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The Role of The Technopreneur In Overcoming Global Sustainability Challenges: A Mental Accounting Perspective

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Abstract: This research examines the role of thechnopreneurs in overcoming global sustainability challenges from a mental accounting perspective. The aim of this research is to understand and analyze how technopreneurs can contribute to overcoming various challenges related to global sustainability through innovation and environmentally friendly technology. The method used is literature study. The results of this research show a close relationship between technopreneurship, global sustainability, and mental accounting perspectives in the context of UMKM. Technological innovation increases efficiency and solves waste problems, while social media and e-commerce expand market reach at low costs. The mental accounting perspective plays a role in cost allocation, use of digital technology, innovation and risk management. Mental accounting, with its focus on effective and efficient short-term control, has the potential to be counterproductive to global sustainability, which requires expensive costs to obtain long-term benefits. Nevertheless, mental accounting still needs to be campaigned for all accountants to pay attention to environmental sustainability so that mental accounting develops not only in the short term but also in the long term. So that the integration of technopreneurship and sustainability principles supported by an appropriate mental accounting perspective can increase the added value of UMKM businesses while supporting global sustainability.

Keywords: Technopreneur, Global Sustainability Challenges, Mental Accounting, UMKM

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1. Introduction

In recent decades, the world has faced major challenges related to sustainability, especially the worsening and worsening climate crisis. Directly, climate change has an impact on global warming. Global warming is a form of imbalance in the ecosystem on earth due to the process of increasing the earth's average temperature. This warming is the beginning of drastic climate change [1].

Global Sustainability defines the conditions in which humans and nature, society and the biosphere, the world and the earth can coexist in a way that allows for harmony, stability and productive resilience to support present and future generations[2], [3], [4]. Global sustainability science explores the interactions between social and natural systems, from local to global scales, with a particular focus on sustainability as a pathway for human development in the context of global environmental change and the earth's resilience [5].

In the current era of competition between businesses, factors such as better quality, the best customer service and lower operational costs are not enough, but the business world

and entrepreneurs must be faster in their services, innovate as much as possible and be flexible to dynamics changes to maintain a competitive position in the market [6].

Technopreneurs have played an important role in the use of technology to fulfill various goals [7]. The Entrepreneur Skill dimension has a positive relationship with the Digital Marketing dimension, this indicates that the better the Entrepreneur Skill aspect of an UMKM, the Digital Marketing aspect of the UMKM will improve and the Technology Skill dimension has a positive relationship with the Digital Marketing dimension. This indicates that the better the Technology Skill aspect of an UMKM, the Digital Marketing aspect of that UMKM will improve [2].

The Sun Energy company as a Solar Panel Project Development Company in Indonesia is delivering the growth of the Indonesian solar panel industry with innovative solutions. The solar panel industry has experienced significant growth in recent years, and has become one of the sectors that is attracting attention in Indonesia. The huge potential of year-round abundant solar energy in the country is the main trigger for this development. Use of solar energy it can also strengthen national energy security, reducing dependence on fossil fuels which can damage the environment. These benefits are not only limited to environmental and economic aspects, but also extend into society by providing new job opportunities and encouraging domestic technological innovation. One of them is providing energy for factories and distribution centers. Manufacturing and distribution industries often require large and stable energy supplies. The integration of solar panels in factories and distribution centers provides a solution that can reduce dependence on conventional energy sources [8].

Accounting mentality also applies in investment, an investor can choose assets to invest speculatively and in a safe portfolio, the investor separates the speculative portfolio so that negative returns from the results obtained do not affect positive returns from previous results [9]. At Sun Energy the main obstacle in selling industrial scale solar panels is the high initial investment. Building and installing solar panel systems on an industrial scale requires high funds to purchase equipment, solar panels and supporting infrastructure. This can be an obstacle for many companies who may have limited budgets to start energy projects renewable.

