

SUSTAINABILITY AS A KEY DRIVER FOR INNOVATIONS IN ORGANIZATION

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Annotation. This paper provides an overview and analysis of the contemporary understanding on the concepts and definitions of business sustainability and innovating for sustainability. It tries to disclose how sustainability can be a driver of innovation and a key tool for the advancement of an organization's competitiveness. The conclusions are based on academic and practical literature analyses, impact of changing contexts and situations and practical considerations, and reveal that sustainability and innovation are closely interrelated and requires much effort, knowledge and insights in striving for sustainability and enhancing company potential in a competitive environment.

Keywords: sustainability; business; innovations.

INTRODUCTION

There is no alternative to sustainable development but there are different attitudes towards the outcomes of being sustainable (Bonini & Gorner, 2011; Loorbach, Van Bakel, Whiteman, Rotmans, 2010; Nidumolu, Prahalad & Rangaswami, 2009). On the one hand, when companies pursue sustainability, they usually demonstrate their socially responsible performance and expect that their undertakings will result in additional costs, deliver no immediate financial benefits, and consequently quite possibly undermine their competitiveness. On the other hand, policy makers and activists argue that it will take tougher regulations and educated, organized consumers to force businesses to adopt sustainable practices.

Business sustainability refers to business models and managerial decisions grounded in financial, environmental and social concerns. Sustainable companies:

Create financial value.

- Know how their actions affect the environment and actively address those impacts.
- Care about their employees, customers and communities and work to make positive social change.
- Understand these three elements are intimately connected to each other.

Compared to companies that focus on short-term profits and make decisions based solely on the bottom line, sustainable companies think long term. They forge strong relationships with stakeholders as there is a mounting pressure from them – employees, customers, consumers, supply chain partners, competitors, investors, lenders, insurers, nongovernmental organizations, media, the government and society overall – to act. Therefore, companies look for ways to reduce the amount of natural resources they consume and the amount of waste and pollution they produce (Jones, 2001; Meadowcroft, 2011; Wells, 2013b). As a result, sustainable companies survive shocks like global recessions, worker strikes, executive scandals and boycotts by environmental activists. However, one more key benefit can be derived there – innovation throughout the organization. Innovating for sustainability involves making intentional changes to organizational products or/and processes that produce environmental and/ or social benefits as well as economic value (Network for Business Sustainability, 2012).

However, the processes with sustainability though are gaining importance but they are not so evident and fluent as it is expected. There are many barriers and shortcomings that should be overcome by companies (Chesbrough, 2010; Geels, 2011; Smith & Grin, 2010). The paper seeks to analyse different evidences and academic research in producing valuable tools for starting the implementation of sustainability initiatives at organizational level and thus overcoming these barriers.

The paper is structured as follows. First, we present findings on the phenomenon under research. Second, we present methods how to overcome the barriers in strive for sustainability at organizational level.

The paper ends with revealing the principles in striving to be sustainable and thus innovative in organizations performance.

BARRIERS IN IMPLEMENTATION OF SUSTAINABILITY INITIATIVES AT ORGANIZATIONS

The comprehensive researches by different authors (see Chesbrough, 2010; Geels, 2011; Nidumulu et al., 2009; Smith & Grin, 2010) disclose the main barriers that impede the ability of executives to take decisive actions towards attaining sustainability. The research by R. Nidumolu et al. (2009) detected three major issues and they are as follows: 1. inability for organizations to fully understand what sustainability is and how it is important for them; 2. difficulty in finding and defining a business case for sustainability; and 3. when organizations do decide to implement sustainable practices, the execution is often flawed.

The importance of understand what sustainability is and how it is important

The disparity in levels of sustainability understanding in an organization and the increased need for knowledge on industry-specific sustainability drivers and issues contribute to an organization's shortfall when it comes to sustainability (Berns, Townend, Khayat, Balagopal, Reeves, Hopkins, & Kruschwitz, 2009b; Boons & Lüdeke-Freund, 2013) and this result from several underlying information gaps.

- Managers lack a common fact base about the full suite of drivers and issues that are relevant to their companies and industries.
- Companies do not share a common definition or language for discussing sustainability – some define it very narrowly, some more broadly, others lack any corporate definition.
- The goal or „prize” of concerted action is often defined too loosely and not collectively understood within the organization. Moreover, there is often no understanding of how to measure progress once actions are undertaken.

