Management Accounting and Supply Chains: Actions, Concerns, and Networks

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Abstract

What does this thesis do? This thesis uses Actor-Network Theory (ANT) to examine how a UK retailer's organization and strategy, and, in turn, its form of management accounting was shaped by its supply chain. The thesis does this by reporting on four related themes in the form of four inter-connected essays. The first essay undertakes a state-of-the-art review of the literature. It examines how accounting issues within supply chains permeate 'matters of concern'. In accordance with this idea of ANT, the essay illustrates how issues emerged, controversies developed, and matters evolved through an actor-network of accounting researchers within the supply chain domain. This leads on to the second essay, which exemplifies the nature of the UK's retailing industry within which the supply chain case organization emerged and developed. The purposes of the essay are twofold: to introduce the contextual ramifications of the case organization; and to illustrate the emergence of a new market logic, which led to the creation of a global supply chain and a new form of management accounting therein. The third essay reports on a qualitative case study. It analyses the dualistic relation between ostensive and performative aspects of supply chain strategy, reveals how accounting numbers act as an obligatory passage point within this dualism, and makes a contribution to the ANT debate around the issue of whether and how a dualism between ostensive and performative aspects exists. The final essay reports on another case analysis of institutionalizing a heterarchical form of management accounting: a distributed form of intelligence that penetrates through lateral accountable relations. The analysis reveals a new form of management accounting characterised by ambiguity; it emphasizes the possibilities of compromises and negotiations, and it thus contributes to knowledge by combining an aspect of ANT with heterarchical tendencies in the world of contemporary organizations. Finally, the thesis concludes that it is the supply chain that organises today's neoliberal capitalism; and it is management accounting that unites both human and non-human actors within such supply chains, despite that form of management accounting being ambiguous. The thesis comprises the introduction, these four essays, and the conclusion.

Dedication

I dedicate this thesis to my family: my mum Hager, my dad Magdy, my sister Sarah, and my brother Mohamed, who always give me everything and have never left my side; it is time to dedicate at least one small thing to you. I also dedicate this thesis to my beloved country Egypt, where I grew up, studied, and obtained my knowledge basis. I hope I can pay it back one day.

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Author's Declaration

I declare that, except where explicit reference is made to the contribution of others, this thesis is the result of my own work and has not been submitted for any other degree at the University of Glasgow or any other institution.

Signature:

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Abbreviations

ABC	Activity-Based Costing
ANT	Actor-Network Theory
BSC	Balanced Scorecard
CM	Category Management
CSR	Corporate Social Responsibility
IGD	Institute of Grocery Distribution
KPIs	Key Performance Indicators
MC	Management Control
NPD	New Product Development
PM	Performance Measurement
SC	Supply Chain

Introduction: Matters, Concerns, the Contents and Contributions

1. Matters

In presenting this thesis, I draw on years of reflections of sociologically informed, interpretive and critical research in accounting in the universities of Hull and Glasgow, and on the wealth of case study research experience I have gained. This thesis assembles evidence and theoretical explanations for how management accounting acts within Supply Chain (SC) context. Following qualitative case study methods (Stake, 1995; Yin, 2009; Silverman, 2010) and benefitting from the celebrated Actor-Network Theory (ANT) of Bruno Latour (Latour, 1987; 1996; 2005), which is now widely recognized by the interpretive camp of accounting research (Mouritsen et al., 2010; Justesen and Mouritsen, 2011), my aim has been to capture in detail the daily practices of the SC and associated discourses of management and information technologies in the creation of this new management accounting form. This aim was formulated from my reading of ANT (Latour and Woolgar, 1979; Latour, 1987; 2005; Callon, 1986; 1999; Law and Hassard, 1999), which released sociological accounting research from the restrictions of both structural theorisations and psycho-personal formulations and repositioned calculations and inscriptions at a 'central place' in accounting research (Justesen and Mouritsen, 2011). Being inspired by this 'central place' of inquiry, this thesis[1] conveys the message that management accounting, as a collection of inscriptions and calculations, is now being transformed to enact new forms of spaces, strategies, practices, and relations.

The transformation discussed above is materializing before our very eyes, both in and beyond the organizations. My closer readings and empirical engagement urged me to study the above mentioned SC to reflect on the transition that takes place beyond the organization (Seal et al., 1999; 2004; Mouritsen et al., 2001; Agndal and Nilsson, 2008; Free, 2008; Anderson and Dekker, 2009a; 2009b; Jack, 2011). Generally speaking, SCs have infused an alternative organisational structure into conventional economic organisations. On the one hand, organizations that are orchestrated by a SC become flexible and responsive social institutions that are able to contend with challenging conditions that arise due to limited resources, increasingly demanding customers, and dissatisfied shareholders. On the other hand, the technologies and tools that facilitated the

[1] The thesis is presented in the form of a collection of four essays on interrelated themes of inquiry.

old regime of organisations are now being replaced with new ones, as the former have been found to be irrelevant and outdated (Wickramasinghe and Alawattage, 2007). This points to the putative demise of bureaucracies under the influence of the global transformation and the rise of post-bureaucratic network organizations (Clegg, 1990). Consequently, accounting researchers have been left with the question of whether the conventional wisdom of management accounting, which developed within conventional economic organisations, is relevant to new organizational forms, such as the ones orchestrated by SCs (Smith et al., 2005). Numerous research studies have been conducted to try to answer this question by studying various aspects and areas of the SC (SC relationships, Performance Measurement (PM) and Management Control (MC), decision-making, trust, SC risk, reverse logistics, and sustainability) as a route to understand what constitutes management accounting, what role it can play within these new settings, and whether current management accounting techniques are relevant (Munday, 1992; Gietzmann, 1996; Mouritsen et al., 2001; Mahama, 2006; Langfield-Smith, 2008; Anderson and Dekker, 2009a; Anderson and Dekker, 2009b; Shaw et al., 2010; Cullen et al., 2013; Callado and Jack, 2015). However, despite the diversity of issues that have been addressed in the literature in this area, the literature is still characterized by ambiguity and indeterminacy and by disagreement between researchers regarding the nature and role of management accounting within these new forms, which leaves the door open for further research.

2. Concerns

My further reflections on the above gap in knowledge regarding the post-bureaucratic tendencies inspired me to explore further dimensions of the emerging roles of management accounting apparatuses. Consequently, I was encouraged to look at depth into these aspects and expand our understanding of overarching issues in SC management. These include how a SC can maintain amicable relationships in a turbulent environment (e.g. Munday, 1992; Handfield and Bechtel, 2002); how such turbulent environments challenge the existing PM and management systems (e.g. Niven, 2005; Tummala et al., 2006); how the complexities of SC decision making are handled (e.g. Gietzmann, 1996; Biswas and Narahari, 2004); how the notion of trust is intermingled with other management and accounting discourses (e.g. Moorman et al., 1992; Kwon and Suh, 2004); and how the notions of risk, reverse logistics, and sustainability are associated with SC operations (e.g. Trkman and McCormack, 2009; Tsai and Hung, 2009b; Spence and Rinaldi, 2014).

Screening the literature about these different aspects helped to clarify and illuminate my thoughts with regard to the advances that have been made in this area of research and to identify those aspects that required further investigation. It also helped me to reconsider the disparity between researchers in a more positive way than I had done previously. Indeed, the disparity between accounting researchers with regard to the nature, role, and relevance of management accounting is what motivated me to enter this bewildering research jungle and to try to recognize the potential for making a contribution to knowledge in this area through looking at the relationship between management accounting and SCs from different angles. This, in turn, led me to plan an initial visit to the case company.

The initial plan was to meet some of the key actors who help in the configuration of the SC at the retailer[2] I had chosen to study. Different options were available, and the potentially most rewarding routes were followed. Later, I was able to meet not only the retailer[3]'s key actors, but also their suppliers and partners, and to conduct observations on the shop floor. I was bombarded with the discourses, languages, and rhetoric as well as their associations with technologies and processes. My initial conversations were useful in helping me to tease out a set of overarching questions for further rounds of interviews. The questions included the following: What is done in the name of SC management? How are they connected to other actors, ideas, and technologies? As an organizational idea, how are the processes of strategizing synchronised with the SC processes? What roles does management accounting now assume in such synchronisations? How do these processes treat the notion of product and product categories? Why does category management (a new SC practice) assume such prominence in managing SC relations? What forms of management accounting are appearing in this context?

The questions that emerged were distilled in ANT–inspired accounting research (e.g. Preston et al., 1992; Mouritsen and Thrane, 2006; Chua and Mahama, 2007) to ascertain whether these questions were still valid for an ANT-informed analysis built on the idea that social reality is constructed through the interactions between heterogeneous actors in a network (Latour, 2005). At this juncture, I was confronted with the question of why I should not use other theories in place of ANT. However, while it was difficult to provide a

[2] For purposes of confidentiality, the name of the retailer is withheld, but this does not affect the theoretical validity of my analysis, given that the purpose of research is to study the process rather than offer an evaluation of any success.

[3] I am using the terms 'retailer' and 'supermarket' as interchangeable throughout this thesis (like other researchers such as Clinton Free)

straightforward answer to this question, I was impressed by the 'flat space' and anti-reductionism[4] ontology of ANT, which encouraged me to start the research with a clean slate, without having to carry the burden of multiple preconceptions about social and institutional forces that determine how accounting is practised and instead have the freedom to see what is going on (Hopwood and Miller, 1994). Most accounting researchers in this genre appreciate this epistemological strategy (see Justesen and Mouritsen, 2011).

Furthermore, I realised that most accounting studies in this field focus on accounting change and micro creation, and investigate how heterogeneous elements, such as divergent groups of people, different sets of ideas, an abundance of terminologies, and numerous models of technologies, act together with their entrusted agency, be they human or non-human actors (Preston et al., 1992; Briers and Chua, 2001; Quattrone and Hopper, 2001). I also felt that the planned study must focus on management accounting's micro-level change through the effects of acting networks on the above heterogeneous human and non-human actors (Latour, 2005). To answer the research question in page 1 (i.e., how does management accounting act within SC context?), I developed four pais of questions (based on the above converstation) with ANT-inspired theoretical aims.

(1) Can we theorise the progress in the generation of SC ideas, discourses, and academic literature through the notion of 'matters of concern'? If so, what contributions does this make to accounting research?
(2) Can we theorise the UK retailing sector as a set of networks? If so, what intellectual support does this elaboration provide to subsequent analyses?
(3) Can we theorise the synchronization of SC management practices with the process of strategizing through the notions of 'the ostensive' and 'the performative'? If so, what contributions does this make to ANT-inspired accounting research?
(4) Can we theorise the practices of Category Management (CM) through the thesis of heterarchical formations? If so, what contributions do we make to the discussion of the link between management accounting and CM?

These 'settled' questions (which took me longer than expected to formulate fully) gave me the 'green light' for continuing the main study while remaining sufficiently disciplined to continue reading and thinking carefully about the theoretical validity of the above

[4] In many non-ANT, theories are based largely on the concern about certain dichotomies such as subjectivity versus objectivity, structure versus agency, etc.; for a detailed review of this, see (Chua, 1986; Hopper et al., 1987; Hopper and Powell, 1985).

questions. While I aimed to make contributions to the ongoing debate in this research field by revealing the emerging ramifications of SCs and by articulating how management accounting responds to this change, I realised that the focus of this thesis should be not simply on management accounting change, but also on the complexities prevailing in the SCs and on the reciprocal relationship between management accounting and such complexities.

3. Methodology and Methods

The goal of this section is to highlight the theoretical frameworks that dominate in the analysis of this thesis, the methodology and methods that have been utilised, data analysis techniques, ethical considerations, and the issues of validity and reliability.

3.1 The theoretical frameworks adopted in this thesis

ANT is the main theoretical framework that shapes the analysis of the four essays (especially the first three essays) and ultimately the conclusions drawn from them. Professor Geoff Walsham noted that, quoted by Rönnbäck et al. (2007:1277), "theory is both a way of seeing and a way of not seeing". This thesis does not claim that ANT is the right theory or the only one theory for understanding this research, but rather it helps to highlight certain perspectives that I aim to explore in this thesis which may not be captured by other theories. However, at the same time, I understand that this theory may blind me to other perspectives that can be detectable by using other theories.

In the first months of my PhD study, the writings of Latour (1986a; 1987; 1988b; 1996; 1999; 2005; 2008; Latour and Woolgar, 1979) and his colleagues, Callon (1986; 1991; 1993; 1999) and Law (1991; 1992; Law and Hassard, 1999), marked my journey. According to Alvesson and Sköldberg (2009:32), "Latour has launched a very successful methodological programme, 'the actor-network theory' (ANT), where the actors do not only need to be humans … The idea of non-human actors can at first sight seem a bit fantastic, almost science fiction, but on a closer look it appears less bizarre". At the beginning I found Latour's idea very interesting as I used to view non-humans as mere passive entities. Latour (1999:214) argues that society is characterised by "an increasingly large number of humans are mixed with an increasingly large number of nonhumans, to the point that, today, the whole planet is engaged in the making of politics, law, and soon, I suspect, morality". It is not only that. ANT also supports treating humans and non-humans symmetrically and denies any form of reductionism that assumes, a priori, that either humans or non-humans drive the other or determine the character of social change (Law, 1992; Latour, 2005). Although Latour's ideas were very exciting for me, I was not sure whether this thinking is practical. Therefore, I started to think about my ordinary life and how it is affected by various non-human actors.

I remembered that while I was in Egypt I could not work on my assignment for about three days because the internet services had suffered after a ship's anchor cut through undersea internet cable, and thus, I had to ask the lecturer to postpone the deadline for the assignment. In this way, I saw that I was influenced by this non-human actor, that this innovation helped me to interpret my own expedience. This innovation "is thus not only a passive receptor of impulses from human subjects in its initial construction but also in its turn influences human subjects" (Alvesson and Sköldberg, 2009:32). Also, I noticed that the choice of my research topic was influenced by the books and papers I read, my previous research experience, and my background. This made me convinced that non-human actors can be more active than I usually assumed and that ANT can offer me a different view of the world.

Inspired by Latour's innovative ideas, I concluded that my thesis would trace the associations between actors (humans or non-humans) that drive the supply chain rather than properties of supply chain. Also, as ANT has repositioned calculations as central objects in the study of social phenomena (Justesen and Mouritsen, 2011), this thesis aims to explore how accounting calculative tools act in mediating supply chain networks. To do so, various notions have been used in the essays as 'matters of concern', 'matters of fact', 'translation', 'ostensive' and 'performative' aspects. These notions will be explained later in the essays.

Although ANT has received considerable attention from many scholars in various disciplines, some scholars have raised some concerns with regard to its application. One of the main criticisms is that ANT disregards social structures that influence the local (McLean and Hassard, 2004). It "concentrates on the 'micro' at the exclusion of the 'macro'" (McLean and Hassard, 2004:508). Latour (1991:118) countered this critique by arguing that "the macro-structure of society is made of the same stuff as the micro-structure", and therefore can be investigated in much the same methodological approach. Also, Latour (2005:176) added that:

> Macro no longer describes a wider or a larger site in which the micro would be embedded like some Russian Matryoshka doll, but another equally local, equally micro place, which is connected to many others through some medium transporting specific types of traces. No place can be said to be bigger than any other place, but some can be said to benefit from far safer connections with many more places than others. This move has the beneficial effect to keep the landscape flat, since what earlier, in the pre-relativist sociology, was situated 'above' or 'below' remains side by side and firmly on the same plane as the other loci which they were trying to overlook or include.

The idea here is that ANT does avoid the movement between the macro and the micro; it denies the distinction between them and, instead, focuses on tracing actors wherever they lead. I believe that this thinking helps researchers to freely conduct their research and see what is going on the field without having the burden of preconceptions about micro and macro.

Another concern is related to the symmetrical treatment of humans and nonhumans (Amsterdamska, 1990; Collins and Yearley, 1992). Amsterdamska (1990) criticised treating people and things symmetrically. She (Amsterdamska, 1990:501) stated that:

> In what way is enrolling the microbe the same as enrolling a group of interested farmers or enrolling someone to finance a given project equivalent to the enrollment of a group of colleagues? Does each actant contribute to success or failure in the same way? Do scientists enroll electrons for the same reasons they enrol industrialists? Is the recruitment of a police force or an army equivalent to the enrollment of a group of other scientists? Does enrollment really mean the same thing in all these cases? It seems to me that the goals, the means, and the results of enrolling such different kinds of "allies" are hardly comparable, and that the elimination of differences among them leads only to confusion.

Also, Collins and Yearly (1992) questioned the practicality of treating humans and nonhumans in the same manner. Although ANT focuses on symmetrical treatment between humans and nonhumans, it does not deny that there are differences between humans and nonhumans. Law (2000:857) argued that:

> To say that there is no fundamental differences between people and objects is an analytical stance, not an ethical position. And to say this does not mean that we have to treat the people in our lives as machines. We don't have to deny them the rights, duties, or responsibilities that we usually accord to people.

Also, Latour (2005:76) explained the meaning of the symmetrical treatment by stating that:

> To be symmetric, for us, simply means not to impose a priori some spurious asymmetry among human intentional action and a material world of causal

> relations. There are divisions one should never try to bypass, to go beyond, to try to overcome dialectically.

What becomes clear from the above is that ANT appreciates the differences between humans and non-humans, and rather it denies a priori assumption about the importance of one actor over the other as we should first try to discover what actually determines the actions. This is consistent with what I noticed when I started to think about my ordinary life, as I mentioned before.

Although ANT is the dominating theory in this thesis, Essay 4 employs a different, but related, framework which is heterarchy that has been introduced by David Stark. There are two reasons for this. The first reason is related to the nature of category management. Category management exemplifies many of the characteristics of heterarchy such as interdependent relations and more collaborative modes of organising, considerable heterogeneity, permeable boundaries, and multiple performance criteria which are different from traditional hierarchy (King and Phumpiu, 1996; Kellogg et al., 2006; Free, 2008; Stark et al., 2009). Presenting category management as a form of heterarchy can help in understanding this practice from different perspectives and providing new insights that had not been considered by previous research. Also, using category management as an illustrative case of heterarchy provides an opportunity for exploring how work is accomplished with such radical post-bureaucratic organisation forms, the complexities prevailing in these new forms, and the implication on accounting, especially this new framework has not drawn researchers' attention yet although it is becoming more prevalent in many industries.

The second reason is that using heterarchy can add new perspective to ANT. Stark has drawn on Latour, Callon, and their colleagues to develop heterarchy which refers to the organisational forms with a capacity for reflexive cognition (Stark et al., 2009). Stark shares many of Latour's thoughts and beliefs, such as symmetrical treatment of humans and non-humans, looking at the social as a 'flat space', etc. For instance, Stark (2009:119) argues that "in place of studying "society" we must construct a science of associations — an analysis that examines not only links among persons but also among persons and instruments". Therefore, heterarchy can be seen to be in line with ANT. However, Stark extended and deepen that perspective by using Boltanski and Thévenot's notion of economies of worth (Boltanski and Thévenot, 2006) to develop his heterarchy framework. According to Stark: "the new organizational forms are heterarchical not only because they have flattened reporting structures but also because they are the sites of heterogeneous systems of accounting for worth". This notion is used to show how organisations can have heterogeneous criteria with regard to what is right and what is valuable which, in turn, requires multiple, sometimes opposed, evaluative criteria (Stark et al., 2009:25). According to Rona-Tas (2011:598), "this opens up a terrain of uncertainty, which demands search, inquiry, discovery and creative entrepreneurship". This can be considered one of the advantages of heterarchy as it accommodates "the creative tension between competing principles" (Rona-Tas, 2011:598). Using this notion can help me to understand the perceptions of actors involved in category management – regrading what is valuable, how they measure it, and how they face dissonance that emerges from conflicts between multiple principles of valuation (orders of worth) – which, in turn, can deepen my analysis.

Like most other theoretical frameworks, there are some points in Stark's framework that I felt require more development and clarification. For Stark, the interaction and conflict between different orders of worth and evaluative principles facilitate innovation and creativity. However, from my point of view, this point opens up some questions that need to be answered. For instance, does this mean that single evaluative principles can't encourage innovation? Isn't it possible that the conflict between orders of worth can lead to strife rather than innovation? I hope that Stark can clarify these points in his coming books or papers. However, I believe that theorists always leave readers with puzzles.

3.2 The oncological and epistemological positions

When I started to read about ANT, it was difficult for me to classify it under a specific school of thought. For instance, although the two-by-two model by Burrell and Morgan (1979) made an enormous impact with regard to theoretical and methodological positions, we can't place ANT under any of the four paradigms (functionalist, interpretive, radical humanist and radical structuralist) as ANT denies the distinction between the subjective and the objective which form the basic axes in the matrix (Justesen and Mouritsen, 2011; Hassard and Wolfram Cox, 2013). It is even difficult to classify ANT according to Ryan's categorisation scheme of management accounting research (positive, interpretive, and critical) (Ryan et al., 2002). Although some researchers place ANT under interpretive research (Wickramasinghe and Alawattage, 2007), Latour denies that and states "I have no real sympathy for interpretative sociologies" (2005:144). This difficulty also applies to defining the ontology of ANT. It is even difficult to place Latour's own ontology. This may be attributed to the fact that Latour, in his recent writings (Latour, 2004a; Latour, 2004b; Latour, 2005), suggests a line of inquiry that is different from the one in his early writings (Latour, 1987; Latour, 1990; Latour and Woolgar, 1979). At the beginning Latour described himself as a constructionist, however, later he described himself as being more of a realist (Alvesson and Sköldberg, 2009). Instead of focusing on how facts are really constructed, Latour (2004b:232) argues that:

> Reality is not defined by matters of fact. Matters of fact are not all that is given in experience. Matters of fact are only very partial and, I would argue, very polemical, very political renderings of matters of concern and only a subset of what could also be called states of affairs. It is this second empiricism, this return to the realist attitude, that I'd like to offer as the next task for the critically minded. […] My question is thus: Can we devise another powerful descriptive tool that deals this time with matters of concern and whose import then will no longer be to debunk but to protect and to care […]. Is it really possible to transform the critical urge in the ethos of someone who adds reality to matters of fact and not subtract reality?

According to Justesen and Mouritsen (2011:183), "viewing the world in terms of matters of concern is, in Latour's universe, a realist approach to the world – a view that is more realist than the "matters of fact" world view because the latter reduces the thing to a mute object". From the above, we can understand why defining the ontological position of ANT is difficult, as it can be regarded as a constructivist approach or a relativist approach. This is also what I learned from talking with many ANT-inspired researchers during my PhD journey.

Regarding this thesis, the ontological position in this thesis is both relativist and constructivist. While the underlying ontology of Essay 1 is relativist (it utilises the notion of 'matters of concern'), the other three essays take the constructivist position as they focus on how facts are really constructed and how various, and sometimes surprising, implications are to be noted.

As an epistemological strategy of acquiring knowledge, ANT places great reliance on following the actors (humans and non-humans) and the relations and interactions between them. According to Hassard and Wolfram (2013: 1711):

> We contend that in its various formulations ANT exemplifies many of the assumptions of relationist epistemology […]. In other words, epistemologically ANT has been used to conceptualize, simultaneously, relations between (material) things and (semiotic) concepts. When such assumptions are reflected practically, in fieldwork, the interactions that researchers examine in an

> organization involve relations between people, ideas and technologies, which together can be understood to form a network.

This is what I aim to do in this thesis. I will trace the actors to explore how things come to be. This leads us to one of the key critiques to ANT, which is the so-called inclusion/exclusion debate, related to the decision on actors to include and exclude (McLean and Hassard, 2004). Miller (1997:363) expressed this issue by stating that:

> Who decides who the actors are? It's fine to tell us that we should believe them when they speak to us, that we should refrain from judging them, but we have to know who to speak to in the first instance, which meeting to attend, who to call on the telephone, who to e-mail, and who to ask for an interview! Who is going to provide an answer to these questions? And should we believe them too? Of course you'll reply that the answer to this question is to be found in the technological project itself, in the activities of the contextualizers. But that won't do, because it presupposes that we know the boundaries of the project at the outset. While the territory of a project may not be limitless, neither is it as clear-cut as you make out. The linkages do not just stop at a certain point.

Therefore, the problem is not only related to who to include/exclude, but also where to cut the network. Hull (1999) raised the issue of the starting point to follow a network. He questioned: "Why choose one object of study rather than another? Why choose to start at one point and not another?" (Hull, 1999:414). However, these are not the issues of ANT alone but all research. According to Lowe (2001:346), "in any qualitative study it is possible to miss the point. The researcher may fail to complete the hermeneutic circle and never arrive at an empathetic understanding of the `native's' point of view". Researchers can't follow all actors everywhere, therefore, they need to use their skills, experience, and judgement, like other qualitative research, to determine the starting point, the actors to follow, and where to cut the network. As a PhD student, I am also constrained by time and cost and as I am using ANT, I kept the following words by Latour in my mind while collecting the data:

> You ask me how to stop and I am just telling you that the best you will be able to do, as a PhD student, is to add a text —which will have been read by your advisors, maybe a few of your informants, and three or four fellow doctoral students—to a given state of affairs. Nothing fancy in that: just plain realism. (Latour, 2005:148)

3.3 Research methods, data analysis, and ethical considerations

Given the nature of the research questions, which are theoretically informed by strings from ANT, two research methodologies have been employed in this thesis: literature review and case study. The first two essays employ the literature review as a research methodology to answer the first two research questions (see page 4). The journals scanned, the period covered, and the keywords used will be discussed in details in each essay (please see research site and methodology section in essay 1 and research methodology section in essay 2).

According to Lowe (2001:344), "using ANT as a research strategy puts a strong emphasis on empirical enquiry". This empirical orientation is indicated in this thesis in essay 3 and essay 4 which utilise a case study as an appropriate approach for collecting empirical data. Initially, my understanding of the case study methodology coincided with the definition suggested by Yin (2009:18), namely: "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". However, ANT radically challenges some of the assumptions mobilised in Yin's ideas about case study methodology. Hansen (2011:118) argues that:

> According to ANT, phenomena are therefore real. However, their meanings and social roles are constantly reconstructed in practice each time they are mobilized. Reality or meaning is fluid and not something that is present in principle, which, in contrast, is what Yin assumes. Of course, ANT's assumptions of reality affect its conceptualization of methodology.

This doesn't mean that we can't use Yin's ideas in the studies informed by Latour's stream of theorising (e.g., Mouritsen and Thrane, 2006), however, we have to be careful, especially, about the role of the theory, the role of researcher, and presumptions of reality (see Hansen, 2011).

In February 2012, I sent a research proposal by e-mail to one of the UK's leading retailer – which operates hundreds of stores across the UK carrying and providing a wide selection of different products to thousands of customers – to request access for conducting my case study. This company was chosen based on the industry in which it is operating (i.e. retail industry), as there is a gap in accounting research within the retail context, its long-term involvement in SC practices (more than 15 years), the generous access to information and data needed, and the company's willingness to put me in touch with its partners along the SC. A few hours after sending my proposal, I received a positive reply from the senior supply chain manager confirming that their acceptance[5]. As I knew that I was going to start my research in April 2012, I used the period between gaining access and starting my research to review the published literature about the UK retailing sector (see essay 2). The reason is that, as an international student, I didn't have a great deal of information about the UK retailing sector, its dynamics, key actors, and so on. Reviewing the literature helped me to get an in-depth knowledge about this sector and to shape the points that I wanted to explore during my field research.

The field research was initiated with a pilot study as a small-scale preliminary study. The aim was to capture a pre-understanding of the case organisation, to collect first-hand information to crystallise the key supply chain aspects (i.e. processes, workflow, actors, issues and challenges), and to identify the most appropriate actors to be interviewed. During the pilot study, I conducted interviews with the senior supply chain manager (twice), the business development manager, the finance managers, operation manager, and general manager. Also, I was also allowed to visit the retailer's premises (e.g. the headquarter, consolidation centres, distribution centres, stores, and service centres). During my field research I felt like a stranger. This can be attributed to cultural, social, and language differences. Although being a stranger was helpful for me to assimilate a lot of information and data without bias that stems from preconceptions (Yin, 2009), it was sometimes difficult for me to understand the cultural meanings that the interviewees ascribe to their responses. I overcame this challenge by asking the same questions to different actors, if appropriate, asking the interviewees for clarification, consulting my supervisors, or asking my friends who are native speakers about the meaning of some words or sentences. The outcomes of the pilot study helped me to determine the interviewees for the main study and refine data collection plans with regard to the content of the data and the procedures to be followed (Yin, 2009).

The data for essay 3 and essay 4 were collected over a period of two years and ten months, from April 2012 to February 2015. Essay 3 deals with downstream SC activities, therefore,

[5] To obtain access, a confidentiality agreement had to be signed with the supermarket which guaranteed the company that np commercially sensitive information would be published or released.

the focus is on the relationships between the retailer and its distribution companies and logistics service providers which are shaped by supply chain strategy. Essay 4 deals with upstream SC activities through studying one of the SC practices referred to as category management. Therefore, the focus is on the relationship between the retailer and its key fish supplier (category captain)[6]. I chose to study the fish category, after discussions with the senior SC manager at the retailer's premises. My decision was due to the intensive suppliers' involvement in managing this category compared to other categories, and to the manifold challenges related to the fish SC that have to be tackled by the retailer and suppliers – such as highly fluctuating supply and unstable demand; the stringent environmental, quality, ethical standards; and willingness of the retailer and the supplier to offer generous access to the data needed. Therefore, I thought that the fish category would provide an information-rich context that would reflect the challenging environment in which the retailer and the supplier work together to manage the category efficiently and effectively.

As a method, ANT acknowledges the use of multiple data sources as a way to strengthen a case, as suggested by Yin (Alvesson and Sköldberg, 2009; Hansen, 2011). Therefore, I collected the data via a variety of sources: interviews, observation, and documentary analysis. Semi-structured interviews were deemed appropriate for this research due its flexibility (Bryman and Bell, 2007). Using this type of interview enabled me to vary the questions freely, to add new questions, amend the questions, or even to omit some questions depending on what happens during the interview. Also, it helped me to understand the human actors' perceptions with regard to non-human actors and to what extent these non-human actors affect their actions. Depending on the outcomes of the pilot study, various actors from various areas within the SC and from different companies along the chain were selected to reduce subjectivity. The selected actors from the retailer were senior supply chain managers, business development manager, finance managers, general managers, analysts, and category managers and from the retailer's partners (other companies along the chain) operations manager, business support manager, head of operations, operation director, category managers, fish supply analyst, and account managers. The duration of each interview was between 70 and 180 minutes, and one of the senior supply chain managers was interviewed twice. Some of the interviews were digitally recorded and later transcribed, with the interviewees' permission, and shorthand notes were

[6] To preserve the anonymity promised to the participating companies:

- The retailer will be referred to as XYZ in essay 3 and as MOJO in essay 4;
- The key fish supplier will be referred to as Fish House in essay 4.

taken, which were particularly useful during the data analysis. Where interviewees did not give permission for recording due to perceived sensitivity of information, extensive hand written notes were taken during the interviews. Shortly after each interview, extended summaries were written up for subsequent analysis.

There are different issues associated with using interviews as a method for collecting data. One of the issues that I faced during my study is related to the selection of interviewees which were derived by my judgement and the availability of actors. Also, doing research about a supply chain makes it more difficult to cover all areas, which limits the scope of interviews. However, I tried to make sure that the interviews represented various types of companies (suppliers, retailer, distribution companies, logistics service providers) engaged in the SC and different areas to reduce the bias, as mentioned before. Another problem is related to the conflict in the responses of the interviewees. For example, as you will see in essay 4, the interviewees from the retailer believe that the systems and databases that are used to facilitate the relationships between the retailer and the suppliers are very helpful and great, while, the interviewees from the suppliers see the opposite. However, I believe that these kinds of conflicts enrich the discussions and can enhance knowledge production (Latour, 2005).

Another issue is related to the credibility of interview data as the responses of interviewees could be subject to bias, inaccurate articulation, or poor recall (Yin, 2009). Using other sources of data can help with this issue.

In addition to interviews, I was granted access to some SC meetings (face-to-face meetings or conference calls) as an observer, where representatives from the retailer and logistics service providers or suppliers participate in these meetings. During these meetings, notes were taken, and I was allowed to participate in the discussions to some extent. I got the permission to visit the shop floor of many centres (e.g. consolidation centres, distribution centres, service centres) to observe how work is done and what actors do. Additional information was sourced from company documents. Many pertinent documents were collected, not only from the retailer, but also from their partners, such as performance reports, spreadsheets, presentation slides, templates. Many other secondary sources were collected, such as press release, articles, and professional institutions reports. This use of multiple sources of data is particularly important to provide the researcher with a wide range of information and to help reduce mono-method bias via the comparison of the various data sources and the alignment of the derived assessments (Ellinger et al., 2005; Kalof et al., 2008).

Although many researchers suggest that the data analysis stage should start after collecting all the data, other researchers believe that "collection and analysis are inexorably intertwined" (Marginson, 2008:332). I started to analyse the data during the period of data collection, in order to gain an initial understanding of the data and identify themes across the data. I followed a manual approach to categorise the data and identify the themes as I found it more appropriate for me. Although the manual approach is time-consuming and makes the navigation and linking of data difficult, I think using computer assisted methods in qualitative data analysis can affect the quality and richness of the analysis as "the very ease, speed and power of the software have the potential to encourage ... the researcher to take shortcuts" (Spencer et al., 2003:208).

I began the analysis process by reading the recorded interviews transcriptions, unrecorded interviews summaries and notes, the notes I took from observations, and the documents collected as a way to connect the data that was collected from various sources and identify some preliminary themes and trying to link them with the notions of ANT and heterarchy that would explain these data. Notes were taken during the reading and ideas which I regarded as pertinent to research questions were highlighted – such as actors engaged in the construction of a business plan, the construction of a business plan, the diffusion of a business plan throughout the supply chain (essay 3), the actors involved in fish category management, the activities and practices associated with category management, and the challenges of CM (essay 4). Initially, I used these ideas to code the data. Then, ANT and heterarchy were revisited using the data collected in order to develop a coherent understanding of SC strategy and category management. As a result, the data were recoded according to themes that were derived from the theoretical frameworks adopted such as lateral translation of SC strategy, horizontal translation of SC strategy (essay 3), and the practices that constitutes CM as an illustrative heterarchical case which are structuring, coordinating, and performing (essay 4). I added quotations when I felt that interviewees' words and expressions could clarify some ideas more clearly than words I might use. I believe that the use of quotations can deepen our understanding and make the story life-like.

Ethics are part of the everyday practice of conducting research (Guillemin and Gillam, 2004). Therefore, ethical guidelines have been established for scholars and researchers by different bodies such as universities, Governments, and so on, that clarify what is or is not legitimate to do during the research process and to make sure that research participants are treated ethically (Neuman, 2007; Kalof et al., 2008)[7]. To assure confidentiality and anonymity, the research participants were given a consent form to read carefully and sign before their participation in the research (see appendix 2). The identities of the interviewees were concealed when quotations added into the analysis to preserve their anonymity, and, instead, their jobs were used. The access to the recorded interviews and their transcriptions was password protected.

3.4 Assessing the quality of research

There is still a debate between researchers regarding how to evaluate the quality of qualitative research and whether the traditional criteria (i.e., reliability and validity) are relevant for assessing the quality of qualitative research (Bryman and Bell, 2007; Silverman, 2010). Some researchers argue that reliability and validity are not the key drivers of good research, as they may constrain the discovery of key insights and as a result not maximise the quality of the research (Riege, 2003). They argue that concerns for reliability and validity criteria arise within qualitative research (Silverman, 2011). Other researchers argue that reliability and validity are suitable for assessing the quality of qualitative research. However, the meanings attributed to these two concepts are different. In quantitative research, reliability refers to “the extent to which an experiment, test or measurement yields the same result or consist measurements on repeated trials” (Silverman, 2011:360). Therefore, it deals with the idea of replicability. However, this is unlikely applicable to qualitative research. According to Neuman (2007:119):

> Most qualitative researchers resist the quantitative approach to reliability, which they see as a cold, fixed mechanical instrument that one repeatedly injects into or applies to some static lifeless material. Qualitative researchers consider a range of data sources and employ multiple measurement methods. They accept that different researchers or that researchers using alternative measures will get distinctive results. This is because qualitative researchers see data collection as an interactive process in which particular researchers operate in an evolving setting and the setting's context dictates using a unique mix of measures that cannot be repeated.

[7] I got an ethical approval from the University of Hull before conducting the case study.

Therefore, some qualitative researchers suggest different ways to satisfy the criterion of reliability. Guba and Lincoln (1994) argue that reliability can be achieved through providing an audit trail, as a form of methodological transparency, in which the researcher documents his/her procedure to reach what he/she has researched. This should include the formulation of the research problem (as discussed in this thesis in the introduction and each essay), research methodology, methods, and research participants (discussed in the introduction), documents collected, observation notes, interview transcriptions, notes, and summaries (available with the researcher), and the analysis of data (discussed in each essay). Moisander and Valtonen (2006:27) added that researchers should also pay attention to theoretical transparency by making "explicit the theoretical stance from which the interpretation takes place" because "theoretical framework produces particular interpretations and exclude others" (the theoretical frameworks, ANT and heterarchy used, and justifications for using them have been discussed in the introduction and in each essay). Silverman (2011:361) uses the term 'low-inference descriptors' to address the reliability in qualitative research and which involves "recording observations in terms that are as concrete as possible, including verbatim accounts of what people say". He focused on how different sources of data (e.g., interviews, observation, and textual analysis) can achieve low-inference descriptors, and, in turn, satisfies reliability criteria. According to Silverman (2011), with regard to interviews, low-inference descriptors can achieved through digitally recording interviews (many of the interviews conducted were digitally recorded and when recording was not possible, extensive hand-written notes were taken during interviews, and then extended summaries were written up shortly after each interview as discussed before), careful transcriptions of recorded interviews according to the needs of reliable analysis (the transcription was done by the researcher and interviews had been transcribed in full), and presenting long extracts of data (relevant quotations were included while presenting the findings in essay 3 and essay 4). For observation, notes were taken at the time and then, shortly after each session, extended notes were written up. According to Silverman (2011:364), textual data is more reliable than data collected from other sources because "when you are dealing with a text, the data is already available, unfiltered through the researcher's fieldnotes". In this thesis, I collected a variety of documents from the retailer and its partners, in addition to the internet.

Validity refers to "the extent to which the data are in some sense a 'true' reflection of the real world" (Scapens, 2008:268). In qualitative research, validity means truthful. According to Neuman (2007:120), "most qualitative researchers concentrate on ways to capture an inside view and provide a detailed account of how those being studied feel about and understand events". Two tactics were employed in this thesis to satisfy the criterion of validity. Acknowledged by ANT and heterarchy, multiple methods of data collection (triangulation) were utilised (interviews, observations, and documentary analysis). I found that the data, although collected from different sources, corroborates one another. Also, to be more confident about the data, I sent the case study draft (essay 3 and essay 4), prior to incorporating the theoretical framework to be understandable, to the senior supply chain manager of the retailer and made some useful modifications based on his feedback.

4. Contents and Contributions

With the theoretical questions posed, the aims and objectives set, and the focus designated, I was ready to analyse the data, to reach conclusions, and to compile four interlined (working) papers in this thesis, which I present with an overall conclusion as a collection of four 'essays'[8]. A summary of their contents and the intended contributions to accounting research are offered below.

4.1 Essay 1: Matters of Concern: Hype of Supply Chains and Hope of Management Accounting

This essay answers the first research question: Can we theorise the progress in the generation of SC ideas, discourses, and academic literature through the notion of 'matters of concern'? If so, what contributions does this make to accounting research?

As a starting point, in Essay 1, I deployed the notion of 'matters of concern' to present a state-of-art review of the literature. From the 'matters of concern' perspective, I carried out an analysis of the situation of knowledge advancement when facts are intermingled with the whole scenography leading to issues of 'matters of concern' within the entire operational scenario of SC configurations. My argument here is that the current state of management accounting practices seems to be fragile, unstable, and full of 'matters of concern', prompting researchers to undertake continuous research. Rather than looking for a halting place for black-boxing management accounting knowledge, it is important to

[8] Most of these working papers were presented at the university's annual review sessions, various doctoral colloquiums, international accounting conferences, and workshops. The comments and suggestions received from the participants at these gatherings, which were helpful for their subsequent improvement, are gratefully acknowledged.

consider that acquiring management accounting knowledge, especially in contexts such as SCs, is an ‘unfinished’ business.

Essay 1 contributes to accounting-SC literature by providing a meaningful categorisation of SC topics through which researchers’ voices and concerns are heard for further consideration; this creates avenues for further research to be carried out in the future. It is hoped that ‘matters of concern’ is a framework that gives rise to discussions on how controversies and disputes can be resolved, in order for management accounting knowledge to shift from the present state of ‘matters of concern’ to a future state of ‘matters of fact’.

4.2 Essay 2: Delineation of UK Retail Sector: An Actor-Network Perspective

This essay is a contextual discussion, in ANT terms, to answer the second research question: Can we theorise the UK retailing sector as a set of networks? If so, what intellectual support does this elaboration provide to subsequent analyses?

The main spirit of discussion lies in understanding the dynamics of the UK retailing market, the key actors and their actions, and the multiplicity of forces that empower the UK’s big retailers to exercise their control over the market. In doing so, I followed the actors, as seen in the secondary sources, to understand how UK retail market networks are constructed. Drawing on ANT, I argue here that the UK retail market can be viewed as a set of networks of various heterogeneous actors who interact to form a new space for interrelationships between networks of networks, thus giving rise to the power of the UK’s big retailers over the market. This contributes to the embryonic research on making markets (Miller and O’Leary, 2007; MacKenzie, 2009).

4.3 Essay 3: Accounting and the Practices of Supply Chain Strategy in the UK Retail Sector

To answer the third research question (Can we theorise the synchronization of SC management practices with the process of strategizing through the notions of ‘ostensive’ and ‘performative’ and, if so, what contributions does this make to ANT-inspired accounting research?), essay 3 draws upon the findings of the case study, where I focused on the dual relationship between the ostensive and the performative aspects of strategy, the involvement of multiple actors in the processes of strategizing, the existence of different levels of translating SC strategy, and the emerging roles of management accounting. This focus gave rise to the argument that the ostensive aspect of strategy is regarded as an input to the performative process, and that the performative aspect produces and maintains the ostensive aspect. It also shows that the delineation between accounting and strategy is becoming more difficult within complex settings like SCs.

Essay 3 contributes to accounting research in two respects. Firstly, it adds to the ANT-inspired accounting literature where researchers see that the social is constructed only by heterogeneous actors (e.g. Mouritsen, 2006; Ahrens and Chapman, 2007). In my essay, I have tried to make this contribution by showing that the social emerges as a result of the duality between the ostensive and the performative aspects. Secondly, this essay indicates that accounting and strategizing are mutually constituted; therefore, they need to be studied together.

4.4 Essay 4: Heterarchical Management Accounting: The Case of Category Management in a UK Supply Chain

This essay appreciates the importance of capturing the nature of management accounting implicit in heterarchical tendencies (Stark et al., 2009). It answers the fourth research question: Can we theorise the practices of CM through the thesis of heterarchical formations? If so, what contributions do we make to the discussion of the link between management accounting and CM?

The essay contends that researchers have ignored the primacy of networks and their impact on the reconfiguration of hierarchies into heterarchies that characterize multi-part relationships and newer forms of management accounting. This essay considers CM as an illustrative case for understanding how heterarchy works and articulates how management accounting is implicated and transformed in the deployment of these new heterarchical forms of SCs. The main thrust of this attempt is to articulate that actors with divergent agencies, desires, and interests create different “orders of worth” but come together to create collaborative actions leading to the heterarchical formation of management accounting (Boltanski and Thévenot, 2006).

