Green Strategic Management: Integrating Green IT/IS in Environmentally Friendly Bussiness Strategy

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Abstract: Sustainable Competitive Advantage (SCA) is a company's strategic direction to achieve organizational goals, and can be seen from the management's ways of thinking that always responds and adapts to change, innovation in all fields with an awareness of the importance of environmental management (greening business). This study aims to examine Green Strategic Management with the scope of the role of green IT/IS in an environmentally-based business strategy. The implementation of Green Strategic Management is based on environmental conservation activities and they such as green operations, green design, green manufacturing, reverse logistics, and waste management. Green IT/IS is an innovation and organizational strategy that relies on information technology (IT) and information systems (IS). Green IT/IS is unique among pro-environmental organizational innovations and practices because of the paradoxical relationship between IT and environmental conservation. The implementation of Green Strategic Management to maintain the sustainability of the company while maintaining environmental conditions has been proven to improve company performance. Innovation and organizational strategies in achieving competitive advantage cannot be separated from the use of environmentally friendly Information Technology (IT) and Information Systems (IS) and are often referred to as Green IT/IS.

Keywords: Sustainable Competitive Advantage, Green Strategic Management, Green IT/IS

1. Introduction

A number of major disasters which have occurred in the world ranging from nuclear destruction, chemical explosions, to forest fires are caused by human actions themselves. Covid-19 disaster that occurred since the end of 2019 was due to an imbalance in the environmental ecology caused by humans (Roth, 2021). In the era of globalization with a competitive business environment, companies are required to have the ability to differentiate themselves in competition in order to maintain the survival of the company. So that the company's business strategy in maintaining the company's survival still maintains environmental conditions, the government has issued a number of regulations on corporate social responsibility. Law Number 40 of 2007 concerning Limited Liability Companies states that Corporate Social Responsibility (CSR) with Social and Environmental Responsibility is an obligation of Limited Liability Companies (LLC). This is emphasized in Article 2 of Government Regulation Number 47 of 2012 concerning Social and Environmental Responsibility of Limited Liability Companies which stipulates that every LLC as a legal subject has social and environmental responsibilities. The obligation to carry out social responsibility also applies to other business entities such as Cooperatives, CVs, Firms, and Trading Businesses based on the provisions of Article 15 of Law Number 25 of 2007 concerning Investment.

Sustainable competitive advantage (SCA) is a key strategic direction for companies to achieve their organizational goals. Achieving SCA requires strong management commitment and oversight to stay ahead of the competition. The strategy of sustainable competitive advantage can be seen from the way management thinks which always responds and adapts to change, innovation in all fields with an awareness of the importance of environmental management (greening business). According to Krisnanto (2017) greening business is the interaction between business and the environment in the use of natural resources at every stage of business activity (Plan-Do-Check-Action), such as production, distribution, marketing, and final consumption of goods and services. This interaction can be seen as a symbiosis that will provide benefits for both parties if positive activities are carried out, namely not only the environment being a source of exploitation but also how to manage the environmental impact formed as a result of business activities.

Based on this description, it is necessary to study the Green Management Strategy with the scope of the role of green IT/IS in an environmentally based business strategy.

2. Literature Review

2.1. Green Strategic Management (GSM)

Certo and Peter (1990) defined strategic management as a continuous iterative process aimed at keeping an organization as a whole appropriate to its environment. Strategic management is concerned with defining organizational performance, strategic choice variables, and competitive advantage. Maier and Remus (2002) use the terminology of resource strategy and define three steps in creating a company's resource strategy, and they are such as competence creation, competence realization, and competence transaction. Competence creation defines and analyzes markets, products and services. Competence realization involves the implementation of services, procurement, and production. Competence transaction involves market logistics, order fulfillment and maintenance.

GSM is a strategy which is similar to other strategies, except that its implementation is based on environmental conservation activities such as green operations, green design, green manufacturing, reverse logistics, and waste management. Siddhant (2013) divides the stages of GSM implementation, namely: determining the model needed for sustainable development activities; reducing waste and pollution, conserving resources and increasing social response; understanding the green management agenda as a whole; formulate green management planning; implement and monitor green management concepts; and implement green management strategies.

2.2. Green Business Concept

The definition of green business according to Cooney (2009) is the efforts made by companies to minimize the negative impacts of the company's economic activities on the community, society, economy and local and global environment by fulfilling the principles of the triple bottom line of business. According to Elkington (2001), the basic pillars of a business's sustainability are the universe or environment (planet), society (people) and the company's profit (profit). If a company wants its business to grow and develop sustainably, then the three basic pillars (profit, planet, people) must be managed properly and sustainably. Green business is an approach taken by business actors to maintain continuity in their environmentally friendly activities. To develop a green business strategy, there are several environmentally friendly strategy concepts that are part of or support the green business strategy.

Green Product

According to Junaedi (2005), green product is a product that is not harmful to humans and the environment, does not waste resources, does not produce excessive waste, and does not involve cruelty to animals. Green products must consider environmental aspects in the product life cycle so that they can minimize negative impacts on nature. The term green product does not mean that it has no negative impact at all but reduces the negative impacts caused by certain products on the environment, so that in green products there are efforts to reduce the negative impacts which are caused by these products on the environment.

