

Rethinking sustainability strategies

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Abstract

Purpose – The purpose of this paper is to provide both theorists and practitioners with a conceptual framework that links sustainability strategies more closely with Porter's generic strategies. The intent of this approach is to establish sustainability, fundamentally, as a strategic process. The proposed models set a strategic context to tie sustainability, to mediating variables, such as innovation and technology, while also linking them to generic strategies (low cost leader, differentiation, and focus) and firm financial performance in a causal chain. The proposed model gives rise to conclusions about the effectiveness of sustainability strategies that are consistent with emerging research about the role of radical innovation in sustainability.

Design/methodology/approach – The paper proposes two conceptual frameworks designed to link sustainability with business strategy. These models are rooted in evolving understandings of business strategy arising from Porter's original explanations of generic strategies and sources of competitive advantage. The first model is a causal model that links drivers, such as type of competitive strategy and mode of innovation, to competitive outcomes and firm financial performance. The second model describes how different modes of technology development, in sustainability initiatives, cause changes in firm competitive and financial outcomes.

Findings – The conclusions arising from the model-based insights suggest that conventional continuous and incremental improvement sustainability practices hold the potential to pose strategic risks to some firms – depending on their core business strategy. By contrast, the model provides a logical, yet, less known, rationale that suggests radical innovation in sustainability practices may pose fewer strategic risks. It may also offer relatively more competitive and financial advantages than well-established programs relying on incremental innovation.

Research limitations/implications – Although the proposed conceptual frameworks are rooted in strategic management theories, the proposed models and expected outcomes have not yet been empirically tested or validated. However, initially, these models appear to have more face validity in explaining breakthrough sustainability success stories, such as Nike, than do competing explanations. Most importantly, the counter-intuitive finding that radical innovation is likely to be more effective in driving both sustainability and financial outcomes is a topic for future investigation.

Practical implications – The proposed models and accompanying rationale have direct implications for practitioners. They provide practitioners with a road map to logically and deductively frame sustainability strategies based on their current business strategy. Practitioners are often hindered by the lack of high-level guidance for making the transition from operationally focused sustainability tactics to strategies that are congruent with current business strategies. The current paradigm of using incremental sustainability strategies on an ad hoc basis does not always provide neutral outcomes regarding financial effects and competitive advantage – they may yield negative effects.

Social implications – The importance of sustainability strategies and management practices cannot be overstated. On a global scale, evidence indicates that most corporate sustainability programs are ineffective at slowing the rate of global forces offsetting sustainability. The proposed models and strategic management approach are intended to dramatically increase the effectiveness of sustainability improvement by closely aligning them with corporate strategies. Historically, companies have struggled to make the leap from randomly using eco-efficiency tools to making sustainability a key component of their business strategy.

Originality/value – This paper integrates a number of diverse lines of inquiry from the strategic management literature into a counter-intuitive approach for integrating sustainability into a firm's core business strategy. The proposed conceptual frameworks can be used, prospectively, to design new sustainability strategies, or it can be used, analytically (retrospectively), to understand reasons for failure or under-performance in sustainability initiatives.

Keywords Strategy, Sustainability, Technology, Innovation, Corporate reputation, Corporate social responsibility

Paper type Conceptual paper



Introduction

Globally, there is an urgent need for greater sustainability, and for significant improvements in the way companies manage for sustainability. Demands arising from limited natural resources, when coupled with exponential population growth and rising standards of living in developing countries, create an unprecedented pressure on human civilization. Sterman (2015) observes, “Our civilization is unsustainable and it is getting worse fast. The human ecological footprint has already overshoot the sustainable carrying capacity of the Earth, while population and economic growth are rapidly expanding our impact” (p.51). At the same time, Sterman’s (2012) current approaches to sustainability improvement practiced by organizations are not making appreciable differences to the quality of human society (Sterman, 2012). This raises the question – why do organizations struggle to become more highly effective in the ways they manage for sustainability?

Lubin and Esty (2010) argue that executives understand the critical importance of the challenges posed in managing for sustainability. They generally see sustainability as largely being a strategic issue. However, despite clearly seeing the complex challenges of achieving greater improvement in the rate of sustainability gains, they are still hesitating to act in bold ways. Why? Most notably because “they think they’re facing an unprecedented journey for which there is no road map” (Lubin and Esty, 2010, p. 42). In this paper, we propose a conceptual road map that ties together the way a firm manages for sustainability to its business strategy. It does this by linking sustainability innovations and improvements to fundamental cost-leadership and differentiation strategies.

