from views and experiences.	Experimental/ manipulative; Deviating hermeneutic real life observations gained from having lived the experiences.

Table 1: The basic beliefs (metaphysics) of each inquiry paradigm (adapted from Guba and Lincoln, 1994)

Due to recent rapid social change and the resulting diversification of human lived experience, interpretive phenomenological research is seen as a way of understanding the confusion of new social contexts and perspectives, which is specifically the case in SCM (Stuart *et al.*, 2002; Towers and Chen, 2008). Rather than an economic view of organisations, it takes a social view and considers all human subjects, including the researcher, as 'active sense makers' who actively constitute and reconstitute culturally derived meanings in order to interpret their experiences and make choices (Golicic *et al.*, 2005). The result is to offer insights into how a given person, in a given context, makes sense of a given phenomenon. Combining this with phenomenology there is an increasing trend in SCM research to work within non-positivist methodologies in order to provide a greater depth of understanding and contribute to theory development by considering key social and human aspects as well as the associated mechanistic modelling and simulation (Mangan *et al.*, 2004; Ellram, 1996). Indeed, SCM evolution and development beyond dyadic relationships has been built upon socio-economic contexts (New, 1997).

The Interpretivist approach develops an understanding of the phenomenon by appreciating its uniqueness and its interaction with its context. The adoption of interpretivism allows the researcher to examine differences in organisations in a great level of depth. The primary data generated via interpretivist studies might be associated with a high level of validity because the data tends to be trustworthy and honest (Ochieng *et al.*, 2016). Human beliefs and interests not only guide how people think and the structures of work and authority but they also condition the way we enquire into and construct our knowledge of the world. "It seems as if the interpreter simply places himself within the horizon of the world or language from which a given historical fact derives its meaning" (Habermas, 1971, p. 45).

Social constructivists believe that one singular and objective reality (or 'truth') exists but by collecting the actor's lived experiences and perceptions the researcher can get closer to the many truths. An essential component of social constructive research is the generation of new learning and knowledge (Mendibil and MacBryde, 2005). This approach focuses on producing an innovative solution to a relevant practical problem. This research carried out a pure exploration within the study, which aligned with social constructivism. Rather than making broader generalisations of the findings, the research aimed at outlining a more informed and sophisticated

picture of reality that can be subject to further investigation from the use of multiple case studies to capture the broad spectrum of issues (Alghisi and Saccani, 2015).

Abductive reasoning leads to new and plausible insights about existing phenomena by examining these from a new perspective to determine which aspects of a situation are generalizable and which only pertain to the specific situation itself (Danermark, 2001). It involves linking evidence to conclusions based on the context (e.g. causal explanations), when the initial interpretation of existing knowledge makes forging those links problematic and their pre-understanding does not correspond with existing theory (Spens and Kovács, 2006). Folger and Stein (2017) addressed issues concerning abductive triggers by first broadly defining abduction as a reasoning process that occurs when someone seeks to explain something in the light of some background context of existing knowledge. The abductive approach derives explanation from the general to the specific case, which could be viewed as a weakness if appropriate controls are not considered.

All three paradigms in Table 1 have a non-deductive hermeneutic phenomenology within them to some degree, gained from interpreting and understanding views and experiences. Hermeneutic philosophy took the position that interpretations are not decidable (Connolly and Keutner, 1988) which means that understanding is not the objective recognition of an author's intended meaning. Instead understanding complexity is a practical task in which the interpreter is changed by becoming aware of new possibilities of what it is to be a human being. The phenomenological perspective positions the interpreter in a continual process of gaining meaning as opposed to the 'subject-interpreting-object' epistemological position. In his seminal work Ricoeur (1981) proposed that hermeneutic philosophy mediates between a recapture of an objective sense of the text and an existential appropriation of its meaning into understanding. The dispersed nature of SCM across manufacturers and suppliers lends itself to the idea of a dialogic community central to hermeneutic phenomenology, where sharing of pre-understanding is mediated through language and textual meaning. The community in the research is "characterised by a sense of collective identity and by voluntary participation in purposive social action" (Arnold and Fischer, 1994, 57).

Further, qualitative research is supported by a naturalistic approach that attempts to understand a phenomenon in its context (Morgan and Smircich, 1980; Eisenhardt and Graebner, 2007; Barratt

et al., 2011; Gehman *et al.*, 2018). It is advocated by the social constructivist paradigm concerned with how knowledge is constructed and understood (Golicic and Davis, 2012) where a social constructivist tries to understand and explain human and social reality (Crotty, 1998). Construction of their own reality using reflective thought combines ideas and describes this reality as a construct of social imagination (Denzin and Lincoln, 1994). However, interpretivists understand qualitative research as a reality that cannot be separated from our knowledge of it, i.e. there is no separation of subject and object and posits that the researchers' values are inherent in all phases of the research process, suggesting truth is negotiated through dialogue (Smith, 1983). Working within a phenomenological paradigm enables the researcher to consider the influence of socially established structures of meaning such as long standing institutional frameworks and associated cultural patterns (Holstein and Gubrium, 1994).

Research method

Crotty (1998) describes phenomenology as a search of objects of experience rather than being content with a description of the experiencing subject and, secondly as an exercise in critique. Hycner (1985) described a series of procedures within an 11-step approach that can be followed in phenomenologically "analysing" interview data. Sadala and Adorno (2002) proposed steps for phenomenological description, reduction and analysis that lead to the building up of idiographic and nomothetic analyses and unveil and describe general truths about the phenomenon studied.

SCM research is not necessarily associated with one particular method employed in phenomenological approaches; indeed, there is a range of options available to the researcher. Hence, and a key aim and major contribution of this paper is to present three different methodologies, Interpretivist using induction, Social Constructivist via RBT and Critical Realism using abduction embedded in phenomenological investigations used in SCM research.