The introduction of heterarchy itself stands as a useful contribution in that it can capture various issues of fragility, flexibility, and temporality associated with emerging forms of management accounting practices. Future researchers dealing with these issues can deploy Stark's work, which is currently in its initial stages of development (Chenhall et al., 2013). This essay contributes to the accounting – SC literature by showing how accounting contributes in the enactment of a heterarchical organizational form that is characterized by distributing intelligence and organizing dissonance.

5. Overall Discussion and Conclusion

The thesis culminates in a discussion by pulling together the purposes of all four essays and reflecting on them to compare and contrast the findings with the extant literature on management accounting in SCs in particular and ANT research in general. The discussion will summarise the methodology and methods utilized, the findings from the (1) literature review, (2) UK retail industry, (3) SC strategy, and (4) category management exercise, and will then highlight the overall conclusions drawn from the above. In doing so, I will highlight what I seek to add to the body of knowledge: viewing management accounting as an actant within the SC context. This section then proceeds to reiterate the types of further research that can be undertaken to extend my findings and analysis.

Essay 1

This essay reviews the relevant literature on the relationship between management accounting and supply chains, paying special attention to the concerns and issues raised by researchers. It reviews the relevant bodies of literature in both accounting and non-accounting journals to identify the advances that have been made so far in this area, thus demonstrating the research gap that forms the rationale for this research.

Essay 1: Matters of Concern: Hype of Supply Chains and Hope of Management Accounting[9]

Abstract

This essay explores whether and how the emerging post-bureaucratic forms in organisations have presented a new organizational structure and developed 'matters of concern' among researchers regarding the suitability of prevailing management accounting practices. Focusing on management accounting within SCs, the essay aims to unpack the researchers' concerns over the ambiguity of management accounting roles and the relevance therein. This is based on a state-of-art review. It evaluates the researchers' 'matters of concern', highlights the discursive effects of SCs on the conventional wisdom of management accounting, and articulates how researchers have raised the issues of ambiguity that are being imposed on management accounting's calculative regimes. It shows how researchers focus not only on the issues within management accounting per se, but also on the complexities embedded in the SCs and the reciprocal presence between management accounting and such complexities. The 'matters of concern' revolve around whether the ideology within which management accounting has been rooted fit the SC, whether management accounting is supporting or not SC processes, the willingness of SC participants to accept new calculative tools, and the lack of widely accepted management accounting practices. These were taken to indicate a possible ambiguity regarding the roles of management accounting and the need to create a condition for possibility for revisiting the 'relevance lost' thesis of management accounting.

1. Introduction

How may we best understand any voyage of knowledge development when disciplines become controversial in their epistemological stances? Emerging shifts in management accounting practices from management accounting's mechanistic forms to its post-

[9] This essay has been presented in the following conferences:

- Management Accounting Research Group Conference, Aston Business School, Birmingham, UK, 15-16 November, 2012
- 36th Annual Congress, European Accounting Association, Paris-Dauphine University, Paris, France, 6-8 May, 2013
- The Seventh Asia Pacific Interdisciplinary Research in Accounting Conference, Kobe, Japan, 26-28 July, 2013

mechanistic flexible forms combined with a breaking up of the conventional organisational configurations, a growing dispersion of such practices over to so-called globalisation effects, and the advancement of a management accounting research trajectory through a constant consultation of social and organisational theories, bring us back again to this question (Tinker et al., 1982; Wai Fong, 1986; Hopper et al., 1987; Lukka and Modell, 2010). The question acted as a starting point for me to rethink how practical management accounting issues become translated into academic controversies and disputes leading to ‘matters of interest’ through ‘matters of concern’ to ultimate ‘matters of fact’ (Latour, 2005). Consequently, such a question led me to think about how management accounting knowledge is advanced in terms of articulating how associated tools and technologies work or do not work.

In order for this question to be addressed and for a debate about how such knowledge advancement trajectories can be unpacked into an epistemological discussion, I chose SC management research that has developed a set of practical management accounting issues. While the increase in global interconnectedness and the rise of a neoliberal economic and political agenda led to markets becoming volatile and intertwined and to them developing into a battleground for an unprecedented level of competition, SCs have become an emerging form of organisational structure along with dramatic implications for conventional economic organisations. On the one hand, they have become flexible and responsive social institutions to contend with the challenging conditions arising from limited resources, increasingly demanding customers, and dissatisfied shareholders. On the other hand, the technologies and tools that facilitated the old regime of organisations are now being replaced with new ones, as the former have been found to be irrelevant and outdated (Wickramasinghe and Alawattage, 2007). That much gives rise to many practical management accounting issues leading to debates, controversies, and disputes among the academic research community.

I thus approached the SC management literature published in both management and accounting journals so I could focus on management accounting’s uses in SC contexts and on the underlying issues in epistemological terrains, where I was able to discern the knowledge in management accounting’s functional responses to SCs, and vice-versa. Here, SCs are considered to be a representation of the above organisational change manifesting a global connectivity, a structural flexibility, and a technological laboratory (Kraus and Lind, 2007). In such a shifting context, management accounting is coming to occupy different functions, thus creating multiple meanings. Despite a variety of new ideas of management accounting being developed, extended, and popularised, questions are now emerging from various corners as to whether these new ideas are suitably embedded in SC infrastructures and how unintended consequences could be eliminated if contradictions occur when using and applying these ideas. By engaging in a state-of-art review of the above literature, my aim is to address the above epistemological question and to offer a theoretical discussion on how management accounting knowledge is advanced.

My aim is thus not to supplement the previous reviews that have enhanced our understanding about the role of MC systems (Kraus and Lind, 2007; Caglio and Ditillo, 2008; Meira et al., 2010) and management accounting techniques (Håkansson and Lind, 2006) in an inter-organizational setting. Instead, I extended thses efforts in three respects: by identifying the issues that have been raised due to the social transition, from its industrial to post-industrial structure; by exploring whether accounting researchers grasp these issues and respond to them; and by examining the extent to which there is an agreement between accounting researchers regarding these issues. I achieve such aims by drawing on the notion of 'matters of concern' to search the literature for an epistemological discussion about the issues in knowledge advancement rather than being involved in document research outputs and describing what was found and how. Instead, by focusing on 'matters of concern', I explore the underlying issues, subsequent controversies, and eventual epistemological faith on management accounting for SCs.

The essay thus undertakes a review of the literature that discusses the presence of management accounting within the context of SCs and paves the way for a new stream of research addressing the issue of the ambiguity of management accounting. To achieve this, first, it reviews the authors' readings of the post-industrial society and their reflections on how the conventional organisational boundary became blurred and how such changes are now implicated in permeating new 'matters of concern'. Then, it evaluates the researchers' 'matters of concern' to highlight the discursive and rhetorical effects of SC management on the conventional wisdom of management accounting and to articulate how researchers have addressed some of the issues of ambiguity being imposed on management accounting's calculative regimes. Lastly, it provides some epistemological directions for further discussions on the issues at hand that would permeate empirical research.

This essay is thus structured as follows: Section 2 identifies the research problem and constructs. Next, Section 3 describes the methodology and research site. Section 4 discusses the findings, and finally, Section 5 concludes the essay.

2. Research Problem and Constructs

This section deals with a self-reflexive question that emerged from the management accounting change scenario highlighted at the outset. The question here lies in the implications of the social transition from a bureaucratic to a post bureaucratic organizational form and the subsequent roles of ‘matters of concern’ in redefining the nature of the new management accounting being practised within the new organizational structure being transformed. The question is an important point of departure for the examination of the literature for me to see how academia permeates a set of epistemological questions with regard to the faith of management accounting’s manifestation in the new organisational structure.

2.1 The Demise of the Traditional Bureaucratic Form of Organization

We know that bureaucracy sowed the spirit of capitalism and that the contours of bureaucratic organizational forms were a means to start the ongoing process of rationalization that Max Weber perceived as the driving value of western society(Wickramasinghe and Alawattage, 2007). These bureaucratic forms were distinctively modern in their strong emphasis on direct control and strict rules and regulations through which organizations are run (Salaman, 2001), and the MC systems aim to attain the preset specific objectives led to the creation of a system of surveillance where such rules and regulations were at work to maximize the financial wealth of organisations (Wickramasinghe and Alawattage, 2007). That much was clear in the pre-neoclassical world.

However, the discourse of globalization and the revolutionary information and communication technologies are now driving the traditional bureaucratic organization to become a boundaryless, network-based form (Mabey et al., 2000b). The issue of flexibility is also one of the important strands in the drive against the orthodox form of organization. This has led to an inevitable paradigmatic *shift* from bureaucracy to post-bureaucratic forms (Olsen, 2006). These new forms carry the capacity to depart from rigid rules and regulations and from circumscribed procedures and to celebrate instead the new watchwords, such as ‘teams’, ‘lateral communication’, and ‘informality’ (Mabey et al., 2001). A proliferation of new organizational forms has been introduced as alternatives to bureaucracy: SC management and process engineering, strategic sourcing, joint ventures, networks, and virtual organizations (Wickramasinghe and Alawattage, 2007).

An inevitable question being posed at this juncture is whether the current management accounting practices, which have been rooted in the bureaucratic regime of organization, would be relevant, or whether these developments would problematize the relevance of management accounting and lead to the imposition of more complex and hybridized regimes of management accounting. Hopwood (1996) was, without doubt, one of the first accounting scholars to proclaim the need to consider social and organizational changes in management accounting research:

> To date accounting research has largely ignored such changes and their implications for financial decision making and control. Having earlier given little or no consideration to the informational implications of matrix structures and the financial aspects of project oriented forms of organization, the accounting research community is largely continue to be satisfied with its fixation on the traditional hierarchical organization. (Hopwood, 1996:589-590)

However, management accounting scholars have not yet acknowledged the uncertain implications of such changes in organizational structures; indeed, the nature and the role of management accounting within these new forms are still characterized by ambiguity and indeterminacy.

To address such a question, there is a need to understand the underlying principles of post-bureaucratic forms and to investigate the issues that arise as a result of such a social transition and, furthermore, to consider whether management accounting scholars have grasped these issues and responded to them. In order for an epistemological discussion to be held, as I mentioned at the outset, in this essay, I try to open the ‘black box’ of management accounting practices within the new post-bureaucratic organizational forms to see how the research community operates, exploring whether these new forms have been relinquished by the conventional wisdom of management accounting and whether new facts have been constructed and accepted or whether the controversies are still intact.

2.2 Why Matters of Concern?

This essay draws on the notion of 'matters of concern' as it is espoused by Bruno Latour and his followers; they promote the ANT (Latour, 2005; 2008), a constructivist approach to social theorisation. Using ANT, I try to explore how 'matters of concern' are constructed within management accounting combined with the new post-bureaucratic forms as arenas for discussion, controversies, and critiques. A "matter of concern" is "what happens to a matter of fact when you add to it its whole scenography, much like you would do by shifting your attention from the stage to the whole machinery of a theatre" (Latour, 2008: 39). This is, as in my case, what will happen to management accounting when it is intermingled in the emerging post-bureaucratic form and in the concerns being developed among researchers. 'Matters of concern' can extend the early insight that management accounting is not just an object functioning within organizational boundaries but rather is knots of practices emergent in varying assemblages and entangled in these new post-bureaucratic forms.

Latour (2008:39) argues that "matters of fact were indisputable, obstinate, simply there whereas 'matters of concern' are disputable and their obstinacy seems to be of an entirely different sort: they move, they carry you away, and, yes, they too matter." As Ripley et al. (2009:6) demonstrate, such matters result in a methodology that is "constructive, rather than deconstructive; one that assembles the subject as richly diverse, historically situated, infinitely complex and engaged with its own inherent contradictions and controversies." These intrinsically contested 'matters of concern', then, can nudge us towards opening up problematic vistas for management accounting researchers in which uncertainties and critique are embedded.

Management accounting research within the post-bureaucratic forms can be augmented by articulating the controversies underlying the relevance of management accounting within these new forms. This approach opens a platform for debates over the applicability and relevance to different organizational forms of current management accounting techniques, the need for new techniques, and the refinement of current practices to comply with this social transition.

I believe that mapping scientific disputes about 'matters of concern' in the management accounting research community to the new organizational forms will enable us to move outside the confines of the conventional wisdom of management accounting research, which puts blinkers on our thinking, and will allow us to start to move beyond organizational boundaries and to include new actors. The context of SCs is used as a powerful case, as it marks such emerging ramifications and helps us to understand the change in management accounting. Identifying clearly 'matters of concern' and analysing controversies within the academic community can sound like a road map, in this research, to examine how certain calculative tools in management accounting became reciprocally influential in the construction of SCs.

3. Research Site and Methodology

Since the aim of this essay is to engage in an epistemological investigation as to how a particular trajectory of knowledge advancement can be ascertained by focusing on SC and management accounting, I undertook a two-phase analysis: a pilot review and the main review. The former aimed to determine the emerging issues in SC research that would pave the way for a broader review and would allow me to discern a refined approach for the eventual analysis that addresses our epistemological question. To achieve this, I conducted a thorough scanning of all relevant peer-reviewed journals from their inception to the first quarter of 2012. Based on the ABS Academic Journal Quality Guide, papers were selected from different categories that I considered relevant: accountancy journals, operations, technology and management journals, strategic management journals, general management journals, and business ethics and governance journals. I then utilized search keywords: SC, management accounting practices and management accounting techniques. The relevant papers were selected based on the criteria that the paper had been published in a journal with a relevant rank[10], and that the paper discussed the relationship between management accounting and SCs either explicitly or implicitly.

This procedure resulted in a shortlist of 50 papers published in 15 peer-reviewed journals. The list of journals, their rank, and related papers is displayed in Table 1

[10] Papers published in grade 1 journals (according to ABS) have been excluded.

Journal	ABS Rank 2010	No. of Articles
1- Accountancy Journals:		
• **Accounting, Organizations and Society**	4*	8
• **Management Accounting Research**	3	6
• **Contemporary Accounting Research**	3	2
• **British Accounting Review**	3	1
• **Accounting Horizons**	3	2
2- Operations, Technology and Management Journals:		
• **Journal of Operations Management**	4	4
• **Production and Operations Management**	3	1
• **International Journal of Production Economics**	3	8
• **Supply chain Management**	3	8
• **International Journal of Production Research**	3	1
• **International Journal of Operations and Production Management**	3	1
• **International Journal of Physical Distribution and Logistics Management**	2	3
3- Strategic Management Journals:		
• **Strategic Management Journal**	4*	1
4- General Management Journals:		
• **British Journal of Management**	4	3
5- Business Ethics and Governance Journals:		
• **Journal of Business Ethics**	3	1
Total Articles		50

Table 1: List of journals reviewed (pilot study)

Drawing on the pilot study's findings, the decision was made to concentrate on only two journal categories, namely, accountancy journals and operations, technology, and management journals, to investigate the 'matters of concern', as only a limited number of papers published in other journal categories (i.e. strategic management journals, general management journals, and business ethics and governance journals) contributed to this topic, as displayed in Table 1. All relevant journals within these two categories were considered, including grade 1 journals. In addition, more keywords, such as 'inter-firm relationships', 'inter-organizational relationships', 'management accounting', and 'inter-firm accounting', were used to expand the scope of the review process in order to obtain in-depth knowledge about the topic.

Some of the papers selected in the first phase were excluded in the second phase due to their irrelevance to the objectives of this paper. The main review covered the journals from their inception to the first quarter of 2013. This procedure resulted in a list of 158 papers published in 14 peer-reviewed accounting journals and 17 peer-reviewed operations, technology, and management journals. The list of journals and their related papers is displayed in Table 2. Full lists of the papers selected for the pilot review and the main review are shown in Appendix 1.

Journal	No. of Papers
1- Accountancy Journals:	
• Journal of Accounting Research	1
• Accounting Review	6
• Accounting, Organizations and Society	21
• Contemporary Accounting Research	2
• Accounting and Business Research	1
• Accounting, Auditing and Accountability Journal	1
• British Accounting Review	1
• Management Accounting Research	23
• Journal of Accounting and Public Policy	1
• Accounting Horizons	2
• Journal of Accounting, Auditing and Finance	1
• Managerial Auditing Journal	1
• Journal of Accounting and Organizational Change	2
• International Journal of Accounting Information Systems	1
2- Operations, Technology and Management Journals:	
• Journal of Operations Management	1
• International Journal of Production Economics	10
• International Journal of Operations and Production Management	4
• Supply chain Management: An International Journal	10
• International Journal of Production Research	8
• Computers and Industrial Engineering	2
• Total Quality Management and Business Excellence	1
• International Journal of Logistics: Research and Applications	5
• International Journal of Logistics Management	10
• International Journal of Physical Distribution and Logistics Management	8
• Journal of Purchasing and Supply Management	4
• Journal of Business Logistics	8
• Business Process Management Journal	2
• Benchmarking: An International Journal	6
• International Journal of Productivity and Performance Management	6
• European Journal of Purchasing and Supply Management	3
• Journal of Supply chain Management	6
Total Articles	**158**

Table 2: List of journals reviewed (main study)

4. Findings and Analysis

My review of 158 papers suggested that while *Accounting, Organizations & Society* and *Management Accounting Research* dominate, the research on management accounting and SCs has been published in a variety of peer-reviewed journals and not only in accounting journals. This indicates the growing interest in this area of research. Furthermore, as shown in Figure 1, the review revealed that the interest in investigating the reciprocal presence between management accounting and SC complexities has become widespread since its modest beginnings in the 1990s, with 27 papers, to 131 papers by the first quarter of 2013. It is also clear that operations management journals are more interested in the relationship between management accounting and SCs, a tendency shown by accounting journals since 2000.

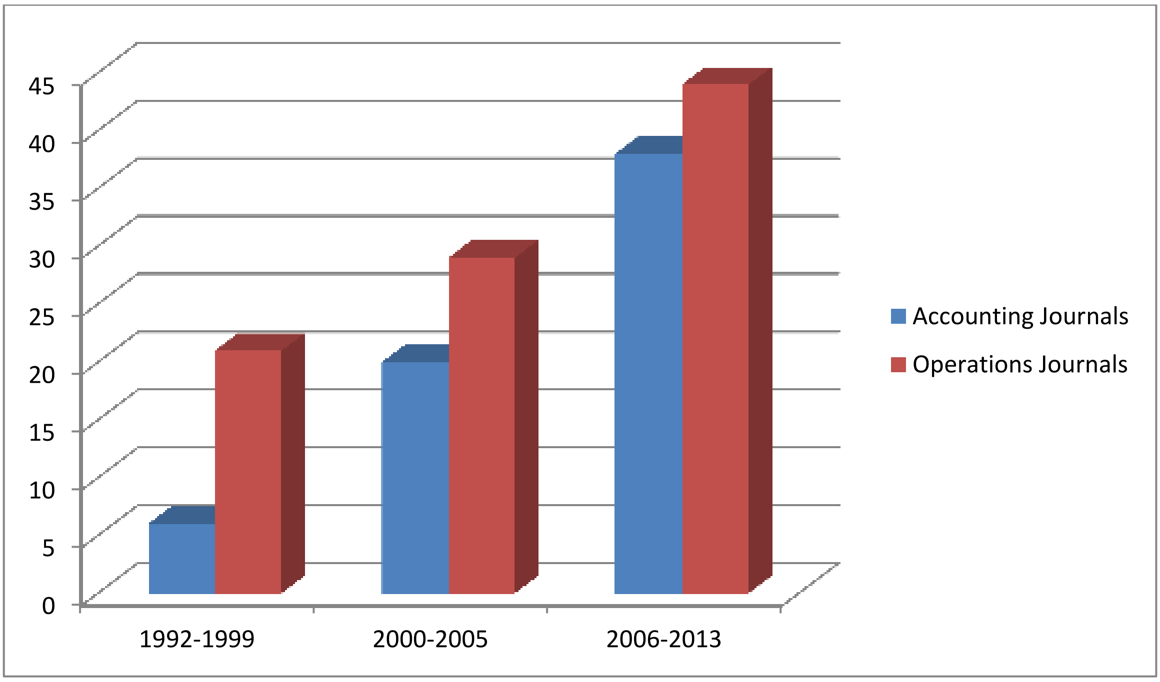

Figure 1: The interest in studying the relationship between management accounting and SCs

The majority of the papers have no explicit theory. The significant majority of the remaining papers are based on transaction cost economics theory (21 papers), while in a few cases, researchers have drawn upon other theories, like agency theory, contingency theory, structuration theory, ANT, and so on. The literature reveals a large stream of empirical papers (99 papers) compared to conceptual papers (33 papers), literature review papers (10 papers), and other types of papers. This can be attributed to the researchers' attempt to deepen our knowledge of how management accounting can intermingle in the SC context by studying the phenomenon in its real setting. It can also be noted that there is a preference for case study (76 papers) over other methodologies (i.e. survey, field study, etc.). Interviews, questionnaires, documentary analysis, and observations are the most preferred methods for data collection. Secondary data, informal discussions, and group discussions are utilized in only a few cases.

Researchers have focused upon seven major aspects (Figure 2) while studying the relationship between management accounting and SC:

- SC relationships
- PM and MC
- Decision making
- Trust
- SC risk
- Reverse logistics
- Sustainability

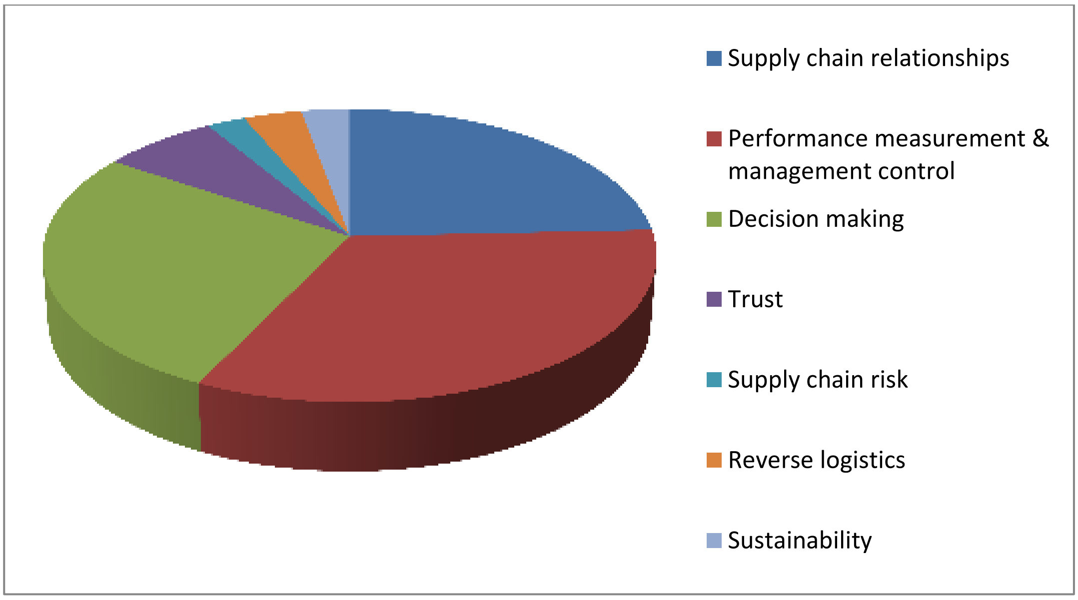

Figure 2: Researchers' interest in the seven aspects

Notably, as displayed in Figure 2, most reviewed papers exclusively revolve around SC relationships, PM, and decision making. Only a few researchers highlight the other aspects. This leaves an immense research gap in this area.

In the following section, I delve into the details of the literature. My aim is to guide researchers through the large stream of papers in this area of research.

4.1 Matters of Concern

The introduction of the SC concept adds extra dimensions to a long-standing epistemological debate between researchers regarding what are perceived as the inherent nature and proper boundaries of management accounting. This debate centres on the old theme: 'the relevance/irrelevance of management accounting'. Smith et al. (2005) raise two questions: Do we need new management accounting techniques to comply with the SC context? If not, will management accounting techniques be used in a different manner than previously?

Some researchers argue that current management accounting techniques can play an integral role in the constitution and maintenance of an effective SC (Ramos, 2004). Indeed, Seal et al. (1999) address three key roles for management accounting in the SC context: the make-or-buy decision, partnership management, and measuring partnership performance. Mouritsen and Thran (2006) identify five areas where management accounting can contribute to a SC: integrated planning, cost saving, joint product development, outsourcing, and analysing the network mode of governance.

On the other hand, Kulmala et al. (2002) argue that a SC necessitates the introduction of innovative management accounting techniques without abandoning the traditional techniques, while Tomkins (2001) believes it not the management accounting techniques that should be changed, but the perception of management accountants regarding their roles and the way management accounting techniques are used. However, to be resolved properly, this debate requires further research. In the following sub-sections, I aim to explain the reciprocal presence between SCs and management accounting by focusing on seven aspects that are important to SC management and the 'matters of concern' raised by researchers in relation to these aspects. The discursive effects of SCs on the conventional wisdom of management accounting can be understood by focusing on these concerns and controversies rather than focusing simply on some technical issues.

4.1.1 Supply Chain Relationship

The term 'supply chain relationship' is the backbone of the SC concept; it serves as a road map to guide organizations to manage their SCs effectively. With the advent of e-collaboration models and increasingly turbulent and competitive business markets, companies tend to build close and long-term relationships with their suppliers and customers to stay ahead of competition, enhance profitability along the chain, and improve

SC agility (Handfield and Bechtel, 2002). Until recently, however, the SC relationship had not been placed high on the management accounting research agenda, with only a few papers addressing it. Nonetheless, this is changing.

In 1992, one of the very first papers to address the role of management accounting in SC relationships was published in Management Accounting Research. In this paper, Munday (1992) stresses the importance buyers and suppliers sharing management accounting information for continuous improvement purposes.

> Cost data, previously utilized only for internal reporting purposes, may now have to be provided for external clientele. (Munday, 1992:250)

In the many subsequent papers, researchers, who became increasingly interested in this field, have endeavoured to provide coherent evidence on the importance of management accounting in managing and improving SC relationships and to search for new calculative tools that could help management accounting to retain its power in the face of this new challenge. I found 25 papers that seek to locate management accounting within a broader context of the social transformation represented in SCs and to build a bridge between these two disciplines and suggest pathways for future development.

Twenty one papers present management accounting as an enabling contributor to ensure the effectiveness of buyer-supplier collaboration and control and to identify any potential improvement opportunities (Munday, 1992; Cooper and Yoshikawa, 1994; Frances and Garnsey, 1996; Seal et al., 1999; Manunen, 2000; Mouritsen et al., 2001; Norek and Pohlen, 2001; Axelsson et al., 2002; Kulp, 2002; Dekker, 2003; Cooper and Slagmulder, 2004; Ramos, 2004; Coad and Cullen, 2006; Agbejule and Burrowes, 2007; Free, 2007; Drake and Haka, 2008; Agndal and Nilsson, 2009; Anderson and Dekker, 2009a; Anderson and Dekker, 2009b; Agndal and Nilsson, 2010; Fayard et al., 2012; Schulze et al., 2012). Indeed, (Seal et al., 1999:320) made the following comment:

> Both in inter- and intra-organizational environments, accounting may play a *constitutional role* in the establishment and management of trusting and collaborative business relationships that goes beyond the technical to a more symbolic level.

Four papers introduce management accounting as a language that facilitates communication and negotiation along the SC (Norek and Pohlen, 2001; Dekker, 2003;

Ramos, 2004; Agndal and Nilsson, 2010). Two papers use management accounting as a tool for mitigating information asymmetry and behavioural uncertainties (Cooper and Slagmulder, 2004; Agndal and Nilsson, 2010), and three papers highlight the role of SC practices in the successful implementation of calculative management accounting techniques (Ellram, 2002; Zsidisin et al., 2003; Möller et al., 2011).

The major thrust of most of these papers is that whilst SC relationships are usually organized by developing shared meanings and interdependence relationships (Seal et al., 1999), management accounting practices can change SC relationships to go beyond the technical level, and this can lead to the achievement and understanding of these social behaviours. Thus, understanding this can advance the knowledge on SC relationships. In an attempt to support and make sense of this idea, many papers base their discussion on a set of calculative tools, such as open book accounting (Seal et al., 1999; Mouritsen et al., 2001; Axelsson et al., 2002; Ramos, 2004; Free, 2007; Agndal and Nilsson, 2010; Möller et al., 2011; Fayard et al., 2012), interorganizational cost management (Cooper and Yoshikawa, 1994; Cooper and Slagmulder, 2004; Coad and Cullen, 2006; Agndal and Nilsson, 2009; Möller et al., 2011; Fayard et al., 2012), target costing (Cooper and Yoshikawa, 1994; Mouritsen et al., 2001; Axelsson et al., 2002; Ellram, 2002; Zsidisin et al., 2003; Ramos, 2004; Agndal and Nilsson, 2009; Fayard et al., 2012), total cost of ownership (Zsidisin et al., 2003; Ramos, 2004; Anderson and Dekker, 2009b), Activity-Based Costing (ABC) (Norek and Pohlen, 2001; Axelsson et al., 2002; Dekker, 2003; Ramos, 2004; Drake and Haka, 2008; Fayard et al., 2012; Schulze et al., 2012), and the Balanced Scorecard (BSC) (Axelsson et al., 2002; Ramos, 2004).

In 1996, Gietzmann (1996) raised a question regarding whether the management accounting calculus developed during the period of U.S. pre-eminence is still relevant in the era of Japanese practices. This question represents one of the early examples of how the SC relationship gives rise to ‘matters of concern’. Gietzmann (1996:612) stresses the issue of the origins of traditional management accounting calculus (e.g. make or buy calculus) within “an ideology of dichotomous choice between the invisible hand of market based transacting and the hierarchical control of vertical integration”, which is no longer consistent with the current regime of flexibility and technological advancement. Seal et al. (1999) respond to Gietzmann’s criticism through the introduction of a more strategic approach of making or buying calculus, which facilitates the formation of alliances between buyers and suppliers. However, Kulmala et al. (2002) and Seal et al. (2004) have voiced the same concern; they criticize traditional management accounting practices for being rooted within and restricted by an organizational boundaries ideology.

> Traditional cost management practice has limited its scope to the boundaries of the firm. There is only little information available on accounting techniques used in the partnership situation. (Kulmala et al., 2002:42)

Another concern that shapes the thinking of many researchers is related to the role of management accounting in facilitating information sharing between SC partners. Four criticisms have been levelled against management accounting with regard to information sharing. The first criticism is related to the diversity of management accounting systems and the lack of mutually accepted practices between SC participants, which are considered major constraints to effective information sharing and, thus, to effective relationships (Seal et al., 1999; McIvor, 2001; Kulmala et al., 2002; Ramos, 2004; Kajüter and Kulmala, 2005; Schulze et al., 2012).

The second criticism hinges on the new interorganizational techniques (e.g. open book accounting, target costing, etc.) that have been introduced by management accounting researchers to support collaborative information sharing without considering companies' willingness to accept and apply new ideas or whether these techniques make sense in today's complex and volatile business environment. Many researchers (Caglio and Ditillo, 2008; Caglio and Ditillo, 2012; Håkansson and Lind, 2004; Kulmala, 2004; Kulmala et al., 2002; Seal et al., 2004; Tomkins, 2001) argue that introducing and building new interorganizational techniques and systems should be subject to careful analysis of several factors (e.g. the information is likely to be produced by participating companies and its uses, the different forms of business alliances, and the willingness to share information.), and not just because they seem rationally apposite. Seal (2001:488) argues that management accounting is utilizing these new techniques to expand its scope to guarantee success in the current competitive arena; however, the price is "a loss of identity and coherence."

The third criticism holds that there is an imbalance in cost and benefit sharing among SC participants, as the majority of benefits accrued from sharing management accounting information are obtained by buyers while the suppliers' profits are eroded (McIvor, 2001; Norek and Pohlen, 2001; Free, 2007).

The last criticism that has been raised is related to the ambivalent behavioural implications of sharing management accounting information. Many researchers (Frances and Garnsey, 1996; Seal et al., 2004; Thrane and Hald, 2006; Drake and Haka, 2008; Van den Abbeele et al., 2009; Masschelein et al., 2012; Schloetzer, 2012; Windolph and Moeller, 2012) criticize previous studies in which they always take for granted the benefits of sharing management accounting information; however, in practice, SC partners can be confronted with different problems (e.g. power/domination nexus) resulting in losses derived from information sharing. Thrane and Hald (2006) argue that management accounting, while seeking to create a closer alignment between the company and its external constituencies, can create a conflict of interest between entities within the company. Drake and Haka (2008:31) claim that management accounting sometimes “magnifies the strategic uncertainty regarding opportunistic behaviour”.

The lesson that I can draw here is that SC relationships give rise to various ‘matters of concern’, which are still disputable and open for further controversies and debate between researchers.

4.1.2 Performance Measurement and Management Control

Why is the PM topic of interest? The answer may lie in Sir William Thompson’s (Lord Kelvin) famous dictum, which he uttered more than 150 years ago:

> When you can measure what you are speaking about, and express it in numbers, you know something about it, but when you cannot measure it, when you cannot express it in numbers, your knowledge is of a meagre and unsatisfactory kind. (Niven, 2005:21)

Even ancient cultures, like the Babylonians and Egyptians more than 5000 years ago, were aware of the importance of PM and were preoccupied with measuring time (Nair, 2004). Therefore, the impetus for PM is not new.

Global competition, technological change, and the rapidly changing business environment have created the need for the development and implementation of well-designed and comprehensive MC systems rather than just PM systems. In the words of Robert Kaplan and David Norton (2001:158):

> The experience affirms that **management** control systems matter. It's not just what is measured but how the **measurements** are used that determines organizational success.

Such systems are necessary not only to gauge an organization's progress toward achieving a competitive advantage, but also to evaluate and manage business processes and activities.

As companies move to SC thinking, PM and MC systems have become of interest to both academics and practitioners alike, since they have been perceived as critical drivers of SC success. Researchers believe that such systems are intended to address different key issues, such as diagnosing and improving SC performance (Melnyk et al., 2004; Tummala et al., 2006; Aramyan et al., 2007; Anderson and Dekker, 2009b; Chae, 2009; Banomyong and Supatn, 2011), promoting SC relationships (Chan and Qi, 2003; Anderson and Dekker, 2009b; Banomyong and Supatn, 2011), evaluating the effectiveness of strategies (Gunasekaran et al., 2001; Chan and Qi, 2003; Cousins and Menguc, 2006), enhancing the decision making process (Aramyan et al., 2007; Chan and Qi, 2003), controlling and communicating performance (Melnyk et al., 2004; Banomyong and Supatn, 2011), and promoting trust-building (Anderson and Dekker, 2009b). Nevertheless, PM and MC systems remains a surprisingly controversial and unsettled area within the SC context.

Indeed, the area of PM and MC systems within the SC context has become a subject of interest for many scholars, and it has given rise to heated academic discussions since the early 1990s. Numerous papers have been published with the aim of providing updated knowledge in this area. Of the 57 papers found in the review, 14 papers seek to highlight the importance of PM and MC systems as vital tools for managing SCs. Many papers posit and provide evidence that PM and MC systems can enhance SC relationships (Hoek, 2001; Mouritsen et al., 2001; Rahman, 2002; Coletti et al., 2005; Mahama, 2006; Vélez et al., 2008; Nicolaou, 2008; Martin and Patterson, 2009; Hofmann and Kotzab, 2010; Bryceson and Slaughter, 2010; Hald and Ellegaard, 2011; Gopal and Thakkar, 2012). Coletti et al. (2005:496) argue that "control systems aimed at reducing relational risk promote greater cooperation, which is observed by participating collaborators. This observed cooperative behavior allows collaborators to build trust in one another, and this trust reinforces the positive effects of the control system in eliciting future cooperation." Meanwhile, Luca et al. (2010) discuss the role of PM systems in assessing companies' readiness to engage in new quality programs within the SC context. In addition, PM systems have been perceived as benchmarking tools that can enable companies to carry out best practice performance (Estampe et al., 2013).

However, Bryceson and Slaughter (2010:343) express a concern regarding the role of PM in SC relationships:

> Goal incongruence can easily develop even in well-managed supply chains if and when there are significantly divergent management issues associated with the operational and corporate arenas of a business – and when the reporting information used as performance metrics do not address these differences.

While it is obvious that such concerns can be important, it is particularly likely in cases where inappropriate performance measures are used. Therefore, using appropriate PM systems can allay concerns regarding goal incongruence. This leads directly to another concern, however, since the characteristics of appropriate PM and MC systems are blurred. Many papers have set some factors and criteria for choosing a specific control pattern or metrics (Langfield-Smith and Smith, 2003; Morgan, 2004; Vosselman and Meer-Kooistra, 2006; Cuganesan, 2006; Cuganesan and Lee, 2006; Donada and Nogatchewsky, 2006; Chua and Mahama, 2007; Gunasekaran and Kobu, 2007; Cäker, 2008; Cuthbertson and Piotrowicz, 2011).

However, the literature on this concern is confusing and conflicting in that some researchers argue that current PM and MC systems are adequate for the SC environment whereas others provide evidence demonstrating the contrary. In 1994, Caplice and Sheffi (1994:11) claimed:

> The problem in our opinion, is not that there is a need for developing novel performance metrics based on new physical or financial qualities. Existing metrics, if used properly, can capture the critical elements of the logistics process: time, distance, and money are still the basis of all logistics management. Rather, we feel there is a pressing need for companies to reevaluate (or to analyse for the first time) their performance measurement systems.

So they suggest a set of criteria for evaluating performance measures (Caplice and Sheffi, 1994; 1995). In addition, Zimmermann and Seuring (2009) and Chia et al. (2009) demonstrate that the ideas embodied on the BSC can be transferred from a company level to a SC level.

However, on the other hand, two major concerns have emerged due to the use of current PM and MC systems within the SC context. The first concern is that current PM and MC systems are still restricted by organizational boundaries and have not been extended to individual companies (Chow et al., 1994; Morgan, 2007; Veen-Dirks and Verdaasdonk, 2009). “This limitation makes it difficult for the firm to take advantage of, for example, any cost-reduction synergies that exist across the supply chain” (2009:467). Vosselman and van der Meer-Kooistra (2009:278) raise another concern, that is, that traditional control systems can be “an obstacle for trust building between SC partners. Above a legitimate threshold of control, it might entail local switches into gain frames. Such switches entail the risk of opportunistic behaviour and, therefore, the risk of instability of the relationship” (Vosselman, 2009:278). The other concerns are related to the inability of one control system to fully integrate the requirements of SCs (Seuring, 2006), the social and environmental aspects not being fully taken into consideration in the current PM systems (Cuthbertson and Piotrowicz, 2008), and the lack of proper metrics that can measure the value created internally and throughout the SC (Lambert and Burduroglu, 2000).

In response to the abovementioned concerns and others, 15 frameworks and models have been introduced for measuring performance and selecting measures (Stainer, 1997; van Hoek, 1998; Beamon, 1999; Brewer and Speh, 2000; Lambert and Pohlen, 2001; Gunasekaran et al., 2001; Bullinger et al., 2002; Gunasekaran et al., 2004; Bhagwat and Sharma, 2007; Aramyan et al., 2007; Giannakis, 2007; Carpinetti et al., 2008; Comelli et al., 2008; Thakkar et al., 2009; Ramanathan et al., 2011). Out of the 15 frameworks, 5 frameworks are based mainly on the BSC (Brewer and Speh, 2000; Bullinger et al., 2002; Bhagwat and Sharma, 2007; Carpinetti et al., 2008; Thakkar et al., 2009).

> The balanced scorecard developed in this paper provides a useful guidance for the practical managers in evaluation and measuring of SCM in a balanced way and proposes a balanced performance measurement system to map and analyze supply chain. (Bhagwat and Sharma, 2007:43)

> It emphasizes the interfunctional and interfirm nature of supply chain and recognizes the need to ascertain the extent to which firms effectively work together and the extent to which functions are coordinated and integrated. (Brewer and Speh, 2000:91)

However, Schmitz and Platts (Schmitz and Platts, 2004:235) criticize the model introduced by Brewer and Speh (Brewer and Speh, 2000):

> The basic and central concept of the BSC as we understand it, is the translation of corporate objectives and measures into targets and metrics on lower levels, which can be acted upon. Unfortunately, exactly this vital part for the success of the BSC, is left out by Brewer and Speh.

In 2000, van der Meer-Kooistra and Vosselman (2000:51) introduced a MC model consisting of *three control patterns* (market based, bureaucracy based, and trust based patters) and of *contingency factors that influence the choice between the patterns.* This model has been criticized by Caglio and Ditillo (2008) and Thrane (Thrane, 2007):

> Control between organisations is regarded as either following a trust/relational, hierarchical/bureaucracy or market-based pattern. Such an approach, however, reduces the complexity of a given phenomenon (Thrane, 2007:267).

Another three frameworks have been suggested by Mouritsen and Thrane (2006), Dekker (2004), and van der Meer-Kooistra and Scapens (van der Meer-Kooistra and Scapens, 2008) for the control of inter-organizational relationships.

In sum, despite researchers' efforts in studying PM and MC systems within the SC context, they are unlikely to become 'black box' routines as there are various concerns that are still unresolved.

4.1.3 Decision Making

According to (Biswas and Narahari, 2004), decision making within the SC framework is a complex process. They attribute this complexity to various factors:

> large scale nature of the supply chain networks, hierarchical structure of decisions, randomness of various inputs and operations, dynamic nature of interactions among supply chain elements. (Biswas and Narahari, 2004:704-705)

In the same vein, Julka et al. (2002:1757) point out two major factors behind the complexity of SC decision making process:

> The first challenge is that the information across all the departments and enterprises is distributed, dynamic, and disparate in nature. Secondly, in a present-day enterprise, decision centers reside in different departments.

However, although regarded as one of the most complicated processes, decision making is a key attribute toward the development of more collaborative relationships among SC partners (Biehl et al., 2006). According to (Biehl et al., 2006), effective SC decision making necessitates taking a step forward from the traditional adversarial nature of companies to a more open and collaborative relationships; such relationships spur SC partners to engage in resources assignment, information flow maintenance, activity mapping, joint problem solving, and planning for the future. Awareness of the benefits and challenges of SC decision making has attracted many researchers, from both the management accounting and SC disciplines, to become interested in this research area.

I found 47 papers dealing with this subject, of which 34 highlight the prominent role of management accounting and its calculative tools in supporting SC decision making. Joyce (2006) and Whicker et al. (2009) stress the importance of management accounting information in making better informed decisions, while Phua et al. (2011) argue that the choice of MC pattern affects the decision of whether or not to switch to new suppliers.

> Firms with trust-based controls experience the most difficulty in switching suppliers; firms with market-based controls experience the greatest ease; and firms with bureaucratic-based controls and hybrid controls lie between these extremes (Phua et al., 2011:1797).

Three major decisions have been of particular interest to researchers: supplier selection, outsourcing, and order management. Some researchers are inclined to use particular management accounting tools, such as total cost of ownership (Cavinato, 1992; Ellram, 1993a; Ellram and Siferd, 1993; Ellram, 1993b; Ellram, 1994; Carr and Ng, 1995; Ellram and Maltz, 1995; Ellram, 1995; LaLonde and Pohlen, 1996; Ellram, 1996; Maltz and Ellram, 1997; Ellram and Siferd, 1998; Degraeve and Roodhooft, 1999; Bhutta and Huq, 2002; Chen and Yang, 2003; Hurkens et al., 2006; Wouters et al., 2005; Weber et al., 2010), ABC and its development (Lere and Saraph, 1995; LaLonde and Pohlen, 1996; Degraeve and Roodhooft, 1999; Dekker and Van Goor, 2000; Fernie et al., 2001; Lin et al., 2001; Chen and Yang, 2003; Stapleton et al., 2004; Everaert et al., 2008; Askarany et al., 2010; Weber et al., 2010), open book techniques (Ellram, 1996; Agndal and Nilsson, 2008), and target costing (Newman and McKeller, 1995; Ellram, 1996) in depicting how management accounting can support these decisions:

> TCO analysis supports a whole spectrum of decisions, from very routine day-to-day operating decisions, such as how much volume should be allocated to a

> certain supplier, to strategic decisions, such as how to reengineer a process and whether the firm should be even in a particular business. (Ellram and Siferd, 1998:66)

> ABC can provide substantial assistance with the cost aspects of the decision-making process. (Stapleton et al., 2004:594)

Other researchers have set their sights on using these tools in building mathematical programming models, with which managers can make better SC decisions. Kirche et al. (2005) present a mixed-integer programming model for order management, which incorporates ABC and theory of constraints approaches. However, this model has been criticized by Khataie et al. (2010:5009):

> Although the model introduced an important concept, it had some limitations such as: the restriction of fulfilling orders completely which does not allow the company to reduce its residual capacity through partial acceptance of the orders; the inventory cost of the common part was not reflected and the overhead costs were not clearly illustrated.

