

Eco-design Audit for Building Competitive Advantages of SMEs

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Abstract:

Today the concept of eco-design is growing. Eco-design is a solution for business innovation. Eco-design which is based on the Quadruple Bottom Line not only provides added value in the form of profit for the company, but also preserves the environment, nurturing the people around it. Small Medium Enterprises (SMEs) are growing a lot in developing countries, one of which is as a solution to create jobs. However, many SMEs do not last long, do not develop because they do not have a competitive advantage and several problems they face. Auditors through eco-design audit services try to provide solutions to increase competitive advantages. Our research tries to bring together the problems of SMEs with auditors, to find solutions through an eco-design audit approach. Our research is qualitative research with a phenomenological approach. We collected primary data through focus group discussions and interviews with SMEs and auditors. The results of our study found that the main problems of SMEs are lack of capital and innovation. The eco-design audit will focus on business innovation from an eco-design point of view to create innovative business proposals to attract investors and creditors. Other findings are that SMEs are not yet high awareness of eco-design audits, there is no eco-design audit handbook and the need for eco-design awards to stimulate SMEs to increase eco-design audits.

Keywords: *Eco-design, Audit, Sustainability, SMEs, Competitive*

1 Introduction

1.1 Research Background

Environmentally friendly design is an approach to designing products with environmental impact throughout their entire life cycle. When the life cycle of a product is mentioned, it often means the processes of supply

production, use and disposal [1]. In other words, Eco designing is a concept that takes into account the environmental impact of materials, resources and end-of-life scenarios ahead of the design project and reduces the environmental impact of the product. In other words, product design is carried out by considering environmental conditions [2].

The goal of the design work to date is to meet the requirements and be the most cost-effective. However, with the Eco design, a new dimension is added to the design process: the environment. In fact, the environmental aspects of design cannot replace cost or performance aspects, but with this approach, designers are forced to make choices to optimize cost, performance and environmental impact [3].

The environmental design approach has become increasingly popular nowadays. Green design is a very popular approach, for example in the design of living spaces, workplaces and residences [4]. Because today more and more people are becoming aware of the negative effects of poor design and poor choices on the environment. Trends in residential design include sustainable or renewable building materials such as bamboo flooring, recycled composite materials, recycled fibre carpets and recycled materials from old buildings.

However, eco-friendly design is not limited to the choice of materials, but more than that. For example, energy efficiency is an important component of Eco design. Regardless of how sustainable materials are used in the design, if there is a large energy footprint in the final product, all the advantages of sustainable materials lose meaning. Today, many ideas that improve energy efficiency are expressed and implemented. For example, double-glazed windows, roof tiles that reflect sunlight during the hot summer months and rooftop solar panels used to generate energy are examples of these efforts.

One of the actions to support this effort, even the Council of the European Union has issued a directive on energy-related products 2009 / 125 / EC. This issue is urgent, because several cases have occurred, supporting facts of the ecological emergency and the climate crisis as a result of the global economic paradigm that places nature as a pile of commodities occur in various parts of the world [5].

Another problem is the lack of proper knowledge and understanding of SMEs business owners, especially small and medium enterprises, on the importance of eco-design. Many of them still think that eco-design is costly, a waste of money, a waste of money. Whereas on the contrary, eco-design exists to stop waste, efficiency, so that the company's competitive advantage increases [6].

In the field of auditing, there are so-called assurance services, namely inspection services other than financial statements. In addition, there are non-assurance services, such as consulting services or management audits, where the end result is providing recommendations for improvement. Eco-design audits can be a potential service area and a new source of income for auditors and public accounting firms, however, until now in Indonesia there is no handbook that regulates how to conduct eco-design audits. These things are the research gaps that we are trying to connect through our research. Through this eco-design audit, the auditor can help entrepreneurs, small medium enterprise owners, start-ups, and others and give birth or change entrepreneurs with the old paradigm to become entrepreneurs who adhere to eco-design in running their business.

1.2 Research Questions

The following is a research question that we want to answer through this research paper:

1. What are the main problems faced by SMEs in Indonesia to build competitive advantages?
2. How can auditor help provide solutions to SMEs' problems to build competitive advantages through eco-design audit?
3. What are the challenges facing eco-design audit in its application to SMEs?

2 Literature Review

2.1 Sustainability Theory

Sustainability theory was first put forward by [7] which explains that society's efforts to prioritize social responses to environmental and economic problems. This social response is expected to meet the needs of the present and future generations. The concept of sustainability is currently growing and being applied in the context of corporate sustainability [8]. [9] explains the context of corporate sustainability as a business and investment strategy that can improve business practices by balancing the needs of present and future stakeholders using a balanced scorecard. This concept emphasizes the interests of stakeholders by balancing the economic, social, and environmental dimensions of company performance.

