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Application of Environmentally Friendly Concepts in Sustainable Technology: A Conceptual Study as a Guide for Researchers

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Abstract: This study raises environmental and sustainability issues. This research consists of several parts. First, the literature review focuses on orientation towards the application of environmentally friendly concepts in the use of sustainable technology. Second, the research model and propositions developed in this study are based on a literature review of previous studies, such as the relationship between environmentally friendly orientation towards green innovation and green competitive advantage, as well as the relationship between green innovation. Furthermore, the application of environmentally friendly concepts is explored and linked to the use of sustainable technology. Where in the context of an environmentally friendly orientation strategy, companies have an important role in being aware and encouraged to produce environmentally friendly products to build sustainable competitive advantages in the long term. Thus, this study also shows that environmentally friendly product innovation and environmentally friendly competitive advantages are important strategies for reducing environmentally friendly organizational behavior.

Keyword: Environmentally Friendly, Technological Concept

INTRODUCTION

The recent rise of the issue of global warming has become an interesting issue and has received a lot of attention from the world community, especially among researchers who make environmental issues their main focus. The current rapid development of the global economy has become a problem in itself in the environmental aspect, namely the worsening global climate, resource depletion, deforestation, restoration of coastal areas, desertification, climate change, pollution and excessive energy use have recently become global issue that can endanger economic sustainability, public health and social stability (Zhu & Sarkis, 2016).

The health crisis and pollution are factors that disrupt efforts to ensure optimal living conditions for current and future generations. In this context, ecological consumption, defined

as a preference for environmentally friendly services, reduced pollution from the use of plastic bags, and other environmentally friendly actions taken at the individual level, plays a major role in safeguarding public health and ensuring public health. higher quality of life. In other words, today's generation needs to be aware of their role in protecting the environment through responsible behavior, supporting the consumption of environmentally friendly products, and implementing these goals in everyday life.

To support such environmental protection, a series of measures known as the Green Deal have been proposed at European Union level to reduce pollution by reducing greenhouse gas emissions. These steps are not only aimed at several industrial sectors, but also at end consumers. These steps include, among other things, the development and marketing of healthy and affordable food as well as the development of products with a longer shelf life, which can be repaired, recycled or reused (European Commission, 2021). Achieving the goals proposed by the Green Deal requires urgent action throughout the production and distribution chain, including food products. For this change to be sustainable, it is also important to increase the awareness of end consumers so that they are willing to change their lifestyle, buy environmentally friendly products, and are even willing to pay more for environmentally friendly products. In this case, green marketing is very important to develop and promote environmentally friendly products (Cuc et al., 2022).

The need to adopt, develop and promote environmentally friendly products today is also a form of corporate concern in contributing to the ecological healing process which continues to worry from day to day with global warming hitting the world. This phenomenon has indirectly become a challenge for companies in redesigning their production and marketing processes to be environmentally friendly and changing the orientation of research and development towards achieving sustainability (Kaur et al., 2022).

Not only producers, consumers also have a responsibility to reduce harmful impacts on the environment by using environmentally friendly products in greater quantities. So that companies can begin to implement environmentally friendly production and marketing strategies to meet customer preferences in order to achieve long-term business profits (Dangelico et al., 2017; Sana, 2020).

Currently, the application of the environmentally friendly concept is not only applied to product development alone, but furthermore the environmentally friendly concept has now also developed rapidly and has been applied to several strategic concepts in other fields such as the technology sector (Nassani et al., 2023; Kaur et al. al., 2022; Cuc et al., 2022, Zhu et al., 2023; Jamira & Yandi., 2019; Zhang et al., 2023), MSMEs (Noviardy & Mellita., 2014; Nuryakin & Maryati., 2022; AlQershi et al., 2020; Lin et al., 2013; Lin and Chen, 2007; Parnell et al., 2015); (Martin, 2022), online shopping (Aziz et al., 2023; Alkhatib et al., 2023), tourism (Hasan, 2015; Gheorghe et al., 2023; Gryshchenko et al., 2022; Wearing et al., 1999 ; Ibnou-Laaroussi et al., 2020), real estate (Cuc et al., 2023), and many others.

The environmentally friendly concept has become one of the main developments in modern business today, which is more widely applied in developed countries than in low and middle income countries (Kasaye, 2001; Hasan et al., 2019). Due to the increasing importance of environmental sustainability, green marketing is becoming more popular (Dangelico et al., 2017).