Hence, Khataie et al. (2010) develop the model introduced by Kirche et al. through the application of weighted goal programming. Two other models have been developed: one for supplier selection decisions based on the total cost of ownership and ABC (Degraeve et al., 2005) and the other for "incentive planning for global supply chain quality management" based on ABC (Hung, 2011:7337).

As many researchers became interested in highlighting the evident role of management accounting and its tools in SC decision making, other researchers began to raise new concerns. These concerns revolve around three interlocking issues. The first issue is related to the ideology within which management accounting is rooted. Christopher and Holweg (2011:64) argue that today's dynamic and turbulent business environment has forced companies to change the conception of flexibility from dynamic flexibility to structural flexibility, which "builds flexible options into the design of supply chains" in order to enable companies along the SC to contend with the challenges regarding technology, demand, and so on. According to them, however, management accounting presents a major hurdle in the drive toward structural flexibility:

> [Management accounting] will require revisiting the management accounting procedures that are used to evaluate different supply chain decisions. We need to move away from a focus on the achievement of "lowest global cost" to

> serving the centres of gravity within a flexible supply chain structure. (Christopher and Holweg, 2011:64)

Labro (2006) points to the tendencies of management accounting thinking to consider the 80/20 rule as a tenet of effective cost management and decision making practices. As a result, the design phase has been perceived as the most appropriate place for cost management efforts, in that "decisions are made that subsequently compel the incurrence of the cost in an immutable way", and little attention is given to cost management efforts in further stages of the product's life cycle (Labro, 2006:504). The problem, from Labro's point of view is that the evidence for 80/20 rule is only anecdotal:

> I have pinpointed to a lack of empirical evidence of the generally accepted rule that 80 per cent (or even more) of the costs are committed during product design, although they are incurred only later on in the product life cycle (Labro, 2006:507).

> But even if the 80/20 rule proves factual, the 20 per cent of costs left uncommitted at the design stage is still a vast amount of money, which is amenable to collaborative cost reduction efforts (Labro, 2006:504)

Gietzmann (1996), Anderson et al. (2000), and Sartorius and Kirsten (2005) have expressed a concern regarding the way management accounting contributes to the decision to make or buy (outsourcing), as it views the problem narrowly and limits it to production costs and purchasing costs:

> The traditional management accounting literature, therefore, ignores certain costs that are incurred in the outsourcing decision because of the bounded rationality of the participants, opportunism and information asymmetry. (Sartorius and Kirsten, 2005:83)

They agree that the make or buy decision requires revision from the management accounting perspective to be consistent with today's challenges (Gietzmann, 1996; Anderson et al., 2000; Sartorius and Kirsten, 2005).

The second issue is related to management accounting's calculative tools, which are used to support SC decision making. Although inter-organizational cost management and logistics cost management techniques have been developed to overcome the problems of the traditional techniques and to support decision making within the SC context, these techniques are not widely adopted in practice due to different inhibiting factors, such as human behaviour (Song and Wang, 2009; Bastl et al., 2010). Narayanan (2003) argues that using ABC information in pricing decisions can damage the overall SC if there is high customer diversity.

The last issue concerns the implications of SC decision making on management accounting practices. Smith et al. (2005), Dekker (2008), Wouters et al. (2007), Baiman and Rajan (2002), and Ittner et al. (1999) highlight how such new decision making situations throw up new challenges for management accounting in terms of the choice of governance arrangements, cost management programs, accounting information system, and supplier selection and monitoring practices.

In conclusion, the relevance of management accounting in supporting decision making in the light of the new setting is still questionable and open to debates.

4.1.4 Trust

Today's uncertain business environment and the strong dependencies between SC partners have created the need for the trust concept. Such a concept is necessary not only to increase the level of cooperation between companies along the SC, but also to prevent conflicts between SC partners (van der Meer-Kooistra and Vosselman, 2000).

There is no widely accepted definition of trust; researchers interpret trust in different ways. Anderson and Weitz (1989) define trust as one party's belief that its requirements will be satisfied through actions carried out by the other party in future. Moorman et al. (1992:315) argue that trust is "a willingness to rely on an exchange partner in whom one has confidence," while Kwon and Suh (2004) believe that trust can be built when one party is confident enough in another partner's reliability regarding the fulfilment of obligations in the exchange.

Although trust is receiving a great attention from researchers in business relationships (Sahay, 2003), relatively few accounting studies have focused on trust within the SC context. From the early 2000s, there has been a discussion about the nexus between management accounting and trust. Most of the studies (10 papers) in this area focus primarily upon the complex connections between governance and MC systems and trust. The key concern for those researchers is the direction of the relationship between trust and governance and MC practices. However, researchers' opinions are not unanimous about this direction. Tomkins (2001), Langfield-Smith and Smith (2003), Coletti et al. (2005), Mouritsen and Thrane (2006), Cuganesan (2007), Langfield-Smith (2008), van der Meer-Kooistra and Scapens (2008), and Vosselman and Meer-Kooistra (2009) take the position that MC and governance practices facilitate the development of trust.

> Management controls are related to trust in the sense that rather than primarily making trust a socio-psychological matter, they make it a matter of practice; rather than trusting the motivations of others all the time, management controls can extend practices irrespective of individuals' local motivations. (Mouritsen and Thrane, 2006:273)

> In collaborative settings, control induces cooperation, which, in turn, positively affects trust. Specifically, control systems aimed at reducing relational risk promote greater cooperation, which is observed by participating collaborators. This observed cooperative behavior allows collaborators to build trust in one another, and this trust reinforces the positive effects of the control system in eliciting future cooperation. (Coletti et al., 2005:496)

On the other hand, trust has been perceived by some researchers to affect the choice of MC systems (Cuganesan, 2006; Langfield-Smith, 2008) or become an alternative to control practices (Vosselman and Meer-Kooistra, 2006).

> Managers' perception of goodwill trust and competence trust in the partners may influence the choice of alliance structure and control system, through their assessments of relational risk and performance risk. (Langfield-Smith, 2008:362)

Another concern that has been raised recently is whether management accounting and its tools are vehicles for building or destroying trust. Kajüter and Kulmala (2005) and Vosselman and Meer-Kooistra (2009) argue that management accounting can help in building and warranting trust:

> Trust is not an actor by itself, but it both acts through accounting and is the result of the sharing of accounting. (Vosselman and Meer-Kooistra, 2009:277)

Thus, Free (2008:629) argues that although management accounting techniques are introduced "amid 'trust talk'", they may undermine trust between SC partners:

> Idealist accounts of accounting practice playing a constitutional role in the development of trust between trading partners need to be tempered by reference to the instrumental influences of self-interest and opportunism in many sectors. (Free, 2008:649)

The above concerns still require further research attention, and it is too early to judge the degree to which there is agreement or controversy among researchers in relation to these issues.

4.1.5 Emerging Topics

The instability of the business environment and of the dynamics surrounding SCs helped trigger the emergence of new topics: SC risk, reverse logistics, and sustainability. The importance of these topics has been reinforced by the increased global competitiveness, more stringent environmental regulations, and scarcity of resources. In the following section, I aim to shed some light on these topics.

Supply Chain Risk

As globalization, supplier base reduction, and increased dependence on outsourcing continue to intensify in today's business environment, companies are becoming more aware of the importance of measuring and managing SC risk as a fundamental challenge to SCs (Trkman and McCormack, 2009). Jüttner et al. (2003) argue that SC risks can have a great impact on a company's ability to survive, deliver products to market, or provide services to customers.

SC risk can be defined as the inability of the company to satisfy customer needs due to the occurrence of inbound supply incidents (Carter and Rogers, 2008). Several circumstances can create SC risks (Giunipero and Eltantawy, 2004). Chopra and Sodhi (2004) claim that the major categories of SC risk include capacity, delays, disruptions, intellectual property, inventory, procurement, receivables, and systems, and that each category has its own drivers.

However, although awareness is increasing among professionals and academics, SC risk is still a nascent area of research, and a research gap exists regarding how to measure and mitigate SC risk (Ju¨ttner, 2005). Accounting researchers emphasize two types of risk that can result from differences in SC partners' objectives, their preference to behave opportunistically, and the possibility of coordination failure, namely, relational risk and performance risk (Langfield-Smith, 2008; Anderson and Dekker, 2009a). Relational risk "is unique to interfirm transactions and is closely related to the opportunistic behaviour" (Anderson and Dekker, 2009a:205); however, performance risk "is found in all decisions that put execution of the firm's strategy in jeopardy and are not unique to buyer/supplier transactions" (Anderson and Dekker, 2009a:206).

Indeed, researchers agree that management accounting practices can play a constitutional role in managing SC risk (Miller et al., 2008; Langfield-Smith, 2008; Anderson and Dekker, 2009a; Anderson and Dekker, 2009b). Langfield-Smith (2008) and Anderson and Dekker (2009b) argue that PM and MCs are the mainstay for measuring and managing SC risk, while Anderson and Dekker (2009a) stress the importance of structural cost management in managing SC risk. However, because SC risk is a nascent field of research, there is no clear underlying fundamental structure for this topic; nor is there any clear statement about the mechanisms by which management accounting practices can help in mitigating and managing risk within SCs and, hence, there is no clear idea about the magnitude of the effects exerted by management accounting on SC risk.

> We argue for increasing attention to these mechanisms, as it is through them that uncertainty is actually managed rather than formally represented as manageable. (Miller et al., 2008:963)

Reverse Logistics

The second emergent aspect is reverse logistics. The definition of reverse logistics has been developed over time from a sense of the wrong direction, going through exaggeration of the environmental perspective, returning to the original ideas embodied in the concept, and finally ending with a widening of its scope (Brito and Dekker, 2004). The Reverse Logistics Executive Council defines reverse logistics as "the process of planning, implementing, and controlling the efficient, cost effective flow of raw materials, in-process inventory, finished goods, and related information from the point of consumption to the point of origin for the purpose of recapturing value or of proper disposal" (Meade and Sarkis, 2002:283). Sometimes, reverse logistics is referred to as logistics backwards, as it deals with the reverse flow of products and information from customers back to suppliers in order to collect used products, waste, and packaging materials for the purposes of remanufacturing or recycling or for safe disposal (Steven, 2004).

More than ever before, considerable attention is being given to reverse logistics because of 'liberalised returns policies' and the increasing focus on customer service and recycling products (Simatupang et al., 2004). One of the major mysteries now is the cost of reverse logistics (Goldsby and Closs, 2000). Goldsby and Closs (2000), Ravi et al. (2005), Bernon and Cullen (2007), Tsai and Hung (2009b), and Bernon et al. (2011) all agree that management accounting and its techniques (e.g. ABC) can help to unravel this mystery and to support decision making. Indeed, Cullen et al. (2013) point to the significant role management accounting information plays in managing reverse logistics processes. However, currently, there is no further evidence regarding the effectiveness of management accounting practices in reverse logistics. Research in this area is still in its infancy, and thus undue optimism regarding the role of management accounting in reverse logistics must be avoided. All that can be offered at present is recommendations for further research.

Sustainability

Sustainability is the last emergent topic. Sustainability represents an integral part in SC management practices, as the SC has a strong effect on the environment and the exploitation of different resources (Wolf, 2011). The World Commission on Environment and Development (Brundland, 1987) defines sustainable development as the development that satisfies present needs, but not at the expense of future generations' ability to satisfy their own (van Marrewijk, 2003). Sustainable SC management is the process of managing the flows of material, capital, information, and relationships between SC partners, taking into consideration economic, social, and environmental factors (Seuring and Müller, 2008). Incorporating sustainability issues in a SC is a significant challenge for both researchers and SC managers.

The societal concern about sustainability has led to the introduction of new concepts in academia, such as green SCs, sustainability accounting, and carbon accounting. Although there is little research regarding the role of management accounting in sustainability at present, few researchers have begun to show an interest in these concepts and to respond to them. Hervani et al. (2005), Tsai and Hung (2009a), and Shaw et al. (2010) refer to how using ABC and the BSC when incorporating environmental performance measures can provide opportunities for improving green SC performance, while Ratnatunga and Balachandran (2009) highlight the usefulness of the information derived from management accounting systems in the new economy 'carbonomics':

> The information from strategic cost management systems will be particularly useful in this new carbon economy, especially in evaluating the "*whole-of-life*" costs of products and services in terms of carbon emissions. (Ratnatunga and Balachandran, 2009:333)

Sustainability accounting is a new concept that contributes in governing “social, economic and environmental issues related to suppliers” through accounting calculative practices, such as BSC, cost-benefit analyses, and so on (Spence and Rinaldi:1). As the issue of sustainability is a relatively novel area of research, it is not yet possible to give a rigorous assessment of the role of management accounting in this issue. Therefore, further research is required in this field.

In sum, although SC researchers and practitioners have identified SC risk, reverse logistics, and sustainability as important aspects, they have received little attention from management accounting researchers until now. These concerns require more discussion and further consideration from the accounting research community.

5. Discussion and Conclusion

With an increasing number of studies devoted to studying the relationship between management accounting and SC, this essay was motived by the desire to assess the contributions made so far by researchers in this area of study. The aim of this essay is to provide a different lens to analyse the literature from the ones provided by the previous literature reviews and which enabled me to see whether the contributions made have brought clear insights about the nature and role of management accounting within the SC. A limited number of literature reviews have already been carried out on the topic; however, they are selective with regard to various aspects (Hakansson and Lind, 2006; Kraus and Lind, 2007; Caglio and Ditillo, 2008; Meira et al., 2010). For instance, Caglio and Ditillo (2008) have covered only papers published in some accounting journals. The previous reviews have focused on specific aspects such as the role of MC systems in inter-organizational settings (Hakansson and Lind, 2006; Kraus and Lind, 2007; Caglio and Ditillo, 2008; Meira et al., 2010). In contrast, this essay provides a more comprehensive overview of the literature that deals with the relationship between management accounting and supply chain, by covering not only papers published in accounting journals, but also non-accounting journals. Also, the review is not honed to a specific aspect or theme. Instead, it covers a wide variety of themes, which have been dealt with in the literature, ranging from SC relationships, PM and MC, and decision-making, through trust, SC risk, and reverse logistics to suitability. These themes not only act as contestable terrains in the determination of the role of management accounting within SC context but also point to the idea of relevance/irrelevance of management accounting. Based on this categorization, the essay presented the achievements of the existing literature in relation to each theme and investigated whether these achievements have unfolded the relationship between management accounting and SC to its full potential. In so doing, the essay drew on Latour’s notion of ‘matters of concern’ (Latour, 2005; 2008).

Many social scientists argue that it is through controversies, debates, critiques, disagreements that knowledge can be advanced (Boltanski and Thévenot, 1999, 2000; Latour, 2005; 2008; Thévenot, 2009; Blokker and Brighenti, 2011). Even accounting scholars and researchers have acknowledged the role of controversies, debates, and critiques to knowledge advancement in accounting research (Roslender and Dillard, 2003; Carnegie and Napier, 2012; Joannidès and Berland, 2013). This is particularly clear as debates, controversies, and concerns are introduced as agents of change; various forms of research can be animated through raising new matters of concern into an existing research area. Therefore, this essay focused on concerns that have been raised by scholars and researchers with regard to the above seven themes, and whether these concerns have been settled.

The interest in studying SC relationships has grown significantly among management accounting scholars since the 2000s. Numerous papers have been published since 2001 in leading accounting and operations journals. The driving force behind this shift is that researchers start to recognize that SC relationships may indeed problematize the regime of accounting practices as a result of their increasing complexity, necessitating the acceptance of supply chain MC systems by everyone (Ramos, 2004), mixing the ownership of business units (Kulmala et al., 2002), and collaborating with suppliers rather than viewing them as enemies (Cousins and Menguc, 2006). As a result, the topic of SC relationships has recently become the centre of attention, as it gives rise to various concerns (e.g. the relevance of traditional management accounting tools in the current regime of flexibility, whether management accounting play a positive role in facilitating SC relationships, etc.) that are still disputable and open for further debates between researchers.

The review of papers in the area of PM and MC shows that there is a lack of consensus among researchers regarding the relevant PM and MC systems within the SC context and that researchers are polarized into two divergent camps: those who believe current PM and MC systems can be helpful for SC participants in their quest for competitive advantage, and those who believe such systems can be an obstacle, as they can seriously inhibit the ability of companies along SCs to adapt successfully to changes in the business environment. Proponents of the latter camp believe that the time is ripe to revolutionize current systems and practices and to introduce new – or, at least, to take a new look at some older – systems.

Regarding decision making, research in this field has focused on investigating the role of management accounting in providing information to assist in the new SC decision-making processes and how new issues and 'matters of concern' are reframed. Many researchers are seeking to settle a question concerning the relevance of management accounting in supporting decision making in the light of the new setting. Clearly, however, the question remains resolved and, thus, it is subject to prolonged debate in the academic community.

Relatively few accounting studies have focused on trust within a SC context, although the importance of this topic has been acknowledged by business researchers and practitioners. Researchers in this area can be viewed as belonging to two groups: in the first, interest is driven by investigating the direction of the relationship between management accounting and trust, while in the second interest is driven by exploring the nature of the relationship. However, it is too early to have a definite fact about the above points and further research is required.

SC risk, reverse logistics, and sustainability are emerging topics that have not received attention so far from accounting researchers. These topics require further consideration from the research community as these concepts represent an integral part in SC management practices.

From reviewing the literature, the categorization according to the various breadths of themes and the focus on 'matters of concern' has revealed several points. The first point is related to the fact that, despite the importance of some topics and themes to practitioners and societies, the extant literature has not yet mirrored these themes in a full way. SC relationships, PM and MC, and decision-making have been intensively investigated (Munday, 1992; Frances and Garnsey, 1996; Ellram and Siferd, 1998; Seal et al., 1999; Hoek, 2001; Mouritsen et al., 2001; Dekker, 2003; Cooper and Slagmulder, 2004; Stapleton et al., 2004; Joyce, 2006; Mahama, 2006; Free, 2007; Drake and Haka, 2008; Nicolaou, 2008; Agndal and Nilsson, 2009; Anderson and Dekker, 2009a; Anderson and Dekker, 2009b; Whicker et al., 2009; Hofmann and Kotzab, 2010; Phua, 2011; Schulze et al., 2012). However, there are other topics and themes that have not yet received attention from accounting scholars and researchers and that merits more analysis as they are of great interest in practice. These topics include trust, SC risk, reverse logistics, and sustainability (van der Meer-Kooistra and Vosselman, 2000; Sahay, 2003; Simatupang et al., 2004; Trkman and McCormack, 2009; Wolf, 2011). Future research is required to explore the role of management accounting in these areas.

The second point is related to the ‘matters of concern’ that have been raised by researchers. In terms of the relationship between management accounting and SC, the literature review showed that similar concerns cut across the seven themes studied. These concerns revolve arounds the relevance/irrelevance of management accounting, the nature and role of management accounting and whether it is beneficial, the lack of accepted practices, and the willingness of SC participants to accept new management accounting techniques such as open-book accounting, joint target costing, inter-organizational cost management, and so on. It appeared from the review that these concerns are still the subjects of ongoing debates and controversies between researchers. Therefore, the current state of management accounting in this area (i.e. SC) seems to be unstable which means it is still too early to shift towards the world of ‘matters of fact’ in this area of research (Latour, 2005). ‘Matters of fact’ can be derived if all these concerns are settled which, in turn, require further research and analysis.

The third point is related to the ownership and meaning of management accounting. Conventionally, accounting researchers, journals, professional bodies have taken on the responsibility for developing management accounting. However, as the literature review showed, the introduction of the supply chain made researchers from various disciplines and non-accounting journals interested in studying the role of management accounting techniques on areas such as SC relationships, decision-making, and so on. This may lead to the loss of identity of management accounting. Also, the meaning of management accounting is becoming blurred. This requires accounting scholars, journals, and professional bodies to rethink about the meaning of management accounting and try to look at it from a broader perspective that takes into consideration the current changes.

The last point is related to the fact that the mainstream literature in this area is dominated by positive and functional research (e.g., Cavinato, 1992; Ellram and Siferd, 1993; Ellram, 1994; Cooper and Yoshikawa, 1994; Seal et al., 1999; Dekker, 2003; Ramos, 2004; Anderson and Dekker, 2009a; Anderson and Dekker, 2009b). This type of research produced useful knowledge about the relevant tools and techniques (e.g., ABC, BSC, open-book accounting, joint target costing, etc.) that suit SC and the role of these techniques in the effective management of the SC. However, this stream of research may obscure complexities that can be found in practice, and also reduces the role of accounting to a subordinate to the SC (Chua, 1986). Using different theoretical approaches (e.g., ANT, institutional theory, structuration theory, etc.) enables researchers to raise questions that have not been addressed before in the literature, and deepens our understanding of the role of management accounting within a supply chain context, which, in turn, may help in the process of deriving ‘matters of fact’.

In conclusion, the relationship between management accounting and supply chain, as an area of research, has not yet reached its full potential development. There are several topics that need further analysis and investigations. In the process of helping management accounting knowledge to progress from the current state of ‘matters of concern’ to a state of ‘matters of fact’, disputes, disagreement, and critiques need to be resolved through future research that raises new questions, provides different answers to questions previously resolved, or uses different theoretical frameworks. Also, there is a need for a broader definition of management accounting that takes into consideration the current changes (i.e., who are interested in studying management accounting? How do they perceive it? How do they study it?).

One of the limitations of this literature review is that it focused only on published papers and did not follow actors (e.g., the researchers, journals, academic institutions, etc.) to understand how they built their networks as required by ANT. Therefore, I would invite further research that can be an empirical extension, to accommodate some relevant ethnographic accounts by conducting possible semi-structured interviews followed by e-mail conversations with the academic researchers who are engaged in management accounting research within this emerging context. This would add more concrete evidence to my observations on the issue of instability with regard to the current state of management accounting research. The literature review and the questions being raised therein could be tested in such research, and more valid conclusions could be drawn regarding ‘matters of concern’.

The other limitation is related to the type of publications covered. This review covered only academic journals and ignored professional journals. Future reviews can include professional journals that can grant researchers insights about what is really happening in practice and the complexities and tensions that are found in practice. This can help us to determine whether the academic research is far from the practical challenges and realities of the SC and from being the ultimate advice needed by practitioners.

Based on the categorization presented in this essay, SC relationships were chosen as the area that I would like to contribute to. Although SC relationships have been intensively investigated, as mentioned before, this topic is increasingly provocative, evident in controversies, disagreements, and ongoing debates between researchers regarding the role of management accounting, as seen from the literature. Therefore, it is unlikely to become a 'matter of fact' in the near future. This thesis aims to contribute to this topic by studying supply chain strategy (see essay 3) and category management practices (see essay 4) within a UK retailer. Supply chain strategy is regarded as a predefined general context that guides the courses of actions necessary for organizing and managing supply chain relationships. Category management represents a new form of supply chain relationships between retailers and suppliers that are characterized by distributed intelligence, multiple evaluative criteria, and radical decentralization. The objective is to explore and understand the role of management accounting in relation to supply chain strategy and category management.

The next essay will provide an overview about the UK retailing sector, then, two case studies will presented.

Essay 2

This essay is a contextual prelude to the next two essays (two case studies of a UK retailer and its partners) in which the UK retail market is analysed in terms of its dynamic; the influences of market concentration, globalization, and supply chains; and the emerging shifts in power position. It shows how networks of heterogeneous actors give rise to the power of UK's big retailers, which, in turn, become a matter of fact.

Essay 2: Delineation of UK Retail Sector: An Actor-Network Perspective

Abstract

This essay provides a contextual discussion about the UK retail market through screening the relevant bodies of literature. Drawing on ANT, it shows how this market comprises a set of networks of various human and non-human actors who interact and negotiate among themselves. It also shows how the power of the UK's big retailers can be regarded as a consequence of these networks and the interrelationship between them.

1. Introduction

Emerging shifts in positions of power from suppliers and manufacturers to retailers, reinforced by market concentration, globalization forces, and the advancement of SC practices, bring us once again to reopen the 'black box' of the UK retail market: we need to rethink how market concentration, SCs, and globalization tendencies can transform the dynamics of the UK retailing market. Consequently, this led me to reflect on how actors respond to these forces. I thus approached the UK retail market literature to understand the market dynamics and the key actors involved.

The complexity of the UK retail market can be understood by focusing on the concerns and negotiations among different actors rather than simply focusing only on some technical issues. Thus, I draw on the notion of 'translation' to penetrate the literature to understand how the UK retail market network is constructed and mobilised. By focusing on the 'translation process', I explore the how actors interact and negotiate within the network and the underlying issues and subsequent debates regarding the retail market.

This essay is thus structured as follows: Section 2 provides a brief overview of the development of the UK retail market, and Section 3 presents the notion of 'translation'. Then, Section 4 describes the methodology, while Section 5 discusses the findings, and finally, Section 6 concludes the essay.

2. UK Retail Market Development: An Overview

"Any attempt to understand the UK retail scene should start by recognising the distinctive features of this market" (Burt, Sparks, & Teller, 2010:174). The UK is one of world's economic juggernauts, with a population of about 63.7 million in mid-2012 (Statistics, 2013), a GDP of $ 2,435,174 million (the world's sixth largest economy) (Bank, 2013), and the second highest total consumer expenditure in Europe (Burt et al., 2010). It is a culturally diverse society, with an immigrant population of about 11.4% (Mulley, 2011), and a minority ethnic population of more than 12% (2009).

According to Jones, Comfort, Hillier, and Eastwood (2005:209), "Retailing is a large, diverse and dynamic sector of the UK economy". The British Retail Consortium estimated in 2011 that the retail sector's contributions to the UK's GDP and total Gross Value Added were 20% and 11.3% respectively. It is also the UK's largest private sector employer, with 188,000 retail enterprises providing jobs for around 3 million employees, thus accounting for 10.5% of the nation's workforce (Consortium, 2012).

Napoleon Bonaparte once referred to the UK as 'a nation of shopkeepers'; nowadays, this description is clearly no longer relevant due to the expansion of the big chain stores and supermarkets at the expense of the traditional outlets, which are vanishing at an alarming rate (Free, 2008). But why is this happening?

The story began in the 1950s, when the growth of supermarkets overtook that of independent shops and traditional Co-operative stores (Clarke, 2000). In 1950, the market share of independent shops and Co-operative stores was 80%, while it was 20% for supermarkets (Blythman, 2004). Since that date, there has been a rapid growth in the number of supermarkets and, as a corollary to this, a sharp decline in the number and market share of independent shops and Co-operative stores (Clarke, 2000). One of the key factors that have driven this expansion is the conversion from the local counter-service format to self-service format from the late 1940s (Usherwood, 2000); this, in turn, evolved into supermarkets, and then stretched again into the development of superstores in the 1960s (Thomas, 1991). According to Morelli, "This development of increasingly large scale, high street based, supermarket retailing, involving heavy investment in retailing Outlets, continued still further into the 1970s" (Morelli, 1997:775).

The 1970s was a period of moving toward economies of scale through increasing the size and decreasing the number of the stores: “In one year alone, 1978-79, the multiples closed over 350 shops smaller than 5000 square feet, and opened 60 of more than 10000. Over the period 1971-79, the total number of grocery shops fell from 105,283 to 68,567, a decline of 35 per cent; for multiples, the decrease was 45 per cent” (Seth & Randall, 1999:19). The growth rate of superstores was relatively slow during the 1970s, before beginning a period of massive expansion during the 1980s.

The 1980s have been perceived as the ‘golden age’ of UK grocery retailing (Burt and Sparks, 1994); the period was characterized by high levels of concentration, the rise of discount stores, diversification, and the growth of out-of-town retailing. While multiples were dominating the retailing sector before the 1980s, that decade witnessed the emergence of a small group of multiples (the ‘big five’ group comprising J Sainsbury plc, Tesco plc, Asda plc, Argyll Group plc, and Dee Corporation/Gateway plc), who were beginning to rival and dominate the largest companies in any sector in the UK economy (Wrigley, 1993). The dominance and power of this group (big five) increased considerably from one year to the next, and the “combined market share reached 43% by 1984, 58% by the end of 1988, and 62% by 1990” (Wrigley, 1992:729). According to Wrigley (1993:41), “This immense oligopolistic buying power wielded by the retail corporations came to condition all aspects of retailer-supplier relations, and created new corporatist relationships between the retailers and the regulatory state.”

Furthermore, the end of the 1980s witnessed the entry of European discount store operators into the UK market, such as the German company Aldi and the Danish company Netto (Burt and Sparks, 1995). These stores sell limited ranges of products at low prices. According to Guy (1995:26), “Prices were kept low by accepting low margins; by developing cheap ‘no-frills’ stores in cheap locations; and by selling own-brand or ‘tertiary brand’ goods, which did not carry the promotion and marketing overheads of the top branded goods.”

Another key feature during that period is the strategy of diversification into non-food areas embarked upon by many retailers (Brown, 1990). The food retailers expanded into appliances, books, clothing, and many services, such as financial services, dry cleaning, cafes, and estate agents, to satisfy increasingly demanding customers and to increase the market share and profitability (Ogbonna, 1989). Gardner and Sheppard (1989:164) argue, "In fact, the non-food area proved increasingly important and partly explains their success in holding on to 38 per cent of the total retail turnover when food itself only account for 14 per cent of consumer expenditure."

Offering a wide variety of non-food products was facilitated by the rapid growth of superstores and hypermarkets, especially those situated on edge-of-town or out-of-town sites. The growth of out-of-town retailing can be attributed to many factors including the rapid rise in car ownership; good public transport access, relatively liberal planning regime, the difficulty of finding suitable sites for building superstores or hypermarket in the city centre, increasing rent levels in the town centres compared to out-of-town sites, changes in shopping patterns, and increasing consumer spending power (Jones and Hillier, 2000). In addition, the growth of out-of-town retailing increased the operating margin, which jumped to around 6-8% in 1992 compared with around 3-5% in the mid-1980s (Guy, 1995).

The development of out-of-town superstores continued into the 1990s. Indeed, in the late 1990s, the number of superstores increased to over 1000 compared to about 450 in the mid-1980s, with stores offering a wide variety of products ranging from groceries to clothes, toys, computers, sports products, and general merchandise (Jones and Hillier, 2000). The new retail formats, such as retail parks and sub-regional and regional shopping centres, have blossomed (Guy, 1998b). These centres consist of a combination of grocery retailers and several retail warehouses selling clothes, shoes, furniture, and home appliances, often with some fast food outlets, cafes, restaurants, and leisure activities, such as cinemas and bowling alleys (Guy, 1998a; Jones and Hillier, 2000). However, from the mid-1990s, the new Labour government curbed the development of large superstores by tightening planning regulations and introducing new guidelines under PPG6 and PPG13, instigated by growing public concern about the negative effects of superstores on the viability of city centres (Wrigley, 1998; Pal et al., 2001). These restrictive regulations triggered a shift in the retailing industry, as big retailers began to focus on the small store format in town and city centres. In 2002, Tesco had 65 'Express' stores (average size 200 sq. metres), Sainsbury's had 18 'Local' stores (average size 280 sq. metres), Asda had 245 stores (average size 4200 sq. metres), and Safeway had 55 'Safeway-BP' stores (average size 200 sq. metres) (Dawson, 2004:126).

Then, from the beginning of the 1990s to the present, it was noted that “the internet is transforming economies and societies, and UK retailers are at the forefront of this change” (Consortium, 2012:38). Big UK retailers were inspired by this innovation, and started to embrace online shopping. From the late-1990s to the early-2000s, online shopping was growing at a slow pace due to public concerns regarding site security and because the proportion of users who preferred using the internet for information searches was significantly higher than that of users making purchases using the internet (Fernie et al., 2010). However, as the idea took off, online shopping grew quickly, and it is now recognized as the fastest growing area with regard to internet usage (Ellis-Chadwick et al., 2007). Internet sales accounted for about 10% of total retail sales by the beginning of 2011 (Consortium, 2012). Nowadays, online shopping is becoming increasingly popular and is attaining further widespread acceptance.

This brief overview of the retail market in the UK illuminates various aspects, issues, and norms of behaviour that merely reflect the context and that will help to shape our understanding of today’s retail marketplace. In this essay, my aim is to define the key actors within the UK retail sector and explain the nature of the relationship between these actors through the lens of ANT. The next section will shed light on Actor-Network Theory.

3. Actor-Network Theory

Traditionally, retailers, and particularly food retailers, are viewed as the party in the SC responsible for providing a channel between suppliers and end customers (Allan, 1980). From ANT perspective, retailers, and big retailing chains in particular, become an actor creating an actor-network in which other heterogeneous actors are enrolled and who form alliances in an attempt to legitimise or reject the effect of the focal actor’s (i.e., big retailing chain) behaviour and actions on other actors in the network.

ANT appeared more than two decades ago in the area of science and technology studies to investigate the development of networks in a scientific research setting, where the focus was mainly the laboratory setting (Williams-Jones and Graham, 2003). However, over the years, ANT has proved its flexibility to accommodate other fields of studies, such as social sciences, psychology, anthropology, politics, and economics (Lee and Hassard, 1999). Latour (2003:35) defines ANT as “an argument not about the ‘social’ but about the associations which allow connections to be made between non-social elements.” The central tenet of ANT is that contemporary societies are constituted through heterogeneous networks between human and nonhuman actors, with aligned interests, and each actor, by itself, is a network (Doolin and Lowe, 2002). ANT relies on some key concepts, including actors, intermediaries, and networks (Rodger et al., 2009).

According to Latour (2005:46), "An actor in the hyphenated expression actor-network is not the source of an action but the moving target of a vast array of entities swarming toward it". Accordingly, it is any entity (human or nonhuman) that can act and be acted upon (Callon, 1991). Human actors are shaped by various aspects, including social, political, psychological, economic factors (Latour, 1993). This means that actors are not only nodes within the actor-networks, but are also networks themselves (Law, 1992).

Callon (1991:134) defines intermediaries[11] as "anything passing between actors which defines the relationship between them." There are four main types of intermediaries as identified by Callon (1991:135):

- texts (literary inscriptions): such as memos, books, reports, articles, graphs and diagrams
- technical artefacts: such as machines, consumer goods, and scientific instruments
- human beings: such as skills and knowledge and expertise that they incorporate; it also includes the power and control relationships that shape the action between actors (Comber et al., 2003)
- money in all its different forms

Intermediaries supply the missing link that relates actors to the actor-network and, at the same time, they describe the network. Intermediaries circulate among actors in order to construct networks, "thus defining the respective position of the actors within the networks and in doing so constituting the actors and the networks themselves" (Powell & Owen, 2011:147).

Besides actors and intermediaries, 'networks' is another key concept essential to the dynamics of ANT. Callon (1993:263) defines networks as a "group of unspecified relationships among entities of which the nature itself is undetermined." Identifying the

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[11] The term 'intermediaries' is used differently in food supply chains and ANT. "In the food supply chain, intermediaries are merchants (wholesalers and retailers) and processors, i.e., economic agents that connect producers and consumers" (Menkhaus et al., 2005:57). ANT's definition of intermediaries is employed throughout this essay.

interrelationships between the heterogeneous actors, both human and nonhuman, is of prime importance for understanding any network (Murdoch et al., 2000).

ANT differs from other traditional approaches by advocating a socio-philosophical approach that introduces a symmetrical treatment of human and non-human actors, social and technical factors (McLean and Hassard, 2004). ANT refuses to draw a distinction between human and nonhuman, social and technical factors or to privilege one over the other factor (Bapuji et al., 2012; Alcadipani and Hassard, 2010). Law (1991:10) argues that "what appears to be social is partly technical. What we usually call technical is partly social. In practice, nothing is purely technical. Neither is anything purely social."

Actor-networks are characterised by shifting alliances of heterogeneous actors, both human and nonhuman, and instability over time; these necessitate continual maintenance and updating through the enrolment of actors (Williams-Jones and Graham, 2003). It is of particular importance, therefore, to understand what encourages actors to enrol and engage in a network and what brings the network into being. The answer lies in what Callon and Latour refer to as the 'translation' process, drawing on work by the French philosopher Serres (1974). Callon and Latour (1981:279) explain 'translation' as follows:

> By translation we understand all the negotiations, intrigues, calculations, acts of persuasion and violence, thanks to which an actor or force takes, or causes to be conferred on itself, authority to speak or act on behalf of another actor or force. 'Our interests are the same', 'do what I want', 'you cannot succeed without going through me'.

Then, Latour (1987:108) defines 'translation' as "the interpretation given by the fact-builders of their interests and that of the people they enrol." Every actor enrolled in a network is independent and has their own interests and capable of resistance or accommodation; therefore, the stability of the network is determined by the on-going translation of these diverse interests (Williams-Jones and Graham, 2003). According to Callon (1986), the 'translation' process involves four main phases: *problematization*, *interessement*, *enrolment*, and *mobilisation* These are discussed in more detail below.

Problematization refers to actors' efforts to enrol other actors in their own network. This can be achieved by first defining the problem and demonstrating the solution, then defining the attributes and roles of the target actors (Mähring et al., 2004) and enlisting them through a set of well-defined practices (obligatory passage point) that are under the control of the initiating actors (Ezzamel, 1994; Callon, 1986).

During the *interessement* phase, the initiating actors try to convince the other actors by indicating the defined interests for them and showing that these are, in fact, in line with their own interests. In addition, incentives are created for the actors for cementing links between the initiating actors and the other actors (Mähring et al., 2004). Although this phase often involves negotiations among the actors, actors do not usually participate themselves; instead, representatives may participate on their behalf: "In many cases, actors fail to act as promised by their representatives. This phenomenon is referred to as betrayal" (Sarker et al., 2006:55).

Enrolment is the construction of alliances and coalitions between actors within the newly created network (Ezzamel, 1994) through "multilateral negotiations, trials of strength and tricks" (Callon, 1986:211) . This phase involves a clear definition of the roles of each actor, which are consistent with the interests of the network, and an agreement among the actors is reached on the ends (Sarker et al., 2006).

The final phase is *mobilisation*. Initiating actors monitor the various interests using a set of methods to ensure that representatives are acting in the interests of their constituents and do not betray the interests of the network (Alcouffe et al., 2008). As Mähring et al. (2004:214) put it, "With allies mobilized, an actor-network achieves stability. This stability would mean that the actor-network and its underlying ideas have become institutionalized and are no longer seen as controversial".

At the end of the four phases, a constraining actor-network is constructed; however, Callon (1986) comments that we should be aware that not all networks go through the four phases, as the 'translation' process can be contested at any phase.

When researchers embark on research using ANT, they have no clear picture of what sort of actors, intermediaries, or networks they are going to discover (Lee and Hassard, 1999). For this, researchers need to follow the actors and understand how they interact together to produce the network under analysis. This is what this paper tries to do. As Latour (1987:258) argues, "We study science in action and not ready made science or technology;

to do so, we either arrive before the facts and machines are black boxed or we follow the controversies that reopen them"

This essay aims to reopen the 'black box' of the UK retailing sector and understand the relationships between the actors inside this box.

4. Research Methodology

Since the aim of this essay is to reopen the 'black box' of UK retail market, a thorough scanning of all relevant journals was necessary. I utilized search keywords such as 'UK retail', 'UK supermarket', 'UK grocery', 'British retail', 'British supermarket', and 'British grocery'. This procedure resulted in a shortlist of 40 papers published in 20 journals. The list of journals and their related papers is displayed in Table 3. In addition to the journals, to achieve my objectives, it was also necessary to scan some books dealing with the retail sector. Thus, five books were chosen (see Table 4).

Journal	No. of Papers
International journal of retail and distribution management	11
Journal of retailing and consumer services	7
British food journal	4
Accounting, organization and society	2
Eco-Management and Auditing	1
European Journal of Innovation Management	1
European Journal of Marketing	1
European Management Journal	1
European Retail Research	1
Human Resource Management Journal	1
International Marketing Review	1
Journal of Business Research	1
Journal of Consumer Studies and Home Economies	1
Journal of Public Affairs	1
Management Accounting Research	1
Management Decision	1
Management Research News	1
Marketing Intelligence and Planning	1
Property Management	1
Supply Chain Management: An International Journal	1
Total Articles	**40**

Table 3: List of journals reviewed

Book Title	Authors/Editors	Publisher
The Grocers: the Rise and Rise of the Supermarket Chains	Andrew Seth and Geoffrey Randall	Kogan Page Limited
The Market Makers: How Retailers are Reshaping the Global Economy	Gary G. Hamilton, Misha Petrovic, and Benjamin Senauer	Oxford University Press
Shopped: the Shocking Power of British Supermarkets	Joanna Blythman	Harper Perennial
Trolley Wars: the Battle of the Supermarkets	Judi Bevan	Profile Books Ltd
Retail Change: Contemporary Issues	Rosemary D. F. Bromley and Colin J. Thomas	UCL Press Limited

Table 4: List of books reviewed

5. Actor-Network Analysis

Studying a market was regarded as a key challenge for ANT, as markets provide a clear distinction between human and non-human actors, and the involved actors are characterized by highly demanding competencies, while “ANT was developed to analyse situations in which it is difficult to separate humans and non-humans, and in which the actors have variable forms and competencies” (Callon, 1999:183). However, Callon' responded to this criticism by noting that for market co-ordinations to succeed, market actors must have “information on all the possible states of the world, on the nature of the actions which can be undertaken and on the consequences of these different actions, once they have been undertaken” (Callon, 1999:184). Therefore, actors should entangle themselves in a network of relations with other actors in order to get such information. Nonetheless, over the years, the ontological separation between human and non-human has been undermined, as markets have become increasingly complex due to several factors, including globalization, technological advancement, and the introduction of new organizational forms, such as SCs and virtual organizations. These factors have led to the enrolment of various social and technical, global and local actors into the market. Hence, ANT can fit well with current market ideology.

Drawing on the literature, this essay suggests that the UK retail market can be viewed as a set of networks of various heterogeneous actors, who interact together to form these networks. My review reveals that the UK retail market consists of three key networks, each with different logic and interest:

- market concentration–based network
- supply chain–based network
- globalization–based network

In the following section, I shall draw on the notion of ‘translation’ to examine the details of the development of the three networks. My aim doing this is to guide researchers to navigate through the large stream of papers in this area of research.

5.1 Market Concentration – Based Network

Market concentration has been regarded as a prominent feature of the UK retail market in general and the grocery market in particular (only four major grocery chains: Tesco, Asda, Sainsbury, and Morrisons) (De Kervenoael et al., 2006). “In the last ten years every third pound is generated by one of the five most powerful players in the market, i.e. Tesco, Sainsbury, Asda, Wm Morrison and Marks and Spencer” (Burt et al., 2010:180). In recent years, market concentration has been attracting increasing attention from academics, the media, politicians, government officials, and other groups. The significance of market concentration and the interest that different entities have in it has brought a consortium of independent actors together to form an actor-network. The main actors showing their interest in market concentration issue are big retailing chains, suppliers and manufacturers, customers, government and regulatory authorities, politicians, academics, the media, and pressure groups. Figure 3 presents the actor-network analysis model based on the market concentration issue.