The application of phenomenological research to SCM has been argued by Golicic *et al.* (2005), Koulikoff-Souviron and Harrison (2005) and Seuring (2005) who presented three case studies exploring sustainable SCM in the textile and garment sector. Seuring *et al.* (2005) presented a literature review of ninety two papers on sustainability in supply chains found that the most common methodology was hermeneutic interpretation. Simatupang *et al.* (2004) selected the case

study method to examine the phenomenon (coordination) in its actual operating environment (fashion supply chain) and then compared the findings with theoretical propositions. Dubois and Araujo (2007) justified the use of case study research for studying phenomena in purchasing and supply management. For a complex field lacking consensus on the main theoretical assumptions, case study research of this type was found to be ideal for constructing the context and boundaries of the phenomenon. Evidence based examples from three case studies employing interpretivist, social constructivist and critical realist methodologies are presented in the paper. They reflect non-positivist approaches commonly used in phenomenological methodology and adopted in SCM investigative research. The three phenomenological approaches used reflect the different dynamic and responsive SCM contexts, addressing the original research aim and providing new insights into how the operations can be appraised and improved and potentially combined with more traditional, deductive methods to plan new systems developments and solutions. The phenomenological research methods emphasise that the world we live in is constructed by human interpretation, an important contributory factor of which is the discovery that the subject is mediated by understanding the associated language, symbols, history and culture and its subsequent interpretation of the analysis to gain greater knowledge (Petrovici, 2013). The research methods capture the views and experiences of the participants as seen as 'fact' and that participation in the research is only valid if they have lived the experience.

Research Impact

As SCM research tends to focus on application and practice, the value of non-academic impact is of interest to businesses, practitioners, policy makers and organisations alike, often with significant financial benefits. Indeed the subject area provides a rich source of potential evidence based non-academic research related to such important business-focused outcomes. Exploratory SCM research allows events and objects to make sense in the context of the phenomena being investigated (Harland, 2013). The diversity of the developing subject of SCM draws on a range of methodologies to gain greater relevance and meaning of the particular complexities of context, subject and environment; phenomenology requires us to engage in phenomena in our world from everyday experiences and make sense of it directly and immediately in a new and fresh way (Crotty, 1998). Further, non-academic impact is crucial in justifying such approaches within industry contexts. Through real world case studies, our research was designed to investigate formal

industrial SCM structures about which there is less explicit awareness. It would seek to identify, enlarge and deepen the understanding of a range of immediate experiences of people (Spiegelberg, 1982) working within SCM operations.

SCM Case Studies

This paper seeks to understand the non-academic impact gained from distinct phenomenological-orientated SCM research approaches using three case studies to help demonstrate their contribution to the field. Each case study evaluates the value derived from a non-academic impact perspective and provides a critical reflection on conscious experience, rather than subconscious motivation, and is designed to uncover the essential invariant features of the experience (Jopling, 1996). The chosen case studies focus on research which highlights the context of the work, its philosophical foundation and the merits of each of philosophical approach as well as the justification for adopting these within each SCM context.

To research the practicality and impact of phenomenological methods in SCM research the three case studies are presented comprising different contexts and research methodologies. The SCM case studies investigated were:

- (i) ***Interpretivist*** research using an induction-based methodology in the context of a group of UK-based responsive small and medium enterprise (SME) producers.
- (ii) ***Social Constructivist*** research using RBT within Middle East-based fashion producers.
- (iii) ***Critical Realism*** research using abduction focussing on transport purchasing within a UK-based metals revert manufacturing SME.

These three phenomenological approaches are representative of exploratory research used to gain a greater understanding into the developing field of SCM.

Case Study 1 – Interpretivist using induction

Background

The world of traditionally inherited meanings reveals itself to the interpreter only to the extent to which their own world becomes transparent to them at the same time. Understanding traditional meanings provides a link between the factual world and the tradition being applied to themselves and the situation. Smith (1983) continues to suggest that the interpretivist approach is one which involves the need to recreate the experience to grasp the essence of meaning and understanding that cannot be separated from our knowledge of it. However, interpretivist orientation does not allow researchers to fully capture reality but can only approximate it (Guba and Lincoln, 1994).

When selecting a research paradigm from which to approach and design this study both the nature of the research and its aims and objectives were considered to grasp the essence of meaning and understanding. As recommended by Maxwell (1996) a visual representation of the study was considered and developed as a framework to identify the relationships amongst the design components. This approach enabled the researcher to consider the important elements that were pertinent to the specific empirical study, concentrate on subjective meanings in the social world and, thus, assist in reconstructing and understanding them (Stake, 1995).

The manufacturing sector is characterized by a majority of SME producers that can adapt quickly and responsively to constantly changing customer requirements. The example involves researching the supply chain trading relationships that exist between a UK-based SME manufacturer and its customers and suppliers and examines the consequences of the relationship between the external customers and the internal production activity control. The four British manufacturing businesses, all with less than 250 employees, were selected because they exhibit a variety of relationships with their suppliers from a common base of a manufacturing operation. The selection criteria included a fully resourced manufacturing operation as a core activity, open access for the research and involved in a supply chain where a substantive long term relationship had developed over a reasonable period of time with its customers.

The interpretivist dialogue-based research included detailed data collection from in-depth semi-structured interviews, observational assessments and process mapping activity over a two-year period to achieve a full understanding of the complex issues derived from the associated subjective experiences. Some pilot study work was undertaken in two of the case study SMEs. These involved approximately five interviews at each company's manufacturing facility with a number of different personnel. These initial interviews contributed both to the reliability of the data collection activity and also helped to improve and test the skills of the interviewer. The main data collection phase was then undertaken over an 18-month period. The key data collection instruments were the mapping process for enterprise planning, SCM and SME characteristics within each case situation followed by undertaking in-depth semi-structured interviews and collecting supplementary data and other specific company documents. An Interview Schedule was used as the basis for the dialogue to explore each area highlighted in the research model developed. Also supplementary data and other specific company information were collected at each manufacturing SME where it was available, for example from dedicated customer files.

