

THE INFLUENCE OF ENVIRONMENTAL ENTREPRENEURSHIP LEVEL AND ENTREPRENEURIAL CHALLENGES ON THE INNOVATION OF WOMEN ENTREPRENEURS

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Abstract

Entrepreneurship plays a pivotal role in a nation's economic development, and it is essential for women to actively participate and innovate in this sphere. This study seeks to investigate and delineate the following: (1) the correlation between the degree of entrepreneurship, entrepreneurial challenges, the entrepreneurial environment, and the innovation of female entrepreneurs; (2) the interplay between the level of entrepreneurship, entrepreneurial challenges, and the innovation of female entrepreneurs, with the entrepreneurial environment acting as a mediating factor; and (3) the framework of entrepreneurial innovation specific to female entrepreneurs. The focus of this research is on female entrepreneurs engaged in eco-friendly business practices in the Jambi Province, involving a sample of 200 respondents. A nonprobability sampling technique was employed to select participants. Data collection was carried out using a structured questionnaire. The gathered data was analyzed using the Structural Equation Model (SEM/PLS) via the Smart PLS tool. The findings reveal significant links between the degree of entrepreneurship and the entrepreneurial environment, as well as between entrepreneurial challenges and both the entrepreneurial environment and eco-friendly entrepreneurial innovation. The primary goal is to develop an empirical model of eco-friendly entrepreneurial innovation, which can be utilized to promote environmental sustainability by integrating key factors identified in the current study. This research is anticipated to make a significant theoretical contribution to scholars in related fields.

Keywords: Innovation, Entrepreneurship, Entrepreneurial Environment, Women

Introduction

Globalization demands rapid changes in the business world, but this phenomenon often ignores the idea that business owners can not only use business to earn household income but can also influence the behavior and values of business people and have an impact on the management of natural resources. As the issue of environmental sustainability becomes stronger, society feels the need for entrepreneurs who care about the environment. This is supported by the statement that populations in the era of globalization are faced with the fact that resources are limited and threatened with shortages due to rapid world population growth and loss of biodiversity. The existence of MSMEs is very important for the economy of any country. MSMEs face such harsh conditions that some of them fail to survive and grow into large corporate entities. One of the main ways to overcome these harsh conditions is Innovation. According to (Ndesaulwa, 2016) that the majority of MSMEs fail to innovate. In developing countries, MSMEs are important not only because they create jobs but also because they employ unskilled workers, of which there are too many in such countries.

According to (Octavia et al., 2023) marketing strategies are developing towards a business orientation that is fast, conscious and environmentally friendly. Not only for the benefit of humans and nature but also to run a business so that it attracts consumers to buy. Entrepreneurship is closely related to globalization because with globalization entrepreneurship can develop and reach consumers from various corners of the world. The abilities possessed by entrepreneurs are based on the entrepreneur's ability to read opportunities to develop the business, develop creativity, a strong desire to dominate the market but still pay attention to environmental sustainability. According to (Gast et al., 2017) environmentally friendly entrepreneurship is a process for identifying, evaluating, and reading entrepreneurial opportunities, which are based on sustainable and environmentally friendly principles (Gast et al., 2017). Entrepreneurs are expected to be agents of change in implementing pro-environmental businesses.

Women have great potential to become entrepreneurs. Entrepreneurship is considered to be an important part of a country's economic progress where women must also have the opportunity to take an active role. Evidence of how women entrepreneurs around the world continue to grow and advance shows surprising resilience in facing challenges to the survival and stability of running a business. According to (Octavia et al., 2020) business development cannot be separated from the participation and role of women. Women have great potential to become entrepreneurs. Of the many women entrepreneurs in Indonesia, the majority run businesses in the informal or semi-formal sector. One reason is because it is difficult to enter the formal sector. Apart from that, 62.4 percent of female entrepreneurs also started their business to make ends meet (Octavia & Sriayudha, 2021). Women's participation as entrepreneurs has increased dramatically in the last decade and it has become clear that their role is increasingly important not only in developed countries, but also in developing countries. Women have proven that they are capable of opportunities amidst changes and

market dynamics. More and more women are being creative and adding value to the businesses they run which will ultimately bring financial changes to economic life.

