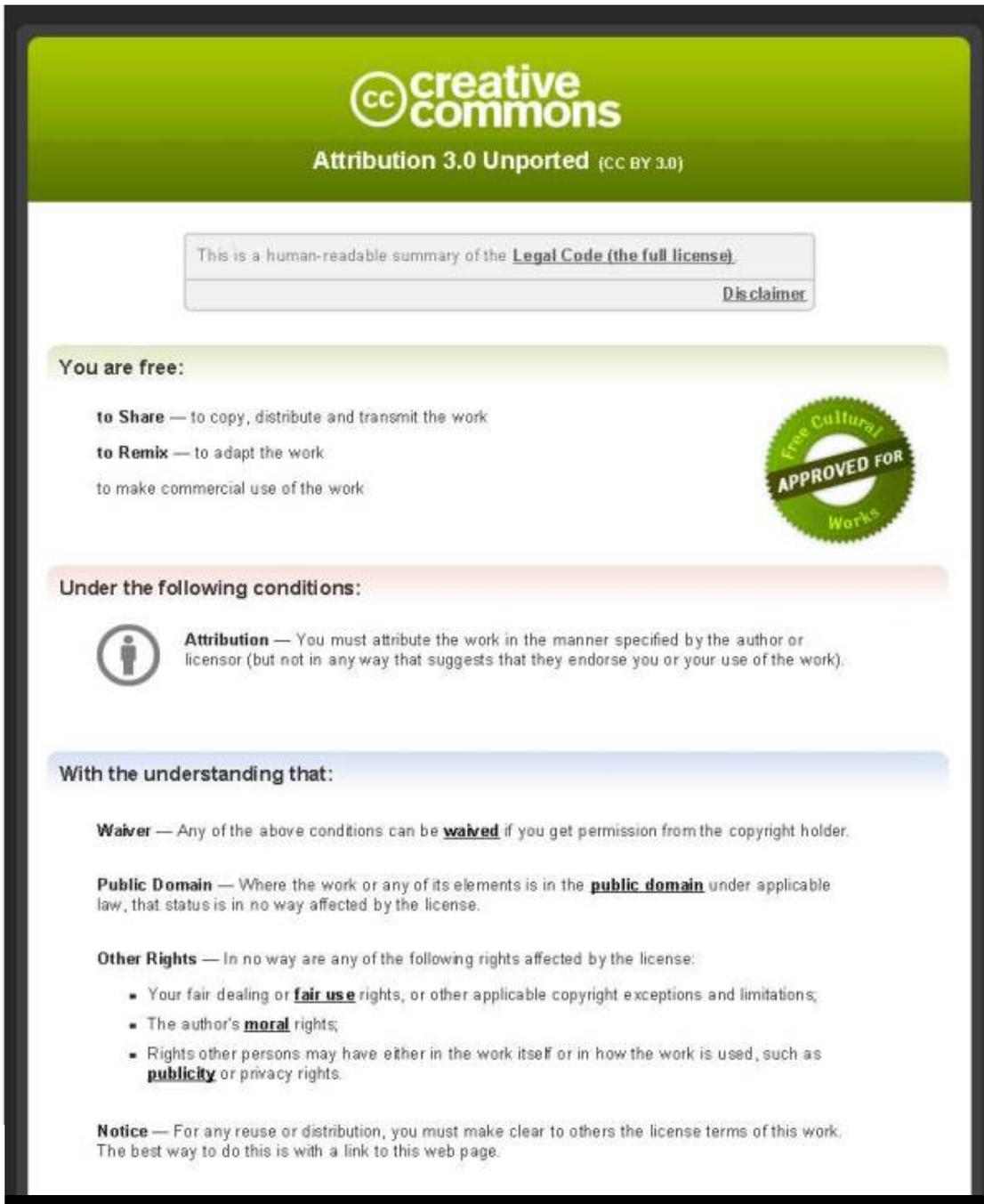


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Int. J. Production Economics

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An Institutional Theory perspective on sustainable practices across the dairy supply chain



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ARTICLE INFO

Article history:

Received 27 November 2012

Accepted 20 December 2013

Available online 27 December 2013

Keywords:

Institutional Theory

Retailers

Energy use practices

Supply chain

ABSTRACT

The need for sustainable practices in the food supply chain, particularly in the area of energy reduction, is becoming acute. The food industry currently has to contend with multiple competing pressures alongside the new challenges of sustainable production. We applied Institutional Theory to explore the role of supermarkets in the development of legitimate sustainable practices across the dairy supply chains. The paper focuses on dairy supply chain organizations and their consumption of energy. We conducted 70 semi-structured telephone interviews with various stakeholders across the supply chain. Findings revealed that the majority of actors in the supply chain identified supermarkets as the dominant player, and that the supermarkets exert pressure on other smaller organizations across the supply chain. Although some organizations wished to pursue a sustainable agenda through integrating new rules and legitimate practices within their own organization, the dominant logic appeared to be one of cost reduction and profit maximization. There was also evidence that supermarkets and other large organizations attempt to replicate publicly available information on green successes for image purposes. We conclude that the dominant logic of cost reduction is so well established that challenging the dominant logic may prove difficult. The challenge is therefore to complement the dominant logic with sustainable practices across the whole supply chain, a role Government needs to play. This will require a broader more systemic approach to encouraging sustainable practices including investment and financing practices, so that all members of the dairy supply chain can co-operate and contribute to energy reduction.