Case Study 1 - Methodology

For each SME the production operations were mapped out and recorded in order to understand the flow of product through the different manufacturing processes. A number of personnel were selected as key informants who were knowledgeable sources of information of business relationships with their customers and internal production planning and control. Normally this would be with the Managing Director of the small business together with those staff involved in customer liaison and purchasing components from suppliers. A pilot study involving two 40-minute interviews was undertaken at one of the companies to identify the key themes. Following on from this initial analysis each company was then visited four times and on each occasion a total of four interviews were undertaken, each lasting up to 45 minutes. A total of 64 semi-structured interviews were concluded with the UK-based Manufacturing SMEs in the eighteen month period.

The interpretivist position allows for the grounds of knowledge to have a social science basis, where meaning was placed within a context together with value relevance. The methodological approach sought to build on what was known through investigation from interpretation, e.g. the process mapping activity and extending the knowledge of the reality for an SME manufacturer

supplying fashion products. The composite framework developed synthesized trading relationships, production activity control and the SME's strategic and operational requirements (Towers and Burnes, 2008). The small number of people involved in the SME and their close proximity at the workplace focussed on the language and behaviour of the participants in the organisation, allowing the researcher to gain clear perspectives of the people involved. This situation would provide an opportunity for a rich source of hermeneutic information through the continual interpretation of observations and objects enabling a greater understanding and meaning of the production activity control and trading relationships phenomena in a dynamic and constantly changing small business environment. O'Donnell and Cummins (1999) argued that a research study into small firms should allow for any phenomenon to be examined in its social context as well as in its totality and allow the researcher to get close to the participants and be sensitive to its holistic nature.

Case Study 1 Results and discussion

Existing theoretical literature and empirical evidence was used to construct a composite framework of enterprise planning and SCM, which allows manufacturing SMEs to understand how they interact and can be aligned in a supply chain context (Figure 1). This theoretical framework focused the analysis and helped reveal links between context and content thus supporting the view of Miles and Huberman (1994) that better science happens with an explicit framework rather than by predicting some kind of inductive purity.

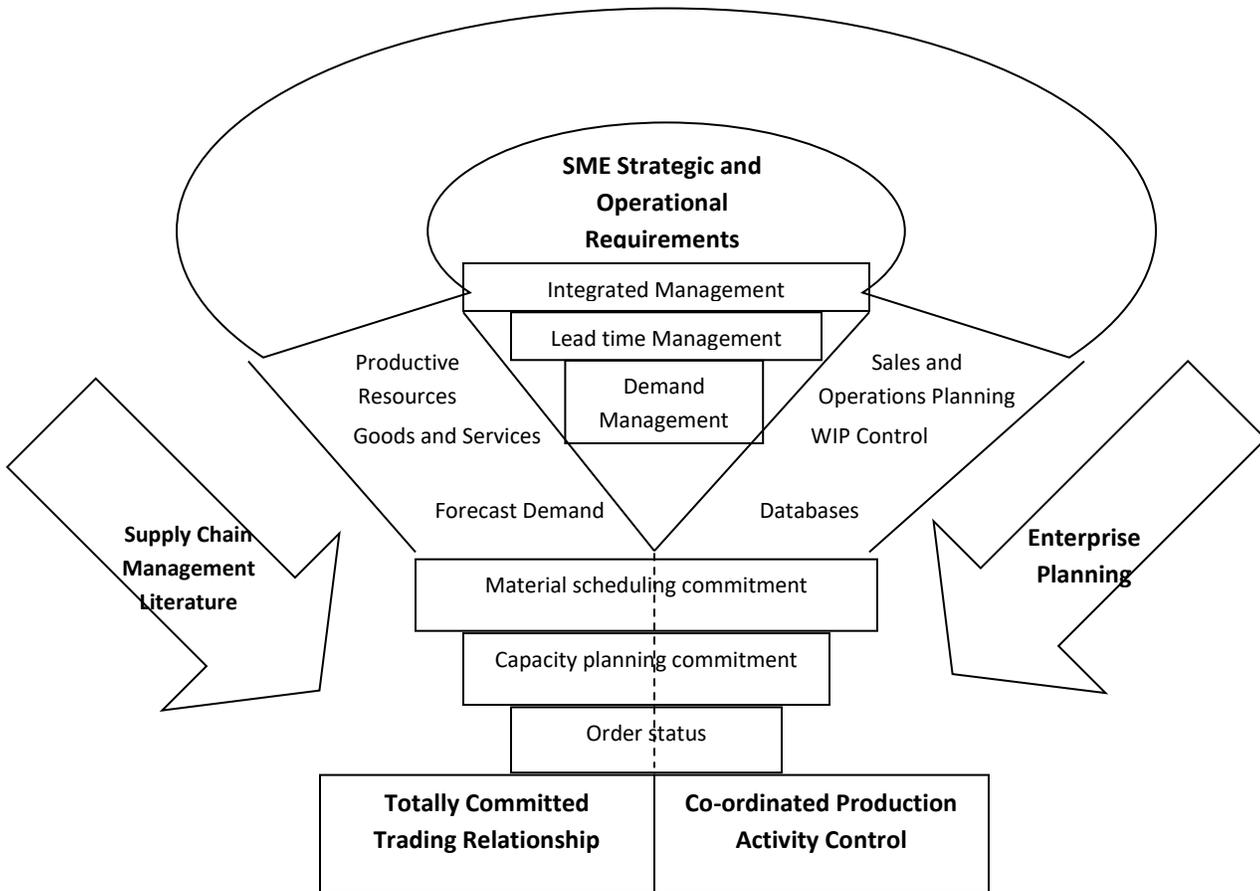


Figure 1: The Composite Framework for Enterprise Planning and Supply Chain Management for SMEs