The issue of gender equality is very important to promote the role of women in entrepreneurship. It is critical for educators, leaders, and policymakers to understand what are the drivers of gender differences in these competitive market activities. It is known that based on the Global Entrepreneurship Monitor GEM (2022), the ratio of the number of women and men who become entrepreneurs is 2 to 5 representing two out of five entrepreneurs who run early stage businesses. The results of the GEM report also show that in the 2019-2020 period there was a decrease in the number of women running startup businesses by 15 percent and again remained constant in 2021. The number of women starting businesses also decreased compared to men in terms of interest in starting a business in the future three years. However, this happens precisely in developing countries and has no impact in upper middle income countries.

In Indonesia, the entrepreneurship gap in institutional development, economic growth, social and environmental welfare is also a big challenge. This challenge is increasingly real considering Indonesia's large geographical area and population. Individually, Indonesian women also have entrepreneurial challenges. The results of research (Octavia & Sriayudha, 2021) that women in developing countries, one of which is Indonesia, still struggle to gain access to finance, still have to face socio-cultural challenges and experience differences in views that are considered inferior to other people. Several other things that are also challenges for women working in environmentally friendly entrepreneurship include: low literacy regarding innovation, lack of awareness among business actors about the importance of environmentally friendly products, inability to enter and maintain a position in the market and limited access to information, knowledge and technology. It has long been argued that innovation is gender biased, especially for women (Audretsch et al., 2020). There is a general perception that women have lower abilities in terms of innovation than men. However, this is not the case when we look at the data. A survey from the World Bank for 75 developing countries reported that for 2007-2014, there were 19.86 percent of companies led by women who created new products for the market (World Bank, 2015). There is a gap between what the public perceives and accurate data results. This means that the role of women as entrepreneurs is very important, but the environment and the challenges of the environment itself are stumbling blocks for women to become entrepreneurs.

According to (Roza et al., 2020) having own business makes it easier for women entrepreneurs to develop and realize their dreams of developing a business. Striving to set up one's own business makes a person maximize one's potential. The ability of female entrepreneurs to develop product innovation provides a competitive advantage that can reflect the marketing performance of the business they run (Octavia & Sriayudha, 2021). The characteristics of individuals who manage a business proactively are the driving force for a successful business (Gunawan & Fraser, 2016). Business actors, especially women, face various challenges. Thus, this research aims to answer and analyze the following research questions:

1. What is the relationship between the level of entrepreneurship, entrepreneurial challenges, entrepreneurial environment and women's entrepreneurial innovation?
2. How is the relationship between the level of entrepreneurship, entrepreneurial challenges and women's entrepreneurial innovation mediated by the entrepreneurial environment?
What is the entrepreneurial innovation model for women entrepreneurs?

Literature Review

Level of Environmentally Entrepreneurship

Entrepreneurship is defined as the process of taking risks to run a business, the ability to seize every opportunity to create a new business or innovative approach so that the newly managed company becomes large and independent in facing all competitive challenges (Yusuf, 2006). A green entrepreneur is defined as an entrepreneur operating in the green sector who seeks to change the sector towards sustainability such as through innovation, resources or increasing efficiency towards zero waste (OECD, 2011). This entrepreneur carries out environmentally friendly entrepreneurship. They have an environmentally focused mindset, which may involve different characteristics in finding ideas, managing operations, solving problems, and identifying opportunities. Thus, there is a link between individual characteristics, the way they operate the business and the environment beneath them (Gunawan & Fraser, 2016). Research results (Octavia & Sriayudha, 2021) observed that women's entrepreneurship has a significant effect on the innovation ability of SMEs managed by women. Women have great potential to become entrepreneurs. Of the many women entrepreneurs in Indonesia, the majority run businesses in the informal or semi-formal sector. One reason is because it is difficult to enter the formal sector. Apart from that, 62.4 percent of female entrepreneurs also started their businesses to make ends meet.

According to environmentally entrepreneurship (Lotfi et al., 2018) focuses on the development of production concepts, operations and innovations for one production new products or the production of new products to support sustainable development through reorganization of industry and use of technological facilities. Research and study work points out that green businesses play a special role in economic growth and development; global market presence; competing capability; create sustainable jobs; promote justice;

nation income; solve problems addressed by society, government and the public sector; and realization sustainable Development.