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1. Introduction

The need for sustainable practices in the food supply chain is becoming acute (Dairy Road Map, 2008). The food industry currently has to contend with multiple competing pressures alongside the new challenges of sustainable production, in particular reducing energy consumption (Boiral, 2006). The food industry has changed a great deal since the 1940s with increases in purchasing power, the introduction of packaging, and extensive mechanization and development of factory processes. It could be argued that such developments have also increased the food industry's dependency on energy at the industrial manufacturing stage. In this context, sustainable practices have become more important in achieving the cost effective production and distribution of goods. The food industry has to contend with multiple

pressures alongside the new challenges of sustainable production and the challenges faced in relation to energy consumption touch on multiple sectors in addition to food and energy production, and include construction (e.g. of storage facilities and retail environments) and manufacture (e.g., of agricultural equipment, refrigeration equipment). In the present study, we set out to explore what small and large organizations operating across one important food supply chain, namely the dairy supply chain which is an energy intensive supply chain (Dairy Road Map, 2008), are doing to implement sustainable energy practices.

Specifically, this study explores how sustainable practices become legitimized in the dairy supply chain in the United Kingdom (UK). Suchman (1995, p. 574) provides a definition of legitimacy as “a generalized perception or assumption that the actions of an entity are desirable, proper or appropriate within some socially constructed system of norms, values, beliefs and definitions”. Therefore, as stated by Greenwood and Suddaby (2005, p. 36–37) “legitimizing an organizational form that does not fit a prevailing logic involves modifying or displacing that logic

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in order to establish new legitimacy criteria". In this case that would be legitimating sustainable practices.

We apply Institutional Theory which is an alternative theoretical lens to previous research that has focused on Corporate Social Responsibility (CSR), environmental management and so on (e.g. Bai and Sarkis, 2010; De Ron, 1998; Herron and Braiden, 2006; De Brito et al., 2008; Wong et al., 2012). Applying such organizational theories to supply chain management is an area which is currently in its infancy (Ketchen and Hult, 2007); particularly where the focus of attention is on sustainability and greening supply chains (Etzion, 2007; Sarkis et al., 2011). Previous research applying Institutional Theory has focused on organizations, whereas this study explores a supply chain comprising of multiple organizations. Institutional Theory has been used extensively in studies exploring environmental management in organizations (e.g. Hoffman, 1997, 1999; Delmas, 2002; Bansal, 2005). The strength of Institutional Theory is that it offers explanations of why certain practices are chosen without an obvious economic return (Berrone et al., 2010; Meyer and Rowan, 1977; DiMaggio and Powell, 1983).

We explore what stakeholders across the dairy supply chain are doing in order to increase energy efficiency, whether they have future plans to do more in terms of energy efficiency and reduction, and to discover if outsiders to organizations know about these practices i.e. are their practices visible or invisible beyond the firm boundary. We also explore the key factors preventing the development of sustainable strategies, in this case strategies to reduce energy consumption. The present study contributes to the literature on sustainable strategies, particularly in relation to environmental concerns and using Institutional Theory allows us to explore the factors that affect different actors across a supply chain and could help to identify where collaborative change in practices could be encouraged.

2. Sustainability and supply chain management

Sustainable development is an important agenda in the modern business world (Amaeshi et al., 2008; Carroll, 1991; Porter and van der Linde, 1995). Sustainable development has been defined as development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs (World Commission on Environment and Development, 1987). Sustainable development is becoming one of the most prominent topics of our time (Patzelt and Shepherd, 2011). The term sustainability integrates social, environmental and economic responsibilities (Gimenez et al., 2012, p. 149). This paper focuses attention on energy reduction and thus we provide clarity on what we mean by environmental sustainability, that is it is often related to waste reduction, pollution reduction, energy efficiency, emissions reduction, and a decrease in the consumption of hazardous materials (Gimenez et al., 2012, p. 150).

During the favorable economic climates of the 1990s, individuals and organizations seemed reluctant to respond to concerns over energy with appropriate behaviors (Sheffield et al., 1999). Now, with global economic uncertainty, increasing business complexity due to globalization, technological advancements and a significant increase of energy use, a renewed focus on energy saving is prominent. Sustainability issues have become embedded in both national and international politics (Manderson, 2006).

Developing a sustainable strategy requires a judicious blend of competitive advantage, requiring superior firm resources and capabilities as well as a fit between the external environment and the strategic action of firms (Burke and Logsdon, 1996; Husted and Allen, 2007). However, developing a sustainable social and environmental strategy may be at odds with retaining competitive advantage in the pursuit of profits. This presents a problem for

sustainable strategies and how firms actually account for progress towards strategic goals through the use of reliable measures and how they track and report progress to stakeholders. Sustainability is arguably in the interest of the firm and perhaps could be considered as a separate strategic goal for organizations.

Supply chain management (SCM) plays a central role in achieving sustainability (Ageron et al., 2012), through changing buying practices and impacts on the natural environment (Wolf, 2011). SCM has a strong and deep impact on the natural environment because it deals with the resources needed for the production of a good or service (Mentzer et al., 2001). This is particularly the case with supply chains that involve agriculture. Thus, SCM impacts the exploitation of renewable and non-renewable resources (Srivastava, 2007), which indicates the importance of incorporating sustainability in internal SCM practices (Wolf, 2011). Large firms can use their purchasing power to help instill good environmental and social practices in SMEs across the supply chain who directly supply them (Hart, 1995; World Commission on Environment and Development, 1987). However, this might have negative implications and costs for small firms. Moreover, large firms purchasing practices and preferences might also inhibit suppliers' abilities to incorporate sustainability into SCM (Wu et al., 2012).

The literature has dealt with multiple issues: green product development (Baumann et al., 2002; Chialin, 2001), green purchasing (Chen, 2005), ethical sourcing (Roberts, 2003), green supplier development (Seuring and Müller, 2008), sustainable transportation (Murphy and Poist, 2000; Murphy et al., 1996), sustainable operations and production (Kleindorfer et al., 2005), issues related to governance and reporting (Hervani et al., 2005; Keating et al., 2008; Tate et al., 2010) and product carbon management (McKinnon, 2010). Most of this research has been fragmented and considered single activities in isolation (Svensson, 2007). This present study aims to link some of these areas together through exploring perspectives across the supply chain, and examining the legitimization of sustainable practices. Sustainable supply chain management (SSCM) is defined as "the strategic, transparent integration and achievement of an organization's environmental, social and economic goals in the systematic coordination of key inter-organizational business processes for improving the long-term economic performance of the individual company and its chains" (Carter and Rogers, 2008, p. 365).