In addition Yin (2003, 32) explained that the use of theory, “not only is an immense aid in defining the appropriate research design and data collection but also becomes the main vehicle for generalising the results of the case study.” The composite framework developed from this empirical research (Figure 1) concluded that the components of the exchange of productive resources, sales and operations planning and material planning commitment were not relevant contributions to trading relationships and production activity control for manufacturing SMEs. The exchange of productive resources was found to be inherently expensive and with limited benefit, whereas material planning commitment was seen as an unnecessary financial liability and an unreasonable risk for the manufacturing SME. Sales and operations planning was seen to be uncoordinated activity that lacked relevance for the manufacturing SMEs. However, although the long-term information exchange of forecast demand was found to be irrelevant, design

specification information exchange between an SME and its customers provided strategic advantage for the SME and could be exploited by them with their ability to provide an effective small volume sample and early production service.

Case Study 1 – Findings and impact

The Interpretivist approach revealed important insights into three novel key non-academic impact issues in the manufacturing SME sector. Firstly, a key finding was that any conflicts or discrepancies which exist between and within the requirements of trading relationships, production activity control and the SME's strategic and operational requirements manifest themselves through the material scheduling commitment. However, by this stage of the manufacturing process those involved may have little scope for resolving any serious discrepancies and conflicts. Secondly, if there are any serious problems with the material scheduling commitment then these will impact externally on the SME's service to its customers, internally on the effectiveness of its production activity control and overall on the ability of the manufacturing SME to meet its own strategic requirements. Thirdly, the composite framework shows that where an SME fails to deal with serious conflicts and discrepancies, it will lead to sub-optimal performance internally, i.e. it will not be able to meet its own objectives and externally it will not meet the requirements of its customers. This is an important finding as it follows that the underperformance of one part of a supply chain will significantly impact to a lesser or greater degree on the rest of the supply chain and can make the entire chain less competitive in meeting the end consumer's requirements as well as lead to further pressures and conflicts.

Aligning the external trading relationships and internal planning processes with the unique attributes of an SME will enable it to resolve conflicts and discrepancies to create a virtuous circle of trust and mutual collaboration (Towers and Burnes, 2008). From the Interpretivist point-of-view, the aim of this study was not to verify a hypothesis in order to explain the impact of certain variables but to gain a greater depth of meaning of how small manufacturing businesses contribute to supply chain performance. It neither generalises with statistical confidence a range of contexts nor does it develop an explanation that should ultimately enable the quantitative prediction and control of phenomenon. The phenomenological methodology has been shown to be effective in gaining a detailed understanding of small business SCM through its own self-preservation.

Case Study 2 – Social Constructivist using Resource Based Theory

Background

The second example applied the merits of a Social Constructivist case study for the evolving subject area of Supply Chain Integration (SCI). The example of the resource based theory (RBT) perspective is used with evidence from fashion manufacturers supply chains in the next section. The case study approach examines and clarifies in detail the underlying dynamics of the researched subject area (Weck, 2005). The role of the empirical evidence was to understand visibility in the context of SCI and thus provide new insights from across the three tiers of manufacturer, supplier and customer. Some use of existing theory did occur particularly where the exploratory nature of the study drew on existing theory development (Bryman, 1988; Eisenhart, 1989; Gehman *et al.*, 2018). The philosophical orientation of social constructivism took into account the complexity of the business world (in this case international SCM) as the lifeworld and as a result each case was interpreted individually according to its degree of complexity. However, one limitation of adopting a social constructivism approach is the challenge of theory generation since knowledge is seen as absolutely contextual and limited to the setting in which was carried out (Towers and Chen, 2008).

Studying the supply chain of fashion industry is very complicated (Macchion *et al.*, 2017; Caridi *et al.*, 2014; Sabet *et al.*, 2017) and the use of the RBT for interpreting the results from case studies requires that the researcher helps understand their social setting. Figure 2 shows the rationale for choosing a social constructivist orientation to obtain a greater understanding of SCI phenomenon in the context of the fashion manufacturers' supply chains. The social constructivist orientation is particularly relevant as RBT involves intangible elements such as social interaction, routines processes, knowledge and expertise, history and capabilities that are difficult to understand without renovating the experiences the author gained through a social constructivist approach.