Corporate Sustainability is usually measured through the Triple Bottom Line (TBL), this concept was developed by [10]. There are three dimensions of TBL, namely economic, social, and environmental. [11] states that companies can move towards sustainable development by integrating TBL in their management strategy. [12], [13] proves that TBL-focused organizations can increase a company's competitive advantage. In its development, TBL is felt to be lacking, namely there is no reason or impetus, why humans want to preserve the

planet, respect other people in addition to pursuing profit. So to fill this gap, TBL evolved into the Fourth Bottom Line or better known as the Quadruple Bottom Line (QBL) [14]. QBL provides means to measure, value and assess the addition of culture, spirituality, and faith in reporting. This can be expressed as people, planet, profit and purpose

2.2 Performance Theory

Performance is the result of work that can be achieved by a person or group of people in an organization, in accordance with their respective authorities and responsibilities, in an effort to achieve the goals of the organization concerned legally, not violating the law and in accordance with morals and ethics. An employee's performance will be good if he has high skills, is willing to work because he is paid or paid according to the agreement, and has expectations of a better future. If the employee's performance (individual) is good, it is likely that the company's performance is also good [15]. In order to achieve organizational goals, it is necessary to have good employee performance.

Employee performance can be said to be good if employees can complete their duties effectively and efficiently. If a certain goal can finally be achieved, it can be said that the activity is effective. It is said to be efficient if it is satisfactory as a driver to achieve goals, regardless of whether it is effective or not [16]. Employee performance can be seen with the resulting productivity. There are several factors that can affect employee productivity, namely: training, mental and physical abilities of employees, as well as the relationship between superiors and subordinates [17].

Employee productivity is important for companies, because increasing employee productivity means employee performance also increases and company performance automatically increases. To measure work productivity, an indicator is needed as follows: ability, increasing the results achieved, morale, self-development, quality, and efficiency [18]. This is in line with QBL, where several factors in QBL namely people, profit and spirituality exist in this performance theory. The performance of employees who are people who drive and strive for organizational success, they have a spiritual life which is the reason they want to do something, even working and having a good performance is also considered as a worship.

2.3 Eco-design

Eco-design is a design concept with environmental friendly aspects in mind. Currently, environmentally friendly designs are attracting public attention, the reasons range from global warming, rising energy costs, to concerns about our limited water supply [2].

Eco-design is basically not just for savings and trends that are momentary in nature, but the thought of reducing the burden of nature due to human activities or lifestyles. Eco-design is acceptance of nature without the distance to complement each other as well as culture and traditions that coexist with nature [19]. Eco-design is pro-nature, pro-life, pro-togetherness, flexible, adaptive, local organic and local material skills/craftsmanship. Pro-nature is in harmony with climate, wind direction, water flow direction, and so on. Pro-life is concerned with continuity for togetherness. Flexibility is being ready to change the atmosphere. Meanwhile, adaptive is adjusting to function. Local organic and local skills are using local materials with local skills. Eco-design is also called local wisdom because it is a continuous learning process [20].

Eco-design is a development of sustainable design which is a broad ideology that considers social, economic, and environmental implications. This concept optimizes design by reducing negative impacts and improving quality of life without depleting natural resources. The main goal of sustainable design is not to build structures, but to build the future [21]. The application of Eco Design in the business world includes: product design with consideration of the impact on the environment during the composting process or life cycle.

2.4 Eco-design Audit

The fulfilment of quality demands is now increasing paying attention to environmental aspects. Planning a product that is carried out by taking into account environmental aspects called eco-design. The foundation for eco-design auditing began in 2002 [22]. In 2002, ISO TC 207 issued an eco-design standard (eco-friendly product design standard) named ISO/TR 14602. This standard discusses the main factors that need to be taken

into account in eco-design and a generic eco-design approach that can be applied to all types' products and even services [23]. ISO/TR 14062 defines eco-design as activities that integrate environmental aspects into planning and product development.

This audit is more about providing certification or recognition to companies, which in this case are the majority of large corporations that have successfully carried out business operations in accordance with eco-design standards [24]. However, what you want to make is not just a mere quality control audit but also combined with a management audit process in which the auditor provides consultation and recommendations to improve the effectiveness and efficiency of the company.