Until 2023, renewable energy has not yet accelerated optimally, so the target of 23 percent by 2025 is increasingly difficult to achieve because less than two years remain. One factor in the slow development of renewable energy is the lack of APBN support for the development of clean energy. There needs to be further intervention from the government. Energy observer and lecturer at the Faculty of Earth and Energy Technology Universitas Trisakti, Pri Agung Rakhmanto, who was contacted in Jakarta, Tuesday (13/2/2024), said that this can be seen from the budget posture of *Kementerian Energi dan Sumber Daya Mineral* (ESDM) for 2024 the total of which is IDR 6.8 trillion. Of that figure, infrastructure and *Sumber Daya Alam* (SDA) development is only IDR 2.33 trillion or 34.45% [10].

Although technopreneurs offer innovative solutions to various sustainability challenges, they also face various obstacles; (1) Access to Capital, (2) Lack of Infrastructure Support, (3) Unsupportive Regulations, (4) Lack of Awareness and Adoption. Therefore, the author's aim focuses on understanding and analyzing how technopreneurs, as technology-based entrepreneurs, can contribute to overcoming various challenges related to global sustainability. This includes their role in innovation, the application of environmentally friendly technology, as well as business strategies that support sustainable practices to achieve sustainable development goals.

Mental accounting is a series of cognitive operations used by individuals to code, categorize and evaluate their financial activities. Mental accounting focuses on how a person should respond and evaluate possibilities that occur [11]. More than that, mental accounting can be defined as a person's behavior in classifying or categorizing their financial income and expenses.

2. Materials and Methods

The type of research used is literature study. All data collected comes from journals, books or other relevant sources regarding technopreneur global sustainability and mental accounting perspectives. Literature study or library research aims to provide a clear definition of the problem to be researched, define the problem so that it focuses more on the object of research, avoid plagiarism either intentionally or unintentionally, correlate current findings with previous knowledge which can later become suggestions for researchers furthermore [12]

3. Results

The results of research using the risk analysis structure method obtained from several literature sources, including books, articles and scientific journals, show a close relationship between technopreneurship, global sustainability and the accounting mental perspective. Using the specified inclusion criteria 7 available studies were obtained and a deeper literature search could be conducted. Plus more than 20 articles related to the research focus. These studies generally highlight how the use of technology and waste management can be integrated in the activities of *Usaha Mikro, Kecil, dan Menengah* (UMKM) to create added value while supporting environmental sustainability. In the context of technopreneurship, technological innovation not only acts as a driver of efficiency and productivity, but also as a solution to overcome waste problems often faced by UMKM. An [11], [13], [14] mental perspective is used to understand how UMKM manage their resources, including allocating costs and benefits obtained from implementing environmentally friendly technology.

Computer technology and internet networks, which began to boom since the 1960s, have given rise to the phenomenon of e-commerce (electronic commerce) in the world of human business. E-commerce is essentially a large-scale buying and selling or trading activity that involves many people to manage production, marketing, sales, services, and collaboration between fellow business people for the dissemination of information and the formation of commercial communities by utilizing the internet network as its main base. Technopreneur means how to use technology that is developing rapidly to become a business opportunity [15], [16], [17], [18], [19]. Because entrepreneur itself means a person/business entity who manages a business with the courage to take risks in order to achieve profit and growth by identifying existing opportunities. Technology today is one of the opportunities that exist [20].

UMKM entrepreneurs realize that the use of social media applications provides the opportunity to provide product information or promotions in the same way, at low cost and can increase social media access, they have global reach, where their products can be accessed from any part of the world [21]. The penetration of business actors into the digital realm of social media, starting from training sessions and seminars to increasing their business with the use of digital, namely in the form of social media, is a characteristic of the development of digital-based social media for UMKM [4].

It is hoped that the development of Digital Entrepreneurship for UMKM players will be able to support the strengthening of Indonesia's digital economy by 2025 to become the largest in Southeast Asia, as well as supporting the acceleration of sustainable national economic growth. Digital Entrepreneurship development is also an alternative to save the UMKM sector from the crisis caused by the COVID-19 pandemic [22].