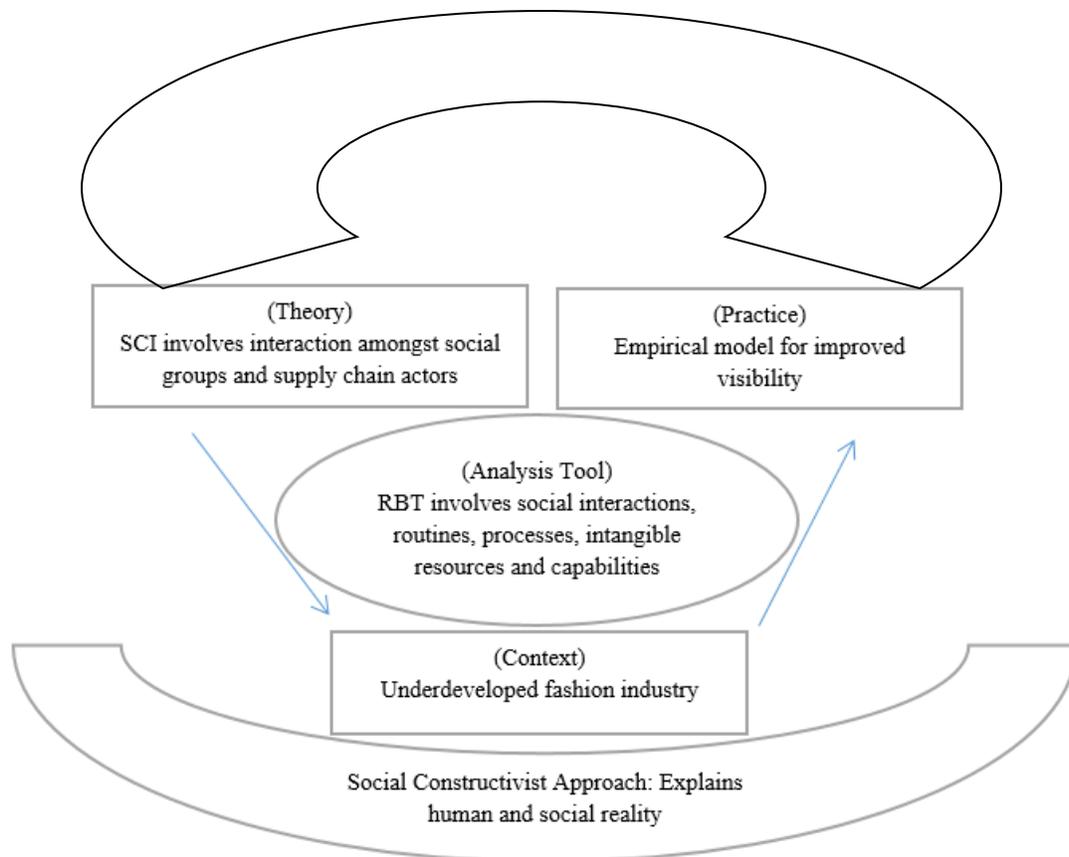


Figure 2: Social constructivism and case study supply chain context

Case Study 2 - Methodology

This exploratory study over a three-year period investigated the complexity across the supply chain obtaining evidence from manufacturers, suppliers and customers from seven case studies (Caniato *et al.*, 2012). The seven case studies were selected based on size (+250 employees), trading period (+5 years) and access to their international supply chains and relevant international fashion brand customers. A total of 66 semi-structured interviews were conducted during the data collection phase across the seven supply chains. The interviews were conducted with at least six different people holding managerial positions from each supply chain including intermediaries. Interviews took place at the premises of the companies involved each lasting between 45 and 60 minutes depending on the richness of data provided by each interviewee. An Interview Schedule was used as the basis of the dialogue to explore each area highlighted in the developed research model. In addition, supplementary data and other specific company information were collected at each manufacturing SME where it was available, for example from dedicated customer files. The RBT

was applied across three levels of external supplier, external customer and internal functions. The analysis process suggested that the triangulation of data across the supply chain was essential in developing and validating the empirical findings in such a study (Flick, 1992). Therefore, neglecting the views of the supply chain partners and stakeholders would have distorted the results and detracted from the likely impact of the research.

Case Study 2 - Results and discussion

The social constructivist methodology adopted in the fashion supply chain context highlighted the underpinning empirical constructs required to gain impact for the fashion garment manufacturers. Using such a novel approach for this case study permitted a better understanding of information visibility through gathering evidence from the different players across the seven case study supply chains. Most of the previous literature on SCI only captured reality from the focal firm and neglected the views of suppliers and customers. This contradicted the whole notion of SCM where the external partners and stakeholders are the novel elements (Ataseven and Nair, 2017; van Donk and van der Vaart, 2005; Carter *et al.*, 2015; Towers and Burnes, 2008; Sabet *et al.*, 2017) of such a system. Adopting RBT as the analysis tool meant that a high level of visibility was obtained which was seen as a capability that provides a potential source of competitive advantage directly derived from the SCI theory developed. This connects to the need for qualitative research which is typically interested in the clarification and understanding of dynamic or complex phenomena (Hycner, 1999; Golicic and Davis, 2012; Gehman *et al.*, 2018) such as the SCI phenomenon (Ataseven and Nair, 2017). The application of this approach led to the finding that integrating internal functions is essential for enabling customer integration. Thus, manufacturers should work to leverage downstream material and information flows in order to be able to attain greater benefits from such integration (Sabet *et al.*, 2017; Ataseven and Nair, 2017).

Case Study 2 – Findings and impact

The contribution from the case study addressed a call for question about the interplay between the levels of integration in SMEs (Ataseven and Nair, 2017). This proposition suggests that when SCI was investigated across suppliers, manufacturers and customers, there was a better understanding

of integration level prioritization. This finding is important to fashion manufacturers who are striving for enhanced competitive advantage with limited resources.

The research impact gained from conducting a case study methodology in this context is that by studying SCI at three levels across the supply chain, the evidence collected from the manufacturers and their suppliers and customers meant it was possible for the construct of visibility to evolve from the integrated supply chain. This meant that integration was a prerequisite for improved information visibility. The SCM impact from this research relates to the “value improvement... to business and the economy” (Harland, 2013, 491). For the fashion sector, this has great resonance as it helps companies understand how to create competitive advantage in the highly competitive international fashion garment manufacturing industry (Macchion *et al.*, 2017). The also research provided significant non-academic phenomenological impact through a more informed and sophisticated range of immediate experiences derived from fashion manufacturers’ geographically dispersed supply chains and associated stakeholders.

Case Study 3 – Critical Realism using abduction

Background

Abductive reasoning leads to new and plausible insight about existing phenomena by examining these from a new perspective to determine which aspects of a situation are generalizable and which others only pertain to the specific situation itself (Danermark, 2001). It involves linking evidence to conclusions based on the context (e.g. causal explanations), when the initial interpretation of existing knowledge makes forging those links problematic and their pre-understanding does not correspond with existing theory (Spens and Kovács, 2006). Folger and Stein (2017) addressed issues concerning abductive triggers by first broadly defining abduction as a reasoning process that occurs when someone seeks to explain something in the light of some background context of existing knowledge. The abductive approach derives explanation from the general case to the specific case, which could potentially be viewed as a weakness if appropriate controls are not considered. Thus, a limitation of this approach is that when you go from general down to specific, a researcher could discount important issues that are related to the general findings.

