Journal of Cleaner Production 170 (2018) 216–226

Contents lists available at ScienceDirect

Journal of Cleaner Production

journal homepage: www.elsevier.com/locate/jclepro

Sustainable business model adoption among S&P 500 firms: A longitudinal content analysis study

Paavo Ritala [c, *], Pontus Huotari [c], Nancy Bocken [a, b], Laura Albareda [c], Kaisu Puumalainen [c]

[a] Lund University, IIIEE, Tegnérsplatsen 4, 223 50 Lund, Sweden
[b] Industrial Design Engineering, Delft University of Technology, Delft, The Netherlands
[c] School of Business and Management, Lappeenranta University of Technology, Lappeenranta, Finland

ARTICLE INFO

Article history:
Received 13 October 2016
Received in revised form
15 September 2017
Accepted 15 September 2017
Available online 18 September 2017

Keywords:
Sustainable business models
Sustainability
Content analysis
Large cap
S&P 500

ABSTRACT

In this study, we examine the diversity of sustainable business models adopted by the largest global corporations — those listed in the S&P 500 index — over the period 2005–2014. We examine press release communications during this period, which represent public data about business-relevant events. We expect that examining this communication can reveal longitudinal patterns in the adoption of sustainable business activities and models. Empirically, we utilize academic and practitioner expert panels to build a set of keywords across nine sustainable business model archetypes and utilize automated content analysis to examine the breadth and nature of a firm's sustainable business activities and practices. We find evidence of the increasing prominence of different types of sustainable business models over time. In particular, the results show that large capitalized firms have mostly adopted the environmentally-oriented archetypes, and to much lesser extent the societal and organizational ones.

1. Introduction

Publicly listed large firms are known for their pursuit of profit for their shareholders. At the same time, increasing pressures of corporate and business sustainability challenge these same firms (Banerjee, 2008). The larger the firm, the higher the public scrutiny and the potential controversies among profit, people, and the planet (Kolk, 2008). In contrast to small and medium enterprises and new ventures, large cap firms have faced major challenges in the process of transforming their industries toward sustainable development (Hockerts and Wüstenhagen, 2010). Large cap firms react in the face of corporate scandals or stakeholder pressures and adopt responsibility and sustainability as an incremental process (Kolk, 2016). Beyond that, new strategic activities emerge in large firms searching for a win-win situation between corporate responsibility and sustainability and firm performance (Schaltegger et al., 2011).

However, according to Baumgartner and Rauter (2017, p. 81), progress towards sustainable development has been slow, which indicates a need for more concrete guidance for businesses to act strategically and successfully in a sustainable way. To this end, interest has started to turn to the *sustainable business models* utilized by firms (Boons et al., 2013; Schaltegger et al., 2016), and the solutions these business models could offer in response to challenging environmental and social issues. Broman et al. (2017) in the Journal of Cleaner Production Special Issue on "Science in support of systematic leadership towards sustainability" argue that we need to move beyond understanding of 'what is happening and why' to research that is more systemic and cohesive. França et al. (2017) for instance combine a framework for Strategic Sustainable Development with the Business Model Canvas (Osterwalder and Pigneur, 2010). In this paper, we seek to make sense of the diversity of sustainable business model activities of corporations by investigating the emergence of sustainable activities and practices, acting as a proxy of companies' transition as suggested in the social practice theory (e.g. Shove et al., 2012; Boons, 2016).

The business model literature is interested mostly in business models that create, deliver, and capture economic value (Teece, 2010). Recently, the business model literature has also started to include models linked to social and environmental values (e.g., Stubbs and Cocklin, 2008; Boons et al., 2013). Categorizations and

* Corresponding author.
E-mail addresses: ritala@lut.fi (P. Ritala), pontus.huotari@lut.fi (P. Huotari), nancy.bocken@iiiee.lu.se, n.m.p.bocken@tudelft.nl (N. Bocken), laura.albareda@lut.fi (L. Albareda), kaisu.puumalainen@lut.fi (K. Puumalainen).

https://doi.org/10.1016/j.jclepro.2017.09.159

typologies of sustainable business models have been created by academics and business practitioners, including e.g. Boons and Lüdeke-Freund (2013), Bocken et al. (2014), Clinton and Whisnant (2014) and Wells (2013). A systematic review by Bocken et al. (2014) demonstrated the broad variety of sustainability-related business models available. This approach suggests that firms can adopt a broad variety of activities that enable the firms to create “shared value” (Porter and Kramer, 2011), combining economic goals with those aligned to social and environmental values.