Recently, research on sustainable supply chain management (SSCM) has started to integrate the supplier perspective (Foerstl et al., 2010; Pullman et al., 2009), but such approaches are still scarce (see also the critique put forward by Svensson (2007)), and the literature on SSCM is still limited (Gold et al., 2010). There is far less research that addresses the relationship between a firm's sustainability strategy, its internal integration in the form of the supply chain sustainability strategy and the external integration with customers and suppliers (Keating et al., 2008; Pagell and Wu, 2009; Seuring and Müller, 2008; Svensson, 2007). Such an integrative perspective appears to have the potential to improve efforts in making supply chains more sustainable (Wolf, 2011). This is an area the present study seeks to address.

One of the barriers to developing an integrative perspective on SSCM is that sustainability is a concept that is vague, ambiguous, pluralistic, contested, and grounded in different value systems (Gladwin et al., 1995; Manderson, 2006; Osorio et al., 2005). Moreover, to be sustainable supply chains need to be funded and valued (Centikaya et al., 2011). This is in spite of widespread agreement that sustainability is something we all need (Gould and Lewis, 2009; Osorio et al., 2005; Wissenburg, 2001).

We chose the dairy supply chain because it is an economically important aspect of agriculture with international aspects to its supply chain (Dairy Road Map, 2008; Foster et al., 2007). In turn agriculture is an important sector, because of the impact climate change on food supply and agricultural practices

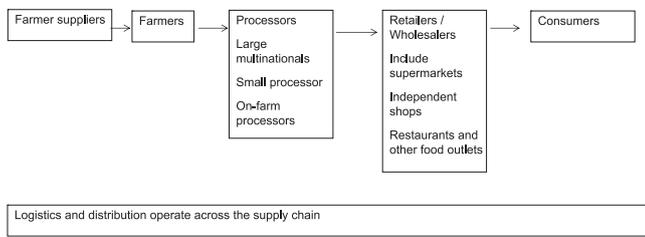


Fig. 1. Simplified dairy supply chain.

(Foresight. *The Future of Food and Farming*, 2011; Nguyen et al., 2010; Williams et al., 2006). The dairy supply chain is also energy intensive (Dairy Road Map, 2008): the nature of dairy produce is that it is highly perishable, needs to be collected daily and must be refrigerated at all times (Fig. 1).

To address the pluralistic and contested nature of sustainability in the context of Sustainable Supply Chain Management (SSCM) or Green Supply Chain Management (GSCM), in the present study, we explore multiple stakeholders' views on sustainable energy strategies across the dairy supply chain and what stakeholders operating across the supply chain think should be addressed to reduce energy consumption. To explore roles across the entire supply chain from a holistic view point in terms of sustainability and explore how some approaches to sustainability become dominant, the present study applies Institutional Theory. Other studies have explored firms' own approaches to SSCM: for example Wu et al. (2012) made use of Institutional Theory in their study of green supply chain management in Taiwan's textile and apparel industry and Ageron et al. (2012) explored multiple internal and external drivers of SSCM. The present study adds to studies exploring firms' own approaches to SSCM by exploring stakeholders' views of an entire supply chain. The next section sets out Institutional Theory and its uses for environmental management, sustainability and green supply chains.

3. Institutional theory

Institutional Theory provides a theoretical lens through which researchers can identify and examine influences that promote survival and legitimacy of organizational practices, including factors such as culture, social environment, regulation (including the legal environment), tradition and history, as well as economic incentives, whilst acknowledging that resources are also important (Baumol et al., 2009; Brunton et al., 2010; Hirsch, 1975; Lai et al., 2006; Roy, 1997). Legitimacy here refers to the adoption of sustainable practices seen by stakeholders as being proper and appropriate (DiMaggio and Powell, 1983). Institutional Theory is traditionally concerned with how groups and organizations better secure their positions and legitimacy by conforming to the rules (such as regulatory structures, governmental agencies, laws, courts, professions, and scripts and other societal and cultural practices that exert conformance pressures) and norms of the institutional environment (DiMaggio and Powell, 1983, 1991; Meyer and Rowan, 1991; Scott, 2007). According to Institutional Theory external social, political, and economic pressures influence firms' strategies and organizational decision-making as firms seek to adopt legitimate practices or legitimize their practices in the view of other stakeholders (Jennings and Zandbergen, 1995; North, 1990).

Institutional Theory can be used to explain how changes in social values, technological advancements, and regulations affect decisions regarding 'green' sustainable activities (Ball and Craig, 2010; Lounsbury, 1997; Rivera, 2004) and environmental management (Hoffman and Ventresca, 1999; Brown et al., 2006; Fowler and Hope, 2007; Tate et al., 2010). For example, Delmas and Toffel (2004) draw on Institutional Theory to examine how different

organizational strategies lead to the adoption of environmental management practices. Key drivers in instigating green changes in rules include a core company within a supply chain (Hall, 2001) and government regulation (Rivera, 2004).

Institutional Theory describes three forms of drivers that create isomorphism in organizational strategies, structures and processes. These drivers are coercive, normative, and mimetic (DiMaggio and Powell, 1983). Coercive occurs from influences exerted by those in powerful positions, in this case within the dairy supply chain. Coercive pressures are crucial to drive environmental management and hence sustainability (Kilbourne et al., 2002). Normative drivers ensure organizations conform in order to be perceived as partaking in legitimate actions (Sarkis et al., 2011). Ball and Craig (2010) found that normative pressures drive enterprises to be more environmentally aware, and argue that institutional research is needed to understand new social rules (e.g., ethical values and ecological thinking) and organizational responses to environmental issues. Normative drivers therefore exert influence because of a social obligation to comply, rooted in social necessity or what an organization or individual should be doing (March and Olsen, 1989). Mimetic isomorphic drivers occur when enterprises imitate the actions of successful competitors in the industry, in an attempt to replicate the path to success and hence legitimacy (Aerts et al., 2006; Sarkis et al., 2011); for example, dedicated sustainable milk supply for supermarkets.