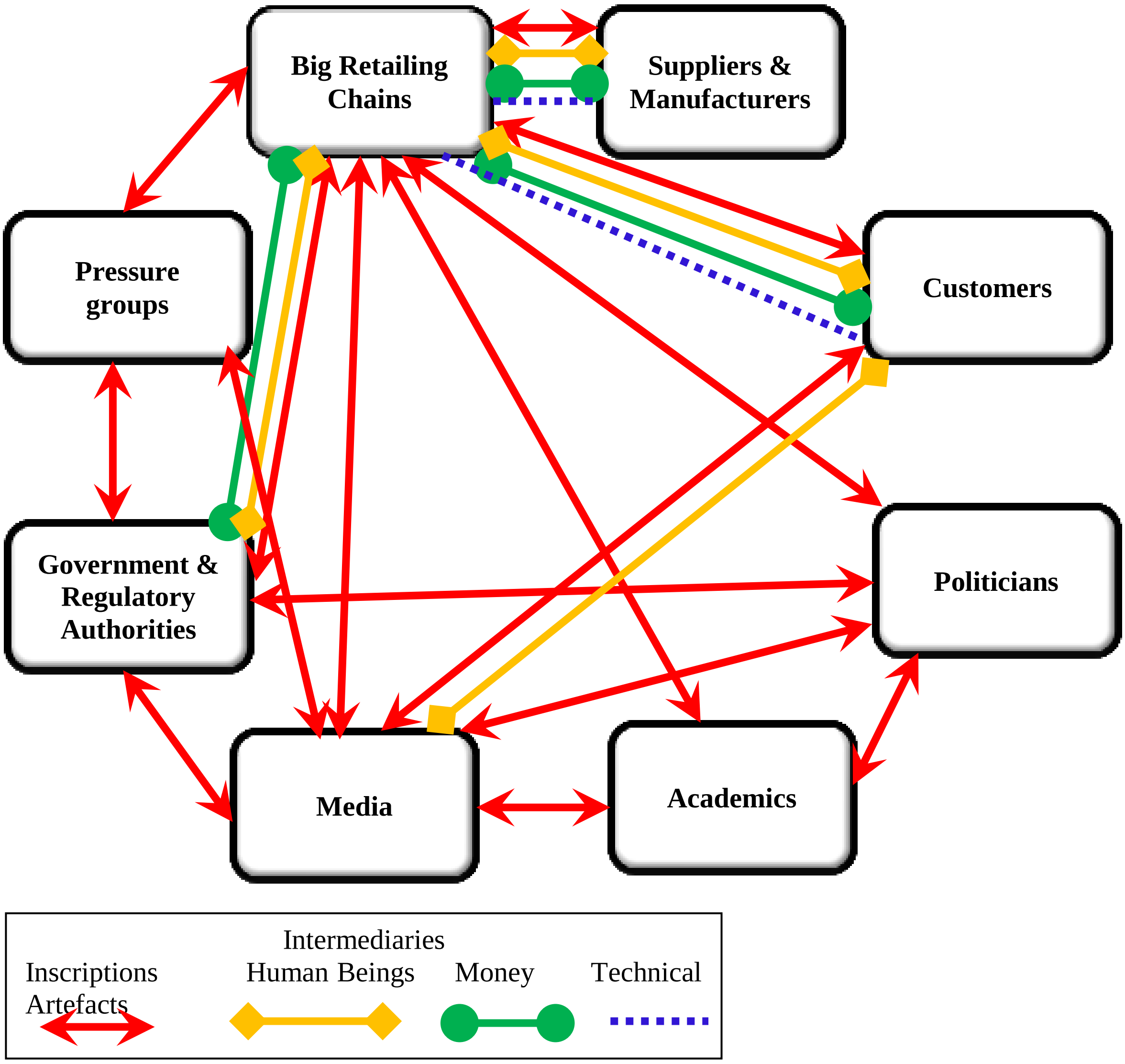

Figure 3: Market Concentration-Based Network

The starting point here is the big grocery chains. *Problematization* began when big grocery chains, in their drive for market share, started to change the sector structure by increasing store size and adopting a range of formats in order to reach a large customer base (Hollingsworth, 2004). Consequently, the top four chains (Tesco, Asda, Sainsbury's, Morrisons) now account for about 75% of the total retail market (Seth and Randall, 2011). The question that needs to be asked now is whether the concentration of the market in the hands of a small number of players is worrying for the UK retail market. No clear answer can be given, as while these changes and growth sounded reasonable from the point of view of retailers and other entities, many concerns have been raised regarding the impact of the rapid growth of big retailers on the rest of the retail sector. Several other questions are likely to be raised: Who would participate in this debate? What beliefs have they? and What are their interests and tasks?

The questions that arise from the practices of big retailers bring other actors directly into the story: suppliers and manufacturers, customers, government and regulatory authorities, politicians, academics, the media, and pressure groups. According to Callon (1986), it is important to explain how these actors are concerned by the formulated questions:

a) Suppliers and manufacturers: They are highly dependent on big retailers to sell their products and make a profit, as they have moved away from the end customers; hence, there is no relevant alternative distribution channel for their products. However, they are concerned with the impact of the centralisation of the buying power and market concentration on their long-term profitability.
b) Customers: They are the beneficiaries of the goods and services provided by the retailers and the ultimate source of money, and so they are the main deciders on long-term competitiveness (Zairi, 1992). Thus, they are interested in knowing whether they will benefit from market concentration in terms of price, quality, and service (Clarke, 2000).
c) Central government and regulatory authorities: Government intervention in the retail sector has been directed to guaranteeing the pursuit of a free market economy (Burt et al., 2010), as governments are required to protect other entities from the possible competitive threat posed by the market concentration of retailers (Hamilton and Petrovic, 2011). In addition, the ability of retailers to grow and to increase their market share depends, to some extent, on securing permissions from local authorities (Clarke, 2000); these authorities should carry out some work and assessment before any permissions can be granted, such as assessing the impact on local shops and communities (Blythman, 2004). Thus, government and regulatory authorities are interested in the formulated question.
d) Politicians: They often take into consideration electoral factors before raising any issue or concerns. As retailers "touch the everyday lives of the vast majority of the population" in UK (Jones et al., 2005b), politicians have particular interests in retailing issues.
e) Academics: Academic researchers often are interested in advancing the knowledge in any domain of science (Callon, 1986). They are also interested in publishing papers and attending conferences through investigating contemporary issues such as market concentration.
f) Media: The media are a valuable tool for big retailers to add value to their operations, as they can affect consumer behaviour. On the other hand, the media

often embrace the issues that concern country people. So, the media can be regarded as one of the actors in this network.

g) Pressure groups: Several pressure groups have appeared recently in the UK. They are always concerned with environmental, ethical, and fair trade issues (Strong, 1996). As a result, market concentration is of interest to pressure groups.

The lesson that we can learn here is that assessing the implications of market concentration is the obligatory passage point that satisfies the interests of all actors: “A single question … is enough to involve a whole series of actors by establishing their identities and the links between them.” (Callon, 1986:205)

In the *interessement phase,* attempts should be made to impose the identities of other actors and persuade them to accept the solution (Murdoch, 1997). Big chains have to convince other actors that concentration serves to increase the competition in the UK market, which, in turn, leads to added value and benefits to customers (Hackney et al., 2006). Thus, big chains should concentrate on price and value elements when negotiating with other actors. Inscriptions (in the forms of reports, press releases, and so on) can be used to explain the consequences of concentration. Accounting reports (Frances and Garnsey, 1996) are of particular interest to big chains, as they use them to support their argument, and so they make these reports publicly available. It has been shown that retailers disclose better and more detailed financial reporting information (Craven and Marston, 1999). Retailers are also organizing meetings, workshops, and conversations to deliver information to other actors.

The third phase is *enrolment*, which involves a “group of multilateral negations, trials of strength and tricks that accompany the interessements and enable them to succeed” (Callon, 1986:211). The transactions with customers are simple, as they are prepared to believe the big retailers’ arguments. The main concerns for customers are price and quality. The retailers place information about the price, features of the products, and available alternatives at a customer’s disposal through their websites, media, and other channels. In addition, some retailers choose to list their prices on price comparison websites, such as mysupermarket.com, to allow the customers to compare the prices across retailers. Big retailers have the ability to ‘get to know the customer’ though advanced information systems (e.g. EPOS) on customer buying habits, customer throughput information, and so on (Ogbonna and Wilkinson, 1998). Thus, they are using such knowledge to tailor their offer to customers in accordance with the data from such information systems.

Many customers believe that when supermarkets offer a price promotion, they must be cutting their profit margin to satisfy their customers and offer them a cheap deal; however, suppliers and manufacturers see matters differently (Blythman, 2004). Big retailers need to convince their suppliers and the manufacturers of their products of the benefits to be gained by dealing with large retailers and to see them as key contributors to their success and long-term profitability. Therefore, big retailers are eager to collaborate with their suppliers and manufacturers through sharing knowledge about costs and other information. However, in a climate of continued price reduction pressures by big retailers and open-book accounting, many suppliers believe that it is impossible to sustain the prices and attributes as required by retailers (Blythman, 2004). They believe that big retailers are improving their profit margins, through promotions and price cuts, by pushing their costs back onto suppliers and manufacturers (Seth and Randall, 2011; Elms et al., 2010). However, although they may not agree with big retailers' arguments, most suppliers and manufacturers fully understand the nature of the market and are "prepared to adopt a 'swings-and-roundabouts' approach along the way" as they do not have an adequate negotiating position (Bevan, 2005:179).

Furthermore, transactions with governments and regulatory authorities are not simple; indeed, the retail policy making in UK has been regarded as 'contradictory' (Clarke, 2000). This can be attributed to the "separation of physical store development (dealt with by the town planning system) from competition (dealt with by central government bodies, such as the office of Fair Trading and the Competition Commission)" (De Kervenoael et al., 2006:388). This separation, in turn, leads to inconsistent policies and opinions. For example, while current planning policies are recognized as a virtual ban on the development of large retailers, other government departments seek to promote competition between retailers and encourage the development of superstores, as this can bring many benefits to customers and prevent a monopoly (Guy and Bennison, 2002). Big retailers deal with the governments and regulatory authorities in different ways. For town planners, they try to adjust their attitudes and influence their thinking in order to get planning permission for new stores (Clarke, 2000). In their endeavour to influence local decision making, retailers benefit from two important points: the reduction in the local authority economic regeneration budget and the concept of 'planning gain', which is recognized by the Town and Country Planning Act 1990 (i.e. section 106 agreements) (De Kervenoael et al., 2006; Blythman, 2004). They bring their resources (i.e. money) to make things happen. For example, in 2000, Tesco won planning permission to build a big store in Coventry after agreeing to partially fund a new sports stadium. For government departments that deal with competition, the situation is different, as they already believe that big retailers play a key role in enhancing retail competition. Therefore, big retailers actively share information and knowledge (e.g., accounting, commercial information, etc.) with these departments to support their arguments.

Big retailers often disclose financial and nonfinancial information about their operations and performance and make it publicly available (e.g. annual reports, press release, etc.) to persuade everyone that their form of innovation and development is exactly what customers want. However, different entities may interpret this information in different ways. For example, academics raise concerns in their papers and articles about the negative effects of market concentration on small shops and customer choices; these concerns are then picked up by the media and politicians (Burt et al., 2010). In addition, pressure groups, such as Friends of the Earth, the National Federation of Women's Institutes, FARM, and the Association of Convenience Stores, are actively campaigning against the negative effects of market concentration (Jones et al., 2005b). Those actors argue that “the market had ceased to operate fairly and that large (food) retailers were making excess profits and abusing their market positions” (Burt et al., 2010:176), and so they petition the government to investigate the situation in the market. These continuing campaigns have brought pressure on the government to give more attention to the practices of big retailers.

Are big retailers able to convince the other actors? This question is of crucial importance to determine whether we can proceed to the last phase. Information and retailers’ resources are enough to convince some actors that market concentration is important for the efficiency of the UK retail market. However, some actors reject this argument and try to influence the attitude of other actors. Hence, big retailers need to deal with this growing controversy and revise the *interessement* devices. Unless and until agreement among actors is reached, we cannot move to the last phase i.e. *mobilisation.*

5.2 Supply Chain – Based Network

Over the years since its inception, the SC concept has attracted much attention and has helped elucidate many aspects of business markets. Currently, the SC concept is perceived as a common theme in today's highly competitive and uncertain environment, as it has the capability of giving organisations the inspiration to survive. This may be attributable to the ability of SCs to help organizations meet the profound challenges they struggle with. In particular, the challenges for an organization are no longer restricted to performing its own operations effectively and efficiently; additionally, it must ensure that the manufacturers' and suppliers' operations are being performed in an appropriate manner, and it must build strong relationships with its customers. Such strategies are necessary not only to gauge an organisation's progress toward achieving a competitive advantage, but also to ensure the sustainability of its operations by building strong relationships with its customers, manufacturers, and suppliers, and this is the logic behind SCs. However, the UK experience is that a SC, especially in the retail sector, "is more likely to be a centre of conflict and acrimony than harmonious cooperation" (Duke, 1998:99). Figure 4 presents the actor-network analysis model based on a SC.

The SC is the starting point for this network. In the *Problematization* phase, actors who make up this network should be identified (the interdefinition of actors, according to ANT language). The nature of a SC brings specific actors into the network: big retailers; suppliers and manufacturers; customers; employees; government; unions; pressure groups; academics; and media.

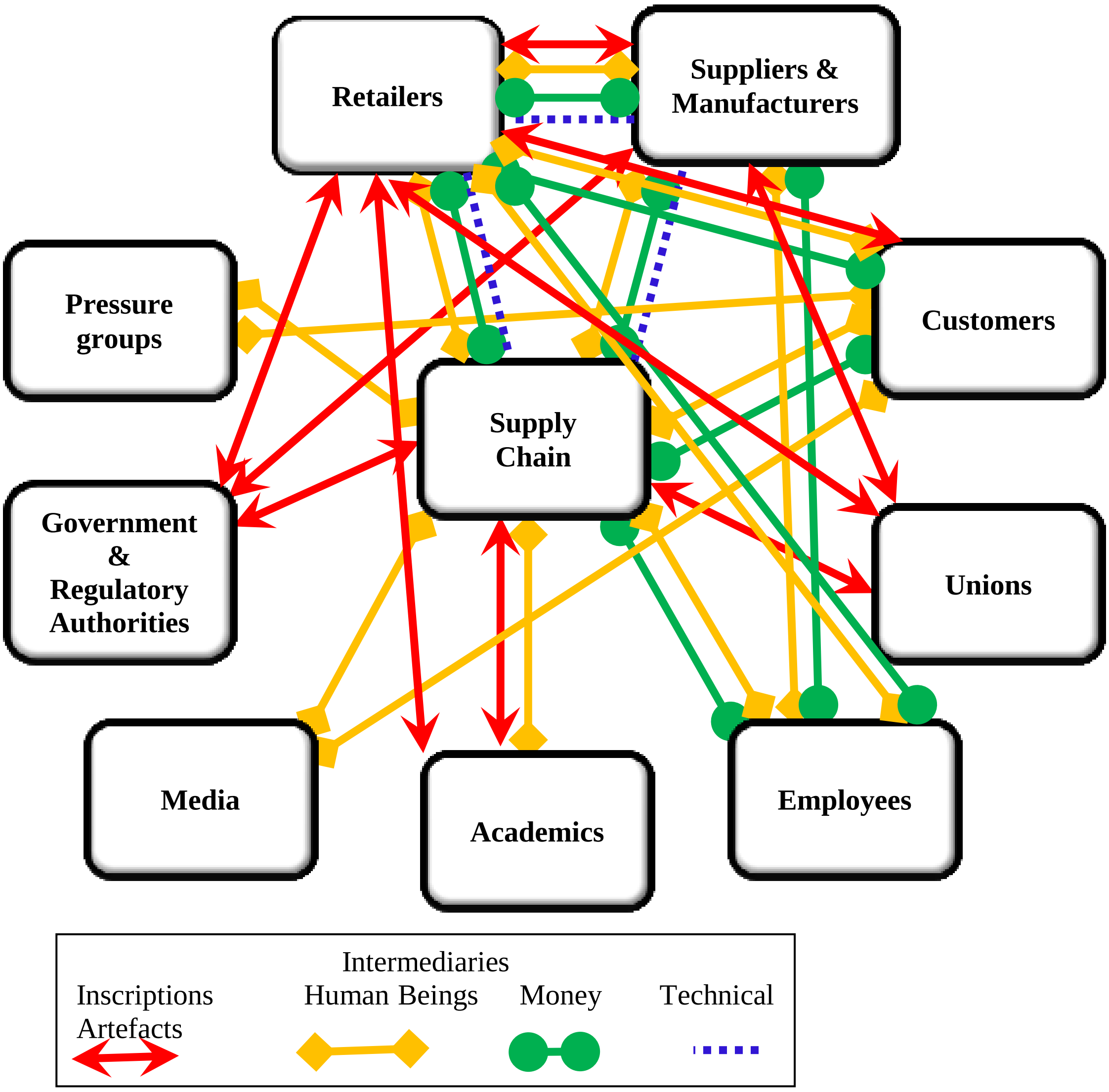

Figure 4: Supply Chain-Based Network

Retailers, suppliers and manufacturers, and customers are the building blocks of any retail SC. It is clear that to achieve a competitive advantage in today's business market, establishing on-going relationships with other actors throughout the SC is required (Fernie et al., 2010). So, retailers, suppliers, and manufacturers are interested in contributing to this network. Customers, also, are interested in assessing the effects of SC relationships on the value of the product or service received.

In addition, SC practices have substantial effects on the workforce, as the staff who are engaged in these practices need to be equipped with the necessary skills and behavioural flexibility (Scarbrough, 2000). Indeed, as employees bear the burden of reducing overall SC costs, they are interested in knowing the implications of SC practices for the company policies and their rights. This brings another actor directly into the network, namely, the unions, which are responsible for defending the rights of their members. Furthermore, the government, pressure groups, media, and academics are also interested in identifying and assessing the implications of SC practices on the efficiency of the market.

Competition and cooperation within the SC results in the creation of a highly sophisticated institutional context within which some actors strive to control other actors for their own competences (Petrovic and Hamilton, 2011). Thus, the question that concerns all actors in this network is regarding the outcomes of SC practices and whether or not these practices can yield equal benefits to SC participants and the market. Therefore, the outcomes of SC practices can be regarded as the obligatory passage point.

Once the actors in the network have been identified and defined, *interessement* is needed, as the alignment is still only loosely coupled. Actions are required to stabilize the identity of the actors identified during the *problematization* phase. Indeed, the construction of the SC itself is a valid *interessement* device for some actors; however, other actors may not have the same interest in engaging in the network's activities. Therefore, additional *interessement* devices are necessary.

Notions such as SC management, sustainable SC, and green SC motivate some pressure groups who are concerned with the environment and society, academics from various areas of research, and the media to participate in the network. In addition, the SC idea has been disseminated through conferences, seminars, articles, and reports, and so it has attracted different actors. These devices seek to engage actors more closely with the network. Then, *enrolment* is required to satisfy the actual alignment of the network.

According to Munir and Jones (2004:572), "Actors are enrolled by persuading them, and giving incentives to them, to become stakeholders." In other words, trade-offs are made to create room for manoeuvre during the negotiations. Manufacturers, suppliers, retailers, customers, and employees are expected to acquire new knowledge and receive financial incentives, such as a higher profit margin, cost savings, higher salaries, and so on, from enrolling in the SC. Knowledge is the key incentive for pressure groups, academics, and the media to join the SC network, as they can use the acquired knowledge for their own reuse and benefit. The quest to protect some actors in the market, through issuing inscriptions, such as new acts and regulations, is the prominent incentive for governments and unions to enrol in the SC network. So, the *enrolment* process seeks to attach actors to the propositions and promises of the SC in order to stabilize the network and, thus, draw up the power of the SC (Mouritsen, 2007). Then, the *mobilisation* process determines whether the commitments of the SC are sustained (Knights et al., 1993).

The SC concept shows that changes are required in the business mindset, including the adoption of advanced information systems to control the SC, while SC partners have to synergize their strength to enhance SC efficiency by establishing on-going relationships and information sharing and by integrating environmental concerns into SC activities (Ytterhus et al., 1999; Fernie et al., 2010; Jones et al., 2013). Point-of-sale technology, electronic data interchange, vendor-managed inventory, open-book accounting, and value chain analysis are the intermediaries that help SC partners to comply with SC requirements (Free, 2008; Dekker, 2003; Hamilton and Petrovic, 2011), and some actors have become actively involved in these changes and developments.

Big retailers have led the way in adopting advanced technologies and information systems and, thus, driving the diffusion of technologies amongst their partners (i.e. manufacturers and suppliers) (Hamilton and Petrovic, 2011). Armed with information generated from these systems on consumer buying habits, retailers have been able to reduce stock levels and working capital requirements, refine the marketing mix, and help manufacturers to plan their production schedule (Duke, 1998; Ogbonna and Wilkinson, 1998; Harris and Ogbonna, 2001; Jones et al., 2005b). They also utilize an open-book costing technique with their suppliers to reduce costs (Blythman, 2004).

The government also has been involved by establishing a code of practice to govern SC relationships; this facilitates mutually beneficial arrangements between big retailers and their suppliers (Hollingsworth, 2004; Fearne et al., 2005). SC challenges and requirements have attracted researchers and academics from various areas, including production management, marketing, information technology, project management, engineering, accounting, and so on. Many articles have been published regarding SCs within the UK retail market. Pressure groups and media have pushed specific environmental issues (e.g. energy and water consumption, recycling, etc.) that should be considered along with the SC and have tried to increase customers’ awareness regarding consuming in environment-friendly ways (Harris and O'Brien, 1993). Consequently, in addition to price and quality, customers have begun to care more about health and environmental issues and so have started to ask for safe and healthy food from their food retailers (Kotzab et al., 2011; Ytterhus et al., 1999).

Big retailers and their partners have responded to the pressure from customers, the media, pressure groups, and the government by developing many environmentally responsive policies (Jones et al., 2005d; Jones et al., 2005c; Kotzab et al., 2011; Strong, 1995; Jones et al., 2007). Thus, they have introduced environmental screening processes, which include putting additional criteria into the retailer's purchasing policy, using a life-cycle assessment to assess products' environmental impact, and evaluating suppliers' environmental policies (Ytterhus et al., 1999). They have also developed and reported on Corporate Social Responsibility (CSR) Key Performance Indicators (KPIs) to benchmark their performance with industry standards and government targets (Jones et al., 2005a; Jones et al., 2005c). In addition to providing researchers with different ways to analyse their environmental policies, big retailers are using different forms of inscriptions (e.g., contrived advertisements, information pamphlets, press release, CSR reports, etc.) to make sure that customers and the public are fully aware of their commitments regarding the environment (Harris and O'Brien, 1993).

As well as management being concerned with the SC, employees are engaging in implementing SC strategies and sharing their ideas with their leaders on how to enhance SC efficiency. Labour unions send their representatives to the companies to ensure they fulfil their commitments to their employees, and big retailers always report their commitments to their labour and the attractive benefits they provide, including wages, training, profit sharing, health and safety, and pensions (Harris and O'Brien, 1993).

From the previous discussion, we can see that suppliers and manufacturers are not sufficiently involved in the network. The problem lies in the workability of the changes required by SC:

> It is easy to talk in general terms about the principles of partnership, but their application in practice - the "how" of using the exchange of information to achieve the benefits, is a problem… Despite an increasing general willingness to work together there remain many attitudes, prejudices, corporate cultures to be changed and hidden agendas to be exposed if we are to explore the full range of possibilities. (Zairi, 1998:61)

The power balance in the UK retail market is noticeably asymmetrical due to the centralization of the buying power and market concentration. Manufacturers and suppliers believe that big retailers use information systems and information sharing techniques, such as open-book accounting, to benefit only themselves and to drive down prices (Duke, 1998; Harvey, 2000; Blythman, 2004; Towill, 2005; Ogbonna, 1989). This mistrust is a preeminent force driving suppliers, manufacturers, and big retailers towards distributive approaches rather than the integrative ones required by SCs (Duke, 1998). In addition, suppliers and manufacturers believe that big retailers are transferring customers' pressure on price, quality, and environment onto them, so that not all SC partners can receive equal benefits as had been promised (Dixon and Marston, 2005). The question is whether the British government can help in solving this dilemma.

Regarding SC relationships, Seth and Randall (2011:189) comment, "It is also well beyond any government's capabilities to arbitrate or to create a set of procedures that will make everyone happy". However, while the government tries to define the relationships between SC partners, the government's power to influence the retail market is limited due to its institutional complexity (Petrovic and Hamilton, 2011). All these factors, as well as increasing levels of market concentration, have also enabled big retailers to control the retail market and to become the representatives not only of retailers, but also of the SC itself (Hollingsworth, 2004). "Successful 'translation' happens when actors accept their roles; translation fails when it cannot overcome heterogeneous preferences and motivations" (Dedeurwaerdere, Stromberg, & Pascual, 2012:115). Therefore, a revision of the *interessement*, *enrolment*, *mobilisation* phases may be required for this network until it stabilizes.

5.3 Globalization – Based Network

Globalization may not be an elegant word, but it is a portmanteau term that no one can ignore (Jacobs, 2001; Giddens, 2002). According to Giddens (2002:7), "It has come from nowhere to be almost everywhere", while Arnason (1990:220) comments that "globalization in the first and broadest sense is best defined as the crystallization of the entire world as a single place and as the emergence of a global-human condition." Another definition, from the Stanford Encyclopaedia of Philosophy, describes globalization as (Bhimani & Bromwich, 2009:87):

> Fundamental changes in the spatial and temporal contours of social existence, according to which the significance of space or territory undergoes shifts in the

> face of a no less dramatic acceleration in the temporal structure of crucial forms of human activity.

It is wrong to think of globalization solely from an economic perspective; it should be regarded as a multidimensional process, which unfolds simultaneously in various realms of existence (Pieterse, 1995). Thus, “Globalization may be understood in terms of an open-ended synthesis of several disciplinary approaches. This extends beyond social science, for instance to ecological concerns, technology and agricultural techniques” (Pieterse, 1995:45).

Accordingly, globalization may influence the UK retail markets – but in what way? I try to answer this question in the following section. Figure 5 presents the actor-network analysis model based on globalization issue.

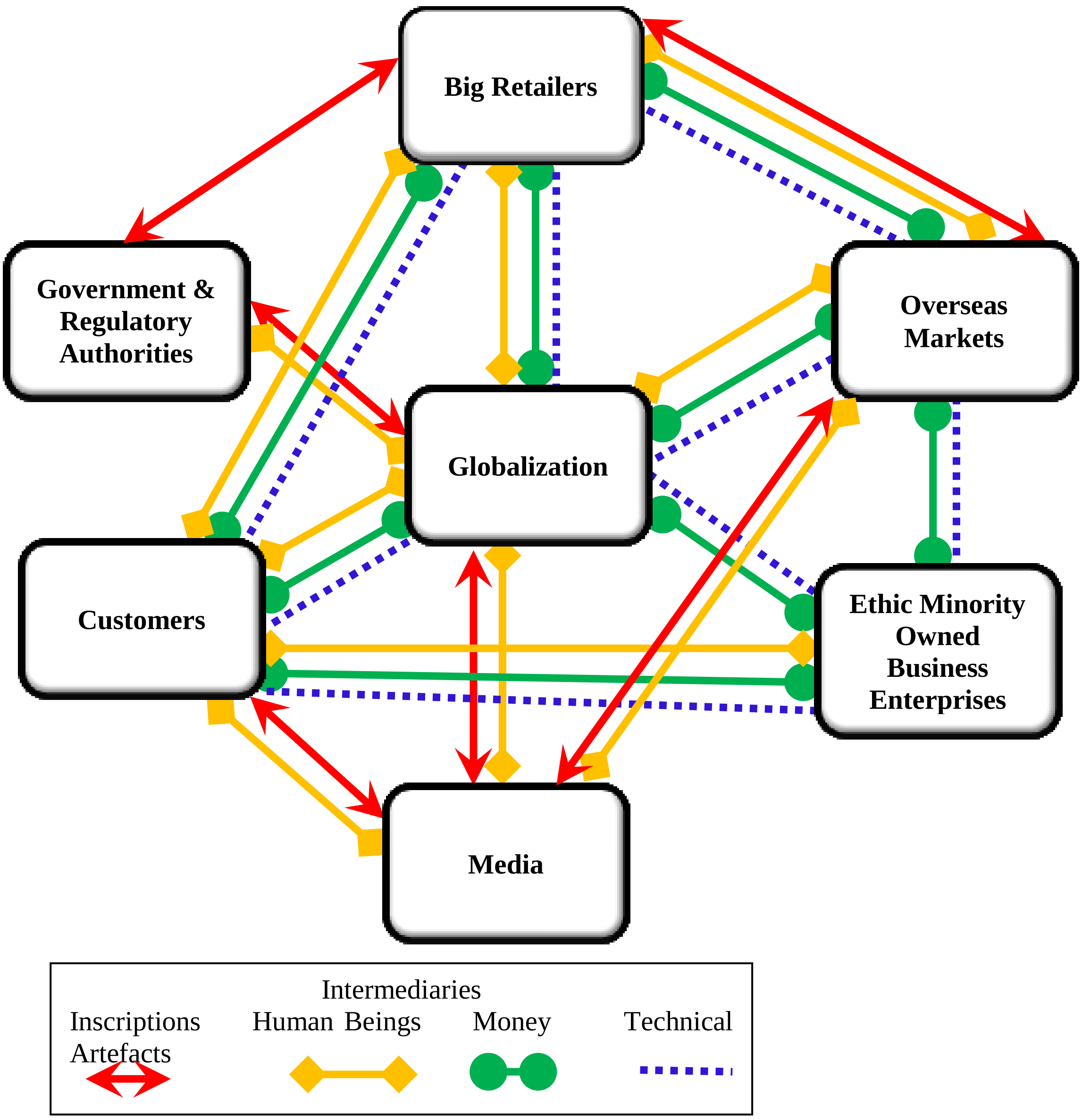

Figure 5: Globalization-Based Network

Problematization phase. The multifaceted nature of globalization has attracted various actors who are interested in its meaning and impacts and who may be expected to play some role in determining its future ramifications. These actors include big retailers, customers, overseas markets, the media, ethnic minority-owned business enterprises, and governments and regulatory authorities.

a) Big retailers: The UK big retailers are inclined towards global markets to deliver better costs and pricing to their customers and to create new customer markets (Seth and Randall, 2011).
b) Customers: They are one of the beneficiaries of globalization. They benefit from low prices and increased product availability and quality due to the involvement of

big retailers in global activities. In addition, the growth in globalization, migration, and tourism has led to the creation of large ethnic customer groups in the UK, which are characterized by a strong cultural identity (Jamal, 2003).

c) Ethnic minority-owned business enterprises: They emerged in response to the existence of large ethnic minority populations in the UK. They focus on customers of a particular ethnicity, as they are characterized by a strong ethnic identity and informal networks based on mutual trust and reputation (Jamal, 2003).
d) Overseas markets: Globalization has pushed the UK big retailers to go abroad to create new supplier and consumer markets to maximize their leverage (Hamilton and Petrovic, 2011). These markets provide the big retailers with goods to be sold to their customers and open their doors to retailers to invest and grow within these markets.
e) Media: media coverage has promoted greater interest in globalization by different actors, such as customers, big retailers, and so on.
f) Governments and regulatory authorities: The nature of globalization has forced the involvement of different governmental and regulatory regimes with different agendas about globalization, which the UK big retailers have to adhere to when engaging in global activities (Jones et al., 2004).

The common thread for all these actors is gaining a deep understanding of the outcomes of globalization, which can be regarded as the obligatory passage point.

Interessement phase. Globalization is a relevant *interessement* device for actors to engage and participate in the network's activities. Other *interessement* devices include television programmes, newspapers, magazines, and conferences, which help in disseminating the idea among actors and preparing them to engage in the network.

Enrolment phase. Globalization is expected to offer attractive benefits to all actors involved in the network. Big retailers, customers, ethnic minority-owned business enterprises, and overseas markets are expected to get economic benefits, such as cheaper prices, higher profit margins, and higher sales from engaging in this network. Enrolling in this network enables the media, governments, and regulatory authorities to acquire the necessary knowledge and to then reuse it in increasing other actors' awareness and issuing rules and regulations to protect other actors.

The final phase is *mobilisation*. Globalization has indicated mechanisms by which global activities are achieved in the retail market, which include the international sourcing of products or services; the operation of retail outlets in more than one country; and the transfer of ideas, technologies, and management techniques and expertise from one retailer to another (Dawson, 1993).

International sourcing is rapidly becoming a prerequisite for successful UK retailers. Price, variety, quality, and product availability are among the factors that create the need to source internationally (Dawson, 1993). International sourcing has been facilitated by the deployment of advanced technologies (e.g. EDI, computer-aided systems, etc.), better standards of information sharing (e.g. open book accounting, interorganizational cost management, joint target costing, etc.), and advanced production planning and inventory control systems, along with the development of important supporting actors, including shipping, warehousing operations, air freight companies, and so on (Dawson, 1993; Sturgeon et al., 2011; Bonacich and Hamilton, 2011).

In response to international sourcing, overseas markets, especially East Asian economies, have started to diverge by increasing the variety and quality of products produced in order to become suppliers to big retailers (Bonacich and Hamilton, 2011).

Contemporary customers are open and have the propensity to experience new things, especially with the increasing media coverage of foreign foodstuffs and international recipes, which has encouraged more customers to sample a variety of different kinds of cuisines (Jones et al., 2004; Jamal, 2003). Furthermore, the presence of a growing number of ethnic minority customers in the UK has helped in developing the preferences of mainstream customers, which, in turn, has generated the need for big UK retailers to engage in international sourcing to carry ethnic merchandise and has opened new opportunities for ethnic minority-owned business enterprises outside their ethnic niche (Jamal, 2003).

Regarding the increase in ethnic minority customers, governments, regulatory authorities, and international organizations have helped in reducing the barriers to global sourcing through reducing tariffs and quotas and through the formation of international organizations and associations (e.g., European Community's Single Market, World Trade Organization, etc.) that facilitate international trade (Dawson, 1993).

Similarly, the limited expansion opportunities in the UK market due to the restrictive regulatory environment, market saturation, and unlimited opportunities in global markets have led the UK big retailers to pursue a strategy of ‘going international’ (Alexander, 1995; Arnold and Fernie, 2000). The UK big retailers are particularly inclined toward European, North American, and East Asian markets (Alexander, 1995; Myers and Alexander, 1996; Harris and Ogbonna, 2001). However, the development of advanced communication medium has also spurred the retailers to expand into global markets to cater to the customers of these countries and open up new business avenues (Doherty et al., 2003). In addition, the UK big retailers have engaged in franchising operations, which are perceived as a low cost and low risk alternative to achieve rapid international market penetration (Alexander and Quinn, 2002; Elms et al., 2010). Franchisors provide franchisees with the expertise and continual support required to run the business, and franchisees are expected to provide the franchisor with financial capital as well as managerial talent, local market knowledge, and other human capital (Watson et al., 2005).

The third main route of retail globalization is the transfer of human capital, formats, and technologies (Dawson, 1993). Many UK big retailers are following and matching the US ones in size, formats, technologies, and so on. Indeed, the managers of many UK retailers (e.g., Tesco, Asda, etc.) are travelling to the USA to tap into and gain access to the expertise of the most advanced economy in the world (Wortmann, 2011).

It can be seen from the previous discussion that globalization can bring many benefits to retailers, customers, overseas markets, and so on; however, some problems have started to arise, including the following:

- An increasing level of UK retailers’ withdrawals from foreign market has occurred due to a failure to appreciate the cultural differences and nature of competition in these markets (Alexander and Quinn, 2002).
- Sourcing foodstuffs within the global marketplace has led to growing customer and public concerns about food safety and health issues. The UK big retailers have started to report on their commitments regarding food safety in their CSR reports (Jones et al., 2005b; Jones et al., 2005a).
- The existence of different political and regulatory regimes between and across countries has made the issue of ethical trading more complex for the UK retailers (Jones et al., 2005a).

- The mistrust between franchisors and franchisees affects the willingness of franchisees to share their own innovations, as they will reap no direct benefit (Watson et al., 2005). This, in turn, can affect the efficiency of franchising operations.

All these issues need to be resolved before this network can be a ‘black box’.

6. Discussion and Conclusion

Globalization, rapid technological advancement, and the emergence of new forms of organizations have increased the complexity of the retail markets and led to the enrolment of various social and technical actors in the market that interact together, and with other human actors, to form the market as we know it today. Due to such complexity, the separation between human and non-human actors has been undermined. ANT can fit well with this ideology as it supports treating both human and non-human actors symmetrically and rejects any priori that either human or non-human actors affect the actions of the other (Latour, 2005). Drawing upon ANT, this essay focused on studying how the UK retail market networks are constructed and mobilised. I utilized the notion of ‘translation’, which consists of four phases (*problematization, interessement, enrolment*, and *mobilisation*) to explore what encourages actors to enrol in a network, how they interact and negotiate, and the nature of the concerns that can be raised by those actors.

From the literature, I found that there are three major networks within the UK retail sector: market concentration–based network, supply chain–based network, and globalization–based network. The essay shows that the reasons behind initiating each network are different. For instance, the concentration of the UK retail market in the hands of a small number of actors was the reason for bringing various actors together to form the market concentration-based network, while the multi-faceted nature of globalization and its consequences was the driving force behind initiating a globalization-based network. This, in turn, affected the type of actors who joined and engaged in each network. Big retailing chains, suppliers and manufacturers, customers, Government and regulatory authorities, politicians, academics, the media, and pressure groups are the actors who showed their interest in joining a market concentration-based network. Big retailers, suppliers and manufacturers, customers, employees, Government, unions, pressure groups, academics, and media engaged in a supply chain–based network. The actors who enrolled in a globalization–based network were big retailers, customers, overseas markets, the media, ethnic minority-owned business enterprises, and Government and regulatory authorities. Some of the actors were enrolled in more than one network, such as big retailing chains, suppliers and manufacturers, Government, media, and so on, however, what encourages each of these actors to join a network is different. For example, while government engaged in a market concentration-based network to protect actors in the market from any possible competitive threat that can result from market concentration, it participated in a globalization-based network to set the guidelines to which the actors have to adhere when engaging in global activities. Therefore, each network is constituted by a set of heterogeneous actors with diverse interests and objectives.

In *problematization* phase, the *obligatory passage point* for actors in each network was identified. Assessing the consequences of market concentration, determining the outcomes of SC practices and whether they can yield equal benefits to SC actors, and evaluating the outcomes of globalization are regarded as the *obligatory passage point* for the three networks, respectively. Identifying the *obligatory passage point* helped to articulate the commitment of actors to the network in which they were interested.

It can be noted that intermediaries play a vital role in linking the actors enrolled in the UK retail market networks. Accounting (in terms of annual reports and management accounting techniques, such as open-book accounting, inter-organizational cost management, PM systems and KPIs), advanced technologies (e.g. EPOS, EDI, etc.), and money are the language of the three networks, as they provide the links that connect the actors together. Also, various *interessement* devices had been used to engage actors more closely in the activities of each network. These devices included conferences, seminars, meetings, workshops, TV programmes, articles, and so on. The use of different devices can be attributed the diverse interests and needs of actors in each network.

The literature showed that there are some issues and challenges that actors face while constructing the network. One of these issues is the mistrust between retailers and suppliers. Suppliers believe that big retailers are pushing their costs back onto them and that they use information sharing techniques to benefit only themselves. Another issue is related to the retail policy making in UK. The literature showed that there were inconsistencies with regard to the policies that guide the UK retailing sector. For instance, the town planning system put restrictions on the development of large supermarkets, while other departments that deal with competition encourage the development of large stores. Other concerns include the reduction of the number of small shops, health and environmental issues, cultural differences, etc. These concerns are still disputable and open for debate between actors, which, in turn, affect the *mobilization* of the three networks.

Elaboration of the ‘translation’ process has identified the power relations that empower the UK big retailers to exercise control over the market. According to Latour (1986a:264):

> When an actor simply has power nothing happens and s/he is powerless; when, on the other hand, an actor exerts power it is others who perform the action. It appears that is not something one can possess – indeed it must be treated as a consequence rather than as a cause of action.

This means that the actions of actors within the networks are what give rise to the power position. The literature showed that many actors can accept the views of big retailers even if they are not convinced in order to achieve their long-term objectives. For instance, although suppliers believe that big retailers sometimes behave opportunistically; many suppliers are prepared to accept this in order to keep their relationships with big retailers to survive in this complex market. Also, a town planning authority can give permission to big retailers to open large stores if they fund some activities, although current planning policies are regarded as a virtual ban on the development of big supermarkets.

The interrelationships between the three networks also give rise to this power. The concentration of the market in the hands of a few powerful retailers, reinforced by globalization and the ‘going international’ strategy, has enabled these retailers to control the SC (Arnold and Fernie, 2000). Engaging in SC practices has reinforced the power position at the retailer end of the chain and increased market concentration (Fernie et al., 2010). In addition, the continuing advances in global practices have enabled the big retailers involved in these practices to control their SCs.

In conclusion, this essay provided another way of conceiving the complexity of the UK retail sector through using an ANT lens. It showed that the UK retail market consists of a set of networks of heterogeneous human and non-human actors interacting together to form this market. It also showed that these networks are still unstable as many issues have not been solved yet, and that power is an outcome of the actions of actors within the networks and interrelationships between networks.

The analysis in this essay is derived from reviewing academic papers and books. This was helpful for me to understand the dynamics of this market, its key actors, and its challenges before going to the fieldwork to collect my data. However, focusing on academic literature only implies restrictions and problems. Professional studies, governmental reports, media pieces, and so on, that could be highly relevant are not considered which restricts the depth of the analysis. It can also lead to missing some important areas that can affect the analysis. For instance, there is no mention of setting up of the UK's Groceries Code Adjudicator, although it plays an important role in monitoring the relationships between retailers and their suppliers. Therefore, future reviews can include professional papers and other sources to extend this review.

Also, the analysis is based on reviewing the literature from different times (1990s – 2000s). However, it is questioned how relevant older publications are today, especially as we are talking about a sector that is characterized by rapid change. This can have repercussions on the researcher's understanding of the network structure if the researcher is not a citizen or permanent resident of the country in which s/he is conducting her/his research (like my case). It is always suitable to account for older sources, but it can have drawbacks.

Any literature review is selective by nature and can't cover all aspects. This literature didn't cover some areas such as marketing and geography. Therefore, future reviews are welcomed to cover these aspects.

This essay is considered as a contextual prelude to the next two essays. The next two essays will focus on SC network by studying the SC relationships between a UK retailer and its partner. Drawing on the findings of this essay, the power of big retailers will be treated as a "matter of fact", which means that other actors are prepared to accept big retailers' views.

Essay 3 and Essay 4

The next two essays present two case studies of a UK retailer and its partners. As the topic of supply chain relationships appears in the literature review (essay 1) as being open to ongoing debates and controversies with regard to the nature and role of management accounting, these two essays deal with supply chain relationships from different angles. Essay 3 deals with the relationship between the retailer and its distribution companies and logistics service providers (downstream supply chain) in terms of a supply chain strategy and a business plan, while Essay 4 deals with the relationship between the retailer and its suppliers by focusing on category management practices.

Essay 3: Accounting and the Practices of Supply Chain Strategy in the UK Retail Sector[12]

Abstract

This essay explores a duality between the ostensive (ideas in principle) and the performative (ideas in practice) perspectives on accounting and strategizing. While I acknowledge that Latourian accounting researchers have distinguished between these two perspectives and have favoured a performative-inspired approach to show how accounting is performed through everyone's efforts, little is known about how each perspective is implicated in the other. In exploring this duality, I attempt to assemble some evidence to illustrate how accounting is dualistically connected to strategizing within a UK retailer. The key finding of this essay is that the ostensive perspective can be regarded as an input to the performative perspective and that the performative perspective can produce or maintain the ostensive perspective. It also shows that accounting and strategy are mutually constitutive.