Environmentally Entrepreneurship Challenges

It is widely accepted that some of the greatest challenges currently facing humanity are those related to environmental degradation, overuse of limited resources (such as energy, land, water and materials) and climate change. The potential consequences of these changes for life on the planet are driving a paradigm shift in the way we think about living, working, and consuming (Hanson, 2013). Humans must take action to prevent and reduce further damage and to deal with the consequences of environmental degradation and climate change. A serious problem faced by business actors, especially MSMEs, is access to finance. Entrepreneurs have limited ability to return access to loans to banks. Finances for new start-ups are riskier than for established businesses. Therefore, (Gujba et al., 2012) argue that financing 'green' businesses is important if they are successful in promoting a low-carbon economy but other research finds that financial institutions are reluctant to provide financial support for innovative companies, including those in the green business category. Green businesses are part of the group of innovators, where they introduce something new, but limited.

Eco-Friendly Entrepreneurship Environment

The ratio of the number of entrepreneurs reflects economic progress in a country (Machmud & Sumawidjaja, 2020). Researchers in various parts of the world are actively looking for answers on how to increase someone's interest in becoming an entrepreneur. On the other hand, the increasing number of entrepreneurial activities has an impact on various aspects, one of which is on the environment. The spread of small and medium industries contributes to increasing levels of pollution, exploitation of natural resources, increasing CO₂ gas emissions, and increasing environmental pollution caused by waste. There is a significant and positive relationship between women's entrepreneurship and environmentally friendly entrepreneurship on market orientation. Likewise, it was found that there is a significant and positive relationship between women's entrepreneurship and the entrepreneurial environment (Octavia et al., 2023). Challenging environmental situations require businesses innovation as a way to overcome any environment, economic and social goals. This article aims to suggest factors affecting green improvement women's entrepreneurship reflects improvement opportunities through normalization and gender equality inherent in the green economy (Mitić et al., 2021).

Environmentally Friendly Innovation Capabilities

(Ndesaulwa, 2016) describes innovation as the introduction of new or improved processes, products, or services based on new scientific or technological knowledge and/or organizational knowledge. Discovery is the first occurrence of an idea for a new product or process whereas innovation is the act of putting it into practice. There are different types of innovation in business, but innovation can be related to products or services, production processes, marketing techniques, organizations or managerial structures. Innovation can also involve technology, intellectual property, business, or physical activity.

According to (Saunila & Ukko, 2014) innovation capability is a theoretical framework that aims to describe actions that can be taken to increase the success of innovation activities. Innovation capabilities primarily consist of a company's intangibles. Intangibles are non-physical characteristics of a company that will generate value in the future (Kannan and Aulbur, 2004). Intangibles, referred to as potential in this paper, are not such assets. Exploiting intangibles produces results (Bontis, 2001; Marr, 2007). Innovation capability is composed of the main processes within the company and cannot be separated from the main practices because innovation capability is the potential to implement these practices. According to (Tseng et al., 2016) innovation capability is defined as the ability of an organization to facilitate an innovative organizational culture to continue to innovate as a way to respond to a changing environment.

Methods

Quantitative research design is used in research to answer research problems and objectives. The consideration for choosing this model was due to the large number of respondents, scattered research locations and research with hypotheses that needed to be tested. In addition, the survey results were analyzed descriptively to analyze and map the survey results. Forming a preliminary research model and testing the model is part of research planning. A questionnaire with a 5 point Likert scale was used as a data collection tool. The population in this research is female entrepreneurs in Jambi Province. The exact population of women entrepreneurs in Jambi Province. However, it can be expected to be a large number in line with the high level of public interest in entrepreneurship. In principle, the larger the sample size, the better it is and it is able to represent all respondents. Based on the opinion of (Iacobucci, 2010) the recommended sample size for SEM analysis is a minimum of 200 samples. The number of questionnaires distributed was 215 but the respondents who returned the questionnaires were 204 women entrepreneur respondents in Jambi Province. The sampling technique uses a non-probability sampling technique using purposive sampling. Respondents selected according to the specified consumer criteria were women who owned a business, were at least 18

years old, and were willing to be respondents for this research. The analysis used in this study is the Structural Equation Model (SEM) Variance with the SmartPLS as an analysis tool