Institutions create expectations that determine legitimate actions for organizations (Meyer and Rowan), and also form the logic by which laws, rules, and taken-for-granted behavioral expectations appear natural and abiding (Zucker, 1977, 1987). Thornton explained:

'Institutional logics, once they become dominant, affect the decision of organizations ...by focusing the attention of executives toward the set of issues and solutions that are consistent with the dominant logic and away from those issues and solutions that are not.' (2004: 12–13).

Therefore, institutions can define what is appropriate or legitimate (i.e., what is acceptable behavior, Scott, 2007), and thus render other actions unacceptable or even beyond consideration (DiMaggio and Powell, 1991). This will then affect how organizations make decisions. It is this that can provide insights into the role of different actors in the development of sustainable supply chains and their role in the achieving conformity.

The institutional perspective allows for the focus on the role of conformity, regulatory and social pressures in driving organizational actions (Westphal et al., 1997). The study explores the role of different actors in the supply chain and their approach to sustainability, and question whether this is strategic (Hillestad et al., 2010). We do this to gauge what stakeholders are doing in order to increase energy efficiency and their plans to do more. The paper also explores the key factors preventing the development of sustainable strategies, in this case strategies to reduce energy consumption. The next section details the methodological approach taken for the empirical work.

4. Methodology

4.1. Research setting

The empirical analysis is based on data collected during the summer of 2011. Data were collected from organizations in the UK dairy supply chain. We chose the dairy supply chain because it is an economically important aspect of agriculture with international aspects to its supply chain (Dairy Road Map, 2008; Foster et al., 2007). In turn agriculture is an important sector, because of the impact climate change on food supply and agricultural practices

(Foresight. *The Future of Food and Farming*, 2011; Nguyen et al., 2010; Williams et al., 2006). In the dairy sector, organizations range in size both at each segment of, and across, the supply chain. The industry is also highly regulated and there have been a number of environmental legislations introduced over the last few years from both national, European and international directives. The dairy industry has also received high profile environmentally related media attention, for example in relation to GHG emissions from cattle (methane), the environmental impact of proposed developments (e.g., the Nocton Dairies in Lincolnshire, U.K.), and impact of intensive modern farming techniques.

5. Methods

The data for the study were collected using qualitative methods, which are concerned with understanding individuals' perception of

the world they live in (Bell, 1993). Caley et al. (1992) state that qualitative methods are designed to discover what happens in 'real life' – the complex configuration of action and belief (see: Hammersley, 1993, 20). We were interested in what happens in terms of strategies in these organizations.

We chose a qualitative approach to our research for two reasons. First, qualitative approaches are well placed to uncover the focus of the present study, namely the dominant logics that lead to organizational action or inaction (Guba and Lincoln, 1994). Second, because there has been little prior research on Institutional Theory and SSCM (Wu et al., 2012), and to our knowledge, no research utilizing an institutional approach to understanding staple food supply chains such as dairy produce, there was little prior research to guide our expectations.

Interviews were chosen as the data collection method because they have the potential to generate rich data to explore a range of perspectives and develop a holistic viewpoint (Casell and Symon,

Table 1
Summary of findings.

Institutional logics	<p><i>Cost reduction</i> “...obviously the cost of electricity is rising and rising, it's an area where we have potential to save money so that's the angle also we are going from. We need the store to be saving money so we achieve our targets overall on our cost spending” (retailer4). “again like light bulbs we turn over fridges fairly rapidly and again cash flow you tend to go for the as near cheapest option as you can get” (small retailer 6).</p> <p><i>Sustainability capital expense</i> “Its literally just the capital costs” (milk processor1).</p> <p><i>Profit orientation</i> “Any capital expenditure has to have a good return on investment, i.e. it must pay for itself within 18 months as a minimum. Also existing equipment may still have many years of useful life remaining and cannot be disposed of and written off. In some cases we do not have a long enough contract with the customer to underwrite the investment” (logistics and distribution 3).</p> <p><i>Power of supermarkets</i> “power lies with the retailers” (farmer 9). “I would say that the retailers have all the power in the supply chain” (consumer 6).</p>
Aligning competing logics	<p>“Energy is a main operating cost and through carbon emissions associated with energy usage, it is an important environmental consideration... It needs to be reduced through greater efficiency and reductions in wastage. Wherever possible it should also come from renewable sources” (retailer 2). “the amount of initiatives that are in place to reduce energy expenditure is phenomenal” (logistics and distribution 2). “[organization] places great importance on social responsibility and environmental stewardship within its corporate values and also strives constantly to reduce costs on behalf of its customers” (logistics and distribution 3). “people who are involved in business and as such if they can reduce their energy utilization it's reducing costs, therefore potentially maximizing their returns. So I think that is the first area and the second one is clearly reducing environmental impact” (milk processor 4).</p>
Normative isomorphic drivers	<p>“We have set targets to reduce energy consumption 5% year on year. We did make some headway in the first few years, so we introduced environmental management system starting back in 2005 at the main site and then the other sites followed in the years after that. So we did meet those targets in the first couple of years but we haven't since, it gets more difficult as we do along. We have done a lot already so continually setting, trying to achieve that target of 5% year on year is naturally going to become more difficult as we go along” (milk processor 4). “Yes it is, more so recently. In the last couple of years, the company is not just looking at reducing energy, it's looking at being a concerned retailer basically. They don't just want to cut energy, they want to, we do recycle cardboard and plastics and we've got sort of signs around stores, you know, once you've finished with this appliance, please turn off when not in use, you know, we no longer have someone on night shifts. We obviously try and conserve as much energy as possible, because not only does it save money for the business, but it's also good for the environment as well. We sort of want to show that, obviously, as a business, we do take into account the affect businesses can have on the environment” (large retailer 5). “Yes, we have been doing energy audits in our factories and looking to see how we can share expertise on that, and actually putting some external resource into manufacturing and seeing how we can save, not only on energy but also on indirect things” (farm supplier 6). “An energy champion is someone who will go round the stores and check to see the energy that has been used, whether procedures are being followed, whether the training and the staff have been trained to close chiller doors. And they will actually check on that and stores are audited to make sure they are complying” (retailer 10).</p>
Coercive isomorphic drivers	<p>“I think it's fair to say that it's an area at the moment that we are starting to look at, it's really trying to understand, and bearing in mind we can't as an organization directly impact upon that, it's going to be very much a matter of us working with our farmer members to make them more aware of that issue and how they can manage that. I think that is something they are becoming more aware of. We are beginning to find now that an increasing number of farmers, or our members, are participating in carbon footprint audits, and clearly that is then flagging up to them potential savings in terms of energy. But as far as they are concerned they are also aware that energy is a major cost to them on farm and they are looking the whole time to improve their efficiencies and therefore maximize their return” (milk processor 4).</p>
Mimetic isomorphic drivers	<p>The large retailers appear to have developed corporate strategy boards for energy reduction which arguably have followed one as one organization implements a strategy the other follow. “We have made huge savings since this first came out with us and each, it's not just all happened blanket, I mean I think the first energy champion was about five years ago when it first started to kick in with the stores. And it didn't all happen straight away, like the thermal doors I think was the first thing to happen. The light sensors probably eighteen months ago, when that kicked in, and that's in everywhere, the warehouses, everywhere, every one of our rooms, corridors, has got those” (Large retailer 8). Public image seems to be important in this driver “my local Tesco is a green supermarket, it's made from sustainable materials, low energy consumption, the outside is wood and you look at it and you think, wow” (consumer 10).</p>