Strategic innovation is a critical element of successful sustainability, and is a critical element of our sustainability strategy model. Strategic innovation can be a transformative force enabling firms to radically improve their sustainability and economic performance. Companies, such as Nike, have created entirely new product lines by using renewable materials that are attractive to environmentally conscious customer segments. Nike’s sustainability strategy is driven by various forms of innovation – such as, making greater investments in human capital, changing product designs, and employing disruptive technologies that radically reduce the firm’s carbon footprint. Nike follows an enterprise-wide business strategy centering on creating new products using low-impact and regenerative materials by employing a “closed-loop manufacturing model” (Nike Inc., 2015). Nike’s many sustainability initiatives are tied together by a single overarching strategy. At Nike, sustainability-driven innovation is a key component of its growth strategy.

We propose that the greatest sustainability challenges are of strategic nature, rather than simply a technical one. When firms adopt sustainability techniques not closely aligned with their business strategy it may undercut their capacity for creating and sustaining competitive advantage. We argue that sustainability outcomes are contingent on the fit between a sustainability initiative’s strategic source of competitive advantage (cost reduction or value addition), the firm’s competitive strategy (cost leadership or differentiation), and the initiative’s mode of technology development (radical innovation, incremental innovation, or imitation). In order to evaluate the “goodness of fit” between these three fundamental technology development modes and Porter’s generic strategies, we propose an analytical framework comparing the effects of each technology development mode and the core value proposition for each generic strategy. The model links sustainability initiatives’ modes of technology development to firm financial performance by way of mediating variables tied to specific competitiveness outcomes.

Our model aims to help firms to align strategy and sustainability, while at the same time enabling them to avoid becoming strategically “stuck in the middle” (Porter, 1985). Porter clarifies “being all things to all people” is a recipe for strategic mediocrity and below-average performance, because it often means that a firm has no competitive

advantage at all (p. 12). Being stuck in the proverbial middle results when firm strategies and processes are not closely aligned. Porter and Kramer (2006) note, “[t]he fact is, the prevailing approaches to CSR (corporate social responsibility) are so fragmented and so disconnected from business and strategy as to obscure many of the greatest opportunities for companies to benefit society” (p. 79). While becoming stuck in the middle is not always a fatal condition to companies, it inevitably deters them from effectively executing their intended strategy. Pertusa-Ortega *et al.* (2009) studied 164 firms that became strategically stuck-in-the-middle, and found they performed below par. Being stuck in the middle usually means losing competitive advantage. This often happens when companies mistakenly focus only on products/markets while ignoring strategic resource and capabilities Zack (1999). By contrast, when companies adopt a resource-based view of strategy, the most critical driver of firm’s core competency becomes knowledge, and its knowledge-processing capacities (Nelson and Winter, 2002; Spender, 1996). Knowledge processing is array of social processes used by organization members to create and integrate their knowledge into the business process of the firm (Firestone and McElroy, 2003; McElroy, 2003). Knowledge processing can be integrated into the way strategy is managed through the use of interactive knowledge management (Labeledz *et al.*, 2011). Doing so enables a firm to raise the quality of knowledge used in strategy formulation and execution, on an ongoing basis, to heighten the effectiveness of strategies and surface untested assumptions. Ultimately, as the quality of knowledge-in-use within the organization grows, the capability for more highly effective action, and the capacity for more widely diverse actions expands. As this dynamic continues, firms may develop greater ambidexterity and become more able to both explore and exploit their environment (O’Reilly and Tushman, 2013).

Literature review

The business case for sustainability

Porter and Kramer (2011) see a potential nexus between the vital sustainability interests of the world and those of corporations. Inevitably, any viable sustainability strategy must have a logical business case associated with it. Carroll and Shabana (2010) identify the existence of a range of potential business cases pertaining to corporate social responsibility (CSR) that extend from narrow to broad. “A narrow view of the business case justifies CSR initiatives when they produce *direct* and clear links to firm financial performance. Mostly, the narrow view of the business case focuses on immediate cost savings” (p. 101). On the other hand, the broad view supports investments in CSR when they yield both direct and indirect financial benefits.

Kurucz *et al.* (2008a, b) provide a fine-grained explanation of the broad view of the business case for CSR. The authors identify four types of intermediary benefits: cost and risk reduction, creation of competitive advantage, reputation and legitimacy benefits, and synergistic value creation. These benefits act as mediating variables between sustainability initiatives and firm financial performance. A sustainability initiative would result in one or more of these benefits, which in turn would enhance the firm’s financial performance. Taking these intermediary variables into account reveals the increasing evidence of synergies between a firm’s investments in sustainability and financial performance (Eccles *et al.*, 2014). This also indicates the ability of organizations to coexist with sustainability in a symbiotic relationship (Winnard *et al.*, 2014). As sustainability evolves, firms are discovering new points of homeostasis between sustainability and financial performance. The business case for CSR also draws attention to the role of contextual factors in the relationship between sustainability initiatives and firm financial performance. For example, Barnett (2007) argued that a firm’s capacity to influence stakeholder moderates the relationship between the firm’s social action and its stakeholders’ perceptions of it.