The concept of eco-friendliness has emerged as an important strategy in the ever-evolving world of marketing, driven by increasing concerns about environmental sustainability and consumer preferences for eco-friendly products and services. By adopting environmentally friendly practices, companies aim to reduce environmental impacts, improve corporate image, and meet the needs of environmentally friendly consumer segments (Pancić et al., 2023). Eco-friendly concepts have become an important strategy for organizations seeking to reduce their environmental footprint, respond to consumer demand for sustainable products and services, and maintain a competitive advantage (Dangelico & Vocalelli., 2017).

On the other hand, environmentally friendly awareness refers to consumers' understanding and knowledge of environmental issues, environmentally friendly products, and sustainable practices (Rusyani et al., 2021). Studies show that environmentally friendly awareness significantly influences consumer preferences and behavior, including their response to environmentally friendly marketing strategies (Alamsyah et al., 2021).

Based on this background description, the author tries to see the extent to which environmentally friendly concepts are applied in sustainable technology, in order to create better ecological awareness for the future. Because the environmentally friendly concept which is currently developing rapidly has been applied in various sectors, including the technology sector.

METHOD

A conceptual qualitative descriptive method through the concept of environmental friendliness in its application to technology is used to see how far this concept has developed. By explaining the types, designs, or research designs that are usually used to examine research objects that are natural or in real conditions and are not regulated as in experiments. According to Sugiyono (2019), qualitative research methods, which originate from the philosophy of postpositivism, are used to investigate subjects in natural conditions (real conditions, not set, or experimental conditions), where the researcher acts as the main tool. To support the existing findings, a literature review is also used that is consistent with methodological assumptions. This means that this approach must be applied inductively to avoid researcher-directed questions. The exploratory aspect in this research is one of the main justifications for conducting qualitative research (Ali, H., & Limakrisna, 2013).

RESULTS AND DISCUSSION

In recent years, interest and debate regarding understanding the application of environmentally friendly technology and improving zero waste management practices in the business world has increased, both in the academic and practical worlds (Hamid et al., 2020). Although extensive research on the impact of environmentally friendly technologies has been conducted recently, discussions among experts are still on how to explore the best implementation methods. Additionally, mixed results in terms of the impact of green technologies on zero waste management have been reported, which may be due to the way researchers conceptualize green technologies (Du & Li., 2019). These conceptualizations vary greatly based on the expertise and background of the researchers. Globally, ecological problems mainly occur due to human actions and activities that damage organic tissue and disrupt biological balance (Shah et al., 2019). Therefore, zero waste management is a predictable trend and an important preference to enable the formation of a green dynamic society so that human life can be ethically sustainable in society (Bogusz et al., 2021).

Zero waste management includes proactive environmental practices that prevent damage to the biological environment. There is a focus on three relationships, acquisition, utilization and licensing of different products, to minimize harmful impacts on the natural environment (Young et al., 2010). However, to encourage zero waste management, companies must pay attention to how environmentally friendly technology influences zero waste management practices and how the interaction of environmentally friendly supply chains and CSR intentions moderates the company's zero waste management strategy. Green technology can reduce ecological pollution and save resources during production. Stakeholders are forcing businesses to increase their interest in expanding green supply chains and emphasize issues related to product design and development to achieve zero waste management (Yu et al., 2022). Business stakeholders also encourage businesses to optimize internal prototyping and production techniques besides gradually replacing traditional

machines with environmentally friendly technologies to improve zero waste management practices in companies (Masrom et al., 2018).

In the new environmental era, companies are interested in finding new approaches in implementing green marketing to sell their products in the environmental era, so that they pay attention to environmental sustainability. As environmental challenges worsen, businesses and consumers are increasingly interested in environmentally friendly consumption. The recent increase in demand for environmentally friendly products cannot be separated from increasing awareness of environmental challenges, motivating the business world to act environmentally friendly, either through implementing environmentally friendly management systems or environmentally friendly marketing and branding promotions (Ha, 2022).

Environmental awareness, which has recently increased, has increased consumer and industrial interest in environmentally friendly energy resources (Kaur et al., 2022). The combination of these factors has indirectly driven the market uptake of environmentally friendly technologies, as well as sustainability-related products and services today (Ha, 2022). Cuc et al (2022) stated that applying the green concept to technology, especially in electronic marketing, has a special contribution, namely reducing the amount of paper used for advertising materials.

