

## CHALLENGES AND OPPORTUNITIES OF GENERATION Z GREEN ENTREPRENEURS: LITERATURE REVIEW

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### Abstract

*Consumers are increasingly aware that sustainability issues are very important because we need natural resources to survive, and sustainability ensures that these resources remain available for future generations. Sustainability is also important to protect the environment, reduce pollution, and maintain the balance of the ecosystem. This study explores the vision of environmentally friendly business among generation Z entrepreneurs. Analysis using literature review. The author reviews and analyzes literature relevant to the research topic, which is carried out before or during the research to identify knowledge gaps, test theories, or develop a research framework.*

*Generation Z green entrepreneurs face challenges such as intense market competition and the need to adapt to new technologies, but also have great opportunities to leverage digitalization, creativity, and personal branding trends. They can also leverage the support of communities and MSME platforms to grow their businesses. Further research can examine what factors encourage generation Z to become green entrepreneurs.*

**Keywords:** Challenges and Opportunities, Green Entrepreneurs, Generation Z

### Introduction

Environmental pollution in Indonesia due to industry covers various aspects, including water, land, and air pollution. Industrial liquid waste containing chemicals, heavy metals, and toxic substances can pollute rivers, lakes, and seas. Industries that discharge liquid waste containing chemicals, heavy metals, and toxic substances into rivers, seas, or land without adequate treatment can cause fish deaths, human poisoning, and ecosystem damage. Untreated tofu factory waste can pollute rivers and cause poor water quality.

Furthermore, solid waste, such as ash from burning, production residues, and other industrial waste can pollute the soil. Soil pollution can cause decreased soil fertility, food contamination, and decreased crop productivity. In addition, emissions of hazardous gases from industry also cause air pollution which has a negative impact on public health and the environment. Air pollution can cause various health problems, such as respiratory diseases, eye and throat irritation, and allergies. Greenhouse gas emissions from industry can also cause global climate change. Indonesia is ranked 15th as the most polluted country in the world in 2024. Regionally, Indonesia is also the most polluted country in Southeast Asia. South Tangerang is the most polluted city in Indonesia and the world.

Based on this phenomenon, green entrepreneurship is needed to minimize the impact of environmental pollution. It is hoped that entrepreneurs will not only think about financial gain but also think about the future of the earth. Indonesia has great potential in developing sustainable businesses because Indonesia has abundant natural resources. The agricultural sector can be developed in green entrepreneurship by producing organic and sustainable food. In addition, Indonesia also has the potential for renewable energy such as bioenergy, wind power, and solar power. This is a supporting factor for developing green entrepreneurship in Indonesia.

Generation Z and Millennials dominate the population in Indonesia. Based on the Population Census, Generation Z (born 1997-2012) has the largest proportion of 27.94% of the total population, while Millennials (born 1981-1996) follow with 25.87% (BPS, 2020). This is a supporting factor for developing green entrepreneurship in Indonesia. According to a survey conducted by IBM (International Business Machines Corporation), 73% of Gen Z are willing to pay more for environmentally friendly products. This is also supported by Morrison's statement (2019) which explains that the Millennial generation (Ages 25-34) and

Generation Z (Ages 16-24) in various countries in Europe are more interested in buying organic food or drinks and are even willing to pay more than usual.

In addition, based on the research results of Veybitha, et al., (2021), generation Z really likes online shopping. The social media they often use are Instagram, TikTok, Youtube (Estede et al., 2025). They tend to make impulsive purchases and less memorable experiences when making online purchases do not make them decide to make online transactions for subsequent purchases (Veybitha, et al., 2022; 2023). In today's digital era, it is increasingly opening up opportunities for generation Z to become green entrepreneurs.

### Methods

Meta-analysis is a research method that combines the results of several related studies to obtain stronger and more general conclusions. Steps in conducting a meta-analysis: (1) Identify Research Questions: Determine a clear and specific research question that you want to answer through meta-analysis; (2) Literature Search: Find studies that are relevant to your research question in various databases and information sources; (3) Study Selection: Filter relevant studies based on predetermined inclusion and exclusion criteria; (4) Data Extraction: Take relevant data from selected studies, such as sample size, intervention, and research outcomes; (5) Data Analysis: Use appropriate statistical techniques to combine data from various studies; (6) Interpretation of Results: Determine the meaning and implications of the meta-analysis results.