Some of the important roles of UMKM in the Indonesian economy are their position as main players in economic activities in various sectors. An important player in the development of regional economic activities and community empowerment. New market maker and source of innovation [23].

Apart from UMKM which focus on digital marketing, there is also an introduction to technopreneurship for Roudlotul Ulum Bangil Middle School students by conducting training in making soap from used cooking oil which then becomes a product with economic value. [3]. Making soap from used cooking oil is recycled waste. This business activity utilizes used cooking oil waste by reducing pollution to the surrounding environment. This supports global sustainability by paying attention to the surrounding environment and utilizing materials to carry out innovative business activities.

4. Discussion

Mental accounting is a condition where we place the location of money into several categories so that the perceived value of money is different from the actual one. If the person is rational then they can manage finances effectively according to the categories and without changing decisions, but if the person is irrational then mental accounting is very important in financial management [24].

1. The Role of the Technopreneur: Accounting Perspective

In this article, the role of the technopreneur from an accounting mental perspective can be understood as follows: (1) Identifying Opportunities and Managing Risks. Technopreneurs see technology as a business opportunity that can be developed to gain profits. In a mental accounting perspective, technopreneurs manage risks carefully and make decisions based on cost-benefit analysis. They weigh the potential benefits that can be obtained from using technology against the costs and risks that may occur. (2) Efficiency and Innovation, Technopreneurs use technology to increase operational efficiency and encourage innovation. They allocate resources effectively and look for ways to optimize the use of technology in their business. The mental accounting perspective here focuses on measuring and evaluating efficiency and creating added value through innovation. (3) Empowerment and Increased Market Access. By using technology, technopreneurs can expand market reach and empower local communities. They see social media and digital platforms as a tool to communicate their products or services to a global audience at low cost. Mental accounting helps them in assessing the impact of digital marketing strategies and their effectiveness in reaching the target market. (4) Social and Environmental Impact, Technopreneurs also consider the social and environmental impact of their business activities. An example in the article is the making of soap from used cooking oil by Roudlotul Ulum Bangil Middle School students. This shows how technopreneurs can utilize waste to produce products that have economic value while reducing environmental pollution. An accounting mental perspective helps in assessing the social and environmental benefits of these business activities and how they can support global sustainability. (5) Contribution to the Digital Economy, Technopreneur plays a role in supporting the strengthening of Indonesia's digital economy, especially for UMKM. They contribute to national economic growth by adopting digital technology in their business. Mental accounting helps them measure the economic contribution and long-term impact of digital entrepreneurship on the national economy.

Thus, technopreneurs from an accounting mental perspective play an important role in identifying opportunities, managing risks, increasing efficiency and innovation, empowering society, and considering the social and environmental impacts of their business activities.

2. Global Sustainability: A Mental Accounting Perspective

The mental accounting perspective related to global sustainability can be understood through several main aspects: (1) Resource and Environmental Management, mental accounting here involves understanding how the use of technology and innovation can reduce negative impacts on the environment. The example given is making soap from used cooking oil by Roudlotul Ulum Bangil Middle School students. This shows how waste can be recycled into products of economic value, while reducing environmental pollution. Mental accounting helps in assessing the efficiency and effectiveness of these efforts as well as their impact on environmental sustainability. (2) Assessment of Social Costs and Benefits, mental accounting also includes assessing costs and benefits from a social perspective. In the case of UMKM business actors who use social media for marketing, low costs and global access are big advantages. However, the social impact of these actions also needs to be assessed, including how these efforts can empower local communities and create jobs. (3) Innovation and Economic Efficiency, Technopreneurship which utilizes

technology to create new products or improve business processes also contributes to global sustainability. The mental accounting perspective here involves assessing how technological innovation can increase economic efficiency and create added value, which in turn supports sustainable economic growth. (4) Strengthening the Digital Economy, developing digital entrepreneurship for UMKM not only helps them survive crises such as the COVID-19 pandemic, but also contributes to strengthening Indonesia's digital economy. Mental accounting helps in measuring the long-term impact of these initiatives on national and regional economies, as well as how this supports overall economic sustainability. (5) Empowerment and Local Economic Growth, UMKM act as main players in the local economy and community empowerment. The mental accounting perspective here involves assessing the economic impact of UMKM business activities on the regional economy, including the creation of new markets and sources of innovation that support sustainable economic growth.