Result and Discusssion

Women entrepreneurs is a term used to refer to women who are involved in various types of business activities, including establishing, owning, and managing businesses. Women entrepreneurs play a very important role in the global economy, contributing to economic growth, job creation and business innovation. The initial research model is shown in the following figure:

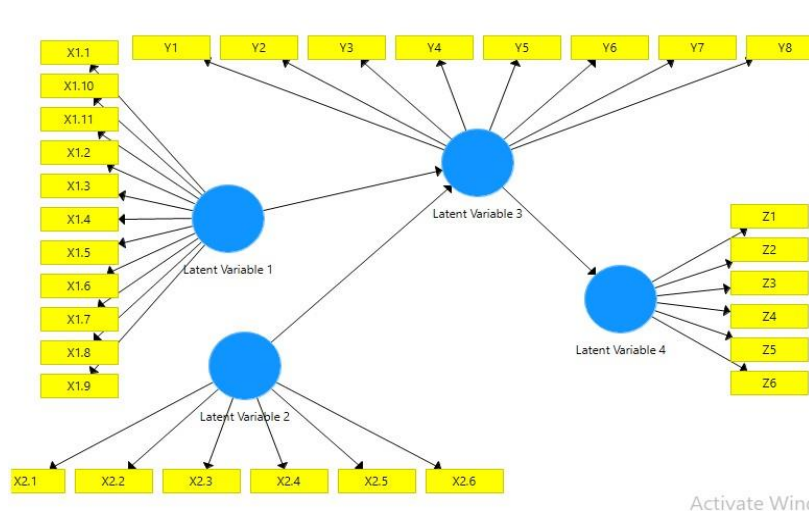


Figure 1. Research Method

The primary goal of hypothesis testing is to determine whether differences, relationships, or effects observed in a data sample are statistically significant or whether they occurred by chance. The level of significance of the relationship between variables is shown in table 1 below:

Table 1. Path Coefficients

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Entrepreneur Level -> Entrepreneurship environment	0.444	0.439	0.069	6,438	0,000
Entrepreneurship environment -> Entrepreneur innovation_	0.456	0.456	0.071	6,393	0,000
Green Environment Challenge -> Entrepreneurship environment	0.412	0.412	0.063	6,505	0,000

Source: Primary data processed in 2023

The STDEV value shows how far the individual data of a sample or population deviates from the mean (average) of the data. The higher the STDEV value, the greater the data variability, meaning the data tends to be spread more widely than the average. Conversely, the lower the STDEV value, the less variable the data, meaning the data tends to be close to the mean value. In the relationship between the level of environmentally friendly entrepreneurship and the environmentally friendly entrepreneurship environment, the standard deviation is 0.069, this means that most of the data tends to be in a range close to the average value. However, individual data scatter may remain, and some data may fall outside this range, but most of the data will be close to the average value. If the p-value is less than a predetermined significance level (usually alpha = 0.05), then H0 is rejected and Ha is accepted. If the p-value is greater than alpha, then H0 is accepted.

Scenarios in which, the number is increasing of women seeking economic opportunities and self-determination through business establishment and prepare well to seize the opportunity of the multipolar world, must also be faced Some challenges are bound to be resolved by raising awareness among them and their families, and attract financial and moral support in the field about (Shingla & Singh, 2015). Based in te information of table 1, the relationship between the level of entrepreneurship and the entrepreneurial environment has a T statistic of 6.438 and a p value of 0.00. If the p-value is 0.000 (or very close to zero), it indicates that the results has a significant influence between the level of entrepreneurship and the entrepreneurial environment. The relationship between the level of entrepreneurship and the entrepreneurial environment can vary depending on many factors, including geographic context, industry, and other

economic and social factors. However, in general, the level of entrepreneurship and the entrepreneurial environment have a complex relationship and influence each other. The level of entrepreneurship and the startup environment influence each other and form a continuous circle. A supportive entrepreneurial environment can encourage business growth, while significant business growth can have a positive influence on the entrepreneurial environment by creating new business opportunities and increasing competitiveness.