1994; Kvale, 1983, 1996). Interviews were recorded and transcribed. We conducted a total of 70 semi-structured telephone interviews with commercial stakeholders with knowledge of parts of the dairy supply chain including producers, primary producer suppliers, transporters, processors, retailers, as well as consumers of dairy products. We chose to focus on commercial stakeholders as we wanted to explore the institutional forces in developed liberal market economies. Interviews covered topics such as details of the business; main expenditure; energy as part of business expenditure; feelings towards energy consumption and reducing it; strategic aims to reduce energy, barriers to reducing energy consumption in their own business and across the supply chain; energy consumption across the supply chain; and knowledge of energy reduction schemes. Participants were recruited through snowballing and email requests for participation through searching for relevant stakeholders. Some 135 people were contacted and 70 agreed to participate, giving a 52% response rate. The participants were grouped as follows: 10 consumers; six farm suppliers; eight farmers; nine farmers who also processed milk on-farm; six milk processors; five logistics and distribution managers; 16 managers of small retail outlets; and 10 managers of units for large retailers (i.e., supermarket managers). Interviews lasted between 30 and 60 min and were taped recorded and transcribed in order to keep a literal account of the interview.

Data were analyzed using constant comparison techniques. Glaser (1996) states that “the process of constant comparison continually compares data to data, concept to data, concept to concept, and linking concepts back to the data” (p. 98). The researcher seeks to avoid tunnel vision, while making use of analytical comparison of narratives, aiming to describe and explain complex and entangled group attributes, patterns, structures or processes (Verschuren, 2003). Glaser (1992) emphasizes the value of constant comparison lies in allowing categories and conceptual properties to emerge. The analysis began by analyzing respondents from each group during first level analysis in order to establish commonalities and differences between individuals in the same group, and then during the second phase of analysis commonalities and differences were established between groups.

6. Findings

Table 1 summarizes the main themes to emerge from the data.

6.1. Institutional logics

The findings found the majority of actors in the supply chain identified supermarkets as the dominant player. It was also evident that in the responses there was no hesitation in identifying supermarkets as the ones in the powerful position as the following quotes highlight when interviewees were asked who do you think are the main players in the supply chain:

“The retailers” (milk processor 2).

“Retailers” (farmer 10).

“Definitely the supermarkets” (consumer 9).

“Without a shadow of a doubt it’s going to be the supermarkets, no doubt at all about that” (milk processor 4).

The findings suggest that the supermarkets interviewed, which excluded the discount retailers, through their powerful position in the supply chain are using coercive (discussed later) isomorphic drivers to introduce a new logic to the dairy supply chain – green sustainable practices. There is also a plethora of things that could be called green sustainable practices including reducing energy consumption, carbon foot-printing activities, installing renewable energy sources, and so on. With such a range of behaviors and

practices under this umbrella could make it difficult to compete with the dominant logic of reducing costs as each of these behaviors can result in different benefits, whereas reducing costs has a direct impact on a firm’s bottom line.

Across the supply chain the dominant logic – reducing costs still prevails as the practice that shapes the behavior in the dairy supply chain.

“The primary aim of energy consumption reduction is financial, you have to reduce costs” (Farmer 3).

“It’s not something that we actively seek to reduce or that we actively think about as we don’t see energy as a major factor, we do need to reduce feed and labor costs (Farmer 2).

“Well reducing the cost of fuel is definitely one thing it cost us a fortune last year. We hadn’t put customer charges up because you can’t keep doing that every year; it is quite a competitive market. I think it cost us about £6000 with fuel price increases. So this year we have decided to charge a fuel surcharge as we have tractors that we know how much fuel has been used they have these gauges on and it tells you exactly how much fuel you use” (Farm supplier 1).

Small organizations saw reducing costs and waste as more important than developing practices to reducing energy consumption, again conforming to the dominant logic of reducing costs.

“Not really don’t think about it like that it’s just something that you use and its part of the process...There’s other thing we focus on for reducing costs for example, labor and making sure we are highly efficient in what we do and we don’t waste time and we don’t waste our resources” (Farmer and on-farm processor 1).

