

# A Systematic Literature Review on A Fully Integrated Business and the Natural Environment: Drivers, Strategies, and Trajectories

Wijanto Hadipuro

Dept. of Management, Faculty of Economics and Business, Soegijapranata Catholic University, Semarang, Indonesia

Author's Mail Id: hadipuro@unika.ac.id, Tel.: +62-24-8441555

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**Abstract**— Integrating business with the environment is getting more important nowadays. Through a systematic literature review, this article tries to interrogate the successes and failures of the attempt, the drivers, existing strategies used, and the trajectories to integrate the two goals. The result shows a mix of successes and failures. Virtualization, digitization, dematerialization, diminishing of warehouses/office spaces, decarbonization, and shortening of supply chains were the successes. The negative results were increasing costs, contradictory impacts of e-business and ICT on the environment, and the failure of many green products. The drivers to integrate the two are also increasingly getting stronger. The drivers were that not only from the business initiative to get more competitive through the concern for the environment, but also pressures from the government, Non-Governmental Organizations, green consumers, and other business sectors such as insurance, investors, and suppliers. Most of the business strategies found dealt with green marketing and cost leadership configuration, such as green supply chain, design-for-environment, eco-design, lifecycle design, and or green design, eco-efficiency or environmental efficiency, lean production, and cradle to cradle. These strategies leave at least two problems to be solved: developing economic valuation techniques for the environment to confirm that all those strategies bring profit for the business and benefits to the environment. Supporting systems needed are how globalization can bring prosperity to local people to sustain economic growth, and how government intervention such as levying environmental taxes can flourish a circular economy of the cooperation between and among companies to solve waste.

**Keywords**— Business, Environment, Drivers, Strategies, Trajectories

## I. INTRODUCTION

The attention to the relationship between businesses and the natural environment is increasing from day to day, because the limited and diminishing capacity of the environment does not conform to the increasing population growth, and the increasing demand to supply the industrial growth. It seems nowadays, for all the capitalists, economic growth is the only way to bring welfare for all the world population and its growth. However, both growths result in many anthropogenic environmental catastrophes. And, the problem is that we do not have a solid way of how fully integrate business interests and environmental concerns.

The integration of business and the natural environment are rooted back in the concept of sustainable development [1,2]. Generate profit, increase productivity, and be efficient on the one hand, and concern for the natural environment on the other hand, theoretically, can be conducted hand in hand [3,4,5] as the natural environment is a primary stakeholder of a business entity [6].

However, at the firm level, the result of integrating the two shows a mix of successes and failures [7,8], and the ways how to integrate them vary considerably [9]. Until today

the effort to fully integrate the two is still going on [10]. We can say that business and the environment are fully integrated when businesses can gain a competitive advantage and create value for various stakeholders through their attention to the natural environment [11,12,13].

Some of the successes of integrating business interests with the natural environment concerns are shown by the words of virtualization, digitization, dematerialization, diminishing of warehouses/office spaces, decarbonization [14], and shortening of supply chains [8,15]. However, there are also negative results such as increasing costs, contradictory impacts of e-business and ICT on the environment [16], and the failure of many green products. To integrate fully the interest of gaining a competitive advantage with the concern for the environment in mind, this article will try to interrogate how businesses have succeeded to develop tools and strategies in coping with the pressures from internal and external parties, and the challenges and trajectories with its supporting systems to make the integration more smoothly in the future.

This article will be divided into four sections. The first part will be about the drivers why a business should fully integrate its goals with the sustainability of the

environment. The second part interrogates what businesses have done and the trends of their efforts to achieve that goal. The third part is about the trajectories of what will and should be done to come to the full integration of business interests with the concern for the environment, and the supporting system needed at the macro level. By using a robust coherent literature review, this article tries to come up with the conclusion, as the final part, of what should businesses do and what kind of support systems are needed to fully integrate the interest of business and the environment at the same time.