Sustainability and financial performance

Any business case for sustainability is predicated on the premise of there being a positive relationship between sustainability performance and financial performance. Research on firm sustainability performance and financial outcomes typically finds only a slight positive relationship between these variables. However, as has been noted by various researchers, such as Orlitzky (2013) and Schaltegger and Ludeke-Freund (2012), there is not a simple uni-directional causal link between sustainability performance and economic gain. They note “the relationships between voluntary social and environmental management and economic success are often different from conventional economic cause-and-effect chains, and so is the kind of influence a social or environmental activity has on the economic drivers” (p. 6). Much of the ambiguity that surrounds sustainability research stems from a general failure to consider precisely how mediating variables impact economic outcomes. Efforts to empirically link sustainability outcomes to firm financial performance have often yielded conflicting results (Matarazzo *et al.*, 2015).

The relationship between corporate social and financial performance has been studied extensively, yet there have been few definitive conclusions reached – other than the realization that mediating factors play a significant role. A meta-analysis of over 350 studies by Margolis *et al.* (2008) found only a slightly positive relationship existed between CSR and financial performance. Using a similar meta-analytic research methodology, Dommerholt (2016) investigated the possible relationship between sustainability performance and financial outcomes. He found the relationship between sustainability and financial performance to be “inconclusive and ambiguous – at best” (p. 815). However, the impact of sustainability on financial performance is greater when sustainability initiatives are managed strategically and integrated with a firm’s core strategy (Porter and Kramer, 2006).

Sustainability, reputation, and financial performance

Firm reputation has a tangible effect on company valuations. Cole (2012) found that corporate reputations in the S&P 500 had significant impact on firm value. This is quite germane to sustainability performance as it has become one of the primary drivers of a firm’s CSR reputation. Corporate reputations accounted for nearly 26 percent of the total market capitalization of the S&P500, US\$3,190 bn of shareholder value. Similarly, reputation was responsible for approximately US\$770 bn of value throughout the FTSE100 and US\$67 bn in the FTSE250 (Cole, 2012). Cole also found wide variations in reputation value among companies. Firm valuation was impacted by both systemic and non-systemic forces. In other words, corporate reputation is not only the product of how well a company is known, but also what is known by stakeholders about the company. Cole (2015) identified nine factors contributing to corporate reputation and their relative effect (%) on company reputations (Table I).

What are the common threads that distinguish companies with outstanding corporate social performance? McElroy (2016) found three leading factors that drive firm social performance reputation: firms set company-specific social and/or environmental sustainability goals; they actively measure, manage, and aggressively report performance against sustainability goals; and their company goals are science-based and context-based, and not just incremental ones.

Mediating factors and financial performance

The effects of sustainability initiatives on financial performance are significantly influenced by mediating variables. Carroll and Shabana (2010) propose, “To formulate a successful CSR strategy, firms must understand that the benefits of CSR are dependent on mediating variables and situational contingencies” (p. 101). Lankoski (2000, 2007) identified six sustainability factors capable of mediating firm financial performance. The findings of this research are consistent with a contingency view of relationship between sustainability and

Table I.
Factors impacting
corporate reputation

Reputation factor	% of firm reputation
People management	16.4
Quality management	14.5
Long-term invest. Potential	13.5
Financial soundness	12.8
Use of firm assets	12.7
Innovation	10.7
Corp. and social responsibility	10.7
Quality of products	10.2
Global competitiveness	-1.4

Note: From Cole (2015) reputation dividend

economic performance. Economic performance varied among the firms studied on the basis of six situational factors, such as technology, regulatory pressure, economic forces, and firm visibility. Lankoski (2008) concluded that CSR actions rarely ever directly cause gains in the effectiveness of social responsibility performance (CSP). Instead, she proposed that mediating variables are part of a causal chain of activities from CSR actions to CSP mediating factors, e.g. organizational learning, firm reputation, stakeholder actions, cost impacts and revenue impacts on the firm all generate CSP effects. Orlitzky *et al.* (2003) sought to measure systemic effects and bi-directional causality in mediating the effect of CSP on firm financial performance. They found company reputation had a significant positive correlation with firm financial performance and vice versa in a mutually reinforcing feedback loop. Subsequently, Orlitzky *et al.* (2011) found a general drift of firms toward greater sustainability which made high performing CSR firms less distinguishable, and the public more distrustful of what CSR means. A common theme in the studies cited above is the importance of firm reputation on both financial and market performance. Firm financial performance may be both a cause and effect of sustainability gains and vice versa. This reinforcing relationship is part of an amplifying feedback loop, that is typically nested in a larger closed-system of feedback relations (Mozier and Tracey, 2010).