Even those organizations that are driven by green sustainable practices do so to reduce costs as illustrated below:

“Yes it always has been actually, ever since we adopted the principles of starting cheese, we always use warm milk direct from the dairy farm. Cheese making requires you to use a fairly warm temperature so the milk comes in directly from the cow already warm so that reduces our initial energy outlay to warm the milk up. And then we adopted the principle of maturing the cheese in a cave underneath the cheese barn, and the cave pretty much remains at a temperature between 8–12 degrees all year round... Well it’s a cave come cellar, we dug it out so it has a cave feel to it because it’s all damp and rocky, it’s a man-made cave though. The cheese has to mature for nine months, it’s a long time to keep cheese at 12 degrees all year round and we don’t use any energy to do that so that’s great. It doesn’t stop there; we have got a goal now to come in as the first carbon neutral cheese-maker. So we just literally installed a heat pump which will be commissioned in the next few weeks and a turbine which will be installed in about 2 months which will run the heat pump and also provide a charging socket for an electric delivery vehicle. So the whole establishment from heating of hot water to heating of premises will be completely carbon neutral” (Farmer and on-farm processor 2).

The problem with trying to implement green sustainable practices is that it often involves a level of investment.

“The technology that you are working with...we mainly use fridges or refrigeration in our business and that’s our biggest user of electricity and we are fairly tied into that; and to buy a load of new equipment which may be greener or use less electricity would be a major thing because it’s the capital

investment of it which is quite prohibitive” (small retail outlet 1).

“The only barrier is finance, that’s the biggest one, getting the funding, getting the money put by to do all these projects is the biggest barrier” (milk processor 1).

6.2. *Aligning competing logics*

Environmentally friendly practices are often associated with increased costs, large investment and additional work with little financial reward, things which go against the dominant logic of reducing costs.

“Any capital expenditure has to have a good return on investment, i.e. it must pay for itself within 18 months as a minimum. Also existing equipment may still have many years of useful life remaining and cannot be disposed of and written off. In some cases we do not have a long enough contract with the customer to underwrite the investment. Equipment manufacturers make bold claims about their products, but these claims have to be validated with operational trials of the equipment to ascertain what benefits we would derive. In most cases the benefits prove to have been over-stated and the potential business case collapses. Some current equipment is not yet well enough developed to be viable. An example of this would be an 18 tone hybrid vehicle which is too heavy and too expensive to be put into service in our operations” (Logistics and distribution manager 1).

However, in the farm supplier group for example a firm involved in dairy equipment technologies, identified reducing energy as an organizational practice synonymous with reducing costs.

“There’s two main reasons, one of them is to make us more efficient, to reduce costs overall, but also we’re quite an environmentally conscious company and anything that we can do to, shall we say, offset our carbon impact on the environment is something we take quite seriously... in our production facility here we have taken a move towards using efficiency one electric motors in our environment, that coupled with variable speed controllers or frequency controllers on those motors, so we’re using energy on demand rather than providing a constant level of supply. The investment in that equipment has been quite substantial for us over the last number of years” (Farm supplier 2).

One other small firm respondent claimed they were sustainable and energy efficient as a result of how they conduct their business rather than seeking energy efficiency and sustainability as a strategic aim:

“We supply local shops and other small outlets. We deliver within a 15 mile radius of our farm and dairy. Milk is purchased from three farms within a five mile radius and we employ eight people who live within three miles of the dairy. So you can see we put a lot back into the local community...we’re all about local produce so I think we’re sustainable” (Milk processor 3).

It is also interesting that consumers will also shop to find reasonable priced items.

“Price is important to me” (Consumer 9).

However, it is interesting that even for supermarkets cost is a key driver.

“There is a sustainability agenda but principally its costs, so it’s strategic and tactical aim” (Large Retailer 4)

6.3. *Normative isomorphic drivers*

Normative drivers involve organizations integrating new rules and legitimate practices within their own organization. These new rules stem from social obligations to be seen as sustainable organizations.

“The business wishes to be seen as a progressive company who has clear corporate and social responsibility policies” (milk processor 4).

“[Name of logistics firm] is the largest logistics company in the world and as such is a large emitter of CO₂. [Name of logistics firm] places great importance on social responsibility and environmental stewardship within its corporate values. [Name of logistics firm] also strives constantly to reduce costs on behalf of its customers... Once the low hanging fruit is picked off it gets harder and more expensive for each increment of carbon reduction. Also a lot of dubious claims are made by suppliers of products claiming to reduce carbon footprint” (Logistics and distribution firm 3).

6.4. *Coercive isomorphic driver*

Coercive drivers involve those in powerful positions (large retailers/supermarkets) exerting pressure on other smaller organizations across the supply chain. It was evident from the data that a broad range of stakeholders considered the supermarkets to be the most powerful actors that dictated attempts to legitimize sustainable logics across the dairy supply chain.

An example of this, although it could be argued to be a ‘forced’ energy reduction strategy from large customers in the supply chain, is direct contracts with supermarkets whereby processors and farmers have to conduct carbon audits and identify areas for improvements.

“Well because all of our suppliers are also part of the [sustainability] campaign so they have service level agreements that they have to meet, they have targets of reduction that they have to meet” (Large retailer 1).

In the pursuit of a desire to be seen as socially responsible in the eyes of the consumer by having environmentally friendly products on the shelf, supermarkets have pursued sustainable practices through developing logics across their organizations and have tried to introduce these across the dedicated milk supply chain. Despite supermarkets powerful position they are only able to fully exert pressures on their dedicated supply chains until the new logic becomes an accepted practice.

“We work with one retailer where we have undertaken a carbon audit on around a hundred farms. And those farmers have had the result of that carbon audit, they’ve been able to understand and analyse where they’re doing well, where they’re not doing so well and so on. When those audits are being conducted sort of second time round, we are seeing appreciable reductions in energy and carbon usage” (milk processor 3).