The entrepreneurial environment plays a key role in providing access to resources such as capital, talent and infrastructure. A supportive environment with available resources can promote business innovation by allowing entrepreneurs to invest in research and development, hire qualified employees, and grow their businesses. The relationship between the entrepreneurial environment and entrepreneurial innovation has a T statistic of 6,393 and a p value of 0.00. If the p-value is 0.000, it shows that the results of the statistical test you carried out produced very strong statistical evidence. There is a significant influence between the entrepreneurial environment on women entrepreneurial innovation. The relationship between the entrepreneurial environment and entrepreneurial innovation is complex and important in the context of economic growth and business development. A supportive entrepreneurial environment can stimulate women entrepreneurial innovation and conversely, entrepreneurial innovation can impact the entrepreneurial environment by creating new opportunities. A supportive business environment will encourage women and the business world to create and implement innovation. Factors such as flexible regulations, access to capital, legal protection of intellectual property rights and good research and development infrastructure can support innovation.

The relationship between entrepreneurial challenges and the entrepreneurial environment has a T statistic of 6.505 and a p value of 0.00. If the p-value is 0.000 (very close to zero), it indicates that the results of the statistical test you performed produced very strong statistical evidence.. There is a significant influence between entrepreneurial challenges and the entrepreneurial environment. Entrepreneurial challenges and the entrepreneurial environment are closely related, because the challenges faced by entrepreneurs are often influenced by the conditions and factors of the entrepreneurial environment in which they operate. It is important to note that the relationship between entrepreneurial climate and entrepreneurial innovation can vary greatly depending on geographic context, industry, and other economic factors. Therefore, further research and analysis is often needed to understand how certain factors in the startup environment can influence innovation in a particular region or sector. According (Wong, 2014) Environmental challenge, in the context of eco-friendly business, refers to the unpredictable which occur in the environment in which a particular industry operates. Prior research on market orientation posits that environmental turbulence may occur in three forms: technological challenge, competitive intensity and market challenge.

It is important to note that the entrepreneurial innovation model is not universal and each individual's experience can vary significantly. Women entrepreneurs, like their counterparts, bring their unique strengths, perspectives and approaches to innovation and entrepreneurship based on environmentally point of view. It is important to recognize and address any gender-specific challenges and take advantage of the strengths and opportunities that women entrepreneurs offer. Building a strong network and finding support is important. Women entrepreneurs may face particular challenges in accessing sustainability networks and resources. Therefore, they often prioritize connecting with advisors, organizations, and support groups for women entrepreneurs.

Conclusion

It is important to note that the entrepreneurial innovation model is not universal and each individual's experience can vary significantly. Women entrepreneurs, like their counterparts, bring their unique strengths, perspectives and approaches to innovation and entrepreneurship based on environmentally point of view. It is important to recognize and address any gender-specific challenges and take advantage of the strengths and opportunities that women entrepreneurs offer. Building a strong network and finding support is important. Women entrepreneurs may face particular challenges in accessing sustainability networks and resources. Therefore, they often prioritize connecting with advisors, organizations, and support groups for women entrepreneurs

References

- Audretsch, D. B., Belitski, M., & Brush, C. (2020). Innovation in women-led firms: an empirical analysis. *Economics of Innovation and New Technology*, 0(0), 1–21. <https://doi.org/10.1080/10438599.2020.1843992>
- Gast, J., Gundolf, K., & Cesinger, B. (2017). Doing business in a green way: A systematic review of the ecological sustainability entrepreneurship literature and future research directions. *Journal of Cleaner Production*, 147, 44–56. <https://doi.org/10.1016/j.jclepro.2017.01.065>
- Gujba, H., Thorne, S., Mulugetta, Y., Rai, K., & Sokona, Y. (2012). Financing low carbon energy access in Africa. *Energy Policy*, 47(SUPPL.1), 71–78. <https://doi.org/10.1016/j.enpol.2012.03.071>
- Gunawan, J., & Fraser, K. (2016). Exploring young and green entrepreneurship in Indonesia: An introduction. *Journal of Asian Business Strategy*, 6(8), 185–194. <https://doi.org/10.18488/journal.1006/2016.6.9/1006.9.185.194>