A strategy for sustainability innovation

In this section, we propose a contingency model for the strategic management of sustainability initiatives (Figure 1), which illustrates the superiority of radical innovation over other modes of technology development in addressing sustainability demands while simultaneously improving firm financial performance. In addition, the model demonstrates the limited capacities of incremental innovation and imitation strategies, as modes of technology development, in achieving congruence between sustainability initiatives and firm performance. We then discuss various possible contingencies relating to the strategic management of sustainability initiatives – as they relate to the firm’s mode of technology development, core strategy, and financial performance.

Prior to introducing the model, we review its theoretical underpinnings. We examine the relationship between sustainability and firm financial performance (Burke and Logsdon, 1996; Carroll and Shabana, 2010; Kurucz *et al.*, 2008a, b; Porter and Kramer, 2011) and provide an overview of the modes of technology development (Christensen and Bower, 1996; Szekely and Streble, 2013).

Competitive strategy

An organization exists as a part of a complex dynamic system on which it depends for obtaining resources necessary for its survival (Pfeffer and Salancik, 1978). To best survive,

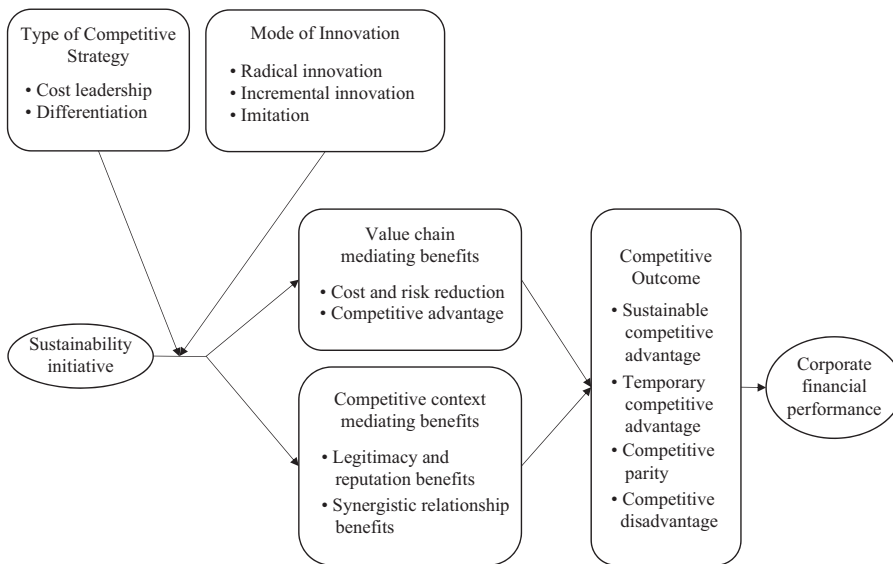


Figure 1.
A contingency model
of the strategic
management of
sustainability
initiatives

an organization adapts to and aligns itself with that environment by means of its strategy: The “basic alignment mechanism” that constantly aims at maintaining congruence between the organization and its environment (Miles and Snow, 1984, p. 11). Through this alignment, a firm achieves fit with its external environment. This fit may take various forms that include fit as matching, moderation, and mediation (Venkatraman, 1989).

Matching occurs when two variables or factors form a relationship that has a positive effect on firm performance. It represents “consistency” among the different activities of the firm (Porter, 1996, p. 71). The relationship between strategy and structure (Chandler, 1962) where “the absence of [...] a match between structure and strategy leads to administrative inefficiency or weaker performance” illustrates this type of fit (Venkatraman, 1989, p. 431).

Fit as moderation means that the extent of the effect of a predictor variable on the dependent variable is contingent upon a third variable (Venkatraman, 1989). The effect of the presence of regulatory mandates on the relationship between a firm’s response and its competitors’ actions exemplifies this type of fit. In this case, Weigelt and Shittu (2016, p. 683) illustrated that a firm’s investment decision in response to its competitor’s investment decisions is moderated by the presence of regulatory mandates. That is, “the presence of a regulatory mandate lowers the effect of competitors’ new resource investments on a focal firm’s subsequent new resource investment.” In relationship to the business case for CSR, this type of fit occurs depends on the extent to which CSR or sustainability initiatives are aligned with the firm’s contextual variables.