## II. METHODOLOGY

A systematic literature review was used to identify, analyze, and interpret all relevant publications related to the research question [17,18] of why, how, and what should be done to fully integrate business interests with the concern for the natural environment. Two keywords were used: 'business and environment' and 'business and sustainability' as the first step to getting a broad range of relevant literature. The second step was to get a deep search of the relevant literature from the references selected from the first step. The population of the study was publication indexed in Google Scholar. The selection of the publications was based on the relevance of the study to answer the research question. Only full-text publications that could be downloaded were used.

Publications found then were analyzed, synthesized, and categorized into three categories of the drivers for integrating business and the environment, the current strategies and the trends used by firms, and the challenges faced by business firms to implement strategies to integrate business interests of making a profit and their concern for the environment.

## III. RESULTS AND DISCUSSION

### Driving Forces

Incorporating sustainable business practices into company strategy began in the 1990s [19] and is increasingly needed [20]. There are at least three overlapping categories of the driving forces that businesses should integrate with the concern for the environment: (1) voluntary or self-regulatory; (2) command and control approach of direct and indirect regulation; (3) pressures from internal and external parties other than governments. The categories are overlapping because they are not exactly mutually exclusive, for example, indirect regulation, such as payment for environmental services in some locations has become a voluntary action, and voluntary actions such as ISO 14000 can also be considered as pressure from customers.

The most promising integration is voluntary initiatives or actions or self-regulatory or self-institution. It is because the voluntary approach will be adopted if only it will bring payoff, at least as high as it would be without the adoption of this approach [21,22]. A voluntary approach such as

ISO [23], self-regulatory institutions or beyond compliance and government's role with her regulations [24] to correct the problems of externalities which resulted in a higher return for investment [25] are some of them.

The other reason why this approach is promising is mentioned by [11]. They say that it is because business case drivers for sustainability include cost reduction, increase sales and profit margin, decrease risk and risk reduction, increase reputation and brand value, attractiveness as an employer, and innovative capabilities. Self-regulatory institutions include maximizing material and energy efficiency, creating value from waste, substituting with renewable and natural processes, delivering functionality rather than ownership (business sharing), adopting a stewardship role, encouraging sufficiency, re-purposing the business for society/environment, and developing scale-up solutions [26]. All reasons mentioned by [11] and [26] bring payoff to the businesses.

The command and control approach of costly regulation usually imposes additional costs [21]. Additional cost problem also happens with indirect regulation, such as deposit-refund system, charges and taxes, emissions trading, and financial assistance [21]. Emissions trading is then known as one of the market-based mechanism approaches to cope with environmental problems [27,28]. Payment for environmental services, tradable emission permits, exchange pollutions rights, and the most famous one of carbon trading - carbon offset, and cap and trade – are some of the examples of market-based mechanisms to cope with the environmental problems. This market-based system also incurs additional funds for businesses, such as to build a water treatment plant, develop new technologies, and pay for charges and taxes. This additional funding is usually considered as a cost – not an investment, although the amount is big enough and the benefits cover over one year of the accounting report period.

Pressures come from legislation, consumers, NGOs, and other business sectors such as insurance, investors, and suppliers [29,30,31]. However, many businesses have succeeded to turn pressure into partnerships. Nowadays the relationship between NGOs and businesses is not an adverse one. In some cases, we can find alliances between NGOs and businesses, such as a collaborative partnership between Greenpeace and Foron Household Appliances in Germany [32], and a partnership between Unilever Corporation with WWF-International [33].

Another pressure comes from consumers. Consumer's Magna Charta: the right to safety, right to be informed, right to choose, and right to be heard, is also another part that businesses should consider well [24]. This pressure is quadrupled by the increasing number of green consumers [34]. A green consumer is someone aware of his or her obligation to protect the environment by selectively purchasing green products or services [35].