Green technology adoption is the integration and use of technology in organizational operations and processes that are beneficial to the environment. This includes implementing energy-saving systems, pollution reduction strategies, and the use of renewable resources. Consistently, research shows that green technology adoption has a positive impact on a company's environmentally friendly competitive advantage. By implementing environmentally friendly technologies, businesses can increase resource efficiency, cut costs, and meet the increasing demand for sustainable products and services (Zhu et al., 2023).

Today environmentally friendly practices have become a strategic imperative for businesses in all industries. As environmental problems become increasingly prominent, companies are forced to adopt green technology adoption to increase their efficiency in terms of environmental sustainability (Zhang et al., 2023). In addition, environmentally friendly technology has had a major influence on companies' green product innovation. The increasing adoption of sustainable practices by businesses and individuals has led to an increased need for environmentally friendly products. As mentioned above, this phenomenon has resulted in a large increase in the development of new and environmentally friendly products that meet the demand of environmentally conscious individuals seeking sustainable substitute products (Hassan et al., 2023). Through the use of environmentally responsible practices and the integration of innovative technologies, companies have succeeded in developing environmentally friendly and cost-effective goods (Shahzad et al., 2022). Then utilizing technological advances and organizational resources, can also help companies differentiate themselves from their competitors in a volatile market (Zhu et al., 2023).

The importance of implementing environmentally friendly strategies in technology has been felt by many developing countries in the world, including the Philippines, Hernandez et al (2022) argue that reducing waste and the possibility of recycling resources are the main benefits of implementing environmentally friendly technology in transportation. external. Meanwhile, the environmentally friendly agri-food sector sees the possibility of rapid information exchange and cost reduction as a useful segment in the application of digital and green technologies, along with energy savings and waste reduction (Trivellas et al., 2020). Then Croatian companies again recognized increasing productivity and human safety as the most beneficial. Companies from Slovakia, just like Croatian companies, consider the lack of financial resources as the biggest obstacle in the implementation of digital and environmentally friendly technologies. In addition, they argue that the lack of staff dealing with this issue in the company is the least obstacle, similar to that experienced by Croatian companies. They consider the use of environmentally friendly technologies as a possible tool

for improving customer-supplier relationships, while improving self-image is considered the least important. Slovakia's geographical position and similar level of economic development explain the similarities expected to be found in this study (Mustapić et al., 2023).

Croatian companies see the greatest benefits in increasing environmental awareness and achieving sustainability, but also see high prices as the greatest challenge in implementation. Likewise, companies in Zimbabwe, Sibanda et al (2018) in their study also recognized the financial aspects of initial investment, operational costs and certification costs as the most challenging aspects. In contrast to Croatian companies, they consider the lack of knowledge and skills of workers as the biggest obstacle, but similar to Croatian companies, they consider the unavailability of certain digital technologies as one of the biggest obstacles. Environmental awareness and sustainability are also motivations for companies in New Zealand to implement renewable energy resources in external transportation systems (Dhawan et al., 2022).

Mexico through the implementation of environmentally friendly and digital technologies will gain benefits in operational efficiency and overall environmental performance (Garza-Reyes et al., 2016). Meanwhile Croatian companies see increasing productivity and profitability as the fourth and third important factors. Regarding company size, there is a lot of global evidence showing that small companies have a higher propensity towards green and digital transitions, as well as simplicity of implementation due to smaller systems (Sibanda et al., 2018; Hernandez et al., 2022; Saniuk et al., 2022).

CONCLUSION

The importance of implementing environmentally friendly strategies in technology has provided many benefits for companies' green product innovation. The increasing adoption of sustainable practices by businesses and individuals has led to an increased need for environmentally friendly products. Through the use of environmentally responsible practices and the integration of innovative technologies, the company has succeeded in developing environmentally friendly and cost-effective goods. Then utilizing technological advances and organizational resources, can also help companies differentiate themselves from their competitors in the market. Apart from that, green technology adoption is the integration and use of technology in organizational operations and processes that are beneficial to the environment. This includes implementing energy-saving systems, pollution reduction strategies, and the use of renewable resources. Consistently, research shows that green technology adoption has a positive impact on a company's environmentally friendly competitive advantage. By implementing environmentally friendly technologies, businesses can increase resource efficiency, cut costs and meet the increasing demand for sustainable products and services.

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