However, what is missing from the literature is an overarching understanding of the breadth and depth in which global corporations actually pursue business-relevant activities that are not only economically-focused but also address broader social and environmental stakeholders. To bridge this gap, in this study we examine how firms conduct business-relevant activities that touch upon sustainable issues in a broad variety of societal and environmental domains, including the development of new technologies, organizational practices, and socially oriented activities. We adopt the activity-system perspective on business models (Zott and Amit, 2010) to focus the analysis on different activities, which we group under different types of sustainable business model archetypes. This builds on the notion that business model innovation is an iterative process of experimenting, piloting, debriefing and learning, and scaling (Nidumolu et al., 2009; Lüdeke-Freund et al., 2016). The emergent activities and practices (in an organization) contribute to a sustainability transition and contribute to changing the dominant logic of the firm and as result the core business model (Boons, 2016; Loorbach and Wijsman, 2013; Shove et al., 2012). In large global firms (such as in our study), the business models might constitute a myriad of activities, among some of which are more or less sustainable. For this reason, we expect that the approach of examining sustainable business activities as the constituent parts of sustainable business models can provide a feasible overall indicator of the trends of transformation to sustainable business models.

We focus on Standard and Poor (S&P) 500 firms over the period 2005–2014, and using big data research design and automated content analysis (see e.g. Lee et al., 2008, 2009), we examine the patterns of adoption of sustainable business models by large cap corporations over time. Based on automated content data analytics of the press releases of the firms in the sample, we evaluate business activities based on a taxonomy of technological, social, and organizational activities oriented toward creating sustainable value. Methodologically, the present study goes beyond the more traditional analyses of corporate social responsibility (Dahlsrud, 2008), and even beyond studying sustainability reporting, as we focus directly on the corporate communication directed at stakeholders. Given the high public scrutiny S&P 500 firms face, we expect that this data source provides feasible access to potential sustainable business activities.

By utilizing existing literature, and especially a further developed systematic review-based sustainable business model taxonomy by Bocken et al. (2014), this study provides interesting evidence of how the relative emphasis on different sustainable business models and activities has changed over time in global corporations. The results provide implications for research but also for the methodology of studying sustainable business models in a large-scale, big data research design.

Next, we discuss the links between large global corporations and sustainable development, and the motives and challenges faced in their efforts to integrate sustainability issues with competitive strategies. This is followed by a discussion of sustainable business models (SBMs). Then, based on the conceptual foundations, we describe the methodology and results for SBM analysis of S&P 500 firms between 2005 and 2014. Finally, we discuss the theoretical and practical implications of the findings, as well as address the limitations and future research directions.

2. Setting the scene: (lack of) business sustainability in global corporations

2.1. The corporate sustainability journey

Large corporations have been criticized due to the lack of trust in their ethical, social, and environmental behavior (Banerjee, 2008; Carroll and Shabana, 2010). This criticism is based on the premise that corporations are mostly guided by self-interest, leading to the pursuit of economic profits over social and environmental concerns (Banerjee, 2010). This is linked to the classic Friedman claim (1970) that the main responsibility of business is only to increase economic profits for shareholders in contrast to other social concerns. However, recently we have seen how societal pressures and the negative consequences of globalization have forced corporations to focus on social and environmental concerns in core business activities. First, corporations have been pressured to reduce the negative impacts of their operations on consumers or suppliers, as well as local communities (Freeman, 1984; Carroll, 1999; Garriga and Mele, 2004). Second, corporations have also been forced to react to the new global environmental challenges by promoting new sustainable practices and the greening of their processes (Gladwin et al., 1995; Hart, 1995; Shrivastava, 1995). Third, global companies have increasingly outsourced activities to supply chain partners, shifting the domain of corporate responsibility from that of an individual corporation to the level of the whole supply chain (Seuring and Müller, 2008). Thus, large corporations are also held responsible for the impacts caused by their partners (Paulraj et al., 2015).

As a consequence, corporate social responsibility (CSR) and sustainability have become important dimensions that affect the reputation and strategy of large cap corporations (Hoffman and Bansal, 2012; Kolk, 2008, 2016). Currently, most corporations report their economic, social, and environmental impacts (Kolk, 2008; Perego and Kolk, 2012) assuming the principles of the triple bottom line (Elkington, 1997). Corporations have also adopted CSR and environmental strategies (McWilliams and Siegel, 2001) and included them as drivers of competitive advantages in the markets (Porter and Kramer, 2006). Some corporations have also gone through important changes by greening their operations and assuming new arguments for how sustainability creates new economic, social, and environmental value (McWilliams and Siegel, 2011). Friedman's approach to social responsibility has been largely moved forward with the emergence of public discussions on the role of business in society (Carroll, 1999). Beyond that, stakeholder management and dialogue have emerged as a core dimension of business responsibility and sustainability (Freeman, 1984; Freeman and Evan, 1990). The analysis of how corporations affect and are affected by internal and external stakeholders has changed the way companies create new value in markets, solve societal and environmental challenges, and include multiple stakeholders in the process of value creation (Freeman, 2010; Garcia-Castro and Aguilera, 2015; Bocken et al., 2013; Tantalo and Priem, 2016).

We have seen different waves of how businesses have approached social and sustainability issues (Hoffman and Bansal, 2012; Carroll, 1999). The first wave in the early 1970s was based on the recognition that corporate social responsibility and environmental issues could become an important problem for corporate reputation. During that period, corporations mostly reacted to environmental and social crises (e.g., the Bhopal accident) by adopting voluntary measures and assuming new soft regulation and reporting frameworks. In the late 1990s, a second wave