

**EMPOWERING THE ROLE OF GENERATION Z AS  
AGENTS OF CHANGE THROUGH TECHNO-  
SOCIOPRENEURSHIP**

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**Abstract**

Generation Z's attention in the future. Implementing entrepreneurship to solve social problems with a technology-based approach can be called techno-sociopreneurship. The concept of techno-sociopreneurship needs to be further introduced to Generation Z, as they are the generation that will make significant contributions in the coming years. Techno-sociopreneurship needs support from various stakeholders to create a conducive entrepreneurial ecosystem. Higher education institutions have a role in guiding Generation Z by optimizing their skills and expertise. Based on a literature review, techno-sociopreneurship has distinct characteristics compared to general entrepreneurship. Empathy, self-efficacy, technological literacy, and an innovative attitude are predicted to drive entrepreneurial intent among Generation Z.

## INTRODUCTION

Generation Z is a generation that has a significant contribution to advancing the nation of Indonesia toward a better future because Generation Z currently makes up the largest population demographic in Indonesia. It challenges higher education institutions, serving as the final stage of education, to contribute to shaping this generation into human resources with even greater potential. Therefore, it is essential to understand Generation Z to respond effectively to their potential and shortcomings.

Indonesia still has a relatively low entrepreneurship ratio compared to other Southeast Asian countries. According to the Global Entrepreneurship Index, Indonesia ranks 75th out of 137 countries (Mardiah et al., 2023). Therefore, the Indonesian government continues its efforts to cultivate entrepreneurial intent among the youth through programs that support entrepreneurial activities to increase the number of entrepreneurs in Indonesia (Putra & Sakti, 2023). Cultivating entrepreneurial intent among Generation Z plays a crucial role in the economy and nation-building (Asmuruf & Soelaiman, 2022). Building entrepreneurial intent in Generation Z is an essential initial process because intent always precedes one's entrepreneurial behavior (Karen Hapuk et al., 2020).

Generation Z are digital natives, meaning they have a higher level of proficiency in information technology than previous generations, enabling them to self-learn more effectively (Lindzon, 2021). According to Hinduan et al. (2020), it is known that 99% of