Green Marketing

American Marketing Associate (AMA) defines green marketing as marketing of environmentally friendly products, combining several activities such as product modification, changes in production processes, packaging and advertising strategies. According to Prakash (2002), green marketing is closely related to ecological issues and environmental sustainability, such as long-term producer obligations, product life cycle analysis, use of repairable materials, and efficiency. Green marketing is marketing with environmental issues to market products that include production, promotion, pricing and distribution. Green marketing is a movement directed at environmentally responsible product production organizations. Green marketing manipulates the four elements of the marketing mix (product, price, promotion, and distribution) to sell products and services offered based on environmental benefits that are formed from waste reduction, increased energy efficiency, and reduced release of toxic emissions

(Haryadi, 2009).

Green Supply Chain Management

According to Srivastava (2007), Green Supply Chain Management is an integration of environmental thinking into supply chain management, including product design, source materials and selection, manufacturing processes, and final product delivery to consumers. Green Supply Chain Management means adding environmentally friendly concepts to every supply chain management to achieve competitive advantage and business benefits.

Green Accounting

According to Aniela (2012), green accounting is accounting that identifies, measures, assesses, and discloses costs related to company activities and which are related to the environment. This accounting system contains accounts related to environmental costs. When the green movement gained its momentum to the world, accounting improved itself to be ready to internalize various externalities that emerged as a consequence of the industrial process, and this leading to the emergence term of green accounting or environmental accounting.

Green Consumerism

According to Boztepe (2012), green consumerism believes that they can play an active role in environmental sustainability, thus they feel that preserving nature is not only the responsibility of the government and business actors but as consumers also have the same role in environmental sustainability. When consumers begin to realize their rights to consume environmentally safe products, consumers will choose products that have little negative impact on the environment, so that by using environmentally friendly products consumers are sure to play a role in preserving the environment.

3. Discussion

The practices of Green business in the business world are currently widely applied because they have been proven to improve company performance (Zhu et al., 2017; Younis et al., 2016). However, the implementation of green supply chain management requires the role of the government as one of the important stakeholders in adopting green supply chain management. The government can easily regulate companies by influencing their internal and external resources (Nezakati et al., 2016). The government can also impose sanctions on stakeholders who do not comply with the supply chain management policies that have been issued. According to Zhu et al., (2017), government regulations which are related to environmental issues are regulations or provisions that bind all parties involved in the entire company's supply chain. Dzikriansyah et al., (2023) examined the role of green supply chain management practices on environmental performance in small and medium enterprises (SMEs) in Indonesia. The results of the study showed that external factors in the form of government regulations play an important role in the implementation of green supply chain management. The results of the study also revealed that the implementation of green supply chain management will affect the environmental performance of SMEs and the implementation of green supply chain management can mediate government regulations regarding improving the environmental performance of SMEs.

Innovations and organizational strategies, such as green supply chain management, usually rely on Information Technology (IT) and Information Systems (IS) and are often referred to as Green IT/IS. Green IT/IS refers to organizational initiatives that reduce the environmental impact of IT-related activities and IT-based initiatives to improve the environmental sustainability of business and society (Chan and Ma, 2017; Dedrick, 2010; Gholami et. Al., 2013). Green IT/IS is unique among pro-environmental organizational innovations and practices because of the paradoxical relationship between IT and environmental conservation. The IT industry is the most environmentally damaging industry and IT-related activities have various environmental impacts (Lei et al., 2023). A study in China found that a one-unit increase in IT usage substantially increased soot and dust pollution and resulted in an increase of several units of sulfur dioxide and wastewater pollution (Cheng et al., 2019). However, IT can also be used for environmental conservation by providing timely and high-quality information for energy conservation (El-Gayar and Fritz, 2006). There are several studies which have provided empirical evidence that green IT/IS is an effective organizational tool for environmental conservation and there is a positive relationship

between green IT/IS adoption and organizational environmental performance (Gholami et al., 2013; Meacham et al., 2013; Yang et al., 2017).

Nanath and Pillai (2017) found that in addition to improving organizational environmental performance, green IT/IS adoption also improves organizational competitive advantage. Specifically, they found that as an organizational resource, green IT/IS adoption improves organizational performance by reducing the environmental impact of its products and business processes, which in turn provides competitive advantage. Baggia et al (2019) found that pollution prevention, product management, and sustainable development are driven by organizational environmental strategy and attitudes toward green IT/IS. They also found that among environmental conservation measures, only pollution prevention and sustainable development can implement green IT/IS to improve environmental performance, while product management with green IT/IS cannot be done. Yang et al (2017) found that as an environmental conservation measure, green IT/IS makes a positive contribution to environmental performance and the organization's green image. Loeser et al (2017) separated green IT from green IS and found that both are triggered by the organization's environmental orientation and green IS strategy. They also found that green IT results in cost reduction, while green IS can improve the organization's reputation and green innovation capabilities.

4. Conclusion

Major disasters which occur in the world and are caused by human actions have raised environmental awareness in society. The application of Green Strategic Management to maintain the sustainability of the company while maintaining environmental conditions has been proven to improve company performance. Innovation and organizational strategies in achieving competitive advantage cannot be separated from the use of environmentally friendly information technology (IT) and information systems (IS) and are often referred to as Green IT/IS. A number of studies have proven that the adoption of green IT/IS can improve organizational performance by reducing the environmental impact of its products and business processes, which in turn provides a competitive advantage.

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