However, these dedicated sustainable supply chain arrangements may in fact go against the logic of green sustainable practices and may in fact force others along the supply chain to adopt conflicting practices, as one respondent said:

“One area of conflict that I personally have concerns about, although I can also understand the reasons for it as well, is that some retailers insist on dedicated supply chains. So, you know, a retailer may select, I don’t know, a hundred dairy farms to supply it with its liquid milk and that’s great, but what that

does is that completely cuts across the arrangements that we were talking about earlier, about milk swapping and joint collections. Because what that retailer then insists on, is that those hundred farms are collected by one, they have to be collected together, they can't have any other milk in there, regardless of the amount of diesel or energy that is consumed in collecting all those different farms, nonetheless they still have to be collected separately. And that doesn't half drive a poor use of resources into the supply chain" (Milk processor 2).

One retailer commented on the regulation regarding carbon emissions, suggesting that governments are applying pressure on retailers (coercive isomorphic drivers) and this pressure moves down the power in the chain:

"All I can say is, first of all, for every ton of carbon we omit as a business we are taxed £12. Our bill for last year was about 4 Million. If we continue to grow our business, which we plan to do by 2020, we will be omitting 800,000 t of carbon every year, but the bills are going to go up then to £30 a ton. What we've set as a target, in terms of for 2020, is the target for us is emissions below 450,000 t" (Large retailer 3).

6.5. *Mimetic isomorphic driver*

Mimetic drivers occur when enterprises imitate the actions of successful competitors and whilst it is difficult to suggest which was the first supermarket to introduce energy reduction commitment plans and so on, it is clear that all supermarkets now have their own individual plans in an attempt to replicate publically available information on green successes for imagery purposes.

"Yes, as part of [our strategic sustainability plan], our ethical and environmental plan, we have published our commitment to improve energy efficiency by 25% by 2012 based on 2006/7 on a relative basis. Energy is a main operating cost and through carbon emissions associated with energy usage, it is an important environmental consideration. It needs to be reduced through greater efficiency and reductions in wastage. Wherever possible it should also come from renewable sources" (Large retailer 2).

"We have a central team of 25 people within our Energy Team who major on effecting improved efficiency across the Business, our Franchise partners and supply base throughout the world. We also, uniquely, have our own energy website which gives a wealth of energy information, data and Best Practice guidance to all our Stores and other buildings supporting their efforts to save energy" (Large retailer 3).

To summarize our findings: coercive drivers involve those in powerful positions (large retailers/supermarkets) exerting pressure on other smaller organizations across the supply chain; however they tend to be those smaller firms which are supplying supermarkets on direct contracts; normative drivers are reflected in organizations wishing to appear to have a sustainability agenda through integrating new rules and legitimate practices within their own organization. Mimetic isomorphic drivers result in supermarkets and other large organizations attempting to replicate publically available information on green successes for imagery purposes.

7. Discussion

Applying Institutional Theory allowed for a holistic approach to investigating a multi-organizational environment, i.e. a dairy supply chain and how those in powerful positions influence,

facilitate or prevent sustainable practices. In the present study, it seems finance and power of major players are particularly important – as discussed in Ageron et al. (2012) – social and environmental responsibility are not really mentioned. However, suppliers must be able to deliver on price and quality as Ageron et al. (2012) found that these factors would not be compromised for sustainability. The results demonstrate that those in powerful positions are exerting coercive isomorphic drivers i.e. these players do apply pressure to smaller organizations to adopt sustainable practices derives. This is not particularly surprising, it seems intuitive that those in powerful positions will use their power to instigate acceptance of new 'sustainable' rules through regulative structures such as buying contracts; some dedicated suppliers are now pressurized to undertake carbon audits. These coercive practices have to some extent been more successful than voluntary adoption of practices.

Some suppliers who are not 'coerced' into sustainable practices in the dairy supply chain do tend to adopt energy reduction practices based on the logic of reducing costs to increase profits: Again financial factors drive sustainable supply chain practices within the organizations. With tighter economic times pushing firms to be more efficient with resources, then one can suggest that the behavior will yield environmentally positive results, whether these environmental results are intended as legitimate environmental practices or not. These results also suggest that behaviors and organizational practices adopted in small firms may only make small incremental improvements but any small improvement should not be discounted. Therefore, we argue that regardless of what drives it (low cost or responsible sourcing), energy reduction is being institutionalized within the dairy supply chain.

Moreover, the data also indicated that powerful players in the supply chain use coercive isomorphic drivers to exert pressure on less powerful players to conform with the powerful players' environmental policies, for example through requiring 'carbon audits' and improvements.

It is evident that there will be trade-offs, as stakeholders view the institutional logic as a trade-off that supermarkets impose on the supply chain rather than a win-win situation. Wu et al. (2012) suggest that dominant players (e.g. major brands) can prevent SSCM – although Wu et al. do not provide evidence for this, the present study does present evidence that suppliers are driven by dominant players – the major supermarkets. Wu et al. (2012) also conclude that there are three SSCM drivers represent company green management ability (internal resource level), inter-organizational assistance (social network level) and government consulting services (third-party support level): the present study adds to this list and suggests there are two main institutional barriers – the dominant logic of cost reduction and dominant logic of complying with powerful stakeholders (supermarkets).

For consumers there will always be a tradeoff between price and purchasing goods that are sustainable either socially (fair trade) or environmentally (organic). This is particularly important in developing new institutional logics as the collective consumer forms one of the most powerful groups aside from supermarkets. The pursuit of competitive advantage in a tighter economy and tighter margins presents problems for the logic of sustainability, particularly as supermarkets undertake 'price wars' to entice consumers through their doors and highlighted in the media recently (e.g. British Broadcasting Company broadcasts in July and August 2012), milk is used as a loss leader. A good example in the agricultural industry is organic food, producers of organic food feel that their produce is more sustainable and environmentally friendly; however, consumers pay a premium price for this and during the current economic downturn, organic produce sales have declined. Firms that do pursue sustainable strategies may not

be rewarded in the market place for doing so; their only reward will be a small reduction in costs if they can reduce energy consumption without capital investment. For organizations there will always be a need to comply with the dominant logic to reduce costs and increase profits. For larger supermarkets, there is then the temptation to switch 'shelf' space to less sustainable produce to meet consumer demand for cheaper goods.