Fit as mediation means that the impact of a predictor variable on a dependent variable is only observable through an intermediary variable (Venkatraman, 1989). Overlooking these mediating variables obscures the relationship between the predictor variable and the dependent variable. Prescott (1986) illustrate this type of fit by showing that firm’s strategy impacts profits through market share: firm strategy influences market share, which in turn influences profits. In relationship to the business case for CSR, this type of fit occurs when considering the role intermediary benefits of CSR (Kurucz *et al.*, 2008a, b) in the relationship between CSR or sustainability initiatives and firm financial performance.

Research by Arabesque Partners and Oxford University (2015) found that Philip’s electronics (the Netherlands) revenues from green products reached EUR 11.8 bn – equaling a 51 percent share of total revenues (Clark *et al.*, 2015). In a similar vein, Whelan and Fink (2016) found that

the top 100 sustainable global companies had much higher mean sales growth, return on assets, profit before taxation, and cash flows from operations than did control companies during the period between 2006 and 2010. The shift to viewing sustainability from an external perspective is not new. Srivastava (1995) first challenged the norms that treated sustainability as an insignificant, often extraneous, aspect of corporate philanthropy: "Environmental sustainability must be integrated into the logic of corporations and sustainability should become an integral aspect of any corporation's effectiveness" (p. 954). Similarly, Hart (1995) pointed out that corporate strategies routinely fail to integrate the natural environment into its resource-based view of the firm and its strategy for gaining competitive advantage. Up to 80 percent of market value of companies results from intangible assets, such as human capital. By 2012, up to 49 percent of market capitalization of firms in the S&P 500 was accounted for by intangibles. Firm reputation is one of the most significant of a firm's intangible assets.

From a different perspective to that of Venkatraman, Porter's (1980) strategy framework explains how alignment is achieved as it relates to the organization's competitiveness. Porter identifies cost leadership and differentiation as two types that allow firms to align themselves with their industry environment and gain competitive advantage. When using a cost leadership strategy, the firm gains its competitiveness from its low-cost advantages. "The source of the cost advantage [...] may include economies of scale, proprietary technology, [or] preferential access to raw material. While low cost is the source of the firm's competitive advantage, the cost leader must still achieve parity or proximity in the bases of differentiation relative to its competitors" (Porter, 1985, p. 12). In contrast, when using a differentiation strategy, a firm gains its competitiveness from its differentiation advantages. A differentiation advantage enables the firm to offer products and services that makes it unique relative to competitors. While differentiation is the source of the firm's competitive advantage, the differentiator must still maintain "cost parity or proximity with its competitors" (Porter, 1985, p. 14). According to Porter (1980), typically a firm would only be able to successfully pursue one of these two strategies. This limitation is because each strategy requires activities that are inconsistent with the other. An exception to this limitation occurs when a firm realizes a "major innovation" where it is able to enhance both its cost and differentiation advantages.

Modes of technology development

Christensen and Bower (1996) define technology as the "processes by which an organization transforms labor, capital, materials, and information into products or services" (p. 198). Technology, therefore, is a construct that encompasses various processes that extend beyond those of engineering and manufacturing. This broad conception of technology is also adopted by Perrow (1970), Porter (1985), and Drucker (2006). Christensen and Bower (1996) identify two types of innovation: sustaining or incremental and disruptive or radical. Sustaining or incremental innovation is that type of innovation that builds on the current technology and maintains its progress. In contrast, disruptive or radical innovation is that type of innovation that offers an alternative solution to that offered by the current technology. Szekely and Streble (2013, p. 469) describe incremental innovation to consist of "novelty at the level of products, services and processes," while radical innovation to encompass "a wider sphere of activity and closer interaction with suppliers, regulators, civil society organisations and other stakeholders [...]." Accordingly, incremental innovation has a narrower scope than radical innovation in terms of competitiveness. Incremental innovation impacts the firm's value chain only, while radical innovation impacts both the firm's value chain and its competitive context (Porter and Kramer, 2006). Strategically, firms may also develop their technology by imitation (Abrahamson, 1991). Cases of imitation are often motivated by legitimacy challenges where the firm is compelled to adopt elements of its environment (Meyer and Rowan, 1977) and move to more closely resemble its competitors (Deephouse, 1996).

Strategic sustainability management model

The model that we propose (Figure 1) focuses on the fit between a sustainability initiative and the other organizational and environmental factors surrounding it. We argue sustainability initiatives would have positive impacts on firm financial performance when such initiatives create or enhance the fit between the firm and its environment. We underscore three types of fit: first, we argue that a sustainability initiative's mode of technology development must match the firm's core strategy. Second, we suggest that the impact of the sustainability initiative on financial performance would be moderated by the match between the sustainability's mode of technology development and the firm's core strategy. Third, we maintain that the impact of the sustainability initiative on financial performance would be mediated by the intermediary benefits of the business case for CSR and competitiveness outcomes. Table II illustrates the outcomes of different sustainability initiatives based on their mode of technology development and their fit with the firm's competitive strategy.