- Hanson, M. A. (2013). Green ergonomics: Challenges and opportunities. *Ergonomics*, 56(3), 399–408. <https://doi.org/10.1080/00140139.2012.751457>
- Iacobucci, D. (2010). Structural equations modeling: Fit Indices, sample size, and advanced topics. *Journal of Consumer Psychology*, 20(1), 90–98. <https://doi.org/10.1016/j.jcps.2009.09.003>
- Lotfi, M., Yousefi, A., & Jafari, S. (2018). The effect of emerging green market on green entrepreneurship and sustainable development in knowledge-based companies. *Sustainability (Switzerland)*, 10(7). <https://doi.org/10.3390/su10072308>
- Machmud, A., & Sumawidjaja, R. N. (2020). The influence of co-creation on creative industry performance in Indonesia. *WSEAS Transactions on Environment and Development*, 16, 316–323. <https://doi.org/10.37394/232015.2020.16.33>
- Mitić, N., Srebro, B., Popović, J., Kvirgić, G., & Deđanski, S. (2021). Factors influencing development of green women's entrepreneurship in Serbia. *Ekonomika Poljoprivrede*, 68(3), 627–644. <https://doi.org/10.5937/ekopolj2103627m>
- Ndesaulwa, A. P. (2016). The Impact of Innovation on Performance of Small and Medium Enterprises (SMEs) in Tanzania: A Review of Empirical Evidence. *Journal of Business and Management Sciences*, 4(1), 1–6. <https://doi.org/10.12691/jbms-4-1-1>
- Octavia, A., Dahmiri, D., Wijaya, P., & Sriayudha, Y. (2020). The Moslema entrepreneurship and product innovation: Its impact on market orientation and performance of small and medium enterprises. *Jurnal Perspektif Pembiayaan Dan Pembangunan Daerah*, 8(4), 397–404. <https://doi.org/10.22437/ppd.v8i4.10702>
- Octavia, A., & Sriayudha, Y. (2021). Model of Marketing Performance : Role of Innovation Capability in Women Entrepreneurs. *Dinasti International Journal of Management Science*, 3(2), 374–384. <https://doi.org/10.31933/dijms.v3i2.1007>
- Octavia, A., Sriayudha, Y., Zulfanetti, Z., Jambi, U., & Jambi, K. M. (2023). Peran Kewirausahaan Perempuan , Kewirausahawan Ramah Lingkungan dan Orientasi Pasar sebagai Variabel yang Mempengaruhi Kinerja Pemasaran UMKM The Role of Women ' s Entrepreneurship , Eco-Friendly Entrepreneurship , and Market Orientation as Affecting Vari. 14(28), 76–87. <https://doi.org/10.33059/jseb.v14i1.6302>.Article
- Roza, S., Sriayudha, Y., & Octavia, A. (2020). Entrepreneurial Passion, Entrepreneurial Alertness and Islamic Entrepreneurial Orientation: Its Application To the Muslimah Entrepreneur. *Dinasti International Journal of Education Management And Social Science*, 2(2), 254–265. <https://doi.org/10.31933/dijemss.v2i2.654>
- Saunila, M., & Ukko, J. (2014). Intangible aspects of innovation capability in SMEs: Impacts of size and industry. *Journal of Engineering and Technology Management - JET-M*, 33, 32–46. <https://doi.org/10.1016/j.jengtecman.2014.02.002>
- Shingla, P., & Singh, M. (2015). Women Empowerment through Entrepreneurship Development. *Studies on Home and Community Science*, 9(1), 27–32. <https://doi.org/10.1080/09737189.2015.11885429>
- Tseng, C. Y., Lin, S. C., Pai, D. C., & Tung, C. W. (2016). The relationship between innovation network and innovation capability: a social network perspective. *Technology Analysis and Strategic Management*, 28(9), 1029–1040. <https://doi.org/10.1080/09537325.2016.1181739>
- Wong, S. K. S. (2014). Impacts of environmental turbulence on entrepreneurial orientation and new product success. *European Journal of Innovation Management*, 17(2), 229–249. <https://doi.org/10.1108/EJIM-04-2013-0032>