Eco-design Audit is a diagnostic tool to integrate the design and circular economy related aspects into the organization's product and service development process [25]. It is developed to help the organization:

1. Identify its design capabilities and performance.
2. Understand the eco-design, and specifically the circular design concept, and identify the possible circular design opportunities/approaches for the further product/service development process.

It is meant for any organization to analyse its current design capacity, strategy, practices and product/service development approaches. It is especially suitable for SME's, and more suitable for already existing organizations, since the methodological approach focuses on the assessment of existing design management practices as well as existing products and services.

The audit recommendations will help the organization to establish the basis for moving forward with product, service and business development. Recommendations may be further developed and implemented with Eco-design [24]. Eco-design audit has been well developed in some European countries, but in Indonesia eco-design audit is still very rare, it is a pity even though the benefits that companies acquired by implementing eco-design are useful.

3 Research Methodology

The methodology used in our research is qualitative research, namely an in-depth approach to qualitative study. The approach we have chosen is one-shot data gathering (Phenomenology). Phenomenology can be defined as the study of phenomena or events/experiences about something that appears in society (as seen from the logic of researcher), and its influence on community researched with one shot data gathering [26].

Qualitative Research Design is a data collection strategy qualitative and how to draw conclusions from the data collected. It consists of ethnography and case study. Ethnography is the study of the culture of a group, i.e. the nature, interactions, leader patterns and other things that draw the group as captured by researcher [27]. While the case study is the study of groups, that is, of what exist in the group descriptively but also how the group reacted and perceives the phenomena they encounter. In our research the group we use is auditor in public accountant office and practice or business owner of SME.

We use some techniques for data collection in this research. The methods are focus group discussion and in depth interview. Focus group discussion is a discussion about a certain topic by group of people, under the direction of a facilitator. The result is in the form of notes, and audio-visual recordings about opinions, objections, reactions and perceptions of the participant's discussion [28]. In our focus group discussion, the researcher will be the moderator while the panellists are SME business people, so we hope that we will know the main problems of SME business in implementing eco-design. We can understand the critical impact factors which will later become the basis for eco-design in SME.

In-depth interview is an open interview with informants in-depth about the topics and themes contained in interview guidelines. The theme in question is a theme related to the subject matter researched. For example, will research in order answer the question: what kind of skill and knowledge that auditor is needed to master in order to become the eco-design auditor?

We conduct interviews with partner auditors from public accounting firms, to find out their level of readiness and level of understanding of the current eco-design audit. From there we will find out what is still lacking and need to be prepared so that the auditor is ready to become an eco-design auditor.

4 Research Findings

4.1 Main Problems Faced by SMEs in Indonesia to Build Competitive Advantages

The problems faced by SMEs in Indonesia to build competitive advantages based on the results of the discussions we gathered with SMEs entrepreneurs are as follows:

1. Lack of working capital

Capital is one of the most frequently experienced MSME problems. The lack of working capital for SMEs causes production activities to be hampered, thereby reducing income. This is what makes business owners seek capital loans from banks, but unfortunately they often fail because they do not meet bank requirements. As a result, the business stagnates and is forced to go out of business.

2. Lack of knowledge about how to develop a business

Most micro, small and medium business owners do not have enough knowledge about how to grow a business. They also only focus on the production process without trying to improve product quality.

3. No product innovation

If SMEs want to compete in the midst of the onslaught of the MSME business, try to make product innovations. Unfortunately, the problem that MSMEs often face is the inability to innovate. Whereas without innovation, competitors will easily take the market

4. Difficulty Distributing Items

The next problem for SMEs lies in the problem of distributing goods. So far, many SME players lack channels in distributing their products. Most only focus on distributing goods to a few colleagues and collectors they know. Of course, this way of marketing is still very simple and its reach is not too broad.

5. Lack of understanding of digital marketing

The next problem for MSMEs is the lack of understanding of digital marketing. Some of the SMEs do not market their products online. As a result, the competitiveness of the product is less and leads to deserted customers. Maybe there are many MSME actors who are technology literate, but most of them are still not able to maximize it so that the potential profits obtained are not yet optimal.

6. Manual bookkeeping

The government has indeed promoted the digitization of MSMEs. But unfortunately, there are still many business actors who do the bookkeeping manually. This old method is considered no longer efficient because it can increase the risk of human error, which includes incorrectly inputting the number of transactions or losing all sales data.

7. Don't Have a Mentor

Without having a business mentor, an SME entrepreneur will find it difficult to develop a bigger business. His knowledge about business is limited and he will find it difficult to innovate products.