The importance of having a clear understanding of sustainability in business is paramount. This will allow executives to manage their portfolios in a risky environment, balance short-term and long-term sustainability investments, and have their business cases for sustainability resonate well with the entire organization. Academic literature (Berns et al., 2009; Bidmon & Knab, 2014; Placet, Anderson, & Fowler, 2005) discloses that managers and executives have no single established definition for sustainability and define it in myriad ways — some focusing solely on environmental impact, others incorporating the numerous economic, societal and personal implications.

R. Nidumolu et al. (2009) argue that the pursuit of sustainability has to be more than simply demonstrating social responsibility, but more importantly, sustainability should be seen as an opportunity to seek out new benefits from an organizational and/or technological perspective. The research by M. Berns et al. (2009a) revealed that organizations see the impact on a company's image and brand as the principal benefit of addressing sustainability. There was also more benefits mentioned (employee satisfaction, costs savings, competitive advantage r product, service, market and business model innovation) but the same research also found a gap between intent and action at most of the examined companies. Different researches also evidence that most companies are either not acting decisively or are falling short on execution (Berns et al., 2009a; Schaltegger, Hansen, Lüdeke-Freund, 2015; Teece, 2010).

In such a way, the importance of corporate leadership for sustainability is evident. Although it is important to have executive-level buy-in for sustainability, it is also important to recognize the importance of the bottom-up approach (Berns et al., 2009b). The success of sustainability programs can be achieved if executive decisions will be clear, appealing and meaningful for the individuals at the working level as it is their efforts that would likely determine the success of a sustainability initiative or program.

Difficulty in finding a compelling business case for sustainability

M. Berns et al. (2009b) uncovered three main challenges that trip up companies. *The first* challenge is forecasting and planning beyond the one-to-five-year time horizon typical of most investment frameworks. It is easy to assert that sustainability is about taking a long-term view. However, in practice, calculating the costs and benefits of sustainability investments over periods that sometimes span generations can be difficult with traditional economic approaches. This is further exacerbated by the short-term performance expectations of investors and analysts.

The second challenge is gauging the system wide effects of sustainability investments. Companies find it difficult enough to identify measure and control all of the tangible facets of their business systems. So they often do not even attempt to model intangibles or externalities such as the environmental and societal costs and benefits of their current business activities and potential moves in sustainability. This hinders their ability to get a true sense of the value of investments in sustainability.

The third major challenge is planning amid high uncertainty. Factors contributing to uncertainty include potential changes in regulation and customer preferences. Strategic planning, as traditionally practiced, is deductive – companies draw on a series of standard gauges to predict where the market is heading, then design, and execute strategies based on those calculations. Nevertheless, sustainability drivers are anything but predictable, potentially requiring companies to adopt entirely new concepts and frameworks (Stubs & Cocklin, 2008).

Therefore, there is a unanimous belief that clarifying the business case for sustainability may be the single most effective way to accelerate decisive corporate action.

Execution is often flawed

As organizations gain an upper hand on the first two issues listed above, they will need to face the execution challenges inherent to sustainability practices. In tackling this issue, executives need to find out a means to integrate sustainability into their organization's management at all levels. In addition, even when a sustainable activity is implemented, it is challenging to measure, track, and report on the sustainability efforts (Berns et al., 2009a, Schaltegger, Lüdeke-Freund & Hansen, 2016; Wells, 2013a). The lack of initiative in sustainability practices can be explained by executives' fear that sustainability activities will come at the expense of increased costs, short-term financial shortfalls, and a loss of general competitiveness.

Performed surveys by M. Berns et al (2009) and H. Chesbrough (2010) highlighted three main obstacles in executing sustainability initiatives: overcoming skepticism in organizations; figuring out how to institutionalize the sustainability agenda throughout the corporation, and measuring, tracking and reporting sustainability efforts.

Some of these barriers, it should be noted, will accompany any major change effort in corporate strategy and operations. Moreover, they are intensified in the case of sustainability, given the topic's unique economic and strategic challenges and companies' limited experience with it.

ORGANIZATIONAL STAGES IN BECOMING SUSTAINABLE

Many different academic studies (Costanza, Daly, Folke, Hawken, Holling, McMichael & Rapport, 2000; Lüdeke-Freund, 2013; Kane, 2012; Nidumolu et al., 2009) prove that striving for enhanced corporate sustainability will actually result in a transformation of the competitive landscape and provides competitive ideas for innovation. One of the key findings of the R. Nidumolu et al. (2009) was the identification of five stages that organizations go through upon decision to pursue sustainability.