Thus, the mental accounting perspective on global sustainability in this paper involves evaluating and assessing how the use of technology, innovation, and resource management can create positive impacts on the environment, economy, and society in a sustainable manner.

3. Accounting Mental Attitude

UMKM players must understand the importance of allocating costs for technology that supports environmental sustainability. They need to assess the long-term benefits of investing in this technology, including the potential for operational cost savings and the enhancement of a greener corporate image.

In the digital era, UMKM need to adopt an open mental attitude towards using social media and e-commerce platforms to market and sell their products. This not only saves marketing costs but also expands their market reach globally.

Technopreneurship practitioners need to develop a mental attitude that is ready to innovate and take risks. This includes looking for new opportunities emerging from technological developments and daring to implement them in their business.

UMKM must adopt a perspective that sees sustainability as an integral part of their business strategy. This means taking steps to ensure that their business operations are not only financially profitable but also have a positive impact on the environment and society.

UMKM players need to develop effective measurement and reporting systems for sustainability. This includes tracking and reporting the environmental impact of their operations as well as the economic benefits resulting from sustainability initiatives [21], [25].

Mental accounting tends to provide encouragement with the principle of prudence so that what is done must be planned within an effective and efficient budget, all activities must be controlled and have a short-term orientation in the form of profit, perhaps this will be a productive contract with global sustainability which tends to require high costs. expensive to obtain long-term profits. However, mental accounting still needs to be campaigned for all accountants to pay attention to environmental sustainability so that mental accounting develops not only in the short term but in the long term, budgeting is outcome oriented, self control, outcome oriented, as well as the short term becoming a long term orientation. human thought process in deciding on a purchase or economic activity can be likened to the stages of the accounting process as carried out in a company which includes bookkeeping and evaluating decision making in consuming [9].

By understanding and adopting this mental accounting perspective, UMKM can more effectively integrate technology and sustainability principles in their business, thereby increasing added value while supporting global sustainability.

5. Conclusion

The conclusion of this research shows that technopreneurship, global sustainability, and mental accounting perspectives are closely related to each other in the context of UMKM. Technological innovation plays an important role in increasing efficiency and solving waste problems, while the use of social media and e-commerce expands market reach at low costs. To optimize these benefits, UMKM need to allocate costs wisely, be ready to innovate, manage risks, and adopt sustainable practices that have a positive impact on the environment and society. In this way, UMKM can increase the added value of their business and support global sustainability.

Furthermore, the Sun Energy company has the main obstacle in selling industrial scale solar panels, namely the high initial investment. However, The solar panel industry has experienced significant growth in recent years, and has become one of the sectors that is attracting attention in Indonesia. The huge potential of year-round abundant solar energy in the country is the main trigger for this development.

The accounting mental perspective plays an important role in shaping technopreneurs to make decisions, manage resources, and evaluate the impact of businesses run in the context of global sustainability. This mental accounting perspective needs to continue to develop to more effectively support the integration of technology and sustainability principles in business, especially in the UMKM sector

The accounting mentality with its focus on effective and efficient short-term control is potentially counterproductive to global sustainability which requires expensive costs to obtain long-term profits. So this accounting mentality needs to be campaigned to all accountants to pay attention to environmental sustainability so that the accounting mentality develops not only in the short term but also in the long term.

Thus, in this research the author has limited time and data, therefore, the author hopes that in future research he can continue this research with more relevant data, and use different methods.

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