The third case study discusses and demonstrates the merits of a critical realist philosophical approach based around applying abductive action research for transport purchasing within a medium sized industrial metals revert producer operating in a geographically distributed supply chain context. This example addresses the economic impact derived from an abductive action research methodology examining unstructured problems in the real-life world (Coughlan and Coughlan, 2002; Coughlan and Brannick, 2005; Näslund *et al.*, 2010) and is ideal for achieving ‘extreme relevance’ in logistics research (Näslund, 2002). Furthermore, incorporating action research provides a depth of understanding which facilitates theory development (Eden and Huxham, 1996; Coughlan and Coughlan, 2002). It provides “the researcher with the necessary flexibility to actively participate in the research activity and to analyse the situation in detail by being part of the research system under investigation” (Farooq and O’Brien, 2015, 467). Action research is appropriate for describing an unfolding sequence of actions over time (Coughlan and Coughlan, 2002; Coughlan and Brannick, 2005; Darlington *et al.*, 2016) where the explanation from the general leads to creating the specific case, although embracing the phenomenological consideration of the impartiality of the participating researcher is a basic concern (Farooq and O’Brien, 2015). Action research cycles and associated abductive reasoning supports Eisenhardt’s (1989) notion of shaping a hypothesis through an iterative tabulation of evidence and data using language, symbols, history and culture. Checkland and Holwell (1998) emphasize the need to develop general research “themes” rather than specific hypotheses and the action research cycles set the direction for the research whilst laying aside the prevailing understanding and revisiting the immediate experience of them.

The aim of the research was to study how improvements could be achieved in transport purchasing for a medium sized industrial producer based in the UK and operating in a globally dispersed international supply chain. The focal company was founded in the mid-1990s and achieved a turnover of £120m and 300 employees within the first 12 years of its operation. In the latter part of this period the company enjoyed an annual sales turnover growth rate of more than 40%. The aim of the research was twofold. Firstly, to understand how to optimise transport purchasing in a single company case study where the researcher was employed as the logistics manager throughout the six year period of this research. Secondly, through employing the action research approach with the researcher embedded in the focal company, it developed a cost-based model for a metal

processing firm to assess and improve their sea freight and road transport operations and also to improve their supply chain capabilities globally. Hermeneutics was extensively used in this research in a continual process of gaining new meaning throughout the action research cycles (Holter *et al.*, 2008; Holter *et al.*, 2010).

Case Study 3 - Methodology

This phenomenological research was conducted over ten action research cycles in a six year period with an abductive strategy of inquiry within each cycle. The conceptual research approach is illustrated in Figure 3, which synthesizes the abductive research process and the action research cycle, highlighting their similarity. This was also identified by several authors such as Dubois and Gadde (2002), Spens and Kovács (2006) and Perona *et al.* (2016). The actual research design involves successive abductive action research cycles, an unfolding literature review and data collection to yield a richness of insight culminating in the knowledge contribution through theory building in Phase 5.

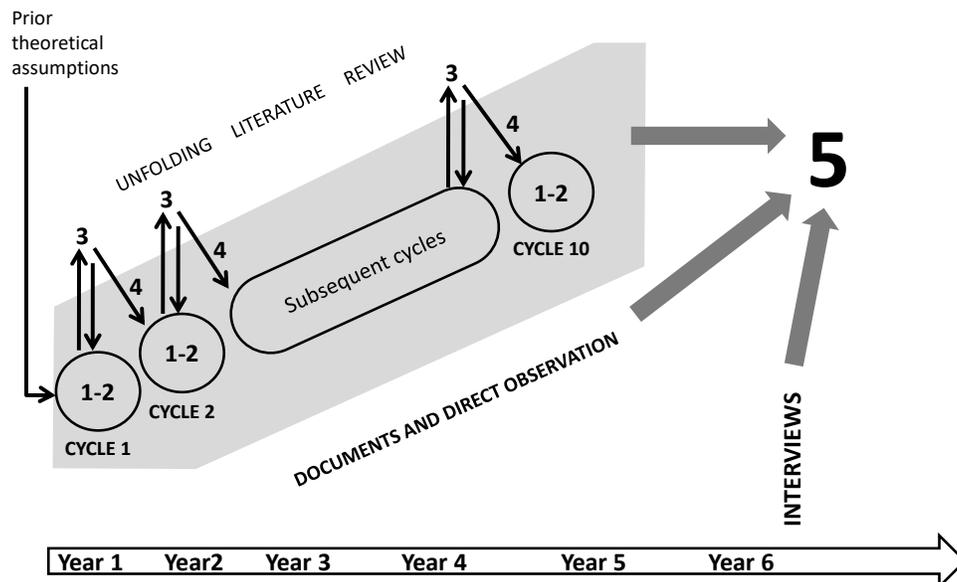


Figure 3: The actual abductive research design

Each cycle has four phases. Any pre-existing theoretical framework (Phase 0) that affects this stage unfolds in the developed literature review. In Phases 1 and 2 (the action research cycle) the researchers determined the definition of constructs and started to identify the relationships between them. Phase 3 identified which bridging laws apply to the context through premise reflection. Phase 4 deductively tests the new theory. After cycle 10 Phase 5 established the bridging laws, and thus the characteristics of the context in which the theory applies, were re-examined. This leads to a clearer demarcation of the theory's domain with a possible expansion from the contextual to a more general truth-claim.