A sustainability initiative has a positive impact on firm financial performance when its source of competitiveness is closely congruent with the firm's strategy. In contrast, when its source of competitiveness is not aligned with the firm's strategy, the sustainability initiative produces a negative impact on firm financial performance. The fit between a sustainability initiative's mode of innovation and the firm's core strategy occurs when the advantage gained from a mode of innovation matches the type of advantage on which a core strategy relies. A high level of matching is achieved when a sustainability innovation yielding a cost advantage is paired with a cost leadership strategy or when a sustainability innovation yielding a differentiation advantage is paired with a differentiation strategy.

This fit is then enhanced by CSR business case benefits resulting from the alignment between the initiative's mode of innovation and the firm's core strategy. Since radical innovation enhances both cost and differentiation advantages (Porter, 1980), sustainability initiatives developed by means of radical innovation would produce positive results for both a cost leader and a differentiator. In terms of the value chain, the firm would enhance both its cost advantage and its differentiation advantage. That is, the firm will benefit from the sustainability initiative by realizing cost reduction and competitive advantage. In terms of the competitive context (Porter and Kramer, 2006), the firm would realize enhanced legitimacy and reputation (Kurucz *et al.*, 2008a, b). Similarly, incremental innovation and imitation will impact the firm's value chain and its competitive context at different levels as illustrated in Table II.

Achieving fit between strategy and sustainability initiatives

The essence of the strategic management of sustainability initiatives is to achieve congruence between the initiative's source of competitive advantage and the firm's type of competitive strategy. Sustainability initiatives that enhance a firm's cost advantage are most congruent with a cost leadership strategy. Similarly, those initiatives that enhance the firm's differentiation advantage are most congruent with a differentiation strategy. To the extent that an initiative enhances both the firm's cost and differentiation advantages, that initiative is congruent with both cost leadership and differentiation strategies. Accordingly, a company would realize a positive impact on firm financial performance from sustainability initiatives that are most closely congruent with its competitive strategy. Necessity, however, may require a firm to engage in sustainability initiatives that are not congruent with its core strategy. This type of necessity arises from the firm's dependence on its environment (Scott, 2003) to secure vital resources necessary for its survival (Pfeffer and Salancik, 1978). In such situations, firms aiming at realizing congruence between their sustainability initiatives and their financial performance would have to reduce the cost of such initiatives.

Table II.
Competitive and financial outcomes of different modes of technology development

Mode of technology development of sustainability initiative	Impact on competitiveness			Impact of sustainability initiatives on firm financial performance
	Impact on value chain	Impact on competitive context	Impact on competitiveness	
Radical innovation	Cost advantage and differentiation advantage	Broad and Significant Legitimacy and reputation benefits	Sustainable competitive advantage	Significant and positive
	Cost and risk reduction Competitive advantage	Synergistic relationship benefits	Sustainable competitive advantage	
Incremental innovation	Cost advantage or differentiation advantage	Limited and moderate Legitimacy and reputation benefits	Temporary advantage	Moderate and mixed
	Cost and risk reduction Competitive advantage	Synergistic relationship benefits	Competitive disadvantage	
Imitation	No advantage added	Limited and minimal Legitimacy and reputation benefits	Temporary disadvantage	Minimal and mixed
		Synergistic relationship benefits	Competitive parity	
		Competitive disadvantage	Competitive disadvantage	Competitive parity

In parallel, a firm's mode of technology development also plays a significant role in determining the impact of a sustainability initiative on the firm's financial performance. Here, the mode of technology development adopted by a firm influences the extent to which a sustainability initiative is congruent with the firm's core strategy. Selection of radical innovation, incremental innovation (Christensen and Bower, 1996; Szekely and Streble, 2013), or imitation (Abrahamson, 1991) as the technological foundation for such initiatives is, therefore, critical in determining their impact on the firm's financial performance.