8. Don't Have a legal business license

Another problem that is no less important is the absence of a legal business license, thus hampering the pace of your business. If you want to grow your business even bigger, then it's time for you to get a legal permit for your business.

4.2 Solutions Provided by Auditors through Eco-design Audits for SMEs Competitive Advantages

After we discussed the problem with SMEs regarding build of competitive advantages, then we brought the issue to be discussed with the eco-design audit auditors. The information that we have gathered based on the results of discussions with the auditors regarding the solutions that the auditors can provide to SMEs problems are as follows:

Lack of capital can be overcome by obtaining capital loans from financial institutions, such as banks or leasing. Or it could be by looking for investors to later share the profits. However, SMEs must make proposals and ideas that are creative, innovative and unusual, so that they can be accepted by creditors and investors. This includes answering issues regarding innovation, digital marketing, and also the lack of knowledge.

Eco-design is seen as one of the steps in developing a product with the aim of increasing the environmentally friendly performance of the product. This shows that eco-design cannot stand alone, but is part of a process of designing and developing a product innovation. The auditor describes an eco-design solution plan as stated in figure 1.

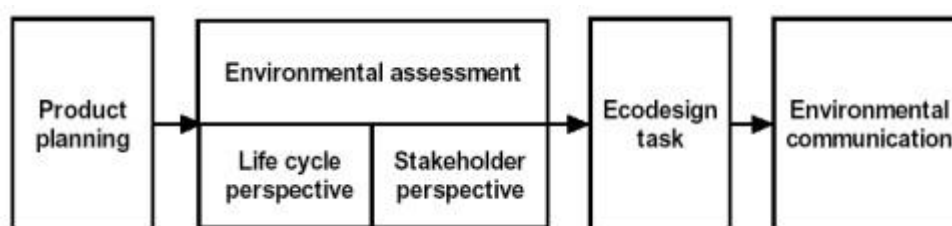


Figure 1 Eco-design Solution Plan

All products, including services, can have an impact on environment. The impact may occur at one stage or at all stages throughout the life cycle of a product – whether at the time of procurement of raw materials, or when manufacture, distribution, use or even disposal the product (end of life). In other words, it can also be analogized that the impact can be identified at all stages of the infrastructure project management cycle, including project initiation stage.

The eco-design strategy generally includes the following aspects: managing or managing materials, minimizing the use of materials, recycling materials, extending product service life and regulating energy use. Each of these strategies is further elaborated by the eco-design auditor into several eco-design principles. Each principle put forward by the auditor is paired with a step in the management cycle. This principle is categorized as an eco-design principle that can be applied at the initiation stage of SMEs business proposals to be submitted for funding to creditors and investors.

These principles are presented in Table 1 which is called the proposal and initiation stage. Furthermore, there are also eco-design principles which, apart from needing to be presented as part of the project's strategic information, still need to be followed up with a follow-up to a more detailed planning stage, even to the execution and control stage. For this reason, these principles can be applied both at the proposal and initiation stages as well as at the design and appraisal stages as well as at the execution and control stages.

Table 1: Eco-design Strategy and Principal for SMEs

Eco-design Strategy	Eco-design Principles	Alternative application principle Eco-design at the SMEs business proposal stage
Material management	Minimize the variety of materials in a product	Design and appraisal/execution and control
	Lengthen the service life	Proposals and initiations

	Specify recycled materials whenever possible	Proposal and initiation/design and appraisal
	Specify energy efficient materials in the construction/service	Proposal and initiation/design and appraisal
	Specify materials that pollute minimally during their extraction, manufacturing, use and disposal	Proposal and initiation/design and appraisal
	Specify ready available material that do not deplete declining natural resources	Proposal and initiation/design and appraisal
	Specify materials that are unlikely to be affected by new legislation that will constrain their deployment, manufacturing and disposal.	Proposals and initiations
Minimize material utilization	Minimize the number of different materials in a part	Proposal and initiation/design and appraisal/ execution and control
	Select easily recycled materials	Proposal and initiation/design and appraisal/ execution and control
	Facilitate material identification	Proposals and initiations
	Ensure easy product disassembly	Design and appraisal/execution and control
Recycling materials	Minimize the variety of materials in a product	Proposal and initiation/design and appraisal
	Consolidated parts	Design and appraisal/execution and control
	Reduce the number of assembly operation	Design and appraisal/execution and control
	Specify compatible materials	Proposals and initiations
	Identify separation points between parts	Design and appraisal
	Incorporate a material identification scheme on parts to simplify identification	Design and appraisal
Extend service life	Create a user friendly document to repair and maintenance	Design and appraisal
	Ensure that the lifecycle is	Proposals and initiations

	environmentally optimal	
	Replace worn parts	Design and appraisal/execution and control
	Replace parts with a new generation of parts	Design and appraisal
	Identify the inherent weakness in a product and redesign to avoid premature failure	Design and appraisal
	Identify potential hazards associated with the product at the end of its service life and minimize them	Design and appraisal
	Use design for disassembly principles to facilitate the remanufacture and recycle of parts	Proposal and initiation, design and appraisal
Energy utilization	Minimize energy consumption	Proposal and initiation/design and appraisal/execution and control
	Minimize energy losses	Proposal and initiation/design and appraisal/execution and control

