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Citation: Breen, L., Xie, Y. and Cherrett, T. (2015) Back to the future? A theoretically inspired musing on the concept of Product Stewardship and its implications for Corporate and Social Responsibility. BAM 2015, British Academy of Management, Portsmouth, UK, September.

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Back to the future? A theoretically inspired musing on the concept of Product Stewardship and its implications for Corporate and Social Responsibility.

Summary

The concept of corporate and social responsibility (CSR) has gained increasing momentum and importance in business operations today and companies have globally responded to this philosophy. To what end though? Product Stewardship (PS) and the corporate, social and environmental responsibilities associated within this term are a key part of a business's CSR agenda. In the extant literature, it is a challenge to clearly identify the boundaries of responsibility for PS - who sets these boundaries for governance and what are the actions taken under the guise of PS. This paper aims to start the process of demystification in responding to the title of this work, stimulate further musings and outline a future research agenda.

Track 15 OLSCM

Word Count 1869

Keywords Product Stewardship, CSR, Green Supply Chain

Introduction

According to Porter and Kramer (2011) governments, activists, and the media have become adept at holding companies to account for the social consequences of their activities. The authors continue to state that the full benefits of corporate and social activities have not been realised due to the fragmented approaches of CSR policies and their lack of alignment with business strategy and lack of connectivity with society itself. Other authors corroborate this view stating that practising CSR in supply chains requires that CSR is embedded within the entire organisation, including subsidiaries abroad and offshore suppliers (Andersen and Skjoett-Larsen, 2009). CSR can be defined as the “*consideration of, and response to, issues beyond the narrow economic, technical and legal requirements of the firm to accomplish social (and environmental) benefits along with the traditional economic gains which the firm seeks*” (Aguilera *et al.*, 2007, pp. 836-837). The concept of product stewardship or “extended producer responsibility” (United States Environmental Protection Agency, 1998) or supply chain responsibility (Spence and Bourlakis, 2009) is an active component of CSR and as such is intended to reduce waste, boost recycling, and drive environmentally conscious design (US EPA, 1998). Product Stewardship is defined as “*an approach to managing the impacts of different products and materials. It acknowledges that those involved in producing, selling, using and disposing of products have a shared responsibility to ensure that those products or materials are managed in a way that reduces their impact, throughout their lifecycle, on the environment and on human health and safety*” (www.environment.gov.au, 2015).

EU directives, Governments and Accrediting bodies have produced clear stipulations as to producer responsibilities and obligations (Environment Agency, UK, 2014, ISO 26000, 2010). The European Commission in its most recent legislation (Directive 94/62/EC) presents a structured list of all products which producers are accountable for in production, logistics and waste management. These include: batteries, sewage, packaging containers, end of life vehicles, WEEE, metal cans and waste oils (2015).

Thus there is an onus within manufacturing and service operations to comply with regulations regarding product delivery and recovery and all the responsibilities that lie within this process. To this end, operations have to be seen to operate in an ethical, responsible and sustainable manner, and product stewardship where employed effectively, facilitates this.

‘Greening’ the Supply Chain to realise Product Stewardship

The concept of Green SC Management (GSCM) encompasses the reactive monitoring of general environmental management programs, moving to more proactive practices such as the recycling, reclamation, remanufacturing and reverse logistics (RL), and innovation (Zhu and Sarkis, 2004). This can be seen in practice in a number of functional areas such as green design and manufacture, green logistics, reverse logistics, reverse exchanges, and waste management (recycling and disposal) all of which support and facilitate product stewardship activities.

Reverse Logistics is defined 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 or creating value or for proper disposal*” (Rogers and Tibben-Lembke, 1999, pp2). The RL system aims for resource reduction, reuse of materials, recycling products, refurbishing, repair, remanufacturing, and waste disposal (Stock, 1998; Van Hoek, 1999). The process of recovering products within supply chains is thus covered under the umbrella term of RL, however the examination of ‘live’ products within the service operations i.e. Reverse Exchanges (those products on loan, or part of service provision and which are destined for redistribution as they carry economic value) is less established (Giannakis, 2011).

Both Reverse Logistics and Reverse Exchanges are components of a broader ‘Green Logistics’ (GL) agenda. Green Logistics is perceived to be the one of the proposed operational solutions to achieve sustainable development (Ping, 2009; Lai *et al.*, 2012). Thiel *et al.* (2011) categorized green logistics as a new research area which Lin (2011) claimed was virtually non-existent prior to 1990. Murphy and Poist (2000) and Lin (2011) viewed GL as a relatively young but rapidly evolving subject. Evidence would show that in the academic world, GL studies are increasing in popularity and importance and have appeared in several fields of operations management such as green supply chain management (GSCM) (Xie and Breen, 2012), manufacturing (Lai *et al.*, 2012), transportation (Lüken, 2011), and environmental management systems (Zhu and Sarkis, 2004), healthcare (Bandoophanit *et al.*, 2014).

‘Greenness’ became a catchword according to the United Nations (UN) promoting sustainable development (McKinnon, 2010) and is still increasing in its endeavours to promote green action which contribute to UN agendas such as climate change, resource efficiency and conservation (<http://www.un.org/en/sustainability/>, 2015). The United States Environmental Protection Agency (US EPA) assert that we can see a new emphasis on “greening” product systems for logical reasons such as pollution prevention and resource conservation in approaching this in a more holistic and global fashion (1998). Although waste management is a key component in reverse logistics systems, first and foremost initial source reduction strategies should be considered and developed to minimise waste production (Marien 1998) in the hierarchy of 3R, i.e., reduce, reuse, and recycle.

What are businesses stewards of?