1. Introduction

This essay utilizes the dynamic linkage between accounting and strategizing as an illustrative case of how Latour's distinction between the ostensive and the performative perspectives (1986a; 2005) can be used to study social phenomena. The ontological and epistemological positions, identified by various social scientists, have loomed large in conducting and developing management accounting research. Over the last two decades or so, various philosophical and theoretical stances have been adopted by management accounting researchers, and Latour (1986a) distinguishes between two perspectives, namely, the ostensive and the performative in terms of the way of understanding the social, their prevailing assumptions, and how the social is characterized. Latour, an advocate for

[12] This essay had been presented at the following:

- Critical Perspectives on Accounting Conference, Toronto, Canada, 7-9 July, 2014
- WARD Seminar, Adam Smith Business School, University of Glasgow, Glasgow, UK, April 1, 2015
- 38th Annual Congress, European Accounting Association, Glasgow, United Kingdom, 28-30 April, 2015
- The 30th anniversary of the Interdisciplinary Perspectives on Accounting Conference, Stockholm, Sweden, 8-10 July, 2015

unpacking social phenomenon, questions social scientists' attempts to understand the notion of social through ostensive definitions, which are laden with superfluous assumptions (Latour, 1986a; 2005), asserting instead that "society is not the referent of an ostensive definition discovered by social scientists despite the ignorance of their informants. Rather it is performed through everyone's efforts to define it" (1986a:273), thus calling for a move towards performative approaches to the social phenomenon.

The mainstream management accounting literature is dominated by ostensive-inspired management accounting research, in which the main focus is hypothetico-deductivism and technical control (Chua, 1986). Otley (1980), Johnson and Kaplan (1987), Mia (1993), Chong and Chong (1997), Speklé (2001), Towry (2003), Dekker (2004), and Moers (2006) are examples of management accounting research that draws on the philosophical assumptions that represent the ostensive research tradition. The relevance of the ostensive perspective in management accounting research has been questioned in the prevalent debates over philosophical and theoretical assumptions and paradigms, which started in the 1980s (Wickramasinghe and Alawattage, 2007). Although ostensive accounting research can produce useful and generalizable knowledge and offer insights into best fit solutions, other accounting researchers believe that the dominant philosophical assumptions guiding ostensive accounting research can obscure tensions and complexities that are inevitably found in practice, limit the type of research questions to be addressed, and impose restrictions on what is to be considered as genuine knowledge (Chua, 1986; Boedker and Runnalls, 2012). The knowledge produced by the ostensive research is just one part of the larger picture, but it can be complemented by examination through the performative lens.

The use of the performative lens has been promoted in accounting research by ANT–inspired accounting researchers (see Lowe, 2004; Mouritsen, 2006; Ahrens and Chapman, 2007; Miller and O'Leary, 2007; MacKenzie, 2009) as an alternative paradigm that can respond to the limitations of the ostensive approach, as it views the social as continually constructed through the efforts of active actors and considers debates and controversies as part of the picture. These, in turn, can grant researchers insights into the inherent complexities and messiness in social phenomena and can raise questions that have not been addressed using ostensive accounting research (Latour, 1986a; Strum and Latour, 1987).

Despite accounting researchers' growing interest in utilizing the performative approach as a way of renewing the ontological and epistemological premises informing accounting research and of understanding how accounting can assume other roles apart from those defined by ostensive research, Latour's call has not been widely heeded by researchers who are interested in studying the relationship between accounting and strategy. The research in this area is still largely dominated by the ostensive perspective. Determining the relevant calculative regimes that suit a particular strategy (Govindarajan and Gupta, 1985; Chenhall and Morris, 1995; Abernethy and Brownell, 1999; Henri, 2006) and examining the role of accounting techniques in the effective implementation of strategies (Kaplan and Norton, 1992; 2000; 2001a; Ittner and Larcker, 1997) are the main concerns for the mainstream research in this field. While acknowledging the value of the knowledge gained from this ostensive approach, this approach narrowly views strategy as a stable and coherent artefact, which is not often the case in the real world, and reduces the accounting role to a subordinate to strategy (Boedker, 2010).

The performative turn has drawn calls for increasing attention to be paid to this perspective. Chua (2007:490) calls for "opening the black box labeled 'strategy' by investigating how strategy is manufactured via 'strategic fact-building' networks", while Boedker (2010) calls for more accounting-strategy research using the performative lens. These calls, and others, indicate the need for research that provides a deeper understanding of the dynamic linkages between accounting and strategy and that views strategy as a social practice, rather than as an abstract noun, in order to demystify the concept of strategy. Skærbæk and Tryggestad (2010) and Jørgensen and Messner (2010) have responded to these calls in different ways. Skærbæk and Tryggestad (2010) do so by examining the role of accounting in framing and shaping corporations' strategic options and external economic conditions, while Jørgensen and Messner (2010) explore the relationship between accounting and strategizing in a pluralistic and uncertain setting (New Product Development NPD project). Although this research has offered insights about the dynamic link between accounting and strategy through the performative lens, we know little about how ostensive and performative perspectives are implicated in each other. Therefore, this essay tries to examine this issue.

The aim of this essay is to address further the relative lack of attention given to both the performative lens and the duality in studying the link between accounting and strategy. Drawing on ANT's notion of 'translation' (Callon, 1986), I examine whether there is a duality between the ostensive and the performative aspects of strategy. I detail the activities undertaken during the construction and translation of a strategic artefact, investigate who are the actors involved in this process and how they deal with complexities that arise during strategizing processes in practice, explore the role of accounting in this regard, and highlight that there are different levels of the ‘translation’ process. Using ANT enables us to focus on strategy and accounting as practices rather than as taken-for-granted objects. This allows us to bring to the surface the complexities of strategizing in practice.

As this essay draws upon the findings from a case study of the SC of a leading UK retailer, which operates hundreds of stores across the UK, the question that arises is what would be the case if we were to place the above questions in such a complex context like a SC. Placing the research within the SC context injects richness and complexity because of the existence in the chain of heterogeneous actors with different interests. Therefore, this essay also aims to understand the dynamic link between accounting and SC strategy.

This essay is structured as follows: Section 2 presents the theoretical background. Then, Section 3 describes the research methodology, followed by Section 4, which presents the case study. Finally, Section 5 concludes the essay.

2. Ostensive/Performative Perspective in Accounting Research

2.1 Ostensive Vs. Performative Approaches

As this essay adopts a dual perspective of the ostensive and the performative perspectives, this section starts by explaining the differences between the two perspectives; this is achieved by comparing their ontological and epistemological positions, the politics of explanation, the understanding of social actors and power, and the outcomes. Table 5 summarizes these points.

	Ostensive approach	Performative approach
Ontology (What is the nature of the social?)	Social reality is composed of fixed properties and is independent to social actors	Social reality is constructed by heterogeneous actors
Epistemology (what is knowledge and the role of researchers?)	Knowledge exists within social reality Researchers seek to discover the universal laws.	Knowledge is performed through practice Researchers seek to unpack black boxes
Roles of actors	Actors are only informants	Actors define the social reality for themselves and for others
Politics of explanation	Reductionist explanation	Irreductionist explanation
Power	Centralization of power	Dispersion of power to human and non-human actors
Outcomes	Best fit solutions	Insights about the construction of social reality and complexities that can be found in practice.

Table 5: Ostensive Approach vs. Performative Approach[13]
Source: (Latour, 1986a; 1988a; 1988b; 2005)

Ontology is concerned with the nature of social reality. It deals with the question of whether social reality exists independently of social actors' perception (Hollis, 1994). Ontologically, the ostensive approach is dominated by a belief that reality is composed of fixed properties that exist independently of social actors' interactions (Latour, 1986a). According to Latour (1986:272), "In principle it is possible to discover properties which are typical of life in society and could explain the social link and its evolution, though in practice they might be difficult to detect". This view is allied to the ontological position of objectivism, in which the world is defined and organized by universal laws and ideals.

On the other hand, the performative approach is based on the assumption that reality is not a given, but is constructed through heterogeneous actor-networks (Latour, 1986a). Latour (2005:34) argues that "social aggregates are not the object of an ostensive definition—like mugs and cats and chairs that can be pointed at by the index finger—but only of a performative definition. They are made by the various ways and manners in which they are

[13] The distinction between ostensive and performative approaches may seem similar, to some extent, to what has been referred to as "positive" vs "interpretive". However, this essay focuses on the distinction made by Latour, and it is beyond the scope of this essay to compare the two distinctions.

said to exist”. It is a continual and revisable matter, rather than a once-and-for-all issue, as it is enacted by the ongoing efforts of actors in practice.

These different assumptions about reality lead to consideration about the **epistemological positions** of these two approaches – what is accounted as knowledge, the methods of acquiring it, and the role of researchers (Campbell and Wasco, 2000). According to the ostensive approach, knowledge exists within reality, prior to any interactions between social actors, waiting to be discovered by researchers. Researchers seek to discover the universal laws from which hypotheses can be deduced; they then test these hypotheses and, by accepting or rejecting them, generate knowledge (Chua, 1986). According to (Latour, 1986:272), “With the proper methodology, social scientists can sort out the actors’ opinions, beliefs, illusions and behaviour to discover the properties typical of life in society and piece together the whole picture”. To do so, researchers may impose some order and constraints upon the range of acceptable entities (Latour, 2005).

In contrast, the performative approach suggests that knowledge is labile and that it is performed through practice. Thus, researchers seek to unpack black boxes through following diverse actors to discover how these black boxes are created or accepted (Latour, 2005). According to Latour (1986:273), “Social scientists raise the same questions as any other actors and find different practical ways of enforcing their definition of what society is about”.

The expectations of **social actors’ roles** are different under both the ostensive and the performative approaches. From the ostensive point of view, social actors enter a society that already exists and adhere to the defined rules and structure: “Actors are only informants and should not be relied upon too much because they never see the whole picture” (Latour, 1986:272). In contrast, performatively, social actors are actively participating in defining the social reality for themselves and for others: “The whole picture is what is at stake in the practical definitions made by actors” (Latour, 1986:273). Therefore, researchers need to look at the social world as a ‘flat space’ to be able to follow all the relevant actors and to make sure that the establishment of any new social connection is clearly visible (Latour, 2005). This idea directs us to think about the patterns of explanation employed in the ostensive and the performative approaches.

Explanation is believed to be important for understanding what is really going on. Latour (1988b) defines explanation as establishing some sort of link between A, a repertoire of elements that do the explaining, and B, the elements that are explained: "The politics of explanation can be described like this: when you hold x element of A, you also hold the x', y' elements of B" (Latour, 1988b:158). Latour distinguishes between two different types of explanation: the reductionist explanation and the irreductionist explanation (Latour, 1988a; 1988b). While the reductionist explanation, employed by the ostensive approach, generates an explanation of how A and B may be linked and how B can be explained by A but gives little insight about the arrows that link them, the irreductionist explanation, employed by the performative approach, aims to generate an explanation of how A and B and the link between them are produced. According to Latour (1988b:163), the reductionist explanation "starts with equivalences without telling through which instruments and through which metrology these equivalences are obtained", while the irreductionist explanation "starts from translations and tries to present the work of rendering elements equivalent by setting up new instruments and keeping long metrological chains in alignment". The reductionist explanation is always about reducing and limiting the explanation to either side of the traditional dichotomies and putting in hierarchies. However, by choosing the irreductionist explanation, there is no longer an above and a below, there is no more totality, and nothing can be placed in a hierarchy: the social world is flat (Latour, 1988a).

The two approaches also differ in their assumptions about **power**. The ostensive approach assumes the centralization of power and thinks that "what counts is the initial force of those who have power" (Latour, 1986:267). In contrast, the performative approach assumes the dispersion of power and thinks that "the initial force does not count for more than any other; force is never transmitted in its entirely and no matter what happened earlier, it can stop at any time depending on the action of the person next along the chain" (Latour, 1986:268). Latour argues that power is a consequence not a cause of action. From a performative perspective, all actors have the power to shape the social objects according to their interests. Furthermore, it is not only about human actors; the performative approach also assumes that non-human actors may have the power to transform the social and to affect the actions of human actors.

The **outcomes** of ostensive studies are different from those of studies employing the performative approach. The ostensive research provides a more coherent picture of how the world operates; it produces generalizable knowledge and defines best fit solutions

(Chua, 1986; Boedker, 2010). However, ostensive research overlooks different important aspects and has different limitations. Lacking awareness of the controversies and complexities within the social world, imposing constraints on the range of viable questions to be studied, imposing social orders, and paying only limited attention to how boundaries and identities are dynamic are among the limitations of ostensive approach.

The performative approach is usually viewed as an alternative to the ostensive approach in order to overcome its limitations. The performative approach grants insights into the construction of the social reality and the complexities that become part of the social world. In this approach, the role of researchers is no longer to impose social order, but to grant the social actors the ability to make up their definitions of social reality; thus, researchers are encouraged to raise questions that have not been addressed by ostensive accounting research (Latour, 2005).

Although it is important to understand the differences between the two approaches, it is also important for researchers to understand that both approaches are necessary to constitute what we understand to be the social world and the interplay between fixity and fluidity. Latour's performative approach focuses on practices that emerge through actors' actions, interactions, choices, voices, experiences, and so on. However, this still gives only a partial picture. We cannot deny that practices can also emerge in relation to a particular material existence in the world. This is what usually refered to as the structure. Giddens (1984:377) defines structure as "rules and resources, recursively implicated in the reproduction of social systems. Structure exists only as memory traces, the organic base of human knowledgeability, and as instantiated in action". Giddens's structuration theory is grounded in the duality between agency and structure. Structure is constituted and reconstituted through the capacities of human actors, and the reconstituted structure influences the capacities of human actors. Researchers can benefit from such a kind of dualism in studying social science.

Adopting a dual perspective, which considers that the social world has both ostensive and performative aspects, is likely to provide better knowledge about the changes in the social world, where ostensive aspects enable and guide the performative aspects, and the performative aspects produce, maintain, or modify the ostensive aspects (Feldman and Pentland, 2003). The abstractions, patterns, and generalizable ideas produced by ostensive research can represent an input to performative research. Then, performative research unpacks these black boxes to understand how they are produced, maintained, or modified which, again, can be an input to ostensive research (see Figure 6).

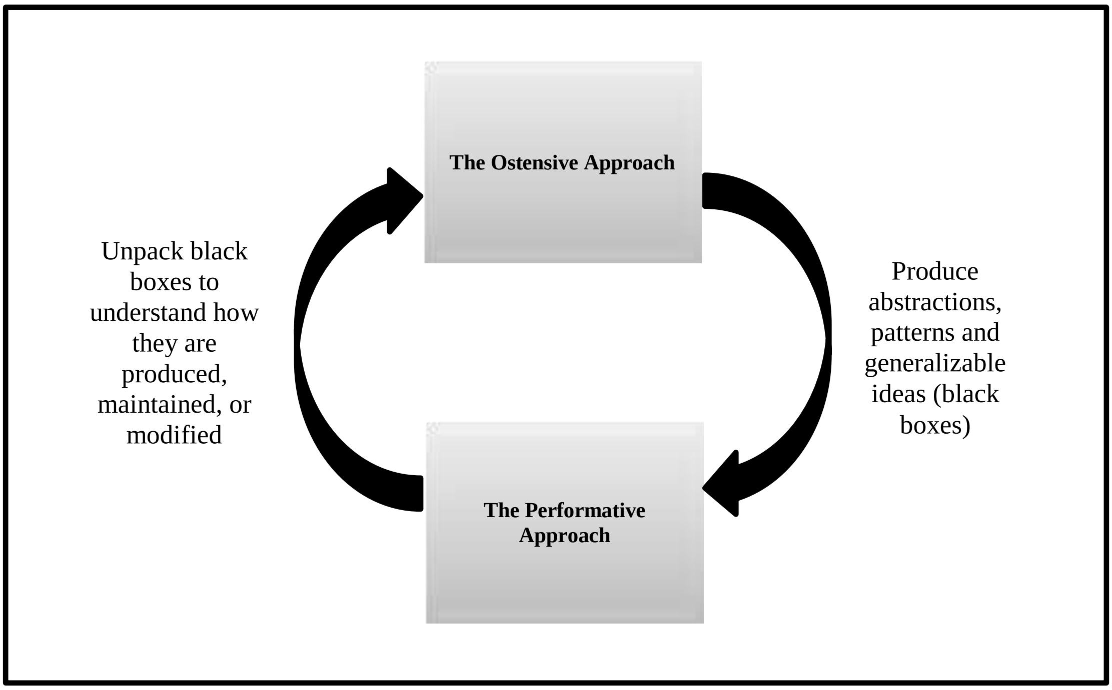

Figure 6: The Interdependence between the Ostensive and the Performative Approaches

This essay utilizes this dual perspective through highlighting the interdependence between the ostensive and the performative approaches. Section three reviews how accounting researchers grasp and use these two approaches to understand how these approaches shape accounting research.

2.2 Effects of the Ostensive and the Performative Approaches in Accounting Research

This section is an analysis of how the ostensive and the performative approaches have inspired accounting researchers.

The mainstream accounting research is largely dominated by the ostensive ontological position in which social reality exists independently of human beings. This ontological position is reflected in mainstream accounting research that draws upon the theoretical stances of transaction cost economics (Johnson and Kaplan, 1987; Speklé, 2001; Dekker, 2004), agency theory (Towry, 2003; Moers, 2006) and contingency theory (Otley, 1980; Mia, 1993; Chong and Chong, 1997). These theories are put forward in accounting research as a credential for producing useful and generalizable knowledge.

Several accounting studies draw on transaction cost economics and agency theory to explain the role of management accounting in providing best fit solutions and in helping practitioners make better decisions. For example, Johnson and Kaplan (1987), in their famous book, Relevance Lost, have drawn upon the transaction cost economics framework to explain the evolution of management accounting, how management accounting lost its relevance over the years, and how this relevance can be regained. Following this book, Robert Kaplan and his colleagues introduced new management accounting techniques that were deemed more relevant for decision making and control, such as ABC and the BSC. Speklé (2001), drawing on transaction cost economics, proposed a framework that defines the link between the activities to be controlled and the archetypical configurations of control devices, while Towry (2003) utilized the agency framework to examine control in a teamwork setting and the role of the level of team identity in the effectiveness of incentive systems.

Other accounting studies have utilized contingency theory in an attempt to understand the relationship between accounting and contingencies, such as organizational and environmental factors. For example, Otley (1980) proposed a model for contingency theory of management accounting, while Mia (1993) investigated the role of management accounting in improving managers' performance and job satisfaction.

For ostensive approach–inspired management accounting research, management accounting is static and assumes a subordinate role by providing best fit solutions. This view has been criticized by many researchers, who believe that social objects, like management accounting, do not have stable properties and that there is no fundamental truth to know which social object determines the form of another (Boedker, 2010). Thus, the performative approach has been put forward in accounting research as an alternative to the ostensive approach.

Given that performativity represents one of the central tenets of ANT, the shift towards a performative approach in accounting research has been promoted by ANT–inspired accounting researchers, who have utilized it to study a diverse set of topics (Power, 1996; Lowe, 2004; Mouritsen and Larsen, 2005; Mouritsen, 2006; Ahrens and Chapman, 2007; Miller and O'Leary, 2007; MacKenzie, 2009; Boedker and Runnalls, 2012). For example, Power (1996) discusses the development of audit expertise, and Lowe (2004) explores the impact of the growth of post-social relations on accounting practices. Meanwhile, Mouritsen and Larsen (2005) explore how intellectual capital is made manageable, Ahrens and Chapman (2007) discuss the role of accounting in the constitution of organizations, and Miller and O'Leary (2007) examine how accounting contribute to the process of making markets. For those researchers, in contrast to ostensive approach–inspired accounting researchers, accounting is dynamic, acting as an impetus for actors' actions and as a catalyst of organizational and social transformation.

ANT–inspired accounting researchers have often concentrated on showing the differences between the ostensive and the performative approaches to accounting research. Mouritsen (2006) compares the two approaches to intellectual capital research. In addition, Boedker and Runnalls (2012) compare the two approaches to accounting controls and innovation research. They argue that a performative approach provides a more fruitful framing of accounting practices and can present new opportunities for research questions, as it takes very little for granted (Mouritsen, 2006; Boedker and Runnalls, 2012). However, some researchers have pointed out that there could be an interdependence between the ostensive approach and the performative approach in creating knowledge. Feldman and Pentland (2003) suggest that organizational routines have both aspects – ostensive and performative - while Hansen (2011) discusses the methodological opportunities and risks of integrating the ostensive and the performative approaches by comparing Yin's case study methodology (ostensive view) and ANT (performative view). Hansen (2011:132) argues that "the theoretical abstractions and conceptualizations developed in ostensive research are key elements in integration between the two types of research and suggests that performative researchers can do much more to expand the scope of the abstractions and conceptualizations from ostensive research they refer to". Vosselman (2012) suggests that the interaction between the ostensive approach and the performative research can enhance knowledge production in the area of control in interfirm relationships.

Although several accounting studies respond to Latour's call for a move towards the performative approach, this call has not received an adequate response from accounting researchers who are interested in studying the relationship between accounting and strategy, as we will see in the next section.

2.3 Accounting – Strategy Research and the Two Theoretical Lenses

Linking accounting to strategy is not new; it has been addressed by various studies since at least 1965 (Anthony, 1965). Then, in 1990, Dent (1990:21) proclaimed the need for further research to link accounting and strategy, stating, "Research at the interface between accounting and strategy is, as yet, underdeveloped." Since then, there have been several studies trying to link accounting to strategy in a more profound way. However, the research in this area is dominated by the ostensive lens.

The ontological assumption of the mainstream research in this area is that strategy is a static social object that has fixed properties and that accounting functions in a predictable way. Much of the research is oriented toward identifying the calculative technologies that suit a particular strategy (Govindarajan and Gupta, 1985; Chenhall and Morris, 1995; Abernethy and Brownell, 1999; Henri, 2006). For example, Govindarajan and Gupta (1985), drawing on contingency theory, argue that the design of control systems is contingent upon the strategy. Abernethy and Brownell (1999) examine the relationship between accounting and strategic change process and argue that accounting can facilitate strategic change. Henri (2006) suggests that MC systems can foster organizational capabilities by focusing attention on strategic priorities. Other studies in this research area emphasise investigating the role of accounting techniques in the effective implementation of strategies (Kaplan and Norton, 1992; 1996a; 1996b; 2000; 2001a; Ittner and Larcker, 1997). Kaplan and Norton's studies (Kaplan and Norton, 1992; 1996a; 1996b; 2000; 2001a) represent a clear example of this stream of research. They propose the BSC as a mechanism for translating strategy into action.

The shift towards the performative approach to study the link between accounting and strategy has led recently to many calls for research attention. In 2003, Whittington (2003:119) provided input to a new strand of research in this area, namely, 'strategizing': "The argument so far has been for more attention to the work involved in making strategies." Subsequently, he elaborated more on strategizing as a social practice (Whittington, 2004; Whittington et al., 2006). Chua also proclaimed the need to link accounting to strategizing: "It is argued that one route to greater knowledge is to rediscover accounting and strategy as contingent, lived verbs rather than abstract nouns" (Chua, 2007:493). Similarly, Boedker (2010) calls for more accounting-strategy research using a performative approach. She identifies three research opportunities: How does accounting expand strategy and the social world? How is strategy translated from an abstract noun (black box) into practice? and What are the roles of non-human actors in the strategizing processes?

Skærbæk and Tryggestad (2010) have responded to these calls by utilizing the notion of performativity to explore the role of accounting in framing corporate strategy. They argue that accounting plays an active role in strategy formulation, the configuration of the key strategic actor identity, and the constitution of strategy (Skærbæk and Tryggestad, 2010). Jørgensen and Messner (2010) examine the relationship between accounting and strategizing in a pluralistic and uncertain setting (NPD). While this research has offered insights into the dynamic link between accounting and strategy through the performative lens, much remains to be explored. Is there interdependence between the ostensive and the performative aspects of strategy? How does accounting act? and What would be the case if we were to place these questions in a more complex context such as a SC, which is characterized by a network of interorganizational relationships between different actors with different interests?

Therefore, drawing on the notion of 'translation' (Callon, 1986) as a way of understanding the performative aspect of strategy, this essay seeks to answer these questions and to contribute not only to accounting-strategy, but also to accounting-supply chain areas of research. This essay draws upon the findings from a case study of the SC of a leading UK retailer.

3. Methodology and Methods Followed

Hussey and Hussey (1997) have shed the light on the importance of allowing the ontological stances and the research questions to guide the selection of research methodology and methods. Therefore, the design of this study, the methodology, and methods followed have been guided by the questions addressed in this essay. I have adopted a case study design, which makes it possible to answer the research questions. The data for the study were gathered as part of a broader project in a UK retailer, XYZ. XYZ is one of the leading UK retailers, which operates hundreds of stores across the UK to carry and provide a wide selection of different products to thousands of customers. The headquarters sets the strategy of the business, manages the relationships with partners, and mobilizes the SC network as a whole.

XYZ was chosen based on the industry in which it is operating (i.e. retail industry), as there is a gap in accounting research within the retail context, its long term involvement in Sc practices (more than 15 years), the generous access[14] to information and data needed, and the company's willingness to put researchers in touch with its partners.

Data were collected over a period of one year, from April 2012 to April 2013, via a variety of sources; semi-structured interviews were conducted with the key actors in each Sc node (i.e. the headquarters, consolidation centre, distribution centre, store, and service centre).

The duration of each interview was between 70 and 180 minutes, and one of the key actors was interviewed twice. Prior to each interview, interviewees were given a consent form to read and sign, which stated that they agreed to take part in the study. Most interviews were digitally recorded, with the interviewees' permission, and shorthand notes were taken, which were particularly useful during data analysis. The recorded interviews were transcribed for further analysis. When recording was not possible, extensive hand-written notes were taken during the interviews. Shortly after each interview, extended summaries were written up for subsequent analysis.

In addition, I was granted access to some SC meetings (face-to-face meetings or conference calls) as an observer. During the meetings, notes were taken, and I was allowed to participate in the discussions to some extent. Additional observations were conducted in a key consolidation centre, a distribution centre, a store, and a service centre in order to obtain insights into what actors do and how work is performed at each site. Additional information was sourced from company documents. Many pertinent documents were collected and analysed, not only from XYZ, but also from their partners, such as performance reports, spreadsheets, SC strategy presentation slides, business plan templates, and so on. Many other public and internet sources were also collected about the company.

This use of multiple sources of data is particularly important to provide the researcher with a wide range of information and to help neutralize any mono-method bias via the comparison of the various data sources and the alignment of the derived assessments (Ellinger et al., 2005; Kalof et al., 2008). The collected data were grouped by common themes, and categories were constructed based on these themes to give meaning to the

[14] To obtain access, a confidentiality agreement had to be signed with XYZ which guaranteed the company that no commercially sensitive information would be published or released.

collected data. Then, the data were organized in different files, and conclusions were drawn.

4. Ostensive and Performative Aspects of Supply Chain Strategy

XYZ has been actively engaged in implementing SC initiatives for more than a decade. According to the senior SC manager, who has a well-rounded business background that ranges from store and central operational experience to specialist expertise in SC management (more than 18 years):

> *Supply chain notion came to XYZ may be 20 years ago but apparently 12 years ago.*

Therefore, when I entered the company, the SC notion appeared to be well defined and settled in various sets of practices and activities, as we will see later.

> *Supply chain in XYZ means the movement of finished products from product lines to customers' shelves through the chain.* (Senior SC manager)

Market volatility and flexibility were said to be the key impetus for the adoption of SC practices:

> *The biggest challenge that we are facing now is volatility […] UK market becomes more volatile. Therefore, responsiveness to that volatility is one of the major challenges.* (Senior SC manager)

> *If you deal with products with short life so you have to react now and immediately. You can't go and say I will do it next week. These kinds of goods generally have not more than 5 day life on. Otherwise, it is useless. Christmas is the busiest time of the year followed by Easter, Halloween, Ramadan, and many events. So, different food products are purchased by different religions at different times of the year. It is interesting, but it is also strange. You are under pressure all the time. I remember 3-4 years ago, nothing ever opened on Christmas day or on Boxing Day, but now everything is open on Boxing Day. Some of the sites also deliver on Christmas day.* (Consolidation centre general manager)

In addition, the trend towards globalization in the retail sector compounds these challenges:

> *We sign up to various global standards. We have to adopt all the global standards. Unfortunately, they are different in each country, which makes it more difficult. […] Also, logistics risk is related to where our suppliers are based and the stability of each country. […] For example, there are problems in Egypt. We are buying a lot of Egyptian cotton. So, we have to decide either to buy extra stock or to find alternative sources.* (Senior SC manager)

Therefore, under pressure from these challenges and from the fierce competition within the UK retail sector, XYZ made efforts to build collaborative relationships and networks based on mutual advantage with thousands of suppliers, distributers, and logistics service providers[15] within the UK and around the world to bring low cost, quality products to its customers in a sustainable manner. These relationships vary according to the length of time working with XYZ, the level of trust, the volume and quality of product that the suppliers deliver, and the strategic importance of actors' services or products to XYZ. Therefore, five types of relationships are defined: partnership, platinum (actors with open book agreement with XYZ), gold (actors who have collaborative relationships with XYZ but with a closed book arrangement), silver (actors who are working with XYZ in specific ranges), and bronze (actors with temporary relationships with XYZ).

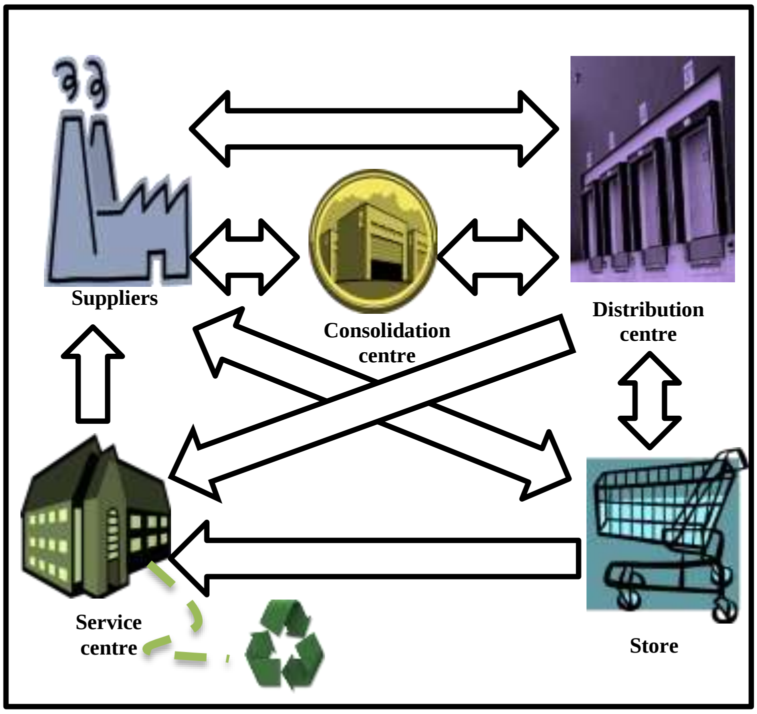

Figure 7: XYZ's Supply Chain Model

[15] Logistics service providers are firms that "facilitate the movement of goods from suppliers to manufacturers, from manufacturers to distributors and retailers and from customers for the returned goods. Among the services they provide are transportation, warehousing, cross-docking, inventory management, packaging, and freight forwarding" (Mukhopadhyay and Setaputra, 2006:717).

XYZ's SC consists of different key actors (as shown in Figure 7): suppliers, consolidation centres, distribution centres, stores, and service centres. Each actor has a specific role to play in the SC (see Table 6).

Key Actors	Role
Suppliers	Suppliers are required to deliver quality products to XYZ in the right quantity and at the right time and at low costs in a sustainable manner, making the supply chain more efficient.
Consolidation centres	The consolidation centres collect the products from suppliers and deliver to XYZ's distribution centres across the UK. The aim is to reduce inventories at XYZ's regional distribution centres and increase the frequencies of deliveries. Consolidation centres offer a variety of services, such as stock holding and picking, consignment breakdown, and co-packing.
Distribution centres	Distribution centres receive products from consolidation centres or directly from suppliers and then deliver them to stores across UK. (Some products, such as bread and milk, can be delivered directly from suppliers to stores because of the high volume and to save costs. However, these products account for only about 3% of the total products.)
Stores	Stores are regarded as the channels through which products are being made available to customers.
Service centres	Service centres are considered as consolidation points for equipment, returns and waste. Service centres provide a variety of services to the chain, including processing key waste streams returned from stores and distribution centres before forwarding to the recycling centres, cleaning and repairing equipment returned from stores such as trays and roll cage, controlling and pooling equipment for suppliers, and handling goods returned from stores because of poor quality or returning to suppliers gods that cannot be sold.

Table 6: The Key Actors and their Roles

Given the massive increase in the numbers of products offered by retailers combined with a lack of sufficient resources and expertise required to intensively manage each SC process effectively, XYZ has contracted out its consolidation centres and service centres to logistics service provider A and logistics service provider B, respectively. Both companies have open book agreements with XYZ:

> *The open book agreement basically means that whatever we spend on the XYZ's operations, XYZ pays for. We are then challenged. We have weekly meetings with XYZ's senior management to look to drive efficiencies in the network operations, and that would be reviewing the transport operations and planning to see what we can remove, amend, or make more efficient, reviewing headcount levels to see if they're correct or whether we could do anything differently with a number of people.* (Consolidation centre general manager)

As mentioned previously, the notion of SCs has become institutionalized in various sets of practices and structures throughout the chain. The SC strategy is an example that comes to play a role in XYZ as it strives to establish inter-firm planning and control structures. The following two sections explore the ostensive and the performative aspects of the SC strategy and illustrate the duality between those aspects and the role that accounting calculations and numbers can play in this regard. Therefore, the analysis of the empirical data is organized to identify the translations between the ostensive and the performative aspects of the SC strategy. Here, there are two levels of translation: lateral and horizontal. This can be attributed to the nature of the SC, which requires cooperation and interactions across companies and inside each company.

4.1 Episode 1: The Lateral Translation

As displayed in Figure 7, XYZ's SC entails establishing relationships with a wide variety of actors with different interests and specialities. Such complex relationships have to be carefully organized and administrated. Therefore, the SC strategy is developed as a predefined general context that locates XYZ's objectives and values as means for organizing and managing the relationships.

XYZ's SC strategy is a five-year strategy, and it is assigned predefined abstract properties (benefitting customers, employees, shareholders and communities), which remain unchanged overtime, to guide the courses of actions necessary for organizing the relationships between XYZ and all other actors engaged in the SC and setting directions for the future. The SC strategy was put in place by the headquarters after several discussions between top-level managers to create an 'ideal' picture of how the SC could achieve its objectives. From XYZ's perspective, the objective was to make XYZ a better business. In this instance, this means building trust with customers and helping them to find healthy and affordable products, treating employees and suppliers more fairly, reducing energy use and the impact on the environment, supporting and making a real difference to local communities, and delivering sustainable growth to shareholders, while taking into consideration factors such as financial risks, safety standards, physical standards, and logistical risks.

These core values are proudly displayed on the walls throughout XYZ's facilities so that local actors and other actors are continually reminded of the SC strategy to reorient their day-to-day activities, as they have to comply with this strategy if they want to continue to be a part of XYZ's SC. Although having such a kind of ostensive object can help in aligning the interests of actors involved in the SC, it does not mean that the SC will achieve its intended objectives by following the linear pathway or that it will not be affected by the interactions between the various actors along the SC.

The process of devising the SC strategy reduces complexity by blocking organizational noise (Boedker, 2010). The voices of the various actors throughout the chain are not considered although they are playing the key role in making XYZ's SC strategy succeed or not. In addition, the SC strategy does not encompass specific performances or contextual details about the specific actions to be taken by specific actors. Therefore, actors may have different interpretation for the strategy: "Ideas and innovations change as they travel along often bumpy pathways in actor-networks" (Boedker and Runnalls, 2012:111). This makes the implementation of the SC strategy less predictable.

Therefore, the actors in XYZ's headquarters have recognized that a SC strategy per se is not a panacea; it does not necessarily guarantee the success of the SC and collaboration between the SC partners. A clearly defined action plan, a mutual understanding of each other's business (i.e. XYZ and its partners), and getting various actors with different specialities are necessary to achieve the SC objectives. This brings the idea of business plan to the surface:

> *We are developing [business plans] across the supply chain, but traditionally the focus was internally. This is the next evolution of [the] supply chain process.* (Senior SC manager)

The SC strategy is translated via a business plan, as actors from across the chain will be able to concentrate on the strategic aspects they control. The business plan (or as some actors call it, the "budget") is used by XYZ as an instrument that translates abstract strategic messages (lowering operating costs, delivering profitable growth, delivering value to customers, being a great place to work, and building stronger communities) from the SC strategy into specific objectives and targets where actors throughout the network are given voice. It is used by XYZ to compel other actors along the SC to act consistently with the SC strategy. As such, it consists of various KPIs that closely integrate XYZ’s SC strategic objectives with the accounting data. Thus, each consolidation centre, distribution centre, store, and service centre has a different business plan depending on the tasks and activities to be carried out.

However, as the design of a business plan will link diverse actors with different interest more closely, this can result in disputes and disagreements between the actors, which need to be resolved for the business plan to achieve its intended role. The following paragraphs examine how the business plan is ‘performed’ or the business plan ‘in the making’ (Latour, 1987) through utilizing the notion of ‘translation’ (Callon, 1986), which “entails investigating micro-level actions and activities, as related to negotiations, act of persuasion, mobilisation of allies, enrolment of actors and the movement of different forms” (Boedker, 2010:618). This can help us in recognizing the complexities of organizational life and in understanding how performativity can produce new ostensive objects (see Figure 8).

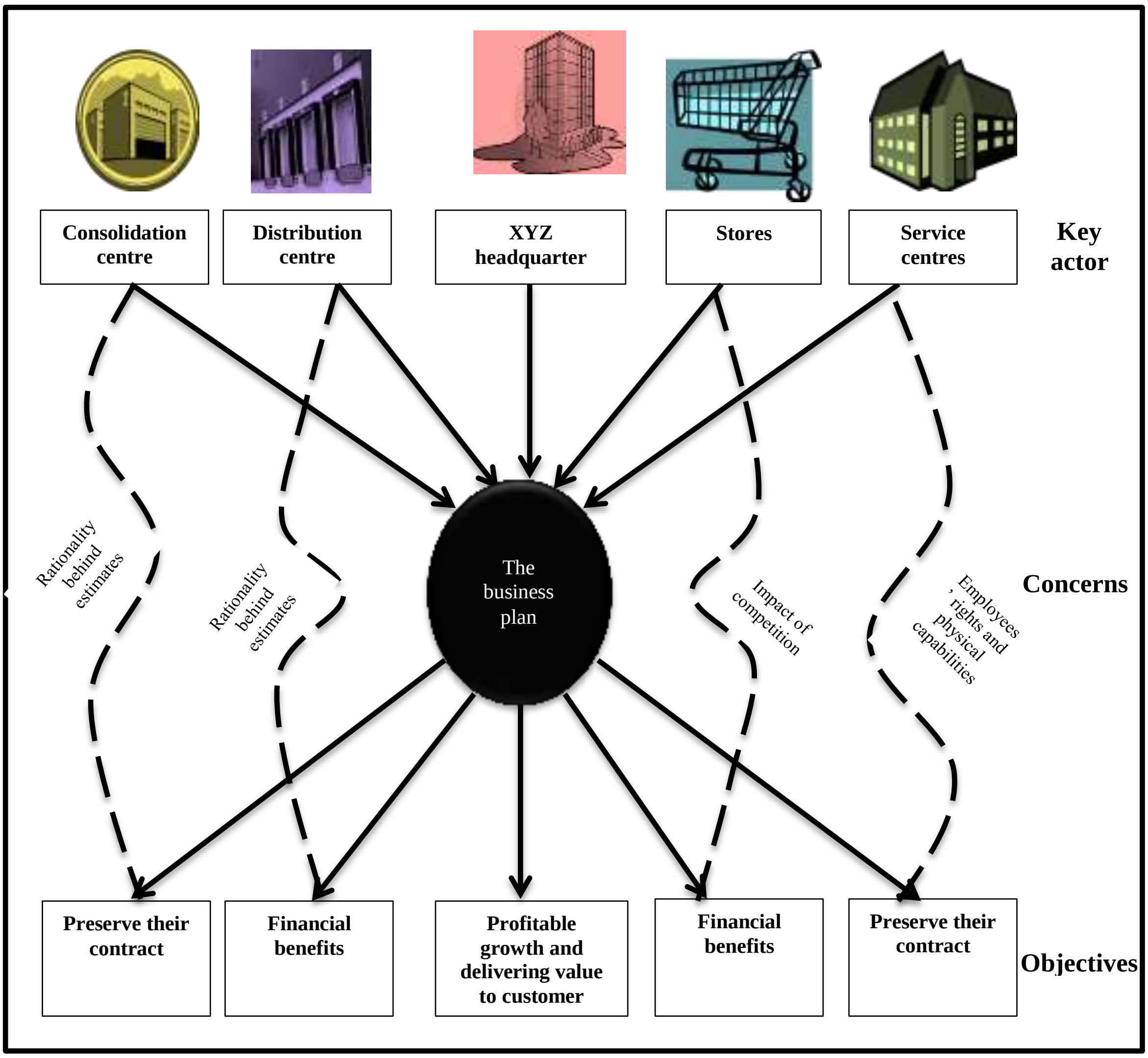

Figure 8: How a business plan is developed

Business plan preparation starts three months before the beginning of the new calendar year. The *lateral translation* begins with the question of how to develop a realistic business plan. The *problematization* involves the identification of the actors to be enrolled in designing the business plan and their interests (Callon, 1986). This question of how to develop a realistic business plan brings other actors into the story, namely, the consolidation centres, distribution centres, stores, and service centres. The interests of these actors in joining such a network lie not only in admitting the importance of the business plan as a planning and control instrument, but they also are derived from the incentives attached to the business plan; these are created by XYZ to cement the links between XYZ and the other actors and to encourage actors to *enrol* and actively engage in the network. Consolidation centres and service centres, which are managed by the partners of XYZ, benefit from engaging in a SC of one of the UK's leading retailers. For this to continue, they need to comply with the key actor's requirements. Preparing a business plan is one of these requirements. On the other hand, distribution centres and stores that are managed by XYZ receive financial benefits if they achieve the business plan. If the headquarters want to achieve a SC strategy, if companies managing consolidation centres and service centres hope to be part of the SC of one of the leading UK retailers, and if the distribution centres' and stores' actors hope to achieve financial benefits, then they must answer the question of how to develop a business plan that realistically reflects an actor's resources and capabilities without infringing the rights of local actors while, at the same time, conforming to XYZ's requirements and SC strategic objectives. The entire project revolves around the question of how to develop a business plan. Therefore, the business plan can be regarded as the *obligatory passage point* (as shown in the black circle in Figure 8) for all actors if they want to achieve their objectives (Callon, 1986).

> *One of the main challenges for me is to make sure that the budget is going to reflect what we can do operationally*. (Distribution centre finance manager)

Interessement can be conceptualised as a "group of actions by which an entity (i.e., the headquarter) attempts to impose and stabilize the identity of the other actors it defines through its problematization" (Callon, 1986:207-208). For the headquarters, this means convincing the actors that the business plan is the means by which the actors can satisfy XYZ's requirements and, in turn, continue to be part of this big retailer's SC. For consolidation centres and service centres, it is a matter of concern that XYZ can breach the contract if they do not take the business plan seriously. Market concentration and saturation, escalating competition, and reduced profit margins are always in the minds of the managers of the consolidation centres and service centres while they are discussing anything with XYZ. In order to survive in this complex market, they believe that they need to move the relationships with XYZ away from short-term relationships to longer-term relationships, which, in turn, requires coping with XYZ's requirements to achieve this long-term objective.