The five stages include: 1. Viewing Compliance as Opportunity. 2. Making Value Chains Sustainable. 3. Designing Sustainable Products and Services. 4. Developing New Business Models. 5. Each of the stages include challenges, opportunities and the required competencies needed to by-pass the challenges and maximize returns.

STAGE 1. Viewing Compliance s Opportunity

In this stage, central challenge is to ensure that compliance with norms becomes an opportunity for innovation. Competencies needed are as follows: the ability to anticipate and shape regulations, the skill to work with other companies, including rivals, to implement creative solutions. Innovation opportunity can be gained by using compliance to induce the company and its partners to experiment with sustainable technologies, materials, and processes.

Compliance is complicated: Environmental regulations vary by country, by state or region, and even by city. Viewing compliance as opportunity, the first step a company faces when it comes to sustainability is the need to address applicable government legislations and regulations. The importance of government involvement in sustainability is reinforced by survey results from M. Berns et al. (2009a, p. 4) where sixty-seven percent of respondents believed government legislation had the largest impact on their business, in terms of sustainability. Organization's might believe it is only necessary to maintain the status quo or the bare minimum when it comes to compliance, but this type of mind-set limits an organization's ability to maximize its innovative opportunities. Organizations that lead the sustainability pack are also

positioned to potentially curtail the enactment of inappropriate regulations, which could inhibit change and progression, and present unnecessary barriers for them (Chesbrough, 2010; United Nations, 2012, p. 34). Once an organization is able to maintain pace with its regulatory and legislative obligations, it can begin to switch gears and focus on making their value chains sustainable, or Stage 2.

STAGE 2. Making Value Chains Sustainable

Central challenge in this stage is to increase efficiencies throughout the value chain. Competencies needed are threefold: expertise in techniques such as carbon management and life-cycle assessment; the ability to redesign operations to use less energy and water, produce fewer emissions, and generate less waste, and the capacity to ensure that suppliers and retailers make their operations eco-friendly. Innovation opportunities can be defined as being able to develop sustainable sources of raw materials and components, to increase the use of clean energy sources such as wind and solar power, and to find innovative uses for returned products.

The crux of Stage 2 is for an organization to focus on increasing operational efficiencies from their supply chains, operations, workplaces, and product returns. Those more obvious areas for improvement, such as the supply chain, are usually addressed by organizations first. Moving from there, organizations begin to address the less obvious areas such as allowing product returns and recycling (Costanza et al., 2000; Nidumolu et al., 2009). Stage 2 is one of the more important stages of the five. Supply chains alone account for a large percentage of an organization’s carbon footprint. Given the extent of environmental impact from the supply chain, it becomes evident that organizations should direct considerable efforts to develop innovative ways to address these issues while ensuring that appropriate investments are made. Innovative approach to increasing the sustainability of the value chain can lead to the development of compact and eco-friendly packaging (Nidumolu et al., 2009, p. 6). The effectiveness of this suggestion has been demonstrated on numerous occasions by large organizations.

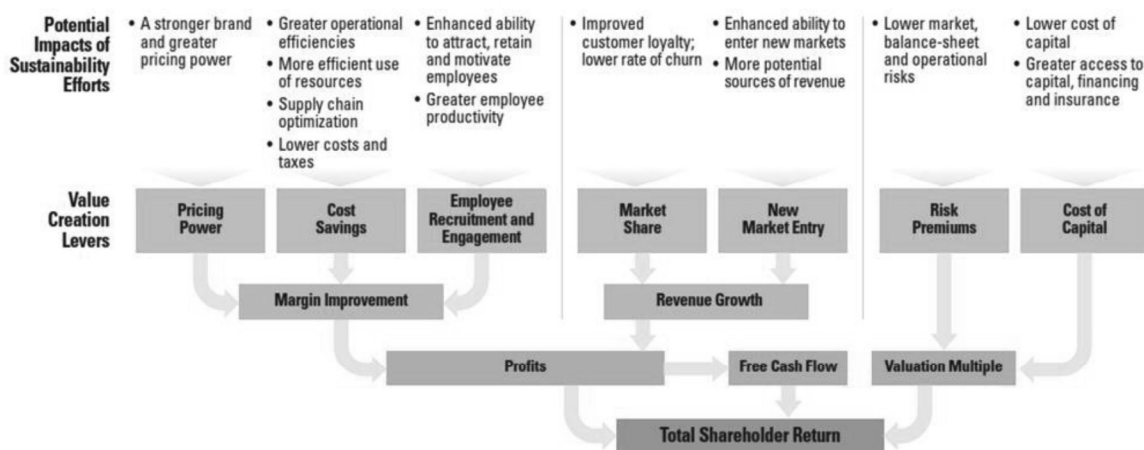


Figure 1. **How sustainability affects value creation** (source: M. Berns et al, 2009a)