### Result and Discussion

**Table 1 Previous Research**

No	Author (Year)	Title	Finding
1	Wicaksono (2025)	Green Entrepreneurship: Transforming Challenges into Profitable Solutions	Research findings show that eco-innovation is a major factor in the success of green businesses, where entrepreneurs utilize sustainable technologies, principles circular economy, and collaborative networks to address environmental issues while gaining competitive advantage.
2	Figiel & Badar (2025)	Effect of Green Entrepreneurial Orientation and Absorptive Capacity on Green Innovation and Environmental Orientation Among Educated Gen Z's in Europe	Research findings show that the relationship between absorptive capacity and environmental orientation is not always significant, and its impact may be negligible, especially if the company has: low commitment to environmental strategy and has limited strategic emphasis sustainable practices. This study aims to encourage innovation and sustainable growth between companies, opening the door to a more sustainable future and attracting goodwill from companies. Generation Z is environmentally oriented. Publications/articles describe the results of activities project financed from subsidies provided to the Krakow University of Economics.
3	Jalil et al., (2025)	The influence of blockchain technology on green entrepreneurial orientation through digital knowledge sharing among Gen	The study findings reveal that the identified factors positively influence blockchain acceptance, which enhances green entrepreneurial orientation through digital knowledge sharing as a complementary mediator. Furthermore, Gen Z entrepreneurs show a stronger inclination towards

		Y and Gen Z entrepreneurs: A multigroup analysis	blockchain-driven sustainable practices compared to Gen Y. These results highlight the importance of blockchain technology in promoting sustainability among young entrepreneurs. This study offers actionable insights for policymakers, educators, and technology providers to foster an ecosystem that supports blockchain-driven green entrepreneurship. This study underscores the potential of blockchain as a catalyst to advance sustainability initiatives among the next generation of future-oriented entrepreneurs.
4	Kirana, et al., (2024)	Diving into Gen Z's Eco-Friendly Business Visions and Entrepreneurial Journeys in Metropolitan Malang	These findings highlight a strong commitment among respondents to actively engage projects and initiatives aimed at achieving the Sustainable Development Goals (SDGs). This underscore their awareness of pressing social, environmental and economic issuespackaged within the SDGs framework and their willingness to contribute to efforts to overcome these problems these challenges. However, there is a gap in the in-depth integration of SDGs learning to be addressed future generations are prioritizing social and environmental issues, demonstrating the need to do so strengthen educational initiatives.
5	Rahmwati (2024)	How Eco-Conscious Choices are Shaping Generation Z'S Tumbler Market	The results show that price and location are less influence purchasing decisions, product characteristics and advertising tactics can be used. Regression analysis supports the model predictive power, while validity and reliability tests validate power measuring instrument. This study highlights how An important marketing strategy is to attract environmentally conscious people customers and offers guidance to companies to adapt An environmentally friendly consumer culture is increasingly developing in Indonesia.
6	Marpaung, et al., (2024)	The Role of Gen-Z in Supporting Sustainable Development Through Green Economy Towards Golden Indonesia 2045	The results of this research are roles generation Z in supporting SDGs through green economic development, namely important and must be accepted as a responsibility. together. They have the ability and the potential to lead sustainable development efforts and help achieve Golden Indonesia 2045.
7	Noor & Rahmawati (2024)	Key Factors in Developing Muslim Gen Z Green Entrepreneurship	This study found that Entrepreneurship Education, Entrepreneurship Self-Efficacy, and Entrepreneurship Attitude all have a positive influence on Green Entrepreneurship Intention among Gen Z Muslims in Kudus Regency. As a recommendation from the results of the study, it is expected that universities can run programs that can increase self-efficacy, in addition to targeting Gen Z Muslims by

			adding Islamic beliefs and concepts into their entrepreneurship education programs, such as Islamic business ethics, social entrepreneurship, and the role of companies in supporting environmental sustainability. Furthermore, institutions should prepare mentoring programs that connect Gen Z Muslim entrepreneurs with prominent Muslim business leaders. Universities and institutions can further encourage green entrepreneurship efforts of Gen Z Muslims by modifying educational offerings to suit their specific needs and interests.
8	Kurniaty et l., (2024)	Factors Influencing the Young Entrepreneurs to Implement Green Entrepreneurship	The results of the study indicate that self-efficacy is the strongest predictor in influencing the tendency of young entrepreneurs to implement green actions in their businesses. A comprehensive strategy is needed in the learning curriculum to encourage learning support activities that include sustainable entrepreneurship.
9	Sudaryanto & Sylvana (2024)	Generation Z and Entrepreneurship: Understanding the Character of Entrepreneurs in the Midst of Industrial Revolution 5.0	The results of the study show that Generation Z has high creativity, is able to take advantage of opportunities. This is an indicator that Generation Z has a strong foundation for entrepreneurship. However, the challenges faced by Generation Z are that they lack future aspirations which are marked by a lack of clarity or confidence in their long-term goals. In addition, the spirit of leadership is also relatively low and they are less willing to take risks, even though these are important qualities that must be possessed in order to become successful entrepreneurs. Therefore, greater support and development are needed in leadership skills, risk-taking abilities, and future-oriented goal setting to better equip them to achieve entrepreneurial success in the Industrial Revolution 5.0 landscape so that they can increase their readiness to thrive in the industrial revolution 5.0.
10	Marsan & Singh (2024)	Breaking the Green Ceiling: Women Entrepreneurship in the ASEAN Green Economy	Green entrepreneurship has emerged as a critical solution to address environmental degradation and drive sustainable development in the ASEAN region. It encourages the creation of businesses that prioritize sustainability while generating economic growth. Innovative solutions are key to unlocking and identifying new ways to address complex and diverse challenges. This is why green entrepreneurship is so important; it has the greatest potential for economic and societal transformation. However, we also need to ensure that this transformation combines desire with inclusion. Therefore, promoting gender equality in green entrepreneurship is critical to sustainable development in ASEAN.