This argument concerning customer preferences and the 'bottom-line' brings this discussion back to the main reason our respondents indicated they seek to reduce energy consumption and the main barrier to doing so – finance, thereby conforming to the dominant logic cost reduction and profit maximization. Further research may wish to evaluate how it might be possible to complement this logic with a new norm of sustainability. However, this may prove extremely challenging given economic pressures for businesses. The competing logics of cost reduction and profit maximization, and whether they are antithetical or complementary to sustainable practices needs to be further investigated to understand the impact, if in fact any, this is having on organizations.

Investment in 'green' technologies was seen as expensive with a long, uncertain payback period, and so this behavior would also go against the current dominant logic. Sustainable initiatives have an unusual feature that justifies the need for collaboration in order to better serve the market: this unusual feature is that sustainability serves a societal rather than market need, for example the market need is to produce food as cheaply as possible. Under the dominant logic uncovered in the present study, sustainable and energy efficient agriculture benefits is seen to benefit actors but only in the sense that it can achieve cost reductions for a particular firm. Actors also have the added incentive that they are required to comply with government targets on carbon reduction. There seem to be two areas in which research and policy may aid management practice in relation to financial barriers.

The first of these concerns lowering the financial barriers to access to more efficient technologies. One key stakeholder, notably national government could legitimately intervene with taxation policy, which is one of the few things governments in liberal capitalist economies can do to encourage changes in behavior by changing the balance of the market. Other possibilities include for example, rapid commercialization of cheaper technologies with faster pay back periods or low interest rate loans secured by larger firms in the supply chain for smaller producers.

The second concerns lowering the financial and social barriers to collaboration between stakeholders in the supply chain. For example, a construction firm may reduce its own carbon footprint to reduce 'green' taxes by using materials that are easy to transport but result in supermarkets that are energy inefficient to operate, effectively passing the green tax bill to the larger retailers' 'green' tax bill. This is because 'green' taxes are levied on organizations, not systems such as supply chains. Therefore, there is no financial incentive for a firm to behave in a way that is heedful of others in the supply chain. Collaborating for retailers is also seen as something that the marketplace does not allow and could result in them losing their competitive advantage and their institutional presence in the marketplace. This contradicts previous work based on non-commodity/non-food context has found that collaboration and co-operation are important for SSCM (Ageron et al., 2012; Wu et al., 2012).

Although seeking energy reduction strategies can present cost saving opportunities, if increased awareness of the potential efficiencies is to be achieved more effort by Government and farming organizations is needed. For example, small firms with lower margins can benefit from 'frugal resource utilization' if they have access to good information and support to implement these strategies. Increasing collaboration amongst a farming community that is under intense pressure to reduce costs may require incentives and also clear communication of the potential benefits.

Through this activity it may be possible to combine sustainability and green issues with the current dominant logic. Understanding which initiatives should be implemented locally and which can best be planned at regional or national level in energy reduction is an area that we suggest ought to be the focus of future research initiatives. Finding novel ways of applying ideas from other industries could also lead to improved collaboration. For example, the notion of co-opetition (Loebecke et al., 1999) where competitors in a market collaborate to exchange information that helps all participants improve competitive advantage and efficiency might support small food producers in becoming more competitive.

We acknowledge that there are limitations to our study as it focuses only on UK dairy supply chain and our findings illustrate institutional forces in developed liberal market economies, these institutional forces are important in determining how firms behavior in a particular field. Other contexts could throw up other, alternative institutional influences, for example non-governmental organizations are not heavily involved or influential in the UK but they may be elsewhere.

8. Conclusion

The picture painted in this paper is rather bleak for developing a new institutional logic of sustainable practices. The dominant logic is so well established that challenging this will require organizations to embrace normative, coercive and mimetic behaviors. The role of supermarkets owing to their powerful position has been in coercive drivers across the supply chain; however, this has only really had an impact in terms of dedicated supply chains, and the results have highlighted some unintended consequences of these activities.

Organizations have made changes but often they are the simpler, easy to implement, changes – and there are more challenging infrastructural opportunities for energy reduction. Smaller enterprises tend to take a less strategic approach than larger ones, but still are interested in reducing energy, in the majority of cases because of cost reduction but also because it is the right thing to do. So does the fact that energy reduction is not strategic along the supply chain matter? Possibly yes, because the barriers to major infrastructural changes require a longer term commitment both financial and in terms of co-operation along and across the supply chain. The present study has highlighted the following areas for research and policy development. To gain the longer term commitment required, any financial investment needs to be incentivized as return on capital cannot be gained on a financial basis alone because of the current cost of borrowing and related uncertainty in markets. This could be achieved in two ways: firstly, lowering the financial barriers to access to more efficient technologies, for example, through rapid commercialization of cheaper technologies with faster pay back periods or low interest rate loans secured by larger firms in the supply chain for smaller producers; secondly, lowering financial barriers to collaboration between stakeholders in the supply chain.

Understanding which policy or commercial initiatives should be implemented locally and which can best be planned at regional or national level in energy reduction is an area to focus future research. Research should focus attention on how green sustainable practices can be legitimized when they compete, or can be made consonant, with the dominant logic of cost reduction and profit maximization, or indeed how the sustainable logic can become the dominant logic.

Acknowledgments

The research team would like to thank Dr. Teresa Silveira-Roca and Dr. Grazyna Stachow for conducting interviews, the

Engineering and Physical Sciences Research Council and Loughborough University School of Business and Economics Support fund.

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