The participative nature of action research was concerned with developing practical knowing and produced a wealth of documentary evidence from the ten cycles including the collection and analysis of 224 internal company documents such as meeting minutes and presentations. Each cycle included a reflection of the findings from the researcher's direct involvement and informed the following cycle. Six semi-structured interviews were also conducted each lasting up to one hour with key focal company stakeholders, including representatives from two of focal company's main logistics providers. An initial interview guide was developed to direct the interviews towards the research objectives which resulted in 156 questions being framed. Although it was not practically possible to ask all the questions in the interviews and as many of the questions related to similar themes, they were grouped into 18 questions, which were actually used in the interviews.

The difference between the local theory building within the action research cycle and the theory building from reflection can be likened to Wacker's (1998; 2008) distinction between everyday language and an 'artificial' language. The 'should', 'could' and 'would' questions are very important for theory to be considered useful to managers" (Wacker, 2008, 364). This is the language used during problem solving within the action research context.

Case Study 3 - Results and discussion

As the research evolved the data collection was emergent in nature, as would be expected in such a study. Triangulation was applied between the three key data sources; namely direct observations, state-of-the-art academic publications, documentary evidence in the form of emails, meeting minutes and other information and direct face-to-face interviews with key senior and junior

personnel as well as customers and main carriers. The detailed document database and associated coding methods used, along with subsequent analyses, demonstrated that a chain of evidence linked the empirical data with the research objectives.

The initial process for purchasing transport was basic and ineffective and was transformed by the implementation of a new transport strategy based upon the results of this work (Figure 4). The starting point for the new strategy was a service specification, which was formally recorded and communicated to the carriers allowing like-for-like purchasing during the action research.

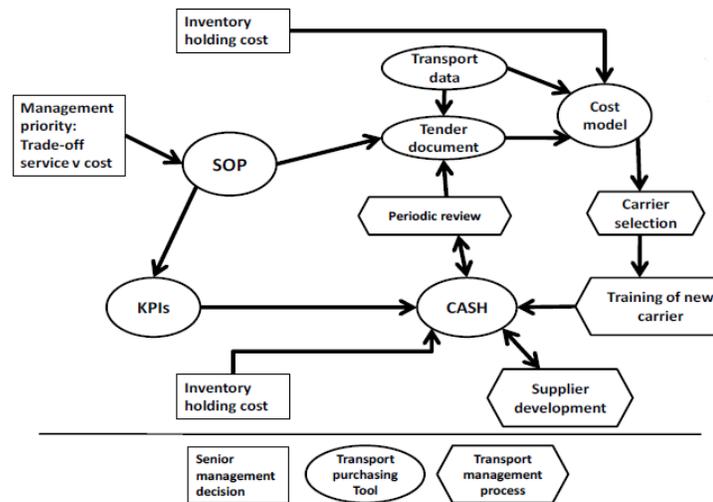


Figure 4: Case Study 3 Transport Strategy

The resulting document was called the Standard Operating Procedure (SOP), initially focusing on international containerised transport. Evidence of improved on-time delivery by the company as a consequence these activities is shown in Figure 5.

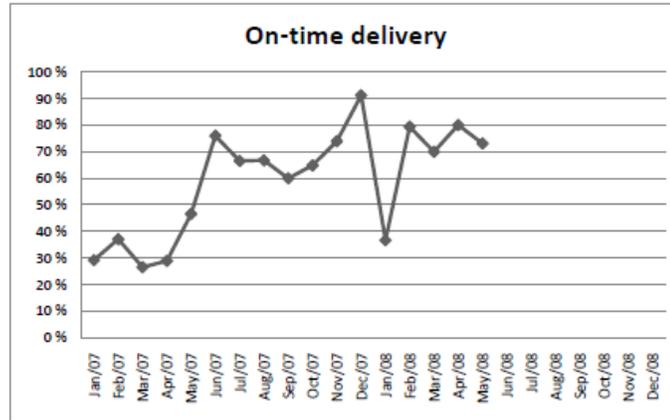


Figure 6.4: On-time delivery improvement for inbound and outbound shipments.

Figure 5: On-time delivery improvement for inbound and outbound shipments (a 2-year period snapshot)

Case Study 3 – Findings and impact

This research developed a new and novel model that is used by shippers of long-range transport to consider trade-offs between various decision criteria such as shipping mode, time and cost.

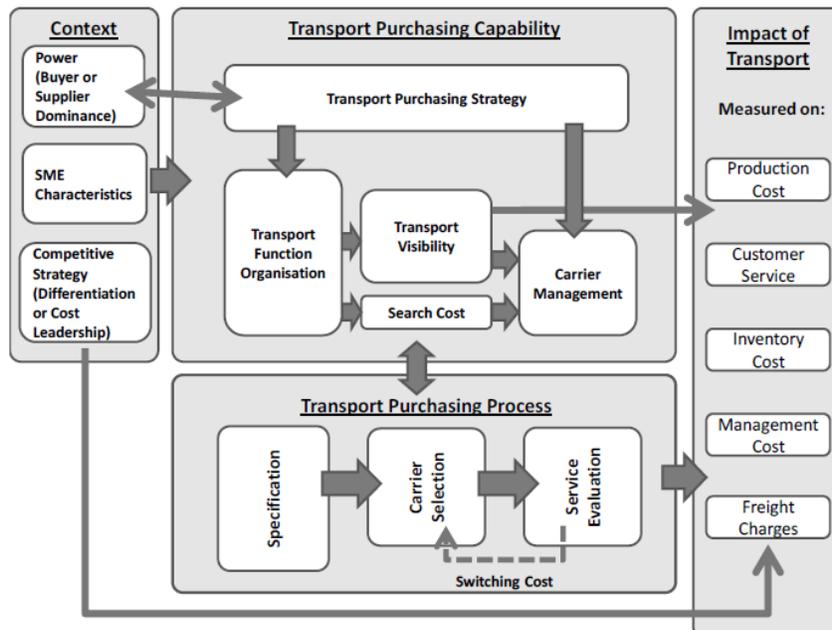


Figure 6: The revised SME Transport Purchasing Framework (Holter, 2011)

From the abductive action research cycles it was possible to develop a unique decision-making model that served the needs of the case company and could be applied to most shippers. The model would always find the lowest transport rate and would not optimise the combination of transport rate and throughput cycle.