			Women are important agents of change in environmental desire, as they tend to prioritize social and environmental outcomes in their businesses. Therefore, supporting women in green entrepreneurship can contribute to inclusive and sustainable economic growth in the ASEAN region.
11	Variy et al.,(2023)	Sustainable Aspects of Startups among Generation Z— Motivations and Uncertainties among Students in Higher Educations	This study was conducted to see the extent of interest of business school students in Hungary to become entrepreneurs who care about sustainability. It is hoped that the government will continue to stimulate young entrepreneurs by providing entrepreneurship grants for start-up businesses. Universities must also have a practical curriculum by including real stories of entrepreneurs' struggles in building a business.
12	Roshchupkina (2023)	Entrepreneurial Activity of Generation Z: Motives, Algorithms for Starting a Business	Generation Z's entrepreneurial endeavors, rooted in ESG principles, are pivotal drivers of sustainable development. Their steadfast commitment to environmental responsibility, social inclusivity, and effective governance reflects a dynamic force for positive change. However, they face formidable challenges such as competition from digital ecosystems and limited access to financing. To capitalize on their innovative potential and ensure a sustainable future, fostering an ESG-friendly environment and addressing these hurdles is imperative.
13	Redford et al., (2023)	Pioneering Gen Z Entrepreneurs: Reflections and Policy Considerations	Gen Z entrepreneurs are poised to be important catalysts for sustainable change, innovation and green growth. However, the challenges they face require policies that prioritize mental wellbeing. Implementing programs that incorporate positive psychology to address vulnerability and anxiety can increase their resilience to entrepreneurship. The education sector must adapt by prioritizing experiential learning and dynamic learning environments that integrate cutting-edge technology. Educational institutions must also emphasize the development of future entrepreneurial potential. There is a need to introduce entrepreneurship lessons at an early age and combine them with innovative and proactive problem-solving approaches. In addition to developing individual entrepreneurial competencies, the broader entrepreneurship ecosystem must champion inclusivity and intensify efforts to close the gender gap, ensuring equal opportunities for entrepreneurs of all genders to thrive.

			Furthermore, fostering intergenerational dialogue can bridge the knowledge gap and provide young entrepreneurs with invaluable insights from those with prior experience.
14	Sulastiningsih etl., (2023)	Green Entrepreneurship Motivation Model	The results of the study showed that knowledge about green entrepreneurship is influenced by educational institutions and the media, which then has a positive effect on motivation to become a green entrepreneur. Other findings show that the role of community leaders is a factor that influences this motivation. Entrepreneurial motivation has so far been largely determined by economic aspects, namely earning income to meet family needs. Therefore, synergy is needed between community leaders, the government, and SMEs to broaden insight into green entrepreneurship while providing further motivation to become a green entrepreneur.
15	Nuringsih et al., (2020)	Role of Green Entrepreneurship in Raising The Effect of Green Value toward Sustainable Development	The results of the study found that there was a significant relationship and found a mediation effect of GE that linked green values to sustainable development at a level of 5 percent. This forms a green triangle approach in promoting sustainability education for students so that this relationship indicates a good perception of students in expressing green values on GE and sustainability issues. This is the initial stage in promoting the triple bottom line so that the learning system can collaborate with stakeholders to improve the sustainability system in entrepreneurship education.

Source: Previous Research, 2020; 2023; 2024; 2025

Building the spirit of becoming a young green entrepreneur is a must in Indonesia because pollution in Indonesia due to industry is already very high. Generation Z is the generation that dominates the population in Indonesia. This is an opportunity to build young green entrepreneurs. The positive side of generation Z is that they are innovative thinkers and master technology. Campaigns about green business can be carried out massively through social media such as TikTok, Instagram, and YouTube because according to the survey results of the Indonesian Internet Service Providers Association (2019), Generation Z spends more than 4 hours per day on social media. However, there is a weakness of Generation Z, namely that they are not tough fighters. They were born and grew up in the digital era, in an era full of convenience and less challenges due to rapid technological advances. To encourage Generation Z to become green entrepreneurs, a significant strategy is needed, namely by introducing entrepreneurship from an early age. This can be done by including lessons about entrepreneurship in the school curriculum, from Elementary School to College.

The government can also encourage young green entrepreneurs by increasing grant programs for young entrepreneurs in colleges and in the community. The object of research on green entrepreneurship is more at the college level, not in the community outside of college. In fact, there are many business actors from non-college circles. They need education and opportunities to develop their businesses with the help of credit from government banks. For Generation Z as beginners in business, mentoring is needed.

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sustainability. Hopefully this article can also inspire many people, especially Generation Z, to become green entrepreneurs.

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