STAGE 3. Designing Sustainable Products and Services

Central challenge there is the development of sustainable offerings or redesign existing ones to become eco-friendly. Competencies needed there reflect skills to know which products or services are most unfriendly to the environment and abilities to generate real public support for sustainable offerings and not be considered as „greenwashing”. There is also a need in competencies for management knowhow to scale both supplies of green materials and the manufacture of products. Innovation opportunities are seen in applying techniques such as biomimicry in product development and developing compact and eco-friendly packaging.

In Stage 3, designing sustainable products and services, the main challenge that organizations face is the difficulty in developing and offering eco-friendly products and services to consumers. Consumers are becoming increasingly more knowledgeable on the subject of sustainability than previous generations. This is particularly the case as communication barriers erode with the advent of the Internet and social media (Jones, 2001, Bonini &Gorner, 2011). Consequently, consumers are seeking more transparency and accountability from organizations. Although, this will require organizations to pay closer attention to their sustainability practices, it will likely benefit them in the long run. Developing eco-friendly products and

services not only appease the eco-savvy consumers, but provides an opportunity to draw consumers to a product or service they might not have been drawn to in the past.

STAGE 4. Developing New Business Models

Several central challenges can be noted there: finding novel ways of delivering and capturing value, which will change the basis of competition. Accordingly competencies needed are: the capacities to understand what consumers want and to figure out different ways to meet those demands and the ability to understand how partners can enhance the value of offerings. Innovation opportunities are seen in developing new delivery technologies that change value-chain relationships in significant ways and creating monetization models that relate to services rather than products. Devising business models that combine digital and physical infrastructures is important as well (Chesbrough, 2010; Stubbs & Cocklin, 2008; Teece, 2010).

The next stage in the path to sustainability is the development of new business models. The difficulty of developing new business models stems from the challenges faced by organizations in identifying alternative ways of doing business, but also in overcoming inertial tendencies. Executives and their organizations need to question the status quo, move out of their comfort zones, and develop new delivery mechanisms for their businesses (Nidumolu et al., 2009, p. 9). Businesses seeking sustainability often fall victim to inertia, or the general tendency to preserve the status quo. The development of new business models is particularly difficult for mature industries where executive support for the introduction of new ideas or changes is difficult to obtain. Related to the core challenge of this stage is the short-sightedness of organizations with regards to profitability. Implementing changes is often a long and arduous process.

During these times of recessions, businesses quickly begun to understand the need to reduce waste, increase efficiencies, and seek out new markets in which they could flourish. This is possible when organizations pursue sustainable initiatives. This pursue can result in different kind of innovations.

FRAMEWORK OF INNOVATING FOR SUSTAINABILITY


The framework presents a new model for assessing and planning company's approach to sustainability. Business leaders can use this framework to evaluate current activities at the level of individual products, product lines and business units or their entire organization.

Companies' positions on each of the dimensions correspond to the following three stages: Operational Optimization, Organizational Transformation and Systems Building.

Table 1

A three-stage framework for innovation (adapted from R. Nidumolu et al., 2009)

Approach	1. OPERATIONAL OPTIMIZATION „Eco-Efficiency”	2. ORGANIZATIONAL TRANSFORMATION „New market opportunities”	3. SYSTEMS BUILDING „Societal Change”
Innovation objective	Compliance, efficiency „Doing the same things better”	Novel products, services or business models „Doing good by doing new things”	Novel products, services or business models that are impossible to achieve alone „Doing good by doing new things with others”
Innovation outcome	Reduces harm	Creates shared value	Creates net positive impact
Innovation's relationship to the company	Incremental improvements to business as usual	Fundamental shift in company's purpose	Extends beyond the company to drive institutional change



In the stage of *Operational Optimization*, the organization actively reduces its current environmental and social impacts without fundamentally changing its business model.