This innovation will also make it easier for SMEs to distribute and market their products. This is because the key point and marketing is innovation. Other SMEs problems such as manual bookkeeping, not having a mentor, and not having a legal business license according to the auditors will be easily overcome by an eco-design audit. This is because the auditor who will be the mentor in this case is an accounting education background so of course mastering the field of financial reporting and also business licensing.

4.3 Challenges Faced by Eco-design Audit in Its Application to SMEs

The following are the challenges of eco-design audit that we have compiled from the results of discussions from both the SMEs and auditors point of view:

1. Lack of awareness of SMEs on eco-design and sustainability issues.

Many SMEs are only focused on profit and are not aware of other factors. The solution is to promote a campaign about the quadruple bottom line in business [14]. Namely the concepts: people, planet, profit, and purpose. Where the pursuit of profit (profit) alone in business is wrong. A business that is sustainable and can survive in the long term is a business that pays attention to human resource factors (people), environmental factors (planet) and also what the goals and motivations of the business are, whether the goals and motivations are ethical (purpose), because with the implementation of the quadruple bottom line, enabling businesses to be able to synergize with the environment and the surrounding community while also building a competitive advantage. This also includes answering SMEs' problems, namely about:

2. There is no auditor handbook for eco-design audit yet.

For auditors in carrying out eco-design audit practices, in Indonesia there is no eco-design audit handbook or guidelines that have been officially issued by the audit parent organization. The solution is that auditing parent organizations in Indonesia, such as the Indonesian Institute of Public Accountants (IAPI) and the Institute of Internal Auditors (IIA – Indonesia Chapter) can brainstorm together with auditors to create guidelines or handbooks for eco-design audit services. This service can later be categorized as an attestation service. The parent audit organization in Indonesia can refer to the European Union (EU) where there is already an Eco-design Circle.

3. Lack of recognition and reward from the government in terms of eco-design.

Reflecting on several other countries, such as in China, there is the China Eco Design Award organized by the Beijing Contemporary Art Foundation (BCAF). Then in Germany there is the Bundespreis Eco-design (German Eco-design Award) [29]. In the award, business people who have eco-design ideas will be exposed and rewarded. It enhances the image and branding for the business as well as a promotion. Competitors who don't get it the following year will compete to get a ward as well, so there's a booster, a competition to be the best. In this award, it is also necessary to separate the award categories for large entrepreneurs and SMEs, so that SMEs compete with each other, apple to apple, and this is also an attraction for SMEs, if they win, they can get prize money to increase capital and also branding.

5 Conclusion And Suggestion

5.1 Conclusion

The main problems with SMEs in Indonesia are lack of capital, lack of innovation and product marketing, no mentors in business development and also problems in bookkeeping and financial reporting so that their business cannot develop and cannot be sustainable.

Auditors through eco-design audits offer solutions, namely by innovating: material management, minimizing material utilization, recycling materials, extending service life, and energy utilization. With this innovation, especially in making business proposals by SMEs, it is hoped that SMEs can overcome the problems of SMEs, especially in terms of capital and innovation.

The challenge for eco-design in Indonesia in the future is the lack of awareness and understanding of the importance of the quadruple bottom line and the concept of eco-design among SMEs. There is no eco-design award as a stimulus for SMEs to compete and compete in terms of eco-design. There is no handbook for auditors in carrying out eco-design audit services.

5.2 Suggestion

The suggestions we can give to SMEs, auditor and further researcher are as follows:

1. For SMEs to be able to keep up with the times and start pursuing eco-design in business, thereby increasing their competitive advantage
2. The audit parent organization can prepare handbooks or guidelines for eco-design audits as one of the attestation services
3. The government can start scheduling the eco-design award as an annual event, in which the winner category is also divided between the large entrepreneur class and SMEs
4. The next researcher can examine business innovation in the realm of eco-design and also the application of eco-design audits in other countries, so that their findings can be compared with this study.

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