Sustainability initiatives based on radical innovation

As previously discussed, radical innovation is that type of innovation that offers alternative solutions and introduces new technology (Christensen and Bower, 1996). Radical innovation's potential impact on a given firm's competitive advantage enhances both the firm's cost and differentiation advantages simultaneously (Porter, 1980). Further, the impact of radical innovation extends beyond the value chain to its competitive context (Szekely and Streble, 2013). Sustainability initiatives relying on radical innovation are, therefore, congruent with both the cost leadership and differentiation strategies. Either a cost leader or a differentiator may adopt sustainability initiatives based on radical innovation while optimizing levels of congruence between the initiative and the firm's respective core strategies. Further, the sustainability initiative would have the added benefit of providing them with increased competitive advantages in their parity area (cost or differentiation). Moreover, due to the more expansive sphere of influence generated by radical innovation, sustainability initiatives relying on this approach would also enhance the firm's competitive context. Pursuits of such sustainability initiatives illustrates the business case benefit of enhancing a firm's competitive advantage (Kurucz *et al.*, 2008a, b). For example, the Nike case discussed earlier provides a clear example of the multi-functional benefits of radical innovation. Not only are financial returns of this initiative positive, but customer satisfaction is high and the product's premium pricing is attractive to the company. When seen in the context of competitive advantage, sustainability initiatives employing radical innovation are by their very nature valuable, rare, and costly to imitate. To the extent that such initiatives are non-substitutable, they would provide the firm with a sustainable competitive advantage (Barney, 1991).

Sustainability initiatives based on incremental innovation

In contrast to radical innovation (which introduces new technology), incremental innovation extends and improves existing technology (Christensen and Bower, 1996). The influence of incremental innovation is also limited to the value chain and does not extend to the firm's competitive context like radical innovation does (Szekely and Streble, 2013). Further, incremental innovation is limited in the way it enhances a firm's competitive advantage. Not being a major technological advance, incremental innovation would enhance the firm's cost or differentiation advantages, but not both (Porter, 1980). Sustainability initiatives based on incremental innovation, therefore, would be congruent with either a cost leadership or a differentiation strategy. A trade-off must be made in these cases if congruence between the initiative and the firm's core strategy is to be preserved. Cost leaders would find those sustainability initiatives that enhance their cost advantage most congruent with their strategy and differentiators would find those sustainability initiatives that enhance their differentiation advantage most congruent with their strategy. For example, Wal-Mart, a cost leader, "aimed to double fleet efficiency between 2005 and 2015" (Whelan and Fink, 2016). This initiative is consistent with Wal-Mart's core strategy and addresses a sustainability issue by reducing carbon emissions. By contrast, Proctor & Gamble, a differentiator, which launched a line of cold-water detergents that requires 50 percent less energy than warm water washing (Whelan and Fink, 2016). Proctor & Gamble solved a social issue and

solidified its differentiation position in the market. When seen from the vantage point of competitive advantage, sustainability initiatives based on incremental innovation are not as costly to imitate as those based on radical innovation. The competitive advantage realized from such initiatives would, therefore, likely be temporary (Barney, 1991).

Pursuing sustainability initiatives that enhances the differentiation advantage for a cost leader or the cost advantage for the differentiator would be incongruent with the firm's core strategy. This incongruence would result in a negative impact on firm financial performance due to creating a competitive disadvantage. Since the cost of incremental innovation is less than that of radical innovation, it would be expected that the negative impact on the firm's financial performance would be moderate. However, limited pursuit of such initiatives may provide the firm with some benefit to the extent that it preserves the firm's competitive parity with its competitors. The rationale for pursuing these initiatives is that provided by the business case for CSR (Carroll and Shabana, 2010) where the firm would benefit from it by enhancing its legitimacy (Kurucz *et al.*, 2008a, b).

Sustainability initiatives based on imitation

Imitation occurs when firms copy efficient solutions to their problems from other leading firms. It also occurs, when firms are under the pressure to adopt specific inefficient practices due to external pressure (Abrahamson, 1991). Among the most prevalent conditions where firms imitate innovation under external pressure are those situations where the firm is aiming at enhancing its legitimacy. Legitimacy is enhanced when a firm resembles, in some way, its environment or key characteristics of other firms (Meyer and Rowan, 1977; DiMaggio and Powell, 1983; Deephouse, 1996). Research on sustainability shows that in many cases, firms adopt sustainability initiatives in pursuit of defending and strengthening their legitimacy. In such cases, the sustainability initiative of concern would be prevalent among competitor firms – if it were not, the firm would not be facing a legitimacy challenge for not adopting the initiative. Accordingly, the firm's adoption of the initiative would be to the extent necessary to maintain its competitive parity with its competitors.

The prevalence of the initiative would make it accessible and imitable. Since the need for the initiative is determined by the extent that the firm maintains its competitive parity, that initiative would, therefore, be incongruent with the firm's source of competitive advantage. The firm would then need to reduce the cost of adoption as much as possible so as not to create for itself a competitive disadvantage. Adoption by imitation would then appear to be a favorable mode of the technology development of this initiative as it would be the least expensive. For example, several studies (e.g. Shabana *et al.*, 2017) demonstrates that corporate social reporting is spreading among companies partially due to imitation as the practice becomes more main stream (KPMG, 2011; Vurro and Perrini, 2011).