### Existing Business' Strategy and Its Trend

Following [36], this article will differentiate strategy into strategic configuration and business strategy. There are four basic strategic configurations: niche differentiator, broad differentiator, cost leadership, and lean competitor. A niche differentiator means that the business offers a specialized product/service to a market segment, while a broad differentiator offers a better-quality product or service as opposed to the price of a wide range of products to a variety of markets. Cost leadership means that a business entity offers a lower price of products or services compared to its competitors. A lean competitor is a combination of cost leadership and differentiation at the same time [37]. In some cases, a lean competitor includes cost, quality, delivery performance, and flexibility, which extends beyond the factory to include the entire organization and its associated value chain.

At a business level, the configuration is then implemented in a certain business strategy. Most of the business strategies found in the literature review deal with cost leadership configuration, such as green supply chain management, design-for-environment, eco-design, lifecycle design, and or green design [16], eco-efficiency or environmental efficiency [38], lean production [39], cradle to cradle which can be divided into product level, company level, and inter-company level [40]. Industrial ecology [41] which can be categorized as the implementation of the cradle to cradle strategy at an inter-company level, aims to reach eco-efficiency. In some cases, all these strategies and their combinations can be used to manifest lean competitor strategic configuration. Growing trends toward green consumerism which is consequently becoming profitable to sell green products [42] with its green marketing strategy [43] is a kind of implementation of niche and/or broad differentiation.

The implementation of all those strategies leaves at least two problems to be solved: developing economic valuation for the environment which closely relates to the environmental accounting, to confirm that all those strategies bring profit for the business and benefits to the environment. According to [25], environmental performance is hard to value due to the three characteristics that there is no market price for environmental goods and services, the difficulty to design effective incentive systems to encourage agents to engage in environmental improvements, and that business organization is not designed to give the information of the profits of improving the environmental performance. Given that fact, economic valuation techniques for the environment or environmental project are needed [44].

Some environmental projects are easy to value their costs, but it is difficult to calculate their benefits and vice versa. For example, it is easy to calculate the costs of a pumping system in a housing area to cope with flooding, but it is hard to value the benefits. Another example is that we complicatedly value the costs of some projects with certain benefits such as when the Semarang City government must

decide whether the polder system, giant sea wall, or the movable dike system is the most appropriate solution to prevent Semarang from sea flooding. To do a feasibility study, the Semarang City government should calculate the costs of the three projects to decide which project will be chosen. Unfortunately, the economic valuation techniques for the environment or environmental projects are not well-established. In some cases, we must develop the technique to value the benefits and the costs of the projects.

The other problem is that the benefits of the project cover more than one period of an accounting system. According to the 'conventional' accounting system, the fund needed to get the long-term benefit to the environment should be considered as costs, not an investment that can be depreciated in some accounting periods. The role of environmental accounting to measure environmental performance and integrate environmental policy with business policy is very important [45]. At the time being, environmental activities conducted by businesses are only a supplement for business financial reports in their annual reports (see Global Reporting Initiative and its application in Unilever annual report, for example). Monetizing business' environmental activities and integrating monetary values for these activities in business financial reports, will motivate businesses to carry out environmental activities.

### Trajectories and Supporting Systems Needed at the Macro Level

The development of Industrial Ecology shows that not all waste problems can be solved by an individual business entity. Cooperation between and among the business entities will make a close loop of business activities better assured. The close loop model is in line with the concept of the circular economy. According to [46], the circular economy is a regenerative system in which resource input and waste, emission, and energy leakage are minimized by slowing, closing, and narrowing material and energy loops. And, this can be achieved through long-lasting design, maintenance, repair, reuse, remanufacturing, refurbishing, and recycling.

A circular economy with its closed-loop business model (vs traditional linear economy) whose main factor is supply chain evaluation [47] will guarantee more to achieve a sustainable economy [48], and sustainable economic growth [49]. According to [50], the circular economy, with its ReSOLVE – Regenerate, Share, Optimize, Loop, and Virtualize, can be a driver for sustainability.