> *We have to achieve their targets (XYZ); otherwise, they can breach the contract.* (Consolidation centre general manager)

For distribution centres and stores, it is a question of the headquarters incentivizing and threatening the local actors to take the business plan seriously. Coping with the headquarters' requirements means that local actors can keep their jobs and receive financial benefits (see Figure 8).

> *If we achieve the target…, then we will get a 100% bonus.* (Distribution centre general manager)

The *enrolment* of actors was not complex due to the *interessement* devices used during the *interessement* phase. Next, the *mobilisation* of the network depends on the headquarters. Before creating forums for voicing opinions and concerns with different actors regarding the business plan, the headquarters sends lists of KPIs, which are derived from the SC strategy, and projected volumes to other actors along the chain so that each actor can prepare an initial draft for the business plan that sets the agenda for future discussions between the headquarters' SC team and all other actors. There are different KPIs for different actors, depending on their intended roles and on whether or not they are managed by XYZ or one of its partners, to persuade actors to pursue the SC's strategic objectives. These KPIs are shaped by the SC strategy. For example, for one consolidation centre, the general manager said, "*We have KPIs which are related to contractual fulfilment from XYZ"*, such as the number of pallets to be collected from suppliers, the percentage of on-time deliveries to distribution centres, and so on. However, the KPIs for distribution centres include the number of cases per hour, loads per hour, chill volume, and runs per driver shift. Therefore, XYZ's SC managers prepare different lists of KPIs for different actors.

The SC managers also determine the projected volumes, after consulting industrial engineers and supply analysts and conducting benchmarking exercises; these are then used by the different actors as bases to set the targets:

> *XYZ took one site in the UK, after consulting industrial engineers, and looked at how the job was done in a daily basis and also time-motion studies, and then they came up with a base practice… and that was rolled out to every site. That is benchmarking.* (Distribution centre finance manager)

After receiving the KPIs and projected volumes from XYZ headquarters, each actor starts to work on the initial draft using different internal strategizing activities. According to the head of XYZ operations at logistics service provider A and the consolidation centre general manager, during the process of preparing the initial draft, different actors at logistics service provider A have to perform several projections and analyses regarding the activities and resources for the coming year:

> *The accountants, sites' general managers have inputs to the plan… We look at last year's historical data and a satellite analysis we got... So, for instance, we*

> *will take analysts' advice on the price of fuel, the price of vehicles. There may be a 10% increase in costs that should be put into the budget. We got salary inflation and general inflation costs which we build on... For the workforce, we build generally on 2% inflation.*"

For the distribution centre, the process of preparing the initial draft requires a certain amount of time before it is ready to be sent to the headquarters:

> *The finance team and I prepare a draft business plan for the year in October.* (Distribution centre general manager)

After receiving the KPIs, the distribution centre's finance team starts to estimate the costs, taking into consideration last year's performance, environmental and sustainability factors according to the SC strategy, and so on:

> *KPIs would determine how many hours you are going to use on a day-to-day basis or on a week-to-week basis. Once you have got that, you then obviously … so you know you are going to use X amount of hours. So, you can apply your wage and cost to that. That would give you your wages bill for the year, and then you obviously add other things like depreciation, fleet costs.* (Distribution centre finance manager)

> *What we would do, then, is that we have huge spreadsheets separated by week. XYZ would give us the volumes based on the expected sales for a year. We would put these volumes in each week. We have a set of targets in the warehouse, so we would put this set of targets. We would say, 'Here is how we performed last year'…We will consider any new initiatives coming on to make the job easier or other things, like we may get new trucks which would use less fuel than the older ones, so that means that our MPG (miles per gallon) would be higher because we are making more miles for a gallon… We will increase our KPIs depending on what is happened in the previous year or any new initiatives coming on board. We would then populate these spreadsheets, which will then give us hours and fuel costs. So, they give us the hours we need to run the depot and the fuel we need for the vehicles; that is all then translated into cost. So, we will have x amount of hours per week, and then will have our cost; we know our rates and percentages and that would populate what we would call budget cost for the year by week and by month.* (Distribution centre finance manager)

However, the situation is completely different in stores, as most of the work is done by the headquarters:

> *The business plan for this year is pretty much put together by the team of XYZ… I would have an input into what a business plan looks like based on the condition of the business this year versus last year.* (Store general manager)

Regarding the service centre, the process of preparing the initial draft is more straightforward:

> *Finance managers are responsible for preparing the budget after discussions with operational directors… We have a financial budget for uniform, training, cleaning, and other costs and an activity-based budget, which is based on projected volume and labour hour for each activity.* (Service centre operation manager)

As can be seen from the excerpts from the interviews, the complexity of the initial draft preparation process and the degree of involvement of the key actors in the process vary from one actor to another. After preparing the initial business plans, the actors send them to the headquarters to be reviewed.

> *I send the business plan to the commercial manager and regional manager at XYZ, who send it to the distribution director.* (Distribution centre general manager)

The headquarters' SC team tries at this stage to ensure that the actors are acting in the interests of the network and that the business plan and its underlying assumptions are no longer seen as controversial. Discussions, negotiations, and debates between the headquarters and the other actors then ensue regarding the business plan.

The initial business plans and their estimates, projected numbers, and KPIs are inputs to the discussions and debates between the actors. They are considered one of the factors that develop the *concerns* that are envisaged in the business plan. Other factors participate in developing the *concerns,* such as actors' interests, experience, regulations, and so on. Actors can raise different *concerns*, which sometimes are overlapped and intertwined (see Figure 8).

For the consolidation centres and distribution centres, the rationality behind the estimated numbers is the main concern, as their performance will be evaluated later based on these numbers:

> *It is only an estimated volume based on predicted sales. So, they are very, very volatile [the forecast] because things can change. For example in summer, if you get a warm weather warning at a short notice, people go at a short notice and buy BBQ food. […] During Christmas, the demand on food increases; we know that, but again, it doesn't take into account if sales go better than planned and if people are going to buy more. We are aware of that, and that*

> *may increase the costs. So, we do forecast but, again, it's quite volatile.* (Consolidation centre general manager)

> *The headquarters would say, 'Here is what we want to do. Can this be done? Yes/No.' My job is to make sure that KPIs relate to operational side of things. […] For example, in calculating one of the common measures now, which is called 'runs per driver shift'… headquarters would say, 'On average, you would do 100 miles to store and back'…but we would say, 'Hang on a minute, we have to deliver from A down to B and up to C. So, miles, on average, are 115'* (Distribution centre finance manager)

The stores are more concerned with the impact of competition on the sales and with whether the estimates take into consideration these factors:

> *A new store [other retailer] opened up a stone's throw from here. I saw a bit of possible impact on the store. So, I questioned the business plan. Then, we got what is called an overlay. So, at that point, all that you need is to know about the circumstances and get back and challenge the business plan*. (Store general manager)

For service centres, managers are worried about whether their current resources and capacities will be sufficient for fulfilling the business plan:

> *The problem is that the main concern for the people who are responsible for preparing the budget is cost saving. They are using scientific criteria to prepare the budget regardless of the physical capabilities of labour and machines. They are focusing on increasing profits and reducing costs. In reality, we reach some points where we can't improve more, or the way we currently work will not achieve that.* (Service centre operation manager)

At this stage, several meetings, talks, and negotiations occur between the headquarters and the other actors to discuss these issues:

> *There are lots of arguments about what can be done operationally, lots of pencil drawings. There are lot of debates, and then you will have initially come to our business plan for the next year.* (Distribution centre finance manager)

These discussions and negotiations end only when unanimity between the actors involved in the SC prevails or when the headquarters decides to close the discussions:

> *We have many debates with XYZ, and XYZ will ultimately make the final decision regarding the budget. But, to be fair, they've never refused the levels of budget we set, as they see a realistic budget.* (Consolidation centre general manager)

> *If the headquarters doesn't agree with what you put on it [the initial draft], so we have to get it back and change it. That is why it takes a long time. […] So, from October to December, you have the debates, and you get more rejected most of the time. […] However, at the end, you generally come into agreement to say, 'Ok, that is my budget, and I might not like it but I would do my best to achieve it.'* (Distribution centre finance manager)

These discussions take several weeks until the business plans are agreed upon and signed at the end of December. Once the plans are signed, they are regarded as a stable object (ostensive object). The headquarters then put all the numbers in Excel-based software where all the budget numbers for all the actors are blocked and then used to measure the actors' performance.

However, the rates of the KPIs can be changed during the year for different reasons. Competition pressures, business expansion, and changes in business resources are the main factors that can encourage the headquarters to reopen the business plan:

> *They do it [changing the targets] if we are coming in cheaper than what the budget first suggested.* (Consolidation centre general manager)

> *They would put these targets in place, but if something changes […] then that would impact the targets. So, you have to continually review what you do and continually make changes. So, the targets could change - could go up; could go down - just depending on the impact on a business and what comes through that five-year plan […] So, they are changing all the time, not every week or every month […] but, who knows what happen next? […] (If the retailer adds new stores), so what that means is that you will be delivering […] to more shops. So, that would adjust the time it takes you to go to and from the shops which will change miles/journey and hours/journey*. (Distribution centre finance manager)

It is not only the targets that can be changed; even the type of KPIs can also change from one year to another. Technological changes, environmental regulations changes, competition pressures, business expansion, and changes in product mix are among the factors that can convince the headquarters to change the type of KPIs included in the business plan from one year to another:

> *Very much technology changing can change your KPIs […] Acquisitions can change KPIs.* (Distribution centre finance manager)

Therefore, in some cases, the business plan can remain, to some extent, in a state of flux, although the SC strategy that guides the process of preparing the business plan is, to some extent, stable.

In all, the ostensive aspect of strategy (i.e., SC strategy) guides the process of performing the business plan by defining the key strategic messages that shape the KPIs included in the business plan. The process of preparing the business plan has illustrated how such a process requires various lateral strategizing activities (performative aspect) that result in the production of a new ostensive object (i.e., the business plan). It also shows the support and commitment from a multiplicity of actors, each of whom would contribute to the SC strategy differently; and each of whom must be persuaded to act in the interests of the chain. The business plan becomes a powerful instrument within the SC, as it is not only a means of bringing the SC strategy to life; it also has the power to create different local strategizing activities, as will be discussed in the next section.

4.2 Episode 2: The Horizontal Translation

Preparing the business plan is not the end, but the starting point. The business plan is continuously in the making as it travels through the hands of various actors (Boedker, 2010). To secure the performance of the chain, performing the business plan needs to be regarded as an ongoing process that necessitates continuous stabilisation. Therefore, the horizontal translation is required in our case to sustain or maintain the business plan by enrolling various local actors who are going to implement the business plan.

The actors along the SC fully understand the importance of achieving the business plan. For the centres managed by the partners of XYZ, achieving the business plan is one of the conditions for continuing their contract, and for the centres managed by XYZ, achieving the business plan is a necessity to receive bonuses, as mentioned previously:

> *The target is 2% cost saving […] if we achieve cost saving less than 2%, so the bonus will drop.* (Distribution centre general manager)

The main concern for all actors, after preparing the business plan, is how to achieve the business plan and what kinds of initiatives should be undertaken to ensure that targets can be met:

> *Depending on the budget each year, we come up with a number of initiatives, which is generally £100,000 worth, that we use to try to reduce the costs against the budget. We negotiate them and agree them between us and XYZ.* (Consolidation centre general manager)

It is the responsibility of the key actors (general managers) at each centre to ensure that the business plan is reflected in the day-to-day activities and tasks of the local actors at each centre and in the interactions between them. Therefore, they need to demystify the business plan, as local actors from across each centre are able to focus on the elements they influence. This involves the second 'translation' process (performativity), but this time for the diffusion rather than not the development of an ostensive object (i.e., the business plan).

If the XYZ partners hope to continue their contracts, if their local actors hope to keep their jobs and receive financial benefits, and if the distribution centres' and stores' actors hope to achieve financial benefits, then they must answer the question of how to achieve the business plan. Therefore, the business plan, again, is the *obligatory passage point* for all actors to achieve their objectives. The general manager of each centre starts to establish a network and to enrol local actors. They need to capture the *interest* of the local actors and to encourage them to *enrol* in the network, while local actors have to perceive the benefits linked to the realization of the business plan so they can accept to live together with the burdens and challenges that may be caused by the business plan. The bonuses and financial benefits attached to the achievement of the business plan are the key incentives used by the general managers to capture the interest of local actors. Then, the *enrolment* depends on the manager of each centre. The managers have to ensure that local actors understand the business plan and their roles in achieving the targets. However, taking on this mission is not easy to accomplish, as people on the shop floor may not be able to understand the KPIs and numbers:

> *You financially trade and you think financially, but people you are working with are not. So, it is quite difficult to say keep doing things differently and trying to do cost [them] effectively. The point is making them understand.* (Distribution centre finance manager)

> *There is different understanding of a business plan. My understanding of a business plan is very good. Someone who works 12 hours a week, he doesn't want a business plan, and he doesn't understand it.* (Store general manager)

> *The top managers are using scientific methods to measure performance, but these measures are not understandable by men on the shop floor. So they don't feel involved; they don't feel that they are doing something useful.* (Service centre operation manager)

To overcome these issues and to make the language of the business plan more specific, general managers translate the business plan into different accounting templates, accounting numbers, and KPIs, which are guided by the business plan, to achieve greater clarity of the objectives and to ensure that every local actor understands what needs to be achieved:

> *In this case, KPIs can help, as everyone in the store knows that he has to make a bonus.* (Store general manager)

> *That is why in the service centre, we are using time-based performance measures. [...] From my point of view the best performance measure is the measure that is understandable by the man on the floor. I am using these measures as incentives. Labourers are trying to improve themselves because they understand the current performance measurement system. They can compare their performance with their peers easily.* (Service centre operation manager)

The accounting templates supported by numbers and KPIs are regarded by the general managers as the optimal route for creating a forum for voicing opinions and ideas and opening discussions between local actors at different levels. Time-based measures are the measures most used in these templates (see, for example, Figures 9, 11, and 14), as they are understandable by the people on the shop floor. As each centre has a different role within the SC and a different business plan, the templates take on various forms depending on the hands through which they travel. For example, in the consolidation centre, the driver stat, the weekly tracker, and the KPIs for the network are the key accounting templates used (see Figure 9):

	Actual	Week 4 Actual	Week 3 Actual	Week 2 Actual	Budget	Variance
Volume pallets						
Driver Shifts						
Driver hours available						
Average driver shift Length						
Miles						
Rate per hour						
Pallets per hour						

Driver Stat Template (simplified)

			Actual					
		Measures	Week 5	Week 4	% Var.	Budget	% Var.	Comments
Price	Fuel	Pence per litre						
	Drivers	Average cost per hour						
	Kit	Cost/loaded mile						
	Freight	Average load rate						
Efficiency	Fuel	MPG						
	Drivers	Pallets per shift						
	Trucks	Shifts per truck						
	Vehicle Fill	Pallets per journey						

KPIs for the Network (simplified)

	Consolidation Centre 1	Consolidation Centre 2	Network Centre
Actual spend			
Budget			
Variance to budget			
Volume adjustment (flex)			
Variance to flexed budget			
Opportunities			
Risks			
Variance to risk/opportunities budget			

Weekly Tracker (simplified)

Figure 9: Accounting templates used by consolidation centres

In the distribution centre, the depot performance review is the main template used; this measures the distribution centre performance across four different but related perspectives, which are derived from the business plan: customer, workforce, compliance, and cost (see Figure 10):

	Target	Green	Amber	Red	Jan	Feb	Mar	Apr	…	Oct	Nov	Dec	Total
1. Customer													
Gross (Stock)													
Delivery Performance													
Process Audit													
Store Feedback													
2. Workforce													
Absence													
Morale													
Employee of the Month													
Community Life													
3. Compliance													
Accident per Month per 100000 hours													
Transport Compliance													
Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDORS) per month per 100000 hours.													
4. Cost													
Deliver Business Plan													
Overall Warehouse Rate (OWR)													
CIM Projects-Benefit/live													
Process to Review Restricted													

Figure 10: Depot Performance Review (simplified)

> *Each perspective is assigned to specific manager to look after by the general manager. Finance manager looks after the cost section, health and safety manager looks after the compliance section, HR manager looks after workforce, operation manager looks after customer section. Finance team would break that down into the areas such as runs/driver shift etc., and then that would go down to warehouse managers and transport managers. You are trying to keep it simple so everybody can understand.* (Distribution centre finance manager)

Other accounting templates that are used in the distribution centre are overall warehouse rate (OWR) breakdown, which basically measures the number of hours used in a warehouse to get everything ready to go to stores, transport weekly stats, and cost report (see Figures 11 and Figure 12).

Total Volume	Plan	VA Plan	Actual	OWR Impact	Hours Impact
Chill Volume					
Goods in					
Pick					
Loading					
Dock					
Total Chill Hours					
Freezer Volume					
Goods in					
Putaway					
Pick					
Letdown					
Loading					
Other Direct Work					
Total Freezer Hours					
Indirects					
Battery workers					
Layout					
Cleaning					
Yard Work					
Training					
New Starters					
Other Indirect Work					
Huddles/Meetings					
Paid Breaks					
Total Indirect Hours					
Total Hours					
OWR					
Basic Hours					
Overtime Hours					
Hours Worked on Bank Holidays					
Agency Hours					
Total					
Bank Holiday Payments for Absent workers					
Bank Holiday Paid					
Paid Absence					
Total Hours Paid					
Unpaid Holiday					
Unpaid Absence					
Total All Hours					

Figure 11: OWR Breakdown (simplified)

Account	Month Plan	Volume	Month Vol Adj Plan	Variance Drivers				Total VA Variance	Month Actual	Notes
				OWR	**Wage rate**	**Paid Absence**	**Bank Holiday**			
Associate wages										
Wages – temporary										
Overtime wages										
Holiday sick and vacation pay										
Hourly pension expense										
Others										
Productive Labour Costs										
Clerical salaries										
Management salaries										
Awards and recognition										
Others										
Labour Costs										
Equipment rental expense										
Other supplies										
Pallet expense										
others										
Variable Costs										
Cleaning and janitorial services										
Hardware rental expense										
Others										
Controllable Costs										
Depreciation expense-building										
Accident cost										
Property insurance expense										
Community grants										
Others										
Non Controllable Costs										
Total Distribution Costs										

Figure 12: Cost Report (simplified)

The store general manager uses different accounting templates: Store Key Result Area (KRA), profit and loss template, and TUC template (Figure 13 shows the KRA template).

	KRA	Target	Actual
Standards	**Sales**		
	Waste		
	Loss Prevention		
	Direct Costs		
	Multi-Channel		
	XYZ Assured		
	SALA		
People	**Leadership**		
	Development		
	Absence		
	Your voice		
	Community		
Availability	**On Shelf Customer Availability (OSCA)**		
Service	**Wages**		
	Q's		
	H2H		

Figure 13: Store Key result area (KRA) report (simplified)

The store general manager uses these templates not only in translating the business plan, but also in building trust, which is an essential prerequisite to obtain local actors' commitment throughout the store:

> *'Trust' is a strong word. It is small word, but it is very powerful because of how we operate as a business. If at any point in my career in the store, my senior can't trust me, this would not work. And equally, if I didn't trust them, then the whole operation would not work. But it does because we trust each other… I need to build trustful relationships with the headquarters and my team… Numbers are good and it can help… If my numbers are consistently good, my boss will probably say I trust him* (Store general manager)

Regarding the service centre, various accounting templates are utilized in transmitting the business plan throughout the centre, such as vehicle return to service centre and performance log (see Figure 14).

Direct Hours Categorisation	Actual Hours Used	Target KPI	Volume Achieved During Shift	Hours Required Based on KPI	Hours Saved	KPI Achieved During Shift
Tray washing						
Folding trays – processes						
Folding trays – washed						
Tray repairs						
BDU's						
BDU repairs						
Card baling						
Plastic baling						
Beverage trays – polymer						
Semi pallets						
Beverage trays – Chep						
Mushroom trays – Chep						
Roll cage repair handling						
Garment rail handling						
Flower buckets						
Blue totes – washed						
Blue totes – dry sorted						
Dollies – processed						
Dollies – repaired						
Home shopping totes – repaired						
Employee waste						
Office waste						
Bio waste						
Bakery waste						
General waste						
Animal by products						
Vehicles – inloaded						
Cages backloads						
Pallets backloaded						
Vehicles – outloaded						
Q boxes – processes						
Q boxes - repaired						
Roll cage storage						
Egg shippers						
Card cages received						
Plastic cages received						
Pallets inloaded						
Home and leisure cages						
Total direct hours			Total direct hours			
Indirect Hours categorisation			Indirect hours saved		T & A	
Hygiene			Hygiene		Basic hours	
Machine hygiene			Machine hygiene		Overtime hours	
Meal breaks			Meal breaks		Agency hours	
Training/inductions			Training/inductions		Sick or Absent	
					Holiday	
Total indirect hours			Total indirect		Rest	
					Others	
Total all hours			Total hours			
Indirect hours %			Hours saved		Total hours	

Figure 14: Performance Log (simplified)

All these templates are displayed on the walls throughout shop floors to remind the local actors about what they have to do. After cascading the business plan, general managers organize listening groups with local actors to discuss their own targets and concerns and to pass on information about what will happen if they do not achieve these targets. These listening groups are organized with the aim of favouring a dialogue between the actors and other interested local actors and trying to reach an agreement more quickly.

Accounting templates, numbers, and KPIs are the key inputs to the dialogues and discussions between actors and, at the same time, the elements that develop into 'matters of concern'. Usually, the main concern that can be raised by the local actors after screening the KPIs and the accounting numbers is the workload. However, general managers believe that by using these templates and numbers, they can have more interactions with local actors, which makes it possible to end the discussions with at least some degree of consensus:

> *Within the listening groups, we would have managers and employees together. 'Here is what we want to do', and then everybody gets a say. So, from a commercial point of view, I would be there to say that it could save us so many hours if we do this way. And, then, an employee would say, 'If we do it that way, then that means that I can do another job.' So, you would have input from every area in the distribution centre. […] So, yes, in order for these guys to hit the targets, they have to know how we get to them.* (Distribution centre finance manager)

> *It is an open forum. […] We want to understand is there anything that can stop them doing a good job? Is there anything we can do to improve that? What is the general feeling around the targets, store or around the department*? (Store general manager)

However, general managers sometimes ask local actors to act in a specific way without further discussions. The local actors usually accept this, as they believe that if they want to keep their jobs and receive financial benefits, then they have to, sometimes, make sacrifices.

> *[The people on the shop floor] will probably want them [KPIs] as easy as possible, whereas you want them to be challenging. So, I don't want this person on the warehouse floor to tell me, 'I agree to do these', because that might not be sufficient. For me, I will say, 'I want you to do this performance level because I have got the costs associated with that side of operation that you would not necessary know about it.'* (Consolidation centre general manager)

At the end, an agreement between general managers and local actors can be reached regarding the targets and KPIs included in the business plan. Then, the business plan can be executed.

5. Discussion and Conclusion

In relation to supply chain context, strategy is increasingly viewed as a source for contributing to the success of the SC as it helps in organizing and directing the relationships between supply chain partners. Strategy can foster mutual understanding and common consensus between SC partners about work to be done and the role of each partner though negotiations, talks, communications between SC partners during the development of the strategy or plan. Therefore, strategy is regarded as a modus operandi for SC partners. Therefore, drawing upon ANT, this essay focused on studying SC strategy in the UK retail sector. ANT can be helpful in studying inter-organizational relationships and the role of accounting in shaping strategy and, in turn, SC relationships (Mouritsen and Thrane, 2006). According to Meira et al. (2010:161):

> In relation to the study of accounting in the inter-organisational context, ANT can be used to analyse how accounting can be a "force" – an actor – in shaping and building inter-organisational relationships […] the actor-network is a helpful approach because it sees accounting as more than a group of techniques, but as capable of influencing relations in the network.

Therefore, using ANT can help to provide a broader picture of accounting-strategy relationships rather than assuming that accounting is only subordinate to strategy (Boedker, 2010). I utilized ostensive and performative perspectives in this essay.

Ostensive approach tends to lead to the 'black boxing' of objects like strategy and offers explanations of stable and coherent strategy that is assumed to remain stable and unproblematic during its implantation. Meanwhile, a performative approach is concerned with unpacking 'black boxes' to understand the process through which strategy develops, as well as the way it shapes and directs the relationships between SC partners (Boedker, 2010).

Although ANT researchers (Mouritsen, 2006; Boedker and Runnalls, 2012) have discussed how the ostensive perspective differs considerably from the performative perspective and to privilege the performative perspective, this essay shows how these two perspectives can form a duality that is helpful in understanding the links between accounting and strategy/strategizing in supply chain setting (see Figure 15). According to Vosselman (2012), the duality between the two perspectives can accelerate knowledge production and advancement in the area of interfirm relationships.

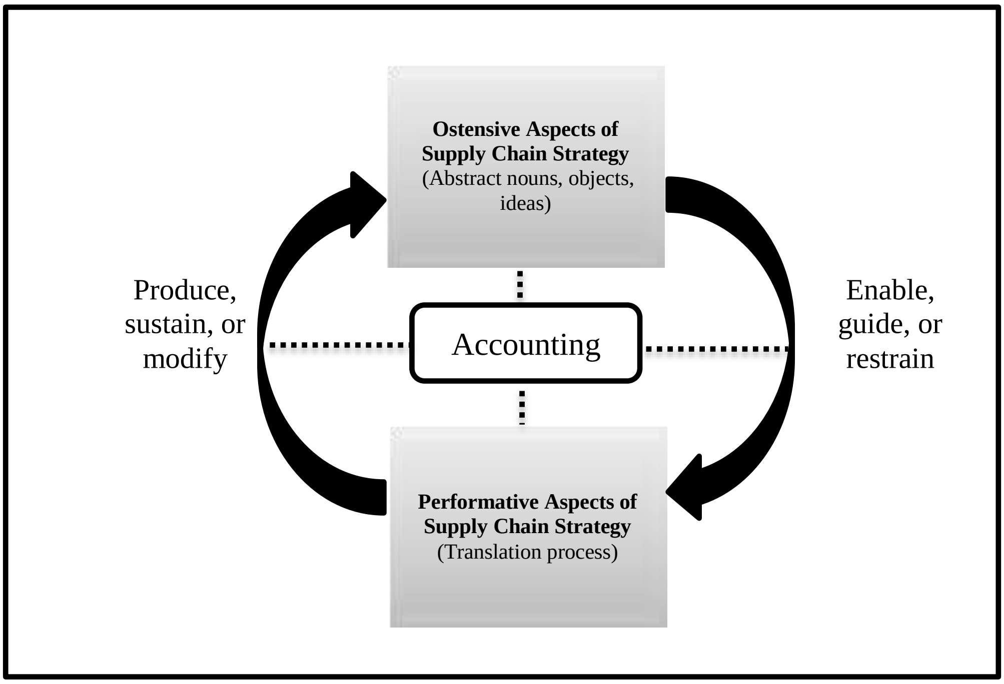

Figure 15: The Duality between the Ostensive and the Performative Aspects

I utilized the ostensive approach in the first part of the case study to explain why SC strategy exists. According to senior managers, SC strategy is assigned fixed properties (customers, employees, shareholders and communities) that remain stable across time. It provides a framework for organizing SC relationships between XYZ and its partners. Order and stability characterises the doing of strategy which begins with strategy formulation that is restricted to a small of human actors (XYZ's senior managers) followed by the process of implementation, in which SC is assumed to be unaffected by the actor network. There are limited opportunities for the voices of various actors along the SC to be heard. However, XYZ recognized that SC strategy is too abstract to be implemented successfully and that there is a need to translate the strategic messages of SC strategy into specific objectives and targets to compel SC actors to act consistently with the SC strategy. That is why the 'Business Plan' in its existent form here has been introduced and operated the way it has.

SC strategy guides the making of the business plan (as you can see in figure 15, the ostensive perspective produces results that represent an input to the performative perspective). For instance, the percentage of on-time deliveries was one of the KPIs included in the business plan. It reflected one of the supply chain-strategy messages, that is, delivering value to customers. In addition, the miles per gallon value reflected the company's strategic objective of reducing energy use. Therefore, the ostensive perspective delivers conceptualization and abstract objects that can be regarded as a starting point for the performative perspective. However, this perspective obscures complexities and tensions that can be found in practice as it simplifies life and assumes that stability and predictability are the main characteristics of social life, which is not always the case (Boedker, 2010).

On the other hand, the performative perspective focuses on the strategy 'in the making' (strategizing) which offers insights into the unpredictable aspects and complexities of social life (Latour, 1987). Therefore, to understand business plan in the process of becoming, I used the performative approach.

I utilized the notion of 'translation' (Callon, 1986), as a means for understanding the performative perspective; how the business plan is performed. The essay shows how the performative perspective, through the notion of translation, can bring SC strategy and its strategic objectives and messages to life, and produce or sustain ostensive objects, such as the business plan. I found that there are two levels of 'translation' within a retailer SC context: lateral (between the firms) and horizontal (within the firms). This can be attributed to the nature of the SC and the relationships between the actors along the chain. On the two levels, the business plan itself and the KPIs acted as media for dialogue and talks among actors, who drew on "scientific language"; they put together the talks and then organized the talks between the headquarters and the other actors.

In the lateral translation, I noticed that the main focus was on financial measures and that reducing operating costs was the main target for the actors. In contrast, in the horizontal translation, the main focus was on nonfinancial measures. This is because the general managers believed that for the business plan to drive the actions of local actors, the language of the business plan must be made more specific. The managers extensively used nonfinancial KPIs, especially time-based KPIs, as this was what people on the shop floor could understand, which was different from what happened in the lateral translation process. Various accounting templates were used to visualize the business plan to demystify it, so that local actors from across the centre would be able to focus on the areas they influence. This is consistent with Latour's (1986:6) discussion about visualization:

> If you wish to go out of your way and come back heavily equipped so as to force others to go out of their way, the main problem to solve is that of mobilization. You have to go and to come back with the "things" if your moves are not to be wasted. […] The "things" you gathered and displaced have to be presentable all at once to those you want to convince and who did not go there. In sum, you have to invent objects, which have the properties of being mobile, but also immutable, presentable, readable and combinable with one another.

Through the performative lens, I was able to capture the complexities and tensions of organizational life and how actors dealt with such complexities. The empirical materials show how concerns developed around the business plan during the lateral translation and the horizontal translation. During the lateral translation, the main concern for the actors was how to prepare a realistic business plan that reflects their resources and capabilities and that satisfy the key actor's requirements. Actors along the SC had wide-ranging propositions about the business plan. These concerns led to a surge of discussions, negotiations, and debates between the key actor and the other actors, with the aim of gathering consensus around the business plan. When the talks and discussions stopped, the business plan became an ostensive object (see figure 15). I also noticed that the retailer sometimes uses its power, which became evident (see essay 2), to stop the talks and discussions and to turn the business plan into a 'black box'. The actors along the SC were able to accept this for their own benefits (to preserve their contracts and keep the relationships with XYZ going).

During the horizontal translation, the main concern for managers was how to achieve the business plan, while the main concern for the local actors was the workload associated with the business plan. Therefore, several discussions were held between the actors and other local actors, where accounting templates were the key inputs to these discussions, to try to reach an agreement around the business plan and its associated targets. Once the agreement was reached, the business plan turned into a routine or a broad fact.

The case showed that the business plan can remain in a state of flux due to several factors including technological changes, environmental regulation changes, competition pressures, business expansion, and changes in product mix.

Another point that can be noticed through the case is that the delineation between accounting and strategizing within a complex setting like a SC becomes difficult. ANT-inspired accounting researchers who are interested in studying the links between accounting and strategy (e.g., Skærbæk and Tryggestad, 2010; Jørgensen and Messner, 2010) have used to delineate them very clearly in their cases. However, in this case, I couldn't determine exactly when the business plan stops and when accounting starts. The business plan, which is a part of the strategy, can be regarded as an articulated accounting artefact that reflects XYZ's strategic objectives and aims to articulate and communicate the SC strategy. Therefore, I believe that accounting and strategy should be studied together. This finding conforms to what some other accounting researchers, found such as Roberts (1990). However, this research focuses on 'strategy as practice' (i.e. strategizing) rather than strategy as an abstract noun. According to Boedker (2010:615):

> The term "strategy as practice" was first introduced in a keynote address delivered by Richard Whittington in, 2003. Strategy as practice has two aims: to treat strategy as an important social practice that requires serious sociological analysis; and to put this knowledge to work in the form of improving the way that strategy is conducted. Whittington turns strategy towards a more sustained empirical focus on practice, and his agenda offers the prospect of strategy evolving from a disciplinarily normative and prescriptive practice, to one that is wholeheartedly empirical in its focus on the methods of everyday strategists.

Since then, there have been many calls for studying strategy as practice (Whittington et al., 2006; Chua, 2007; Boedker, 2010). Therefore, this research responds to these calls by studying the SC strategy 'in the making' via accounting which, in turn, helps in understanding how the SC strategy and the business plan drive the actions of the actors along the SC – as they make clear how relationships between the retailer and its partners do and should happen. The research also explores the complexities and messiness of the organizational life, and shows that accounting and strategizing are mutually constituted.

In sum, this essay contributes to accounting- supply chain literature by showing that accounting shapes SC strategy and business plans that guide the relationships between SC partners and makes SC actors act and interact to keep the relationships going and operating smoothly. This responds to the concerns raised by some researchers with regard to the relevance of management accounting within SC context, and whether it can play a positive role in facilitating SC relationships (see essay 1).

It also contributes to the ANT-inspired accounting literature by demonstrating the duality between the ostensive and the performative aspects of strategy, instead of focusing on the distinctions between them like previous research (e.g., Mouritsen, 2006; Boedker and Runnalls, 2012) or focusing on only one perspective (e.g., Skærbæk and Tryggestad, 2010; Jørgensen and Messner, 2010). This supports what Vosselman (2012) pointed out that there could be an interdependence between the ostensive and performative approaches when he studied controls in interfirm relationships. In relation to accounting-strategy research, this essay confirms this interdependence through using empirical data.

I would invite further empirical research to test the idea of duality between the ostensive and performative perspectives either in the area of accounting-strategy or other areas such as management controls, governance, sustainability, and so on. Also, with regard to the retail sector, further research may focus on the role of power in the making of SC strategy. In addition, the role of trust in SC relationships requires further investigation.

Essay 4: Heterarchical Management Accounting: The Case of Category Management in a UK Supply Chain

Abstract

New technologies and the accompanying management practices are now intrinsically embedded in rationalizing and institutionalizing new forms of management accounting. How? It happens when forms of organizations and their practices become more fluid, malleable, and experimental. Reporting on a qualitative case study, this essay explores whether this is so. It examines how superseding the CM practices in a UK supply chain justified, instigated, and maintained a heterarchical form of management accounting, as opposed to its hierarchical-bureaucratic counterpart. The case analysis confirmed that a heterarchical form of management accounting emerges as a distributed form of intelligence that penetrates through lateral accountable relations. This makes it possible to value and use diverse principles of evaluation, and in turn, construct a new space for calculating, intervening, and countering. Consequently, heterarchical management accounting constructs and conserves one of the key corresponding organizational properties, namely, ‘boundarylessness’. The message of the essay is that, despite the inevitable ambiguity, temporality, and incompleteness of these ensuing accounting practices, the heterarchical form of management accounting itself gives rise to ultimate clarity and engenders the compromise necessary to reach decisions and take actions out of the frictions and power struggles.

1. Introduction

We are rich, to some extent, in our understanding of the management accounting that emerged from the contours of the post-bureaucracy (Clegg, 1990) that permeates an inter-organizational configuration, but are poor in apprehending the nature of the management accounting that is orchestrated by heterarchical tendencies (Stark et al., 2009). To date, researchers have articulated how the post-bureaucracy has generated multitudes of calculative technologies, but has ignored the primacy of networks and their impacts on the reconfiguration of hierarchies into heterarchies that characterize multipart relationships and newer forms of management accounting. This essay considers CM as an illustrative heterarchical case and articulates how management accounting is implicated and transformed in the deployment of these new heterarchical forms of SCs.

Changes in organizational life do not take place in a vacuum, but instead are influenced by wider socio-economic, political, and technological changes. The discourse of globalization and its related discourses have challenged the Weberian rational/bureaucratic theory of organization which is characterized by hierarchy and rule enforcement (Weber, 1948). Such bureaucratic organizations have been regarded as less efficient in guiding organizations in a business environment that is characterized by volatility, intense competition, and increasingly demanding customers, characteristics that, in turn, promote the idea of flexibility rather than rigidity. Therefore, the traditional bureaucratic forms have been colonised to be boundaryless forms or post-bureaucratic forms, where the predominant mental construct is the network (Josserand et al., 2006).

This putative demise of bureaucracies under the influence of the global transformation and the emergence of post-bureaucratic network organizations has raised questions in the accounting research community regarding management accounting, specifically regarding its role and regarding whether the current management accounting practices and calculative regimes can perform equally in the new organizational forms. Many accounting researchers have examined the role of management accounting in different post-bureaucratic forms, such as SCs, joint ventures, virtual organizations, and so on. (Frances and Garnsey, 1996; Mouritsen, 1999; Seal et al., 1999; van der Meer-Kooistra and Vosselman, 2000; Groot and Merchant, 2000; Tomkins, 2001; Thrane and Hald, 2006). New forms of calculations have been introduced as new calculative tools to the new forms, such as open-book accounting, inter-organizational cost management, total cost of ownership, and so on. However, despite the many calls for practice-focused research (Hopwood, 1983; Ahrens and Chapman, 2007; Scapens, 1990), accounting research in this area is not keeping pace with the rapid changes in practice.

New radical post-bureaucratic forms have emerged and have become prevalent in some industries, such as those represented by heterarchies, that is, “flatter organizational structures with distributed accountability, decentralized decision making, and multiple (often competing) evaluative principles” (Neff and Stark, 2003:175). Such organizational forms “involve relations of interdependence with considerable heterogeneity and limited hierarchy, where workers with different functional and occupational affiliations work on short-term projects that represent the collaborative efforts of diversely skilled people” (Kellogg et al., 2006:23). These forms help organizations to be more flexible and responsive to the rapid changing market conditions. Management accounting research has not engaged with these new forms yet. Therefore, this essay seeks to contribute to this area.

This essay uses CM practices as an illustrative case of the heterarchical relationships. Drawing upon the findings of a case study of a leading UK retailer and its key fish supplier, this essay aims to answer the following questions: (1) How are heterarchical relationships created, problematized, and maintained? (2) Does accounting play a role in the enactment of these relationships? and (3) Are heterarchical relationships embedded in the institutionalization of new forms of management accounting?

The essay is organized as follows. In the next section, I will provide a brief review of the organizational transformation from bureaucratic to post-bureaucratic organizational forms and the emergence of heterarchies to provide a context for this essay. Section 3 describes CM as an illustrative case of heterarchical relationships, while Section 4 clarifies the research methodology. Next, Section 5 is the empirical analysis, and finally, Section 6 concludes the essay.

2. From Bureaucratic to Post-Bureaucratic Organizational Forms

In General Electric's 1990 annual report, Jack Welch, Chairman and CEO of General Electric, wrote (Sonnenberg, 1992:49):

> Our dream for the 1990s is a boundaryless company, a company where we knock down the walls that separate us from each other on the inside and from our key constituencies on the outside . . . . A boundaryless company will level its external walls ... reaching out to key suppliers to make them part of a single process in which they and we join hands and intellects in a common purpose—satisfying customers.

What started as a dream has turned into a reality. Social science researchers have reinterpreted Jack Welch's statement as the transition from bureaucratic to post-bureaucratic organization forms (Clegg, 1990; Cooke, 1990; Heckscher and Donnellon, 1994). This transition was seen as embedded in wider socio-economic, political, and technological transformations occurring during three decades or so (Harvey, 1990). The discourse of globalization, rapid technological advancements, the rise of a neoliberal economic agenda, and the emergence of a new global political order radically altered business markets (Mabey et al., 2000a; Wickramasinghe and Alawattage, 2007). Markets became volatile and increasingly intertwined, and developed into fierce battlegrounds between competitors. The flexibility imperative, associated with companies' attempts to respond to changing market conditions, has almost sealed the bureaucratic structures that reflect Max Weber's legal-rational model (Weber, 1948). The traditional bureaucratic organizational forms have been subject to criticisms from many organization theorists, social scientists, and management researchers (Crozier, 1964; Dyer and Dyer, 1965; Thompson, 1965; Clawson, 1980; Perrow, 1986; Burns and Stalker, 1994). The criticisms usually levelled against the bureaucracy are related to three principal themes: limiting the companies' abilities to react to environmental changes, limiting the companies' capacity for innovativeness, and centralizing power in society. According to Perrow (1986:5), "Bureaucracy is a tool, a social tool that legitimizes control of many by the few, despite the formal apparatus of democracy, and this control has generated unregulated and unperceived social power". Thompson (1965:5) highlights the tendency to conform, instead of the tendency to innovate in bureaucratic organizations: "The extrinsic reward system, administered by the hierarchy of authority, stimulates conformity rather than innovation … creativity is promoted by an internal commitment, by intrinsic rewards for the most part". Burns and Stalker (1994) argue that these organizational forms are characterized by their rigidity and their instituted inflexibility, and by being rule-bound, which limits the ability to respond to changes in market conditions. Therefore, the traditional bureaucratic organizational forms with their routinized repertories, rigid rules and regulations, and formalised control mechanisms that operate within the legal boundaries of the firm, have been regarded as inappropriate and unsuitable to new market conditions and business environments where the boundaries of the companies have become increasingly fluid and elusive – a situation that Callon (1998) labels as 'hot situations'.

In the wake of responding to the above critiques, new organizational forms have emerged. These include post-bureaucratic organizational forms, which blur companies' boundaries and create what Jack Welch referred to as a 'boundaryless company' or 'boundarylessness'. Ashkenas et al. (2002), in their book, The Boundaryless Organization: Breaking the Chains of Organizational Structure', argued that companies need to confront and reshape their boundaries (horizontal, vertical, external, and geographic) in their endeavour to achieve the success factors of the 21st century – speed, flexibility, integration, and innovation. According to them, "The traditional notion of boundaries as fixed barriers or unyielding separators needs to be replaced by an organic, biological view of boundaries as permeable, flexible, moveable membranes in a living and adapting organism"

(Ashkenas et al., 2002:3). This boundarylessness implies that the traditional hierarchy would give way to flatter structures and thus lead to more flexible, innovative, participative, fragmented, decentralized, network-based, and informal organizational forms (Llewellyn, 1994; Mouritsen, 1999). Therefore, these new forms have challenged the traditional conception of organization as implying "a degree of legal and more normative unity" and "a single centre of calculation and classification" as an organization, now, is seen as part of a network of relationships with other actors (Clegg, 1990:19). In addition, the breakdown of time and space as constraining factors in business relations is another key theme of these new forms, as business can take place anywhere and at any time, which, in turn, makes companies more responsive and flexible (Ashkenas et al., 2002). SCs, joint ventures, and virtual organizations are examples of these post-bureaucratic forms (Mabey et al., 2000a).

This transition has attracted accounting scholars to study the impact on and the effect of management accounting. Hopwood (1996) was among the first accounting researchers who proclaimed the need to consider such a transition and to put management accounting in its social and organizational context. In response to this, accounting scholars began to examine the impact of such an organizational transformation on management accounting and control regimes and on the role of management accounting within these new forms.