Literature also indicates a movement from focusing on producer responsibility (who produces/manufactures the product) to product responsibility. This extends the discussion of the concept of responsibility deeper and further into product/service design, production, product use (and failure), disposal/recycling and recovery within the product life-cycle and all activities associated with and within these stages.

Studies have clearly focused on downstream supply chain activity, on the return of products and the role of both suppliers and customers as stewards in the supply chain. Research into the management of ‘empty’ containers by Breen (2006) indicated that companies suffered financial loss due to customers not returning transportation packaging/containers for re-use within their operation. The reverse exchange of such products was deemed essential for the business to operate and the capacity to do so was greatly undermined by the lack of customer engagement and compliance in this process. Xie and Breen (2012) also examined the role of all stakeholders within the pharmaceutical supply chain in returning medicines as part of ‘greening’ this supply chain in the NHS (UK). However less research is visible on the aspect of ‘green’ product life cycle and the responsibility of consideration of all variables of sustainability (social, environmental and economical) across the total life span of a product or service and stewardship/responsibility within this span. Other studies have focused on product stewardship linked to WEEE products (Ongondo *et al.*, 2011); packaging (Kroon and Vrijens, 1995), and battery and medicines recycling (Xie and Breen, 2014, Breen and Xie, 2015).

Proposed Approach and Methodology

According to van Hoek (1999) literature on the role of supply chain operations, mostly published in the area of reversed logistics, has failed to develop grounded theory and frameworks to support the application of ‘greening’ the supply chain. This study would aim to reverse this opinion by ensuring that a grounded theory study is undertaken delivering results that will contribute to both practical application and theme identification (Braun and Clarke, 2006) and/or theory extension/generation (Eriksson and Kovalainen, 2008).

In order to fully understand the concept of product stewardship as applied in businesses today the following research question is proposed:

RQ What is product stewardship in business today and how is it deployed across the product life-cycle?

In order to realise this question the following research objectives (RO1-4) will be addressed and outputs delivered:

1. A detailed secondary data analysis of the concept of product stewardship and all its derivative terms, (e.g. producer responsibility, product responsibility, extended product responsibility, supply chain responsibility)
2. A preliminary overview of acceptance, uptake and employment of stewardship activities in business – a multi-sector analysis via electronic survey.
3. A detailed case study of 3-5 supply chains to identify the actions and responsibilities of actors/stewards in ‘greening’ the product from conceptualisation through to End-of-life/End-of Use.
4. Creation of a detailed multi-sector profile of 1) product stewardship strategy; 2) the scale of product stewardship uptake; 3) product stewardship activities; 4) projected

best practice guidance as to implementation (success factors and barriers/pitfalls) and 5) cost and benefits of implementation.

To do this the authors will undertake RO1 in a comprehensive manner accessing both academic and professional data sources using search terms as identified in RO1 above in multi-disciplinary journals (Operations/Supply Chain and Logistics/Quality Management, Manufacturing, Technology, Waste Management/Disposal, Environmental Management, Disaster Management/Recovery, Health and Safety, Business Management and Others as deemed appropriate). This will provide a robust platform for the delivery of RO2, RO3 and RO4.

De Brito *et al.* (2004) developed a framework for understanding RL under four dimensions (see Table 1): What, How, Who and Why, and illustrated that the issues arising from RL system can be orchestrated by the four dimensions. This was further developed by Xie and Breen (2012) adding another dimension “Where” (see Table 1) to address more specific RL issues such as locations of collection points and distribution centres in a physical RL network. This framework has been adapted for the purpose of this study to address the concept of product stewardship and can be seen in Table 1 below. The will facilitate the delivery of RO 1-4.

Table 1: Product Stewardship framework (adapted from Xie and Breen, 2012)

Dimensions	Definitions
What (Products)	The products entering the supply chain (product-ins) and the products leaving the reverse logistics network/reverse exchanges (product-outs).
When (Stage in SC)	The stage at which the stewardship activity occurs in the pipeline.
How (Activities and Processed)	All stewardship activities and key processes, from product conceptualisation, raw material/component sourcing, vendor appraisal, production, logistics, production consumption and reverse logistics (including returning, collection, and main recovery processes, such as resale, reuse, redistribution, repair, refurbishing, remanufacturing, recycling, incineration, or proper disposal).
Who (Actors)	The actors and their roles in the product pipeline/life span (designer, producer, supplier, processor, collector, customer and final owner (recycle/disposal).
Where (Network Structure)	The physical network structure where the actors are located and the products are managed and processed (outbound and closed-loop).

Why and Why not (Drivers, Barriers)	The drivers of responsibility and associated barriers to success.
Benefits (realised and potential)	The benefits clearly realised from stewardship activities and those forthcoming.
Cost	Acknowledgement of the cost of deploying a product stewardship strategy and resources allocated to activities.

Discussion and Conclusions

As purported by the authors, proponents of CSR have used four arguments to make their case: moral obligation, sustainability, license to operate, and reputation (Porter and Kramer, 2006). Businesses when endorsing and acting as product stewards should aspire to deliver to all 4 of these arguments to maintain their credibility and position within the marketplace/sector. The outcomes of this study would propose to assess the alignment of business PS strategy deployment with said arguments as informed by empirical data collection. This would then deliver a framework for action and proposed outcomes as stated which are grounded in theory and application and which set new standards for PS strategy development and action. It will also clearly identify the placement of PS within the wider CSR and Sustainability agenda. The effective deployment of PS asks businesses when operating (producing their goods and services) to reflect back on product conceptualisation and design and project forward to product end of use, final demise and resting place. Can this be done in a corporate and socially responsible manner to ensure effective stewardship?

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