Further, the application of the model within a novel software tool, and successfully implemented within the company, was based on algorithms informed by the abductive research using a combination of selected despatch dates, three chosen inventory cost levels and actual transport rates and transit times for specific routes. They were tested separately on the two payment terms: 'end of month' and 'after delivery'. The model holds that each shipment should be considered individually as any one policy will not lead to optimal results over time.

By combining transport cost and cash flow considerations the economic impact from the case company was that they were able to save an estimated 31% of total transport cost (Salhieh *et al.*, 2018) as opposed to a policy of choosing transport simply based on the cheapest rate alone and 7% based on a policy of choosing the shortest transit alone (Holter *et al.*, 2010).

Significantly, the specification and subsequent development of a practical software tool for managing transport costs was possible through an abductive research study using a structured, iterative action research approach, which revealed situational explanations from the general perspective to the specific case.

This work also allowed the company to make considerable savings in inventory, reduced management effort, improved production scheduling and planning and increased competitiveness due to leading new contracts with major OEMs. Indeed, over the three year period of the project it was calculated that it improved profitability of the company by over £6m.

Discussion

The role of the researcher is the focus of much debate within qualitative research in general (Hycner, 1999; Gehman *et al.*, 2018) and SCM in particular (Burgess *et al.*, 2006; Adamides *et*

al., 2012). From this phenomenological research case study comparison, three key research outcomes have been identified.

Inductivist phenomenology relevance to SCM company-focussed research

The debate's origin is the validity of the adopted methodological stance in a developing field of study and an epistemological question relating to the impact of the approach in understanding the 'truth' and reality. The lens of the investigator is an important consideration as it enables recognition and comparison of the real-life view. This paper has shown that in each SCM example it utilises the attributes of phenomenological research believing that it was more pertinent to cover the contextual conditions of the phenomenon under investigation. Through addressing the meaning, structure and essence of the lived experience and an understanding of complex issues have been achieved. A detailed understanding of the range of immediate views and experiences has underpinned the phenomenological methodologies employed in the research. In particular the heterogeneous nature of small businesses, the contextual variety of the ME supply processes and the novel transport purchasing in logistics all have differing non-causal interpretation which is harnessed by gaining greater detailed meaning and understanding of each reality in the "lived world."

Inductivist phenomenological research methods applied in industrial situations

The composite framework developed through the interpretivist orientation in the first case study suggested that where an SME fails to deal with serious conflicts and discrepancies it will lead to sub-optimal performance internally, i.e. it will not be able to meet its own objectives and externally it will not meet the requirements of its customers. The impact gained from adopting the case study methodology in a fashion context in the second case study is that by studying integration at three levels across the supply chain it was possible for the new construct of visibility to evolve from the empirical model. The SCM impact from this research relates to the "value improvement... to business and the economy" (Harland, 2013, 491). The third case study developed a model that would always find the lowest transport rate and would not optimise the combination of transport rate and throughput cycle. The economic impact from the case company was that they were able to save an estimated 31% of total transport cost as opposed to a policy of choosing transport simply

based on the cheapest rate alone and 7% based on a policy of choosing the shortest transit alone (Holter *et al.*, 2010).

New insights and understanding within SCM environment

Each real world case study presented has been shown to have a discernible impact derived from an appropriate phenomenological methodology for its particular context. The development of different aspects of SCM theory *in situ* has shown beneficial and explicit academic and non-academic impact for the SME manufacturing sector by highlighting the associated fashion garment manufacturing industry and logistical transport economic benefits. The three phenomenological approaches presented in the different dynamic and responsive SCM contexts have also been shown to contribute to innovative research methodology development in their own right and from their own philosophical merit producing novel contributions to SCM research in particular. The need to study the theory and practice of interpretation is underpinned by the desire to understand the richness gained from phenomenological methodology. The depth and breadth of understanding and interpretation of the multi-faceted subject area of SCM derived from hermeneutic philosophy is consistent with Arnold and Fischer's (1994, p. 66) view, "to enable researchers to draw more consciously, critical and powerfully" derived insights from an objective sense of the text.

Conclusion and Future Research

Through the application of the three different phenomenological methodologies in real world contexts a major contribution to the SCM discipline is gained via positive academic and, particularly, non-academic impact benefits. Identifying contrasting industrial case studies that utilise diverse phenomenological research methodologies demonstrate significant value can be added to assessing business performance and SCM impact, successfully addressing the original aim of the paper.

The field of SCM continues to emerge and develop as businesses and organisations continue to adapt to their changing environment. Customers, manufacturers and suppliers are constantly seeking ways to improve their contribution as part of the lived experience. More recent evolving subjects such as sustainability, the extensive use of the internet, digital contexts and global economic influences have impacted on SCM research and it remains important to understand the

positioning of the philosophical argument. This provides the basis for future phenomenological research development in the field of SCM as part of the continuing desire to support knowledge creation. The three phenomenological approaches presented have been shown to contribute to innovative research methodology development on their own philosophical merit and produced novel contributions to SCM research in particular. However, this paper is context-bounded within the three different case studies. Thus, we would call for future research to further test the merits of each approach and the non-academic impact benefits that can be achieved, invite researchers to build on this research and introduce phenomenological approaches from different cultural settings and apply them to different industries.

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