The introduction of post-bureaucratic forms has propelled accounting researchers to realise a condition for possibility for revisiting the 'relevance lost' thesis (Johnson and Kaplan, 1987) and its post-relevance-lost era in which a number of management accounting innovations have been introduced. Contributing to flexibility and autonomy rather than standardization and control (Wickramasinghe and Alawattage, 2007) has become the primary role of management accounting within the post-bureaucratic form. Frances and Garnsey (1996) argue that the development of these new forms certainly reshapes the nature of management accounting systems, as it necessitates a massive transformation of internal business processes; in turn, this leads to changes to the internal control systems. Kulmala et al. (2002) believe that the introduction of innovative management accounting techniques is necessary but need not involve abandoning the traditional techniques, while Tomkins (2001) believes that it is the perception of management accountants regarding their roles and the way of using management accounting techniques that should be changed and not the management accounting techniques themselves.

New forms of calculations, such as open-book accounting (Seal et al., 1999; Mouritsen et al., 2001; Kajüter and Kulmala, 2005; Agndal and Nilsson, 2008), inter-organizational cost management (Cooper and Yoshikawa, 1994; Cooper and Slagmulder, 2004; Coad and Cullen, 2006; Agndal and Nilsson, 2009; Fayard et al., 2012), and total cost of ownership (Carr and Ng, 1995; Ellram, 1993a; 1994; 1995; Ellram and Maltz, 1995; Wouters et al., 2005), are being introduced in order to overcome bureaucratic pathologies and to facilitate information sharing between different actors. However, other researchers argue that the benefits of sharing management accounting information should not be taken for granted. Thrane and Hald (2006) argue that management accounting, while seeking to create a closer alignment between the company and its external constituencies, can create a conflict of interest between entities within the company. Meanwhile, Drake and Haka (2008:31) highlight the possibility that management accounting "magnifies the strategic uncertainty regarding opportunistic behaviour".

Other researchers have focused on identifying the control archetypes that can be suitably adapted to post-bureaucratic forms (van der Meer-Kooistra and Vosselman, 2000; Groot and Merchant, 2000; Baiman and Rajan, 2002; Langfield-Smith and Smith, 2003; Håkansson and Lind, 2004). Generally, the control systems in these new organizational forms stem from legal contracts and trust rather than from the formal rules and regulations that dominated in bureaucratic forms.

While the previous studies add to our understanding about the relationship between accounting and post-bureaucratic forms, research in this area is still in its infancy and much remains to be explored. With the rapid and continuous changes in markets, industries, and technologies, and in economic, social, and political contexts, companies are required to be increasingly flexible, responsive, and boundaryless to keep pace with these changes. Therefore, a radical post-bureaucratic form has emerged, called 'heterarchy', to help companies cope with the challenging conditions (Stark et al., 2009).

Heterarchy is not a new concept, as it was initially developed by McCulloch (1945) in the field of cybernetics. Indeed, Stark et al. (2009:19) has defined heterarchy as "an organizational form of distributed intelligence in which units are laterally accountable according to diverse principles of evaluation." Heterarchy does not consider a company's boundaries and the boundaries of its local units as 'fixed matter' and as having a flat organizational structure (Bjørn-Andersen et al., 2009); rather, it entails a radical decentralization to cope with the uncertainties and increasing complexities of the business environment by virtually engaging every unit in innovation (Beunza and Stark, 2005). According to Girard and Stark (2003:89), "The new organizational forms are heterarchical not only because they have flattened hierarchy, but also because they are the sites of competing and coexisting value systems".

Although heterarchy has become prevalent in some contexts, such as biotech ventures, new media companies, and retailers (Kellogg et al., 2006), accounting research is still not keeping pace with such kinds of 'new commercial realities' (Hopwood, 1996). There is still only limited knowledge about how management accounting acts within such new organizational conditions, which are characterized by distributed intelligence that is coordinated through lateral accountability and organizing dissonance. Therefore, this essay seeks to contribute to this area of research by utilizing CM practices as an illustrative heterarchical case.

3. Category Management: A Tendency towards Heterarchy

CM has become a growing field of academic research encompassing various disciplines, such as marketing, operations and technology, and management. Its roots can be traced back to the 1990s, where it was introduced as part of the SC project that made use of externally legitimated fashionable notions, such as customer-supplier relationships, networks, and strategic alliances (Banomyong and Supatn, 2011).

CM presents a platform for driving supplier-retailer relationships far beyond the traditional network practices that companies engaged in SCs have been practising for years. It represents a movement towards the shift from traditional SC relationships to heterarchical SC relationships, which "consist of several autonomous actors following their objectives while being interdependent and linked by physical, financial and informational flows" (Hellingrath and Küppers, 2011:3). Although there are more than 120 different definitions of CM, according to the Institute of Grocery Distribution (IGD), the most disseminated definition is still that introduced by ECR Europe in 1997: "a retailer/ supplier process of managing categories as strategic business units, producing enhanced business results by focussing on delivering consumer value" (Zentes et al., 2011:237). A product category is defined as "a distinct, manageable group of products/services that consumers perceive to be interrelated and/or substitutable in meeting their needs" (Hogarth-Scott and Dapiran, 1997:310). CM necessitates the development of heterarchical relationships between retailers and suppliers through an advanced accounting and information infrastructure and technological interface for CM through building the desired skills and expertise and substantially changing structures and functional roles (Freedman et al., 1997; Arkader and Ferreira, 2004). It implies that the retailer selects one of its key suppliers to play the ‘category captain’ role, whereby the key supplier takes the responsibility of managing this category in cooperation with the retailer (Towill, 2005) through developing joint category plans based on category objectives and targets, customer behaviour, and the competitive environment (Dupre and Gruen, 2004).

An understanding of the CM process along with its benefits and challenges can be gleaned from the literature, which draws upon a multitude of empirical data and case studies. The literature can be organized into three themes. The first theme is the viability of CM. The focus is on assessing the viability of CM in terms of the economic logic of profit and loss, that is, the extent to which CM practices are positively correlated with both retailers’ and suppliers’ performance. Some researchers argue that CM enables retailers and suppliers to align their resources to leverage collaboration in ways that improve financial results and that create value and a sustainable competitive advantage (Basuroy et al., 2001; Dupre and Gruen, 2004; Arkader and Ferreira, 2004; Aastrup et al., 2007; Gooner et al., 2011). Therefore, according to them, CM is a viable management tool, as it satisfies the economic criteria.

The second theme is related to the self-serving behaviour, which might harm other actors involved in CM. The emphasis is on the tendency of large suppliers (category captain) to exercise opportunistic behaviours towards other suppliers and retailers. According to some researchers (Gruen and Shah, 2000; Desrochers et al., 2003; Towill, 2005; Morgan et al., 2007; Lindblom and Olkkonen, 2008; Lindblom et al., 2009), CM arrangements may enable key suppliers or category captains to engage in opportunistic behaviour that negatively affects retailer category performance and the performance of other suppliers, who have little choice but to accept that their rivals will be the managers of their brands. Category captains can take advantage of their role to exclude their competitors, exert pressure on small suppliers to cut costs, and so on. Therefore, the imbalance in CM relationships can promote opportunistic behaviour.

The third theme is the role of trust in the development of CM. Trust is seen as a pre-requisite for the successful development of CM relationships. Indeed, according to some researchers, CM is all but impossible without trust if both retailers and suppliers are to enjoy the benefits of CM (Hogarth-Scott and Dapiran, 1997; Aastrup et al., 2007; Gruen and Shah, 2000).

Although CM involves a significant focus on calculations (Free, 2008), it is still placed low on the accounting research agenda. Clinton Free's papers (2007; 2008) about CM can be regarded as pioneering studies that can enhance our understanding of the role of accounting within the CM context. The first paper (Free, 2007) addresses the calculative practices associated with CM (e.g., open-book accounting, joint PM, vendor-managed inventory, etc.). It also suggests that CM can have a coercive or enabling orientation and that accounting can reinforce either of these. The second paper is closer to the second and third themes. Free (2008) argues that although accounting, through its calculative practices, can enhance perceptions of objectivity, rigour, and neutrality, which, in turn, can help in the constitution of system trustworthiness in CM, it also can be deployed in a way that is incompatible with the pronouncements about trust. He also addresses the second theme regarding how CM can encourage different self-serving attitudes.

It is clear that the previous literature focuses on the more functional and managerial perspectives while studying CM. However, CM is much more than merely economic outcomes or behavioural concerns; it is one of the practices that laid the foundations for blurring the boundaries between retailers and suppliers, and for organizational transformations in terms of skills and capabilities, managerial expertise, technology, and calculative regimes.

This essay explores whether CM practices are embedded in institutionalizing new forms of management accounting. More specifically, it analyses CM as a flat structure, where empirical data help to define the boundaries and to focus on how linkages are created, problematized, and maintained, and how accounting participates in the enactment of the CM process. It also shows how new heterarchical modes of calculative tools appear because heterarchical relationships are constructed.

Based on my research, I have determined that heterarchical relationships are constituted by three practices that facilitate the interdependencies and cooperation between the actors involved in the heterarchical relationships. These practices are structuring, coordinating, and performing, and they will be discussed in more detail later in section 5.2.

4. Methodology and Research Site

According to Hussey and Hussey (1997), the role of research questions, together with the epistemological orientation within the research paradigm, is paramount in guiding the choice of research method. Given the interpretive orientation within this research and the nature of the research questions, which are theoretically informed by strings from ANT, a qualitative case study design has been employed in this essay to explore how ideas travel, circulate, and come together to create networks for CM and how this affects accounting representations.

The case study reported here was conducted over a period of two years and ten months between April 2012 and February 2015. The empirical data on CM practices were collected from one of the leading UK retailers and a key fish supplier (category captain). Throughout the essay, the two companies will be referred as "MOJO" (the retailer) and Fish House (the fish supplier and category captain) to preserve the anonymity promised to the participating companies. I chose to study fish CM, after discussions with senior SC manager at the retailer's premises. My decision was due to the intensive suppliers' involvement in managing this category compared to other categories and to the manifold challenges related to the fish SC that have to be tackled by the retailer and suppliers, such as the highly fluctuating supply and unstable demand; the stringent environmental, quality, the ethical standards; and the willingness of the retailer and the fish supplier to offer generous access to the data and information needed. Therefore, I thought that the fish category would provide an information-rich context that would reflect the challenging environment in which retailers and suppliers work together to manage the category efficiently and effectively.

The case study commenced with an initial phase in which the researcher conducted introductory interviews with retailer's senior SC manager, finance manager, business development manager, other managers, and partners (suppliers, distributors, and logistics service providers). The aim was to capture an understanding of the case organization and its SC structure; to collect first-hand information to crystallize SC practices, the nature of the relationship between the retailer and its partners, and accounting practices; to determine which product category would be well suited to be studied in the second phase;

and to identify key informants who could be interviewed. The second phase involved in-depth and topic-centred interviews with the retailer’s fish CM team and the fish supplier’s CM team. The interviews lasted between 70 and 180 minutes and most were digitally recorded and later transcribed. Where participants did not give permission for recording due to the perceived sensitivity of information, extensive hand-written notes were taken during the interviews.

In addition to interviews, data were also collected via other sources, to add depth and rigour to the research; these sources included interviews; participant and non-participant observation at SC meetings, stores, and distribution centres; e-mail messages; and companies’ documents, spreadsheets, templates, presentation slides, and reports. They also included various secondary sources, such as press releases, articles, and professional institutions reports. For the data analysis, the collected data derived from the interviews, observation notes, e-mail messages, and other documents were grouped by common themes and questions. Then, the material was organized into different files and was analysed, and finally, conclusions were drawn.

5. Category Management in the UK Retail Sector

In the UK retail sector, ‘category’ has become the focal point around which the status and roles of expertise that manage the process can be defined and calculative technologies practices can be formed. This focus on ‘category’ can be linked to the increased amount of attention being given to customer care. Customers are more concerned about prices; therefore, instead of shopping for individual brands, customers are tending to shop with categories of products (Hutchins, 1997). In addition, the power of retailers drives manufacturers away from focusing on brand management (Hutchins, 1997). Therefore, retailers’ categories become the focus of management resources, rather than the manufacturers’ brands (Gruen and Shah, 2000).

CM has been introduced and framed in a rhetoric that underlines the notion of making companies flexible enough to contend with challenging exogenous conditions. It is not just about collaboration and information sharing; it is also about building heterarchical relationships between retailers and suppliers that are replete with overlap and multiplicity, and with divergent patterns of relations, calculative practices, and accountability.

The case study presented in this section deals with the ‘fish category’ and the resulting organizational transformation. It recounts CM as an innovative practice towards more adaptive and crosscutting relationships, where new forms of heterarchical management accounting practices operate as intermediaries and mediators between retailers and suppliers. Figure (16) represents a roadmap for understanding the analysis presented in the following sections.

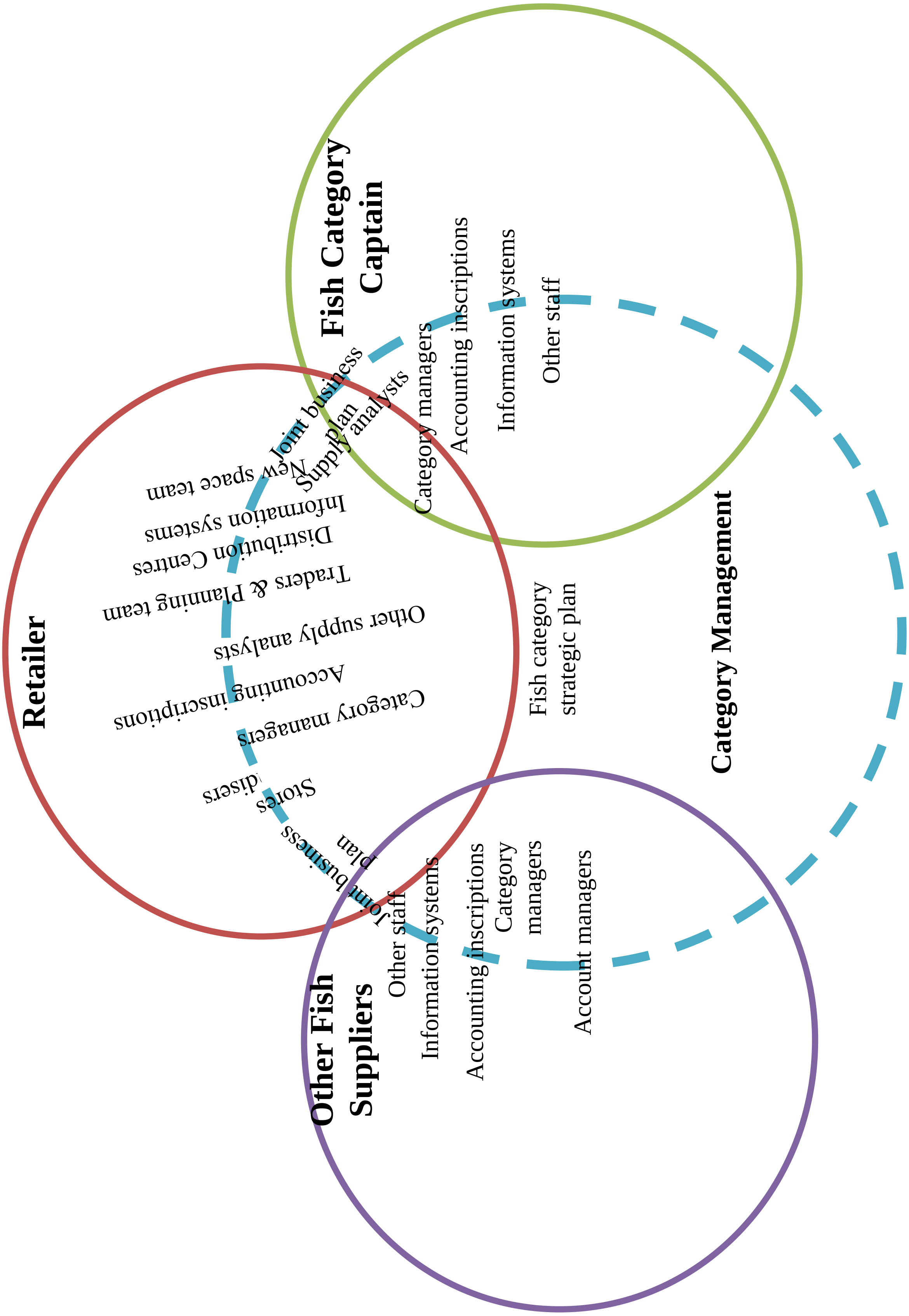

Figure 16: CM as a social space for association

5.1 Factors behind the Interest in CM

The UK retail market is characterized by market concentration, escalating competition and price wars between retailers, compressed profit margins, changing customer demands, rapidly changing technologies, and market saturation (Hogarth-Scott and Dapiran, 1997). The ability of both retailers and suppliers to compete in this difficult trading time has been exacerbated by several factors. The increasing power of retailers and their ability to control brands, the growth in retailers' own label products across different categories bringing retailers into competition with their suppliers, the massive increase in the numbers of products offered by retailers across hundreds of categories combined with lack of knowledge of the peculiarities of each category and the expertise required to intensively manage each category effectively, and the current legislations to ensure fair competition in the market may not be enough (Hutchins, 1997; Davies, 1998; Kurtuluş and Toktay, 2011). In such an environment, companies cannot prosper simply by having some sort of routine in place or by excelling at their operations. To survive in such a destabilized environment, companies need to be relentlessly innovative and to focus their attention on reshaping organizational structure to improve their adaptability (Stark et al., 2009). To overcome these challenges, retailers and suppliers have realized the need to work together more and more closely and, in turn, to adopt a new trend in the collaboration between them. Thus, CM embraces the heterarchical features of distributed intelligence and organizing dissonance.

> *The switch to own label, the growth in own label, and the market concentration leads to category to be in the focus*. (Fish House's category manager)

The interest in engaging in CM varies from one actor to another. For MOJO, market volatility and the intense competition between the big supermarkets are the main driving forces behind the interest in CM. MOJO has recognized that their resources, skills, and knowledge need to be augmented with suppliers' knowledge, expertise, resources, and skills.

> *UK market becomes more volatile. Therefore, responsiveness to that volatility is one of the major challenges [...] We need to work together with our suppliers*. (MOJO's senior SC manager)

Having long-term relationships with retailers and stakeholders' satisfaction are among the key factors that encourage Fish House (category captain) to engage with CM:

> *CM in Fish House was introduced to move the relationship away from a short-term trading relationship based on price to a longer-term collaborative approach, which allowed for longer term plans to be agreed. Also, ethics is one of our main concerns and to be ethical, it is very expensive. However, if we agreed for a long-term relationship with MOJO, this in turn meant a greater confidence developed by our stakeholders in Fish House's business plan to agree the signing off of capex to investment in factories, resources, etc.* (Fish House's category manager)

Other fish suppliers become involved in CM to survive in this market, which is dominated by a few key players. By forging a strong and collaborative relationship between MOJO, Fish House, and other fish suppliers, through different forms of linkages and multifunctional relationships, they are able to bring quality goods to customers in a sustainable manner; this, in turn, will improve their profitability and market share. However, this task is both complex and time-consuming; it is a challenging project.

Trust is one of the main challenges that both the retailer and suppliers face. Indeed, building trust between the retailers and suppliers could be regarded as a pre-requisite for such a kind of collaboration. However, it requires both retailers and suppliers to dedicate significant efforts and time:

> *Trust is one of the biggest challenges that we are facing. […] It takes years to get to the point at which we can have a collaborative way of working with our suppliers. […] It takes long time to build that trust.* (MOJO's senior SC manager)

> *Relationships which form should be built on trust, openness, objectivity without bias and most importantly longer term goals.* (Fish House's category manager)

MOJO has different types of relationship with its suppliers: partnership (small group of big suppliers – one of which is Fish House), platinum (suppliers who have an open-book agreement with MOJO), gold (MOJO has collaborative relationships with those suppliers but a closed book arrangement), silver (the majority of suppliers – working together in specific ranges), and bronze (temporary relationships). MOJO has selected Fish House to become the fish category captain because it trusts Fish House (Fish House supplies the majority of MOJO's fish products) as they have worked together for many years and have established a partnership. For example, the category captaincy requires the supplier to take on the responsibility of managing a product category on behalf of the retailer, including the brands of competing suppliers, and of guiding decisions regarding selection of product range, allocation of shelf space to brands, determination of inventory levels, pricing, and so on, through to obtaining access to full category information from the retailers (Towill, 2005; Free, 2008). Category captains generally have a higher level of resources and data available to them with which to advise retailers. These will include dedicated category managers, the purchasing of panel data, consumer qualitative and quantitative data, event autopsies, the potential to invest more in new projects and so on. This means that they are capable of a greater degree of insight than are other suppliers. However, this does not mean other suppliers are not listened to; rather, it means that the retailer turns to a category partner knowing that such insight will be available if required.

How could working together be of worth or value? This is a fundamental question that companies must answer before engaging in any kind of collaboration or relationship. For MOJO, Fish House, and other fish suppliers, CM is designed to increase category returns (sales, market share, and profit), and, thus, maximize value for themselves. It would seem that the object for their cooperation is straightforward (maximizing the value) and the means of achieving this are obvious (coordinating the resources and activities of retailers and suppliers, understanding consumer behaviour, finding new ideas, etc.). However, although these means are important to survival in the market, they do not really give an advantage, as competitors are likely to do the same (Beunza and Stark, 2012). Therefore, the challenge is "How do you recognize an opportunity that your competitors have not already identified?" (Stark et al., 2009:118). Thus, it is necessary for MOJO, Fish House, and other fish suppliers to find out what they could be doing, by working together, that is of value for them. In addition, the success of CM lies in the ability of retailers and their suppliers to create an atmosphere conducive to cooperation, knowledge exchange, and innovation. Therefore, after several discussions between MOJO and all the fish suppliers they formulated a fish category strategic plan (as we will see later) that identified what the key priorities are and what the companies think could constitute possible opportunities.

5.2 Heterarchical Practices within CM

As mentioned previously, I identified three practices that the retailer and its suppliers are engaged in to facilitate managing the category. Thus, MOJO and Fish House *structure* their organizational and work environment while trying to facilitate cooperation and enhance their adaptability, *coordinate* activities and actions within and across boundaries, and *perform* boundary-spanning activities and roles. Although these three practices can help MOJO and Fish House to improve their dynamic efficiency, they entail problematic consequences that may hinder or jeopardize the achievement of the intended outcomes of heterarchical relationships. I describe the three practices and some of the difficulties associated with them in the following three sub-sections.

5.2.1 Structuring Practices

The fish CM project requires MOJO and Fish House to *structure* their work environment, capabilities, and resources to facilitate the ongoing processes of cooperation and coordination. Such structuring practices involve physical space arrangements, teamwork attributes and skills, and technological interfaces.

Instead of using space to emphasize the hierarchical status differences, an open-plan layout is employed to create an atmosphere that is conducive to interactions between the involved actors and to the exchange of knowledge and information (Stark et al., 2009). Actors sit in a big open room filled with many workstations where actors perform their assigned tasks. Managers sit in the same room as their teams, and workstations are extremely close to each other so that teams' members can talk to their managers or each other by just moving their heads. The rooms are always in motion, with people moving back and forth; team members are involved in a variety of activities, such as concentrating on their monitors or on reports filled with numbers on their desks, chatting, talking on the phone, wheeling their chairs toward the desks of other members to ask about something or to share information, or speaking loudly so they can be heard by members who are sitting at the far end of the room. There are also conference rooms for formal meetings; these are furnished with a large table and a whiteboard, and some are equipped with presentation facilities.

> *The trading team sit behind me so I can just turn around and talk to them. The merchandiser is just over there so I can just shout it, "what's going on".* (MOJO's fish supply analyst)

With regard to the teamwork, the actors are spatially grouped by project. MOJO has put fish in one category along with meat and poultry. However, although fish, meat, and poultry are in one category, three different sub-teams are responsible for managing those items. These teams are under the fresh meat, fish and rotisserie SC manager (he is responsible for the leadership of the three teams and their performance), who is sitting in the same place as his teams and the other teams involved in managing the category (trading team, merchandising team, etc.).

> *In a nutshell, my role is to work with my team to get the right stock into the right stores at the right time in the right quantities. […] Also, my responsibilities include fostering relationships with multi functions and ensuring [the] team also follow, ensuring promotions are landed on time in full, and recruiting the right people into the right teams.* (Fresh meat, fish & rotisserie SC manager)

> *Basically, I'm in a team of ten people. There are four people that do meat, there is a poultry team (four people), and then there is a fish team as well. So, there are two people who do fish […] We sit in one big team, but we all deal with our separate areas.* (MOJO's fish supply analyst)

Although each sub-team concentrates on its area, teams members spend much of the time holding informal discussions.

> *Obviously, we learn some things from different areas, say, something happens in meat which we can learn from.* (MOJO's fish supply analyst)

In addition, Fish House has split the business into two categories: frozen and chilled. As Fish House the category captain for many retailers, it has grouped the personnel by project for each client. Therefore, there is a team dedicated toward managing MOJO's fish category. This open-plan arrangement allows interactions to take place between the different teams with different skills, backgrounds, and expertise; this means the information can roam freely, which, in turn, enables the actors to respond quickly to any problem or change in the market conditions. It also encourages innovation through the continual reshuffling of expertise, skills, and experience.

Those teams that comprise the CM represent a "complex organization of diversity", which begins by "demarcating specialized functions" (Stark et al., 2009:135). The personnel are divided into teams based on the role to be played in the CM project and their level of experience. The teams participating in the fish CM project include MOJO's fish supply analysts team, MOJO's merchandising team, MOJO's trading team, MOJO's distribution centres and stores, Fish House's CM team, and other fish suppliers' teams (see Figure 16). CM is characterized by complex interdependencies among the activities of different teams. These interdependencies and interactions between different teams from different companies can yield new insights about how to manage the category in an innovative way. In interaction with MOJO's merchandising team, which is responsible for product layout in the store and for determining the product lines to be on display in each store, fish supply analysts have learned that some stores will not have all the lines because they cannot sell them; for example, Scottish salmon is sold only in stores in Scotland. Therefore, fish supply analysts have to consider this while doing their forecasts.

> *This team is quite important because they determine what stores have which items […] that would affect our forecasting and waste bill. So, say that, extra special salmon is in that store, and it is all going in the bin - that will come back to me, and I will dig into to find out why is this waste. […] So, if they are not right that leads to waste.* (MOJO's fish supply analyst)

MOJO's trading team is responsible for pricing and promotions, which, in turn, affects the forecasting done by the fish team. Meanwhile, MOJO's new space team looks after the initial forecasts for newly opened stores based on the information passed through the merchandising team regarding the sort of product lines to be displayed in that store. Then, after a couple of months, the fish team takes over this responsibility. In addition, MOJO's distribution centre managers and store managers ensure availability in stores across the portfolio of products they manage across their whole estate.

Fish House, as mentioned before, has two CM teams: chilled and frozen. Each team comprises four category managers (as Fish House is the category captain for four different retailers) and one category director. One of the chilled category managers and one of the frozen category managers are assigned to manage MOJO's fish category, while Fish House's account managers are responsible for negotiating price and promotions with MOJO. Other fish suppliers' managers and account managers are also engaged in CM.

Despite the number of calculations involved in CM, accountants are not actively engaged in CM or even in SC practices in general. Concerns have been raised regarding their competence in SC matters and their ability to incorporate these matters into their conventional accounting practices. According to the senior SC manager:

> *The reason is predominantly lack of supply chain knowledge. Most of management accountants we have are very good in general accounting, but they don't specialize in supply chain […] Management accountants are looking after the trends of the business.*

The common belief is that managers are more qualified than are accountants in handling CM and SC issues. This can be tracked back to the business schools and professional bodies that are responsible for qualifying a competent and knowledgeable workforce:

> *I don't need accountants at the store. I am an accountant in very much of what I do. I am a general manager who has to be accountant. That is my job, is controlling those costs in such a way that we become a profitable and credible business.* (Store's general manager)

In this case, to make CM success part of the competitive strategy, organizational transformation was also necessary in terms of training, skills, and capabilities. Again, the question of what counts needs to be answered: What are the credentials and skills that are highly valued? At MOJO and Fish House, "some criteria of worth" are shared across all teams (Stark et al., 2009:103). Teams' members should be able to get along with each other in a fast-paced and stressful work environment and be able to respond quickly to unexpected events. They also should have the necessary qualitative and quantitative skills, knowledge of software packages (PowerPoint, Excel, etc.), presentation skills, good understanding of CM practices, and so on. Therefore, MOJO and Fish House usually conduct training programs to retrain their staff to provide them with the necessary skills to better manage the category. However, as each team has its own unique role in CM project (as discussed previously), therefore, "not all criteria of worth are shared" (Stark et al., 2009:103). For example, the introduction of CM has created new job categories or titles that are, sometimes, unconventional. 'Category manager' is an example of this. This new job title requires those managers to engage more intensively and deeply with the retailers to advise them with regard to how to manage the category and bring value to the retailers. The Fish House's category manager has to interact with different teams inside both MOJO (e.g., fish supply analyst team, trading team, merchandising team, etc.) and Fish House (account managers, sales and commercial team, brand managers). Beyond the obvious qualitative and quantitative skills (e.g., ability to conduct interviews and write surveys to glean an accurate understanding of the consumers, etc.), the presentation skills required to support pitches for business, the category reviews and general B2B daily duties, and a knowledge of software packages (PowerPoint, Excel, retailer internet sites), this position requires actors with extensive skills and capabilities who are able to thrive in such flat organizational structure.

> *It is necessary for category managers to have analytical skills (detailed understanding of category management measures and standard charts [share of trade/growth, distribution and rate of sales, switching, measures trees, rolling charts, promotional analysis] and being able to understand and create an argument to grow a category). […]The use of photographic studios, specialist modular packages are all part and parcel of supporting the retailers and would not be required if category management was not part of the pillars for growth in.* (Fish House's category manager)

Therefore, the post of category manager has evolved into a composite: accountants, information systems experts, marketing managers, designers, etc.

Regarding technological interfaces, the complex interdependencies among the activities of retailers and suppliers has led to the need to find new ways for social interaction to occur without physical contiguity (Stark et al., 2009). Extending the boundary across space and time is of particular importance to both MOJO and Fish House. Therefore, developing technological interfaces for CM was important to overcome physical boundaries and distances, to make teams' work available to each other, and to respond quickly to customers. Thus, IT plays a key role in the success of MOJO, as it can be regarded as a key facilitator in remaining a customer-focused organization. RE (anonymous name assigned to the database) is a web-based exchange that links MOJO with its suppliers. It captures sales forecasts, actual sales, stockholding information, and so on – by item, by store, by day- which is accessible by MOJO and its suppliers to give them real-time stock (real-time data enables MOJO to implement just-in-time to minimize the costs) and flow information so they can plan and analyse their businesses:

> *All suppliers are connected to the RE database. Fish House has access to the full fish category information because they are the category captain, so they can get access to all suppliers' information, but individual suppliers just have access to their lines. So, they will be only able to pull up information related to their lines.* (MOJO's fish supply analyst)

This database pulls information from a variety of information systems that MOJO uses, including F System (which forecasts order need and creates purchase orders), PL System (which captures data related to store forecasts, daily splits, policies [promotional uplifts, downturns]), Store System (which provides data regarding sales, on hands, markdown and waste volume, receipt of deliveries from depot/supplier to store), and H System (store/depot alignment)[16].

The knowledge of MOJO's RE database is essential for Fish House, as without this, the retailer would not consider Fish House for CM status. Fish House also subscribes to Kantar, which is an online database reporting live trend data, to benefit from the market tools available from Kantar in managing its business and retailers' fish category.

[16] Anonymous names assigned to the systems

> *We subscribed to Kantar to know about trends, but from MOJO's database, we can know the actual sales numbers. Therefore, we benefit from the relationship with MOJO*. (Fish House's category manager)

In addition, e-mails and phone calls play an important role in enabling the actors to be aware of developments, even if they are out of the workplace, and to respond quickly to any unintended situations.

I noticed that there are three key difficulties associated with performing *structuring* practices; teams' compositions are rearranged from time to time, some actors work on multiple projects simultaneously, and there are issues regarding the accessibility of the RE system.

During the data collection period, the fresh meat, fish and rotisserie-SC manager was moved to a different project and replaced by a new manager who had previously been the SC manager of chilled dairy, cheese, and cooked meat. The new fresh meat, fish and rotisserie manager asked me to give him several months before conducting an interview him so he could familiarise himself with the fish SC. This shuffling of personnel and expertise necessitates ongoing knowledge exchange and requires team members to cope with this change.

Working on multiple projects simultaneously is another difficulty. For example, the fish supply analyst does the forecasts for MOJO and, at the same time, helps Fish House with their forecasts:

> *I can visit them [Fish House] every two to three weeks to check if everything is all right and help them with the forecasting on their side and stuff like that, but my desk isn't there.* (MOJO's fish supply analyst)

However, it seems that actors are dealing with these two difficulties in a positive way.

The last difficulty is related to technological interfaces. As mentioned previously, the RE system is accessible by Fish House and other fish suppliers who need to know the order size to be provided by each supplier, the distribution centres to which each supplier should deliver, and the quantity that should be delivered to each distribution centre in order to deliver the right stock to the right distribution centre at the right time. The suppliers can see up to next week's forecast through the RE system. However, this system has drawbacks:

> *It is not a great system because it isn't updated hourly; it is updated four times a day*. (MOJO's fish supply analyst)

Because the system is not updated continuously, shortages can occur at MOJO's sites. For example, a fish supplier checks the system at 6:00 am and, according to the system, the order size for this day is 500 units to be delivered at 2:00 pm. Therefore, the supplier will start to prepare the order. However, during the day, the order size increases from 500 to 800 units. The supplier will only know about this change at 11:30 am. Therefore, the supplier needs to make another 300 units within two and half hours; otherwise, there will be shortage. However, making such changes is complex. This issue is a significant challenge for both MOJO and all fish suppliers and affects the companies' abilities to react to changes.

5.2.2 Coordinating Practices

Coordinating the activities among heterogeneous actors who have different skills, interests, and expertise is one of the attributes of heterarchy, as this is how intelligence is laterally distributed among the teams. The *coordinating* practices focus on lateral planning and decision making.

The heterarchical structure of CM has flattened and laterally extended the planning and reporting structures that result from the complex interdependencies among teams and the distributed intelligence of CM. According to Stark et al. (2009:102), "The more the project members must take into account how their actions will shape the parameters of others, the more they must increase the lines of lateral accountability". The fish category strategic plan, joint business plan, and weekly forecasts are examples of lateral planning activities.

The fish category strategic plan (see Figure 16) is a three-year plan that defines opportunities and the value that can be achieved from working together. This plan is a step in a logical continuum that guides the retailer and fish suppliers in their CM efforts and sets the direction and focus for all suppliers working in the category. This gives all suppliers an understanding of what the key priorities for the retailer are and how they intend to achieve them. The word 'collaborative' is often used when discussing relationships between retailers and their suppliers, but MOJO really believes in this principle and that is why it utilises its suppliers' input. The aim is to codify the innovations and ideas agreed upon between the actors involved and then to translate them into applicable practices.

> *We are developing long-term strategic plans together based on historical sales, future trends, and a NPD approach*. (Fish House's category manager)

MOJO first issues a 'Supplier questionnaire', which must be completed by the suppliers. In the questionnaire, suppliers provide information about the following issues:

- Market performance – sales, growth, sector performance, retailer performance, inflationary factors
- Consumer trends – key trends in terms of cuisine, flavours, meal solutions, packaging trends, new channels, loyalty advertising and branding, promotions, SWOT analysis, historic growth drivers, current growth drivers
- Future trends – consumer needs; macro UK trends such as health, economy, labour market, lifestyle, travel and tourism
- Best in class – example of a retailer excelling in the current environment, also space allocation, gaps, inspiration, key sectors, barriers to achieving success
- Grow/maintain/decline – areas on which to focus
- Size of the prize – share and opportunity size (e.g., the bonus to be given to the retailer by the supplier for achieving the sales targets).

According to Fish House's category manager, the identification of trends is one of the key challenges for the suppliers:

> *From a supplier point of view, the challenge would be the identification of the pertinent trends which will support long-term growth. Consumer behaviour has changed very rapidly post the recession [so] that retailers are struggling to keep up with different focusses. The key behaviours changing are larger out of town shopping trips being replaced with more frequent top-up shops from local stores. The shopper mission has changed due to savvy shoppers looking to maximise their budget. Shoppers are also favouring other channels, such as click and collect and also home shopping (online). Giving the right advice, therefore, is the biggest challenge, and this can be managed by utilising skilled experienced category experts who are able to analyse data and insight and draw pertinent conclusions*.

After receiving suppliers' responses, MOJO's trading and planning team analyse and compare the information contained therein. Then, they organize focus groups, which are composed of delegates from MOJO, Fish House (as a category captain), and all other fish suppliers, to discuss the questionnaires' responses; discuss issues like price, availability, and range; and formulate the strategic plan for the fish category.

> *Price is a matter of negotiation. The suppliers will suggest a price, and then MOJO will see how much money they will make; then they may come up with a new price. So, there are a lot of negotiations*. (MOJO's fish supply analyst)

These focus groups provide a versatile medium for generating ideas for innovation that can add value to their businesses. The coexistence of potentially conflicting ideas and practices seems to characterize these focus groups, as all actors recognize the importance for their businesses of engaging with in CM.

> *The objectives for companies tend to be aligned through a collaborative approach. Retailers work in a B2B relationship; therefore, through category meetings, Joint Business Plans, top to tops, and other contacts throughout the year, there tends to be a close understanding and matching of priorities. Having a profitable business which works for the supplier and the retailer is the key priority which drives this long-term collaboration. It should come as no surprise - the strategy - if the communication has been close throughout the year*. (Fish House's category manager)

MOJO also has its own research commission and internal meetings and presentations to establish how it wants to proceed using all data sources and expertise available to it. Suppliers are not involved at this stage.

The strategic plan is delivered in a presentation format with all suppliers and key stakeholders from MOJO. The plan outlines market factors and MOJO's corporate objectives and mission, then delves into a fish-specific analysis of performance utilising Nielsen, Kantar, RE and consumer insight. This then evolves into the building blocks of success and the targets that MOJO is focussing on. Also outlined are new initiatives that are expected to drive category growth. Finally, a planning document is given to the suppliers stipulating key actions for each supplier to work on as part of driving this growth. As the retail environment is changing so rapidly in the UK that retailers have had to react quickly to ensure that they remain competitive, the plan can be reviewed by MOJO and changed if need be.

Translating that strategic plan into action is the next stage in the continuum. An annual joint business plan (see Figure 16) is used to translate general strategic objectives into specific targets and KPIs. The joint business plan is an accounting artefact based on the direction provided by the fish category strategic plan. Each supplier has its own individual business plan.

> *The trading relationship of the past (retailers seeking the best price from suppliers) has been replaced with a more collaborative approach with joint business plan a key report used to support growth for both businesses.* (Fish House's category manager)

> *We do these annual plans across each team to set out a vision for the year for the teams and so everyone knows what the targets are for the year and what projects we are doing to help drive our part of the business.* (Ex- fresh meat, fish & rotisserie-SC manager)

All data will cover the current year actuals, latest estimate, current year base plan, and last year actuals. Data included are sales, quantity, average price, ships at cost/quantity, waste, gross profit and so on. There are also summary pages summarising the performance across all measures and these detail the actions under the pledges or targets set out by the supplier as part of the category plan.

MOJO's merchandisers and Fish House's category managers and account managers are responsible for preparing the joint business plan. An analysis of the previous year's performance is undertaken utilising the RE data. With the data to hand, the account managers and the category managers agree a monthly plan taking into account NPD launches; promotional events, such as Easter and Christmas; ongoing promotions; PR activity; changes in space; projects such as packaging changes/improvements, and so on. Once all the activity has been forecasted in terms of sales, then the joint business plan spreadsheet will be filled in. After this has been completed, there will be a monthly meeting set up with the MOJO commercial team; this is conducted in the retailer head office. The plan will be talked through in detail, and the targets will be agreed and then monitored throughout the year.

> *The collaborative nature of the plan is to drive growth for both businesses, so setting realistic targets is the biggest challenge to drive profit and growth for the retailers and the suppliers. The accuracy of the data is absolutely crucial to get right as, if the targets set are unrealistic for promotions, events, or activities throughout the year, then the likelihood is that a supplier could miss the agreed target. It is in both the retailers' and suppliers' interest to achieve the goals, as both businesses have to report back to their senior teams regarding the sales and profit targets.* (Fish House's category manager)

The joint business plan is then reviewed monthly to ensure that the retailers and suppliers are going to achieve the targets.

To implement the joint business plan, MOJO's fish team establishes weekly forecasts for each store and item. MOJO's fish supply analysts team consists of two members: one works for MOJO and the other works for Fish House. The supply analyst working for MOJO can make accurate forecasts based on last year's sales and consumer behaviour analysis, but needs to make sure these forecasts take into consideration the supply side (i.e., the suppliers). Therefore, in preparing the forecasts, it is necessary to involve a team member who is familiar with the supply side in order to benefit from distributed intelligence. The fish team uses the information provided by the merchandising team and Fish House's category managers about the lines to be on display in each store.

> *We are working with merchandising team for modular builds and discussing and designing store by store modular to get the right product in the right place (high, low, med demographics).* (Fish house's category manager)

The F-system is used for weekly forecast and purchase order calculations, which are based on Deseasonalised Demand. Deseasonalised Demand is the average weekly forecast for an item across 52 weeks. This forecast is held in the PL system, and therefore, the right PL system forecast minimizes the time spent manually overtyping. Order size is determined by the planned sales forecast and the planned closing stock (the volume of stock expected to carry over for the following day's sales).

> *We basically order about £3 million worth of fish a week. We will go and say, for example, one store sold 10 salmon last week; the week before, we sold 15. So we will put somewhere in the middle of that, so we will put about 13 to 15 units; so then we'll order that for that store, and then, obviously, we do the same for all the stores. We look at every single store and every single item to make sure we are ordering the exact amount which we need. I look after 34,000 items. So, it is quite a lot.* (MOJO's fish supply analyst)

The fresh meat, fish and rotisserie SC manager usually checks with the fish team about the forecasts of individual item/stores, sales, wastes, and all other information available through the F system to see how they are developing, and this will, in turn, dictate the challenges, actions, and communications needed by various parts of the business. The F-system is designed to allow fish supply analysts and the fresh meat, fish, and rotisserie SC manager to receive an alert when planned sales and actual sales differ. Pre-determined tolerance levels are set, and when they are exceeded, alerts are raised. For example, if the planned sales for a week were 800 units and the actual sales were 400 units, the variance would be 50%. If the tolerance level was set to less than 50%, then the alert would be raised and the fish supply analyst would investigate.

> *We have a host of reporting suites that are automatically generated daily and give details on availability in stores (by store, by region etc.), waste in stores, inbound from our vendors etc. These reports then build up to a weekly, monthly picture throughout the year as necessary. The reports are available for supply / trading etc. – all relevant stakeholders.* (Ex-fresh meat, fish and rotisserie SC manager)

> *We update the forecast at least once a week, but we may update the forecast during the week in exceptions. We have got these systems which tell us if we are selling over. In the morning, we come in and check if we have got exceptions. So, if salmon is sold over, we will put more. If something else is selling massively under, for example, we plan to sell 1000 units and we have only sold 500, we will put that down. So, if we have got exceptions like that in the morning, we will do that.* (MOJO's fish supply analyst)

There are many benefits to using the F-system to manage forecasts, including visibility, specific detail to view (Chain, distribution centre, store, and item), quick reaction to changes in sales, and ease of checking. However, this system is time consuming, and it is accurate only when done at item/store level, but is inaccurate when done at item/depot level.