Table 2

Innovation examples

<i>Organization Level</i>	<i>Product Level</i>	<i>Service Level</i>
<ul style="list-style-type: none"> • Pollution Controls • Flexible Work Hours/Telecommuting • Waste Diversion • Shuttering or Consolidating Facilities • Energy Efficient Lighting • Use of Renewable Energy • Reduced Paper Consumption 	<ul style="list-style-type: none"> • Reduced Packaging • Decreased Use of Raw Materials • Reduced Use/Elimination of Hazardous Materials • Optimization of Product Size/Weight for Shipping 	<ul style="list-style-type: none"> • Hybrid Electric Fleet Vehicles • Delivery Boxes Redesigned from Single to Multi-Use

Organizational Transformation stage can be defined as the creation of disruptive new products and services by viewing sustainability as a market opportunity. Rather than focusing on „doing less harm,“ Organizational Transformers believe their organization can benefit financially from „doing good“. They see opportunities to serve new markets with novel, sustainable products, or they are new entrants with business models predicated on creating value by lifting people out of poverty or producing renewable energy.

Innovation Examples

- *Disruptive New Products that Change Consumption Habits.*

Example: A camp stove that turns any biomass into a hyper-efficient heat source and whose sales subsidize cheaper models distributed in developing countries.

- *Disruptive New Products that Benefit People.*

Example: CT scanners that are portable, durable and have minimum functionality – making them affordable and useful for health care providers in developing countries.

- *Replacing Products with Services.*

Examples: Leasing and maintaining carpets over a prescribed life-time rather than selling them. Introducing car- and bike-sharing services in urban centres to reduce pollution caused by individual car ownership while increasing overall mobility.

- *Replacing Physical Services with Electronic Services.*

Example: Reducing paper consumption by delivering bills electronically rather than by mail.

- *Services with Social Benefits.*

Example: A smartphone app that rewards people with coupons for local merchants when they make charitable donations.

Systems Building stage can be understood as the intimate, interdependent collaborations between many disparate organizations that create positive impacts on people and the planet. Systems Builders perceive their economic activity as being part of society, not distinct from it. Individually, almost every organization is unsustainable. But taken as a collective, systems can sustain each other. Systems Builders extend their thinking beyond the boundaries of the organization to include partners in previously unrelated areas or industries.

Innovation Examples

Industrial Symbiosis. Disparate organizations cooperate to create a „circular economy“ in which one firm’s waste is another’s resources. Example: A construction company uses other companies’ glass waste: the synergies lead to environmental and economic benefits for all.

CONCLUSIONS

1. The disparity in levels of sustainability understanding in an organization and the increased need for knowledge on industry-specific sustainability drivers and issues contribute to an organization’s shortfall when it comes to sustainability. These issues were addressed through sustainability in our research.

2. From the analysis carried in the research it is clear that traditional approaches to business fail, organizations will need to depend more on the development of innovative solutions, both operational and technological. The need for new and innovative thought processes and business approaches become evident as you face the many challenges presented along the five stages of sustainability proposed by the authors. It is only through innovation that organizations will be able to overcome these challenges and transition from a sustainability laggard to a sustainability leader.

3. Our analysis of different scientific researches provides a useful overview of what an organization will face along the path to sustainability. The article itself could help those responsible for enacting sustainability practices in their organization by identifying which stage of sustainability their organization is currently seated. Being able to identify or categorize the extent of sustainability is a useful exercise to evaluate the progression towards leadership in sustainability. In addition, the various competencies that are presented concerning each stage could be useful for identifying shortcomings in an organization. Addressing any shortages in necessary competencies for a stage will help organizations progress further and have a higher impact with their sustainability initiatives. The disclosed innovative opportunities would also be useful for organizations to pay close attention to, in order to maximize their sustainability investments.

4. Consequently, the following principles can be envisaged by striving to be sustainable and thus innovative in organizations performance:

- Sustainability has the potential to affect all aspects of a company's operations, from development and manufacturing to sales and support functions.
- Sustainability also has the potential to affect every value creation lever over both the short term and longer term.
- The solutions to the challenges of sustainability are interdisciplinary, making effective collaboration with stakeholders particularly critical.
- Decisions regarding sustainability have to be made.
- Myriad factors influence the implementation of sustainability including government legislation, demands by customers and employees and geopolitical events.

These principles make sustainability a uniquely challenging issue for business leaders to manage and address it effectively.

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Summary

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The framework of Innovating for Sustainability presents a new model for assessing and planning company's approach to sustainability. Business leaders can use this framework to evaluate current activities at the level of individual products, product lines and business units or their entire organization.

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