The importance of the sharing economy, which may contribute to sustainable development is also raised by [51], while virtualization is emphasized by [52] with its zero marginal cost society. According to [52], with the development of the Internet of Things (IoT), it is possible to come to the zero-marginal cost of society such as Massive Open Online Courses (MOOCs) in education, and the exchange of picture information on Flickr. It will be a

prospective future to implement what [52] proposed in the business society.

In 2008 [53] published an article in which some of the cases show the importance of the philosophy of selling to the local buyers and buying the local products to generate livable local employees and local suppliers. It is not only contributing to minimizing environmental problems generated from fossil-fuel transportation, but also brings welfare to the local people, which in turn will make the businesses more prosperous in the future because of the increased demand resulting from the welfare of the local people.

Ref [52,53] give another perspective of glocalization, how the globalized world of business also brings benefits to local people or in other words, how a fairer global trade with its IoT not only gives benefits to global producers and local buyers but also to local supply chain channels. Glocalization such as the McD franchise, which brings benefits not only to the franchisor but also a franchisee with its supply chain; or nationalization, such as a cooperation agreement between national newspaper publishers with local printing companies should be enhanced to flourish local businesses. The pandemic era we are experiencing today shows that globalization with its mobility ends because of a lockdown policy. Combining globalization, and IoT-based business networks will make businesses more resilient both in terms of environmental aspects, a fairer global trade, and value-added sharing. Capitalism will end if value-added is only obtained by global and trans-national companies, leaving local supply chain channels behind.

Another challenge is how environmental taxation can also be applied at the inter-company level. At the time being environmental taxation is based on individual business units. It does not consider the fact that the waste of a certain company can be valuable and profitable inputs for its partner company, whether the owner of both companies is the same or not. Cooperation between and among companies with their glocalization, and the development of environmental taxation to cover this kind of cooperation to solve the waste problems are some supporting systems needed to enhance a full integration of business and the environment. A way forward is still needed to accomplish that goal.

#### IV. CONCLUSION AND FUTURE SCOPE

A systematic literature review shows that there was a mix of successes and failures in integrating business goals of making a profit with the concern for the environment. A list of successes is shown in some terms such as virtualization, digitization, dematerialization, diminishing of warehouses/office spaces, decarbonization, and shortening of supply chains. While failures are shown in some terms such as increasing costs, contradictory impacts of e-business and ICT on the environment, and the failure of many green products.

The drivers for integrating profit and the environment come from some sources: government through legislation, pressures from NGOs, green customers, and other business sectors such as insurance, investors, and suppliers, besides from the internal side of businesses to gain competitive advantage through their concern for the environment. In some cases, businesses also did a collaborative partnership with NGOs to produce green products and gain a competitive advantage.

Business strategies related to the integration of business and the environment can be found are green marketing, green supply chain management, design-for-environment, eco-design, lifecycle design, and or green design, eco-efficiency or environmental efficiency, lean production, cradle to cradle which can be divided into product level, company level, and inter-company level.

The challenges found are how to develop a collaborative partnership, with one of the means is the IoT, between multi-national companies with domestic or local companies to boost welfare for domestic or local people which in the end will produce a bigger demand for their products. Another challenge is how the government's intervention can bring about business behavior to be more competitive while at the same time producing profit such as to push businesses to practice a circular economy through a collaboration between and among companies to reduce or even eliminate waste. Such intervention is for example levying environmental taxes or subsidies not to a single company, but to a group of companies that work together to use wastes from the company to be a raw material for the other company

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#### AUTHORS PROFILE

Mr. W. Hadipuro got his Ph.D. from Radboud University in Nijmegen the Netherlands. He is currently a researcher and lecturer in the Department of Management, and the Department of Environmental and Urban Studies from Soegijapranata Catholic University, Semarang Indonesia since 1998. Some of his papers have been published in reputable international journals. His main research works focus on environmental management, and water resources management.