> *Having accurate forecasts is a difficult job but we work with historic information and the knowledge we have and time of week/month /year and what weather is doing etc. […] Basically, very, very difficult to get it right, but we pride ourselves with being there or thereabouts.* (Fresh meat, fish & rotisserie-SC manager)

> *In the perfect world, you would never have to touch the F system (to update), because the same person would go into the same shop every week and buy the same product, so everything would just go nicely, but it doesn't so […] They always say we shouldn't be doing that because the system should be managing itself, and we should just be doing project work, but there is no way. It's all about updating the system.* (MOJO's fish supply analyst)

MOJO and Fish House *coordinate* with regard to buying fish from international suppliers. Fish House buys different kinds of its products from different countries throughout the world, such as Indonesia and Vietnam, to satisfy MOJO's needs, to provide customers with a variety of choices, and to make savings that can be passed on to customers in terms of lower prices. However, international suppliers should be certified by MOJO. Furthermore, the international suppliers should satisfy Fish House's standards as well as MOJO's standards regarding the method of fishing, the quality of fish, and the method of cleaning fish, and so on. Therefore, both MOJO's and Fish House's representatives visit international suppliers' sites to check everything and to decide whether to certify those suppliers or not.

> *We have to know each and every supplier. Because, imagine a customer buys prawn (coming from abroad) and then complains, and MOJO has no idea where it comes from [...] Everything has to be checked and checked and checked. It's a big thing.* (MOJO's fish supply analyst)

The main difficulty that results from performing coordinating practices is ambiguity regarding the identity of actors. You can find job titles on the business cards of some actors like "controller for MOJO at Fish House" or "MOJO's buyer at Fish House". MOJO's buyer spends most of his time with members of Fish House's teams, travelling to other countries together to check the quality of fish provided by international suppliers. In addition, as mentioned before, one member of MOJO's fish supply analysts team works for Fish House.

> *I work for Fish House, but I work for MOJO as well. I mean, MOJO don't pay for me; they're just kind of getting me for free. I get paid by Fish House (because they are the category captain), but I do MOJO's job, like as the same as my colleagues. But, I have more supply side as well, so I can speak to Fish House more freely. I can speak to them in the morning. I can ring them. So it is quite good relationship. [...] I also deal with all other MOJO's fish suppliers and I can talk to them like I do with Fish House. So, I feel like I work for MOJO.* (MOJO's fish supply analyst)

Therefore, it is clear from the above that this kind of distributed intelligence has created an ambiguity with regard to the identity.

> *I guess it is good for MOJO because they don't have to pay, and it is good for suppliers as well because they have got somebody in here, and they know what is going on. [...] But, if it is MOJO's colleagues, they are not necessarily going to care about the supplier kind of thing. So, they are just going to order what's best for MOJO. Because we know what we can do as suppliers, we know how hard it is to get that stock, so we do what is best to make it happen.* (MOJO's fish supply analyst)

However, it seems that companies and team members are dealing with such issues in a positive way.

5.2.3 Performing Practices

Performing practices focus on the implementation of the plans that have been set through the *coordinating* practices, setting performance criteria for measuring the work done by the various actors along the chain, and reporting.

The role of Fish House as a category captain continues during this phase. MOJO will require support from Fish House's category managers throughout the CM process in terms of autopsies of key launches – summer, autumn, Easter, and Christmas - to drive the NPD agenda, and to provide consumer insight, regular promotional insight and in-store activities, channel analysis, format analysis, and open-book costing analysis to control costs. Fish House's category managers are in regular contact with trading and planning managers for category reviews, NPD processes, autopsies, waste management, modular builds, and so on:

> *We are working together with MOJO. You have to give them what they don't know. We go to ask shoppers. We do store insight. We support people in stores.* (Fish House's category manager)

Fish house is required also to prepare various accounting templates and reports to MOJO to review the fish category's performance:

> *Weekly/monthly reporting is an essential part of the contact between retailers and supplier.* (Fish House's category manager)

The reports include weekly gap analysis, store insight, promotion analysis, NPD tracker, Kantar report, market size and retailer share, FORMATS performance, and retailer KPI performance YOY levels (see Figures 17, 18, and 19 below). Sometimes, MOJO's fish team can ask Fish House to prepare additional reports and *ad hoc* analysis.

> *In busy times, like Easter or Christmas, when we have not got time to look at sales, we will say to Fish House, 'Right, will you send us a sales report?' They will send us a report everyday of every line sale of every store so we can track what lines are selling and what lines are not selling. So, it saves us hours for doing it ourselves.* (MOJO's fish supply analyst)

1st March 2015	Total Market (£)											
Value (£'000)	52wks				12wks				4wks			
	Last Year 52wks	Latest 52wks	£ +/-	% +/-	Last Year 12wks	Latest 12wks	£ +/-	% +/-	Last Year 4wks	Latest 4wks	£ +/-	% +/-
Total												
Total												
Total												
Volume Tonnes												
Total												
Total												
Total												

Figure 17: Market Size and Retailer Share

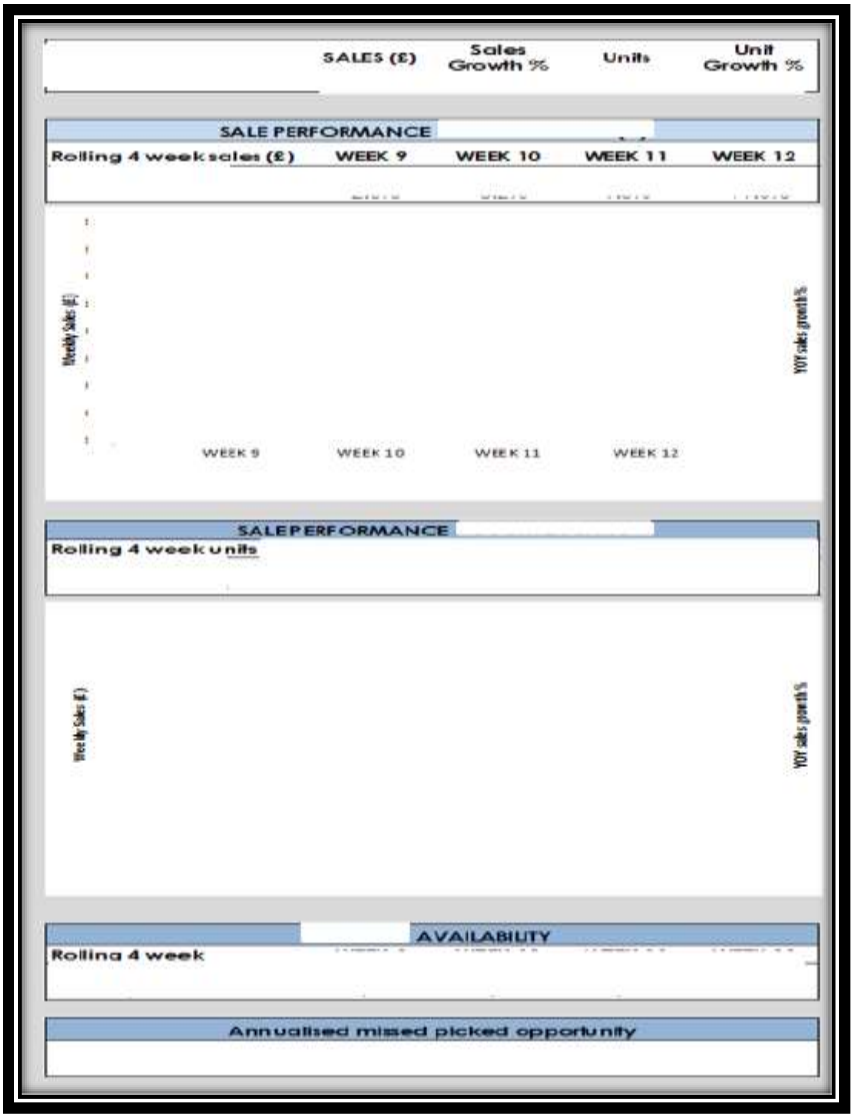

Figure 18: FORMATS Performance

Figure 19: Retailer KPI Performance YOY Levels

Fish House also prepares reports for internal use, such as monthly supplier performance and monthly market snapshot.

Regarding performance criteria, as a result of having divergent criteria of worth (as mentioned previously), there are different performance criteria for measuring the value of the work done by the actors.

The fish supply analysts host a conference call every Monday at 10:30 am with Fish House's category managers and all other fish suppliers to check that everything is proceeding according to the plan and that suppliers are willing to deliver the orders on time in the right quantities. The performance of the fish team is measured according to in-stock and waste targets on a weekly basis. The target is to achieve 100% in-stock, which means there is one item of every line on the shelf. The waste target is 5.8%.

> *Basically, you aim to get 100% in-stock. But, in reality, you can't get that because if every store has got one item of every line, it is going to be loads of waste because nobody buys everything all at once. So, our target on pre-packed is 88% and 78% on the ice counter […] that numbers on the bottom are waste targets. The waste of this week so far is 5.4% of the sales and the target on that is 5.8%, so not bad on that […] I have been doing it four years now, and as you can see, I am still struggling on getting in stock where it used to be, because it is really a gamble, and you are just guessing what people are going to buy.* (MOJO's fish supply analyst)

The performance of all fish suppliers is measured through Inbound (which is the percentage of orders filled by a fish supplier over a period of time). The target is 99%:

> *The target is 99%. […] We do give a percent leeway. But, obviously, it should be 100, really, because if we ordered 100, we need 100 […] If somebody bought something last week and went again this week, then that 1% is not in that store, then he is going to be disappointed.* (MOJO's fish supply analyst)

All fish ordered by MOJO are delivered by the suppliers to distribution centres first and, then, distribution centres distribute it to individual stores. There are many distributions centres around the UK, and each centre serves about 50 stores. Every fish supplier has a specific time at which he has to bring his products into the distribution centre. Furthermore, the supplier can come in 15 minutes early at the most, as vehicles are assigned to specific docks and distribution centre's resources (personnel, space, material handling equipment, etc.) are allocated in advance according to the schedule in order to be available at the arrival time.

> *If we know that we gonna get, say, 10 vehicles between 4:00 am and 6:00 am, so will have 20 people ready to work, to offload the vehicles, to pack the products to be ready to be delivered to stores. If five of the vehicles are late, so, we have basically five people standing about two hours for doing nothing. This costs us money through wasted hours. […] If we don't deliver the product to the store on time, the product isn't on a shelf, which is a big problem in supermarket world.* (Distribution centre's finance manager)

If any supplier does not keep to the time specified, the distribution centre's general manager will speak to or visit the supplier to find out the problem and try to solve it. In severe cases, the distribution centre can reject the order and, in this case, the supplier bears the burden of rejected order.

A distribution centre's performance is measured on savings (2% cost saving), warehouse rate (the number of hours taken to consolidate and get everything ready to deliver orders to stores), average cases per journey (on average how many cases the distribution centre puts in a vehicle to take the goods to store), bus stop time (how efficient the distribution centre is in getting things to the store on time), and miles per gallon (on average, how much fuel do the distribution centres use for the miles they do).

> *If we achieve the target, which is 2% cost saving, then we will get 100% bonus. But if we achieve less than 2%, so the bonus will drop.* (Distribution centre's general manager)

The distribution centre delivers the orders to stores. If any store does not receive the required quantities or products, then the manager of the store reports to the distribution centre's general manager and the fish SC analyst. They will check the H system to see whether the store is scheduled to get that product, as this system provides details about the price of an item, the stores in which the item will be displayed, the case size, and so on. Then, the distribution centre's general manager or fish SC analyst contacts the fish supplier who is responsible for delivering that product.

Fish House sends its representatives to stores every week to support and help people in the stores, to check sales, and to talk with customers about their preferences and recommendations. This is part of Fish House's role as a category captain.

Stores use the store system to run their businesses. They use the system to check sales flow, stockholding information, item retail price, and item profit margin, and orders coming in every day from the distribution centres. The store system is updated every 15 minutes. If a product goes into promotion, then the store general manager will ask the people on the shop floor to increase the space assigned to that product to get more volume. If promotions do not increase sales as expected, then the fish supply analysts will reduce the order size and update the RE system so that suppliers know that they need to deliver less volume, even if they have already prepared the orders.

> *If promotions done really bad. Suppose, we are expecting to sell 50000 a week and you sold 10000 a week. That happens quite a lot really […] It is not our fault for decreasing the order size; it just hasn't been sold […] Suppliers might send it into different supermarket chains or they might get rid of it*" (MOJO's fish supply analyst)

The actual sales numbers are regularly checked by the store's general manager (through the store system), MOJO's fish supply analysts, and Fish House's category managers (through the RE system) to examine the sales pattern and to detect problems and, in turn, take corrective actions.

> *If a store sells none of the special smoked salmon for six months, they can't sell special smoked salmon because the price is too high for that store. We still would be putting one case in every week because the customers have to have that choice. So we must have a look at stores which can't sell specific items, and then we will say, 'This store can't sell this; it costs us £10,000 in waste, as they have not sold any', and then we will report to our boss and the trading team.* (MOJO's fish supply analyst)

The trading team will discuss the issue with Fish House's category managers and make a decision either to remove the product from the shelves of that store or to put fewer units on the store's shelves. Then, the trading team will suggest that to the merchandising team, which, to save money, then will withdraw that item from the store or reduce the number of units to be displayed. MOJO can reinvest those savings in reducing the prices of some products in order to achieve a competitive advantage over other retailers.

> *We have saved 130,000 from January to now, so that is better than our plan, so we can reinvest that 130,000 say back into price. So maybe we can do a better price; we could even make a loss on a product, so you can sell a product for a pound while its cost is £1.50 because we've got that 130,000. Obviously, if you are not saving anything, things are not good.* (MOJO's fish supply analyst)

One of the main issues that the store general manager faces is the accuracy of perpetual inventory (PI) numbers. The general manager needs to check the perpetual inventory number (through the store system) regularly because if this number is correct, then stockholding information will be accurate and, in turn, the forecasts done by the fish supply analysts will be accurate.

> *If the PI, the actual volume of stock that we have is accurate, then the supply team at MOJO push on the right volume for us to take a day sales* (Store's general manager)

The people in store have a gun to scan every single item's bar code; this is connected to the store system to update the PI numbers. Many errors can happen during the scanning process (e.g., scanning an item many times, forgetting to scan some items, etc.). These errors will affect the PI numbers, which, in turn, affect the sales forecast and purchase order calculations because the PI numbers are fed into the F system and the RE system.

> *Say we have ordered ten salmon for a store this week and ten for the next week. The store sells eight, so there is two left by the end of the week…If they have got everything right, that (the F system) will now say that the store has two… But they might do things wrong in stores; they might type numbers in wrong or they don't do a count… If they have not scanned the gap and put a 0 in there, then, the system still thinks we have 10. So, when it gets to next week our system thinks we have got ten left in store, but in theory we have got two in store. So our system will not order anymore. It is not going to order another ten for this week. So, in store there is only two, so say, by Monday or Tuesday, there is going to be none left, so then we get stuck.* (MOJO's fish supply analyst)

If this happens, the store general manager will call the fish supply analysts, who will check the F system first and will ask the store's general manager to recheck and update the PI numbers. Then, the fish supply analysts will update the F system and the RE system. They will also call the fish supplier to deliver an additional volume of that item to that store.

The performance of the individual stores is measured mainly on sales (every store needs to achieve 2% above the target sales), waste, and loss prevention.

> *We challenge ourselves by 2% increase. That is done through good planning. That isn't done through just make it 2%, because if this is the case, then make it 20%. Everything is achievable. That is an important piece of any plan. There is no point to have a non-achievable plan.* (Store general manager)

It is clear from the above that there are different performance criteria depending on the role and function of each actor.

6. Discussion and Conclusion

Cooperation, knowledge exchange, and innovation have become integral to meet the challenges of the UK retail market and the way business is conducted in it. In our case, the main challenges for MOJO and its fish suppliers are market volatility, market concentration, and intense competition between big supermarkets. To cope with these challenges, MOJO and its fish suppliers have developed a new form of SC relationships, under the label of CM, which is unusual in the food industry. This new form is characterized by heterarchical and decentralized relationships that entail distributed intelligence and organization of diversity (Stark et al., 2009). Therefore, drawing upon heterarchy framework by Stark, this essay focused on studying this new form of SC relationships, its characteristics, challenges, and drawbacks and the accounting practices deployed by MOJO and its fish suppliers under this new form.

As heterarchy shares many characteristics with ANT, such as analysing every setting as a 'flat space' and the symmetrical treatment of humans and non-humans, it enabled me to follow all the relevant actors across a variety of settings to understand how they interact to form heterarchical relationships. It also helps in exploring the complexities prevailing in this new form and how accounting practices and tools can be an actor in building and developing such relationships types. In addition, the use of heterarchy added another dimension to the analysis which is "accounting for worth", which is drawn from Boltanski and Thévenot (2006). This was helpful in understanding how actors can have a different perception with regard to what is valuable and how they measure the value[17].

In order to develop CM initiatives that entail heterarchical relationships, MOJO and Fish House (the category captain) engaged in three practices to facilitate the cooperation between them and enhance their adaptability, which are structuring, coordinating, and performing.

Structuring aimed to facilitate sociability to allow interactions and associations between actors through various means. Open-plan layout, demarcation of specialized functions, technological interfaces, and various means of communication have been employed by MOJO and Fish House to facilitate cooperation and collaboration between actors. The essay shows how an open-plan arrangement enabled interactions between different teams, and how holding formal and informal chats and discussions helped them to learn from each other. It also shows that there are different teams with different roles and expertise (MOJO's fish supply analysts team, MOJO's merchandising team, MOJO's trading team, MOJO's distribution centres and stores, Fish House's CM team, and other fish suppliers' teams) involved in the fish CM project. Various technological interfaces were developed, such as RE, to facilitate interactions between these teams and enable them to respond quickly to unexpected events. All these arrangements represent opportunities for intelligence gathering and distribution which is one of the key features of Stark's framework.

The essay also shows that at MOJO and Fish House, some - not all - criteria of worth are shared across all teams. All teams' members should be capable of working together as a team and to respond quickly to unforeseen events. Also, they should have presentation skills, basic knowledge of software packages, qualitative and quantitative skills. However, each team has its unique role in the CM project, which, in turn, requires different skills and training. For instance, the category manager needs to interact with different teams from different companies, which, requires additional skills and capabilities beyond those required for all other teams' members.

Coordinating the activities between MOJO, Fish House, and other fish suppliers became critical if the fish SC was to function efficiently and effectively in an environment that is

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[17] For justification of using heterarchy in this essay, please read section 3.1 in the introduction chapter

characterized by uncertainty. The joint planning, forecasting, and decision making project between MOJO and Fish House played an important role in deepening the relationships between them and improving their adaptability to market contingencies. The essay shows how intelligence is laterally distributed among MOJO's teams and Fish House's teams in order to deploy various accounting practices such as the fish category strategic plan, joint business plan, and weekly forecasts. These joint projects have helped both MOJO and Fish House to overcome some of the problems that they used to face. For example, making an accurate forecast was one of the key issues faced by MOJO. They used to make forecasts based on previous years' sales (i.e. the demand side) while ignoring the supply side which, in turn, can lead to problems like supply shortages. After engaging in this CM project, a supply analyst from Fish House joined the team to help in forecasting. Therefore, when MOJO's fish supply analyst speaks and works with this new member, they were able to generate more reasonable forecasts that consider not only the demand side, but also the supply side. This is different from what Taylor and Fearne (2009) found in his study.

> In none of the chains studied was a single, common forecast produced for the whole chain. Instead each company along a chain produced its own forecast, usually in isolation from supply chain partners. (Taylor and Fearne, 2009:387)

Also, MOJO and Fish House coordinate in making decisions such as the decision to buy fish from international suppliers to provide customers with a variety of choices and better quality and prices.

Performing practices focuses on setting various evaluative criteria for measuring the work done by the actors engaged in managing the fish category and reporting. As a result of having different perception regarding what is valuable, there are different evaluative criteria for assessing the value of work done by various actors along the chain. In-stock and waste are used to measure the performance of the fish team, inbound is used to measure the performance of fish suppliers, cost savings, warehouse rate, and average cases per journey are used to measure the performance of distribution centres, and sales, waste, and loss prevention are used to measure the performance of the stores. Also, various accounting reports and templates are prepared to ensure the effective implementation of the plans such as weekly gap analysis, store insight, promotion analysis, market size and retailer share, NPD tracker, and so on.

Although heterarchical relationships have helped MOJO and Fish House to improve the performance of the category and to solve many problems, they have created many challenges for both MOJO and Fish House. Rearrangement of teams' composition from time to time, actors working on multiple projects simultaneously, and ambiguity regarding the identity of actors are among these challenges. However, it is evident from the case that MOJO and Fish House are dealing with such issues in a positive way. According to Stark et al. (2009:181), companies can benefit from such issues as a "critical resource out of which new ideas emerge".

Another challenge is related to the technological interfaces and accessibility of the systems and databases. The essay shows, for instance, that MOJO imposed some restrictions on the access to the RE system, which, in turn, can affect the ability of Fish House and other fish suppliers to satisfy the orders. It is not clear yet how MOJO is going to solve this issue as it is not only will affect the fish suppliers, but also will affect MOJO.

In conclusion, the shift towards heterarchical relationships has prompted the retailer and the supplier to move towards robust collaboration and relations of interdependence by instituting cross-functional teams where the authority emerges laterally and is "distributed along lines of lateral accountability" (Stark et al., 2009:25). The study shows how diverse actors with different interests and objectives can engage in interactions across boundaries, like CM, which becomes a new social space for associations, as they recognize the importance of interactions for their businesses. Such recognition evokes mutual understanding and the matching of priorities between actors, which allows them to handle the conflict of interests.

The study shows that intelligence is laterally distributed among the teams in which "the multiple disciplines engage in a discursive pragmatics in which the disciplined judgment needed to do a good job is balanced with the compromise needed to get the job done" (Stark et al., 2009:83-84). Distributing intelligence is facilitated by the relative permeability of the boundaries between the retailer and its suppliers. Although this relative permeability of the boundaries has made possible the juxtaposition of actors' various resources, intelligence, and efforts to manage the fish category more efficiently and effectively, it has created some challenges to both the retailer and suppliers.

The study also shows how CM is a site of diverse criteria of worth with regard to the roles, the skills, and, in turn, performance criteria. According to Stark et al. (2009:164), “The organization of diverse, even rivalling, performance criteria and evaluative principles contributes to adaptability by preserving a more diverse organizational “gene pool,” increasing the likelihood of possibly fruitful recombinations in times of unpredictable change”. Having different and divergent principles of valuation is something that can enhance the flexibility of the companies and generate innovation.

Accounting constitutes an important part of heterarchical networks. The complex *interdependencies* between the teams and the distribution of intelligence have flattened and laterally extended the planning process and reporting structures, and have made actors accountable in many cross-cutting areas This has led to the emergence of the heterarchical form of management accounting as a distributed form of intelligence. This heterarchical form of management accounting is necessary not only for the enactment of CM, but also for its sustainability. The study shows how the CM process is extensively mediated by accounting numbers and inscriptions that are visible to actors through technological interfaces and information technologies, which help to make these things *reshuffled* and *recombined* across time and space to enable companies to be more responsive to market volatility (Latour, 1990). These inscription devices shape views and reveal opportunities, which can help companies to be innovative (Latour, 1987; Stark et al., 2009).

This essay focused on the retailer and the key supplier (category captain). Therefore, I would invite further empirical research that try to understand the perception of other suppliers (especially small suppliers) engaged in CM projects with regard to the benefits from joining these projects, the challenges they face, the work assigned to them, etc. This can complement the picture presented in this essay.

Conclusion

The aim of this thesis is to add to the resurgent interest in studying the transitions that take place within and beyond organizations, especially the transition from bureaucratic to post-bureaucratic forms. Studies have shown that the pressures of increasing global inter-connectedness and rapid technological advancement led to post-bureaucratic organizational forms with more flexible and responsive forms, as opposed to hierarchies, rigid rules, and formal controls (Wickramasinghe and Alawattage, 2007). Is management accounting equipped with such transitions? The answer to this question remains is still debatable (Seal et al., 1999; Tomkins, 2001; Kulmala et al., 2002; Smith et al., 2005; Mouritsen and Thrane, 2006).

I was motivated to address this broader question, with an academic judgement: although this area of research has made some advancement (Mouritsen et al., 2001; Seal et al., 2004; Mahama, 2006; Free, 2007; 2008; Anderson and Dekker, 2009a; 2009b; Jack, 2011; Cullen et al., 2013), there is still ambiguity about the constitution of management accounting within these new forms. As has been presented, this thesis has used ANT coupled with related conceptual concepts to illustrate such transitions in a UK supply chain.

My positioning in the adoption of ANT has captured how various heterogeneous actors (human and non-human) operate as an acting network. This position fitted well with my interest and gave me the freedom by thinking outside traditional dichotomies to capture the social practice as it happens in a real-world setting. Drawing on ANT and following qualitative case studies, I was able to trace the SC story of a UK retailer and reveal insights into the form and role of management accounting within a multitude of interests, debates, controversies, and negotiation. This helped me to understand how a supply chain, and the complexities prevailing in it, have problematized the conventional wisdom of management accounting and lead to the creation of new management accounting forms. In the following paragraphs, I will provide an overview of this thesis.

Contributions

The findings of the thesis shed light on the role of management accounting within supply chain context. The ongoing academic debates and controversies surrounding the changes occurring in the traditional organizational structure when the supply chain was appearing and the role and relevance of management accounting in such a context makes it difficult to derive ‘matters of fact’ in this area of research.

The questions of how relationships can be maintained, how performance can be measured, how subsequent decisions can be made, how parties can be trusted and made accountable, how risk can be ascertained and managed, how logistic flexibility can be accommodated, and how networks and collaborations can be made sustainable, were ways of understanding how researchers looked at the roles of management accounting and of providing the means to explore 'matters of concern' within the academic community. Researchers raise various 'matters of concern', which focus mainly on the relevance/irrelevance of management accounting, the nature of the role of management accounting, the lack of accepted practices, and the willingness of SC participants to accept new management accounting techniques. Future research is required to resolve such 'matters of concern' and to derive stabilized 'matters of fact'.

This thesis revisited and reassessed 'matters of concern' related to SC relationships which focus mainly on the role of management accounting in facilitating SC relationships and whether current practices can facilitate the formation of such relationships. This was achieved through studying SC strategy and category management practices in a UK retailer.

Despite researchers' interest in studying SC relationships, SC strategy has not received considerable attention from accounting researchers, although it was regarded by interviewees as a road map for organizing and directing supply chain relations. The thesis showed that accounting not only plays a role in the development and translation of strategy, but also it acts as a key actor that affects the actions of SC actors and encourages them to interact together to keep the relationships going. Accounting numbers and templates (e.g. business plans and their estimates, reports, and KPIs) were regarded as the optimal way for creating forums for voicing opinions and opening debates and discussions between SC actors. This was helpful in obtaining SC actors' commitment throughout the chain.

Also, this thesis responded to the calls for studying strategy as practice or strategy 'in the making' (i.e. strategizing) which can help in exploring the complexities of social life (Whittington et al., 2006; Chua, 2007; Boedker, 2010). It showed that the delineation between accounting and strategizing within the supply chain context is difficult as you couldn't determine exactly when strategizing activities stop and when accounting starts.

Category management practices are regarded as a new form of SC practices that are characterized by heterarchical relationships between the retailer and its suppliers. Such relationships have promoted the retailer and its suppliers to engage in interactions across boundaries (e.g. joint planning, forecasting, and decision making) to overcome the problems that they usually face and to enhance their adaptability to market contingencies. This thesis contributes to accounting-SC literature by providing insights into how accounting numbers, KPIs, reports, and so on, play a key role in the enactment of a new and unusual organizational form, which is heterarchy, and that new heterarchical modes of accounting practices (e.g., fish category strategic plan and joint business plan) have appeared, as a distributed form of intelligence, because heterarchical relationships are constructed.

The thesis also discussed the challenges of heterarchical arrangements, which include ambiguity regarding the identity of actors, the bias of the owners (in this case, the retailer) of the technological interfaces, changing the teams' composition from time to time, etc. These challenges require further consideration and investigation from researchers.

Studying SC strategy and category management helped to respond to the question being raised in the literature regarding whether management accounting can play a role in facilitating SC relationships. I can conclude that management accounting can be regarded as a key actor in developing, facilitating, and sustaining SC relationships.

Additionally, this thesis contributes to the research that focuses on 'making markets' (Miller and O'Leary, 2007; MacKenzie, 2009). Through a historico-material analysis using secondary sources and drawing upon ANT, the UK retail market was introduced as set of interrelated networks, market concentration-based network, supply chain-based network, and globalization-based network. These networks consist of various heterogeneous actors (human and non-human) who interact together to form the market. The thesis showed that power of big retailers is not a given attribute, but instead something that results from the actions of actors and the interactions between them. This is consistent with what Latour (1986a:264) argues that power must be treated as a consequence rather than as a cause of action.

The thesis utilized ANT to provide a framework to understand how management accounting acts within a supply chain context. Various notions were used throughout the thesis to achieve the aim of the thesis such as 'matters of concern', 'translation', 'the ostensive and the performative perspectives', etc. The use of ANT had enriched the analysis due to its anti-reductionism ontology, which gives researchers the freedom to see what is going on without having to think about certain dichotomies (Hopwood and Miller, 1994).

One of the methodological contributions of this thesis is related to the use of 'performative approach' in studying strategy. The majority of research in this area is based on 'ostensive approach' (or we can call it positivist methodological approaches) which failed to reflect the complexities and messiness of social life (Boedker, 2010). The use of 'performative approach' helped me to capture the tensions of organizational life and to understand how concerns developed around strategy. It also helped to view accounting as an actor rather than viewing it as only subordinate to strategy.

The thesis also confirmed empirically that the ostensive and the performative perspectives can be linked together. While ANT-inspired accounting researchers differentiated between the two perspectives, this thesis showed that the social emerges as a result of the duality between the two perspectives. It demonstrated how the ostensive perspective can be considered as an input to the performative perspective and how the performative perspective can produce or maintain the ostensive perspective.

Directions for Future Research

The relationship between management accounting and supply chain is still open for future research. It is clear from the literature review that many themes are still disputable and open for further controversies (SC relationships, PM and MC, and decision-making) and others have received little attention from until now (trust, SC risk, reverse logistics, and sustainability). This can create several avenues and opportunities for further research. Possible questions include: How the complexities of SC decision making challenge management accounting practices? How the emerging notions of SC risk, reverse logistics, and sustainability shape management accounting forms? How does accounting enable the development of trust between SC partners?

Due to the emerging nature of the notion of heterarchy, this offers a lucrative source for more opportunities for empirical studies in the retailing or other sectors. Additional work is required to explore the dynamics around the emergence of heterarchical governance mechanisms. Further research is also required to explore the factors (e.g., social and political factors, power dynamics, etc.) that shape the constitution of heterarchical organizations and to what extent accounting is affected by these factors. Comparative research on different retailers or markets could provide useful insight into different factors and how this can affect accounting practices.

Also, further research on accounting and strategy/strategizing is important, as there is still more to be explored. For instance, future research is required to explore the role of power in the making of strategy and the role non-human actors play in strategizing.

Appendices

Appendix 1

Papers selected for the pilot review

Authors	Year	Journal
Anderson and Dekker (a)	2009	Accounting Horizons
Anderson and Dekker (b)	2009	Accounting Horizons
Aramyan et al.	2007	Supply chain Management: An International Journal
Askarany et al.	2010	International journal of production economics
Banomyong and Supatn	2011	Supply chain Management: An International Journal
Barber	2008	International Journal of Physical Distribution and Logistics Management
Caglio and Ditillo	2008	Accounting, Organizations and Society
Chae	2009	Supply chain Management: An International Journal
Chan and Qi	2003	Supply chain Management: An International Journal
Chua and Mahama	2007	Contemporary Accounting Research
Comelli et al.	2008	International journal of production economics
Cooper and Yoshikawa	1994	International Journal of Production Economics
Cousins and Menguc	2006	Journal of Operations Management
Dekker	2003	Management Accounting Research
Fayard et al.	2012	Accounting. Organizations and Society
Free	2008	Accounting, Organizations and Society
Free	2007	Contemporary Accounting Research
Garcia et al.	2012	International journal of production economics
Georgiadis et al.	2006	Production and Operations Management
Gietzmann	1996	Accounting, Organizations and Society
Goldsby and Closs	2000	International Journal of Physical Distribution and Logistics Management
Gunasekaran et al.	2001	International Journal of Operations and Production Management
Harland	1996	British Journal of Management
Hergert and Morris	1989	Strategic Management Journal
Kaihara	2001	International journal of production economics
Kajüter and Kulmala	2005	Management Accounting Research
Kaynak and Hartley	2008	Journal of Operations Management
Kirche et al.	2005	International Journal of Production Research
Kulmala et al.	2002	International journal of production economics
Matos and Hall	2007	Journal of Operations Management
Melnyk et al.	2004	Journal of Operations Management
Mouritsen and Thrane	2006	Accounting, Organizations and Society
Mouritsen et al.	2001	Management Accounting Research
Nicolini et al.	2000	British Journal of Management

Authors	Year	Journal
Rahman	2002	International Journal of Physical Distribution and Logistics Management
Ramos	2004	Supply chain Management: An International Journal
Schulze et al.	2012	International journal of production economics
Seal et al.	2004	Accounting, Organizations and Society
Seal et al.	1999	Management Accounting Research
Simatupang et al.	2004	Supply chain Management: An International Journal
Smith et al.	2005	The British Accounting Review
Stuart	1997	British Journal of Management
Thrane and Hald	2006	Management Accounting Research
Tomkins	2001	Accounting, Organizations and Society
Trkman and McCormack	2009	International journal of production economics
Tummala et al.	2006	Supply chain Management: An International Journal
Van Der Meer-Kooistra and Vosselman	2000	Accounting, Organizations and Society
Van Hoek	1998	Supply chain Management: An International Journal
Windolph and Moeller	2012	Management Accounting Research
Wolf	2011	Journal of Business Ethics

Papers selected for the main review

Authors	Year	Journal
Agbejule and Burrowes	2007	Managerial Auditing Journal
Agndal and Nilsson	2008	International Journal of Production Economics
Agndal and Nilsson	2009	Management Accounting Research
Agndal and Nilsson	2010	Management Accounting Research
Anderson and Dekker (a)	2009	Accounting Horizons
Anderson and Dekker (b)	2009	Accounting Horizons
Anderson et al.	2000	Accounting, Organizations and Society
Aramyan et al.	2007	Supply chain Management: An International Journal
Askarany et al.	2010	International Journal of Production Economics
Axelsson et al.	2002	European Journal of Purchasing and Supply Management
Baiman and Rajan	2002	Accounting, Organizations and Society
Bastl et al.	2010	The International Journal of Logistics Management
Beamon	1999	International Journal of Operations and Production Management
Bernon and Cullen	2007	International Journal of Logistics: Research and Applications
Bernon et al.	2011	International Journal of Physical Distribution and Logistics Management
Bhagwat and Sharma	2007	Computers and Industrial Engineering
Bhutta and Huq	2002	Supply chain Management: An International Journal
Brewer and Speh	2000	Journal of Business Logistics
Bryceson and Slaughter	2010	International Journal of Productivity and Performance Management
Bullinger et al.	2002	International Journal of Production Research
Caglio and Ditillo	2008	Accounting, Organizations and Society
Caglio and Ditillo	2012	Management Accounting Research
Cagnazzo et al.	2010	International Journal of Productivity and Performance Management
Cäker	2008	Management Accounting Research
Caplice and Sheffi	1994	The International Journal of Logistics Management
Caplice and Sheffi	1995	The International Journal of Logistics Management
Carpinetti et al.	2008	International Journal of Productivity and Performance Management
Carr and Ng	1995	Management Accounting Research
Cavinato	1992	Journal of Business Logistics
Chen and Yang	2003	Total Quality Management and Business Excellence
Chia et al.	2009	Benchmarking: An International Journal

Authors	Year	Journal
Chow et al.	1994	International Journal of Physical Distribution and Logistics Management
Christopher and Holweg	2011	International Journal of Physical Distribution and Logistics Management
Chua and Mahama	2007	Contemporary Accounting Research
Coad and Cullen	2006	Management Accounting Research
Coletti et al.	2005	The Accounting Review
Comelli et al.	2008	International Journal of Production Economics
Cooper and Slagmulder	2004	Accounting, Organizations and Society
Cooper and Yoshikawa	1994	International Journal of Production Economics
Cousins and Menguc	2006	Journal of Operations Management
Cuganesan	2006	Accounting, Auditing and Accountability Journal
Cuganesan	2007	Journal of Accounting and Organizational Change
Cuganesan and Lee	2006	Management Accounting Research
Cullen et al.	2013	Management Accounting Research
Cuthbertson and Piotrowicz	2008	International Journal of Productivity and Performance Management
Cuthbertson and Piotrowicz	2011	International Journal of Productivity and Performance Management
Degraeve et al.	2005	Accounting and Business Research
Degraeve and Roodhooft	1999	Journal of Supply chain Management
Dekker	2003	Management Accounting Research
Dekker	2004	Accounting, Organizations and Society
Dekker	2008	Accounting, Organizations and Society
Dekker and Van Goor	2000	International Journal of Logistics: Research and Applications
Donada and Nogatchewsky	2006	Management Accounting Research
Drake and Haka	2008	The Accounting Review
Ellram (a)	1993	Journal of Supply chain Management
Ellram (b)	1993	The International Journal of Logistics Management
Ellram	1994	Journal of Business Logistics
Ellram	1995	International Journal of Physical Distribution and Logistics Management
Ellram	1996	Journal of Supply chain Management
Ellram	2002	European Journal of Purchasing and Supply Management
Ellram and Maltz	1995	The International Journal of Logistics Management
Ellram and Siferd	1993	Journal of Business Logistics
Ellram and Siferd	1998	Journal of Business Logistics
Estampe et al.	2013	International Journal of Production Economics
Everaert et al.	2008	International Journal of Physical Distribution and Logistics Management
Fayard et al.	2012	Accounting, Organizations and Society

Authors	Year	Journal
Fernie et al.	2001	International Journal of Logistics: Research and Applications
Frances and Garnsey	1996	Accounting, Organizations and Society
Free	2007	Contemporary Accounting Research
Free	2008	Accounting, Organizations and Society
Giannakis	2007	Supply chain Management: An International Journal
Gietzmann	1996	Accounting, Organizations and Society
Goldsby and Closs	2000	International Journal of Physical Distribution and Logistics Management
Gopal and Thakkar	2012	International Journal of Productivity and Performance Management
Gunasekaran and Kobu	2007	International Journal of Production Research
Gunasekaran et al.	2004	International Journal of Production Economics
Gunasekaran et al.	2001	International Journal of Operations and Production Management
Håkansson and Lind	2004	Accounting, Organizations and Society
Hald and Ellegaard	2011	International Journal of Operations and Production Management
Hervani et al.	2005	Benchmarking: An International Journal
Hoek	2001	International Journal of Operations and Production Management
Hofmann and Kotzab	2010	Journal of Business Logistics
Hung	2011	International Journal of Production Research
Hurkens et al.	2006	Journal of Supply chain Management
Ittner et al.	1999	Journal of Accounting and Public Policy
Joyce	2006	Supply chain Management: An International Journal
Kajüter and Kulmala	2005	Management Accounting Research
Khataie et al.	2010	International Journal of Production Research
Kirche et al.	2005	International Journal of Production Research
Kulmala	2004	Journal of Purchasing and Supply Management
Kulmala et al.	2002	International Journal of Production Economics
Kulp	2002	The Accounting Review
Labro	2006	Supply chain Management: An International Journal
Lalonde and Pohlen	1996	The International Journal of Logistics Management
Lambert and Burduroglu	2000	The International Journal of Logistics Management
Lambert and Pohlen	2001	The International Journal of Logistics Management
Langfield-Smith	2008	Management Accounting Research
Langfield-Smith and Smith	2003	Management Accounting Research
Lere and Saraph	1995	Journal of Supply chain Management
Lin et al.	2001	International Journal of Physical Distribution and Logistics Management
Mahama	2006	Management Accounting Research

Authors	Year	Journal
Maltz and Ellram	1997	Journal of Business Logistics
Manunen	2000	International Journal of Logistics: Research and Applications
Martin and Patterson	2009	International Journal of Production Research
Masschelein et al.	2012	The Accounting Review
Mcivor	2001	Journal of Purchasing and Supply Management
Miller et al.	2008	Accounting, Organizations and Society
Möller et al.	2011	Journal of Purchasing and Supply Management
Morgan	2004	Business Process Management Journal
Morgan	2007	The International Journal of Logistics Management
Mouritsen et al.	2001	Management Accounting Research
Mouritsen and Thrane	2006	Accounting, Organizations and Society
Munday	1992	Management Accounting Research
Narayanan	2003	Journal of Accounting Research
Newman and Mckeller	1995	Journal of Supply chain Management
Nicolaou	2008	International Journal of Accounting Information Systems
Norek and Pohlen	2001	The International Journal of Logistics Management
Phua et al.	2011	The Accounting Review
Rahman	2002	International Journal of Physical Distribution and Logistics Management
Ramanathan et al.	2011	Benchmarking: An International Journal
Ramos	2004	Supply chain Management: An International Journal
Ratnatunga and Balachandran	2009	Journal of Accounting, Auditing and Finance
Ravi et al.	2005	Computers and Industrial Engineering
Sartorius and Kirsten	2005	Management Accounting Research
Schloetzer	2012	The Accounting Review
Schmitz and Platts	2004	International Journal of Production Economics
Schulze et al.	2012	International Journal of Production Economics
Seal	2001	Management Accounting Research
Seal et al.	2004	Accounting, Organizations and Society
Seal et al.	1999	Management Accounting Research
Seuring	2006	Supply chain Management: An International Journal
Shaw et al.	2010	Benchmarking: An International Journal
Smith et al.	2005	The British Accounting Review
Song and Wang	2009	Benchmarking: An International Journal
Spence and Rinaldi	2013	Accounting, Organizations and Society
Stainer	1997	Supply chain Management: An International Journal
Stapleton et al.	2004	Business Process Management Journal
Thakkar et al.	2009	Benchmarking: An International Journal
Thrane	2007	Management Accounting Research
Thrane and Hald	2006	Management Accounting Research
Tomkins	2001	Accounting, Organizations and Society

Authors	Year	Journal
Tsai and Hung (a)	2009	International Journal of Production Research
Tsai and Hung (b)	2009	International Journal of Production Research
Van Den Abbeele et al.	2009	Accounting, Organizations and Society
Van Der Meer-Kooistra and Scapens	2008	Management Accounting Research
Van Der Meer-Kooistra and Vosselman	2000	Accounting, Organizations and Society
Van Hoek	1998	Supply chain Management: An International Journal
Veen-Dirks and Verdaasdonk	2009	Supply chain Management: An International Journal
Vélez et al.	2008	Accounting, Organizations and Society
Vosselman and Van Der Meer-Kooistra	2006	Journal of Accounting and Organizational Change
Vosselman and Van Der Meer-Kooistra	2009	Accounting, Organizations and Society
Weber et al.	2010	Journal of Purchasing and Supply Management
Whicker et al.	2009	International Journal of Production Economics
Windolph and Moeller	2012	Management Accounting Research
Wouters et al.	2005	Accounting, Organizations and Society
Wouters et al.	2007	Journal of Purchasing and Supply Management
Zimmermann and Seuring	2009	International Journal of Logistics: Research and Applications
Zsidisn et al.	2003	Journal of Business Logistics

Appendix 2

University of Glasgow | College of Social Sciences

Consent Form

Title of Project:

Name of Researcher:

1. I confirm that I have read and understand the Plain Language Statement for the above study and have had the opportunity to ask questions.

2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason.

3. I understand that I will be referred to by a pseudonym in any publications arising from the research.

4. I understand that information will be used for research purposes and may be reported in scientific and academic journals and non-academic publications.

5. I agree to take part in the above study.

Name of Participant	**Date**	**Signature**
Researcher	**Date**	**Signature**

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