Trade-offs among sustainability initiatives

To maintain congruence between sustainability initiatives and strategically manage them to realize positive impact on firm financial performance and minimize any negative impact, firms would have to preserve a fit between an initiative's source of competitive advantage and the firm's core strategy. From these adoptions, these firms may also be able to strengthen their sustainable competitive advantages. When sustainability initiatives are developed based on radical innovation, both cost leaders and differentiators would be able to adopt these initiatives as they enhance both the firm's cost and differentiation advantages. When an initiative is developed based on incremental innovation, cost leaders would be able to adopt those initiatives that enhance their cost advantage and differentiators would be able to adopt those initiatives that enhance their differentiation advantage without sacrificing congruence between the initiative and the firm's core strategy. In such a case, the longevity of the competitive advantage secured by such

initiatives would yield would likely be temporary. When faced with external pressure to adopt specific sustainability initiatives that are not congruent with their source of competitive advantage, firms intending to preserve congruency between their sustainability initiatives and their core strategies would find that adoption of the technology for these initiatives is most efficient by means of imitation, rather than incremental innovation as imitation is less costly.

Discussion

The model discussed in this paper aims at providing a finer-grained explanation of the impact of sustainability initiatives on firm financial performance. By drilling down to a more granular level in this way, it helps to advance research in the relationship between sustainability initiatives and firm financial performance. It also provides guidance to practitioners that would help in the strategic management of sustainability initiatives. This is a significant issue, in practice, as firms seeking to become more strategically sustainable often lack the necessary heuristics for transitioning from relying on suites of operational sustainability techniques to business strategies driven by allied sustainability strategies that are closely congruent. The sustainability-strategy model presented illustrates that sustainability initiatives relying more on radical innovation are more likely to generate a positive impact on firm financial performance, while those relying on incremental innovation may result in a temporary competitive advantage or a competitive disadvantage. Further, sustainability initiatives adopted by imitation may prove to be useful to firms as they would allow them to maintain their competitive parity with their competitors at the lowest possible cost.

Other firm-specific contingencies, such as the firm's level of business exposure (Miles, 1987) or stakeholder influence capacity (Barnett, 2007) may influence the impact of different sustainability initiatives on firm financial performance. The sustainability-strategy model presented in this paper does not explore these potential impacts. The model also does not explore the effect of the level of an initiative's institutionalization on the proposed relationships. Finally, the model does not explore the effects of other mediating variables that are likely to positively impact firm financial performance resulting from sustainability performance improvement. This is particularly significant in the case of impact of corporate reputation and effects of organizational learning processes. The sustainability-strategy model's propositions point at possible venues for future research. Primarily, the model provides some bases of empirical studies that investigate the effect of fit between an initiative and a firm's competitive strategy on its financial performance. Further, exploration of the effect of other firm specific and environmental contingencies on the proposed relationships would help clarify the relationship between sustainability initiatives and firm financial performance and provide a more robust support for the model proposed in this paper.

When viewed from a broader perspective, there is a strong argument to be made on behalf of the position that taking a strategic perspective on sustainability is a necessity for any true sustainability. The notion that firms can effectively "do" sustainability without integrating into their core is at least misguided, and at worst, intellectually fraudulent. It is no longer justifiable for firms to opt out of practicing sustainability in a strategic way by substituting narrow incremental sustainability techniques for having a bona fide business strategy that integrates sustainability considerations, such as new product development, closed-loop manufacturing, and continuous innovation into a cohesive whole system. Typically, objections to practicing sustainability strategically are often built around a perceived lack of evidence of economic performance gains. However, sustainability is a complex systemic issue where conventional financial metrics do not adequately capture the benefits of sustainability. For example, product designs using recycled materials not

only reduce resource consumption, but also may appeal more to environmentally conscious market segments. The effect of such dynamics is difficult to know in advance, and the systemic costs and benefits of such strategies cannot fully be known by performance tracking systems narrowly focused on financial capital. In fact, wealth in corporations is multi-dimensional and should rightly include various forms of capital, such as social and human capital, natural resources, and built forms of capital (Thomas and McElroy, 2016). In the new world, the justifications for adopting systemic sustainability practices are primarily strategic, not operational. As such, the measurement systems used to evaluate the effectiveness of such initiatives should also be systemic and capable of accounting for various forms of wealth, including preservation of scarce resources. In matters of corporate sustainability, it would appear wise to follow Alfred Chandler's (1962) famed maxim "Unless structure follows strategy, inefficiency results." In other words, the way sustainability initiatives are organized, should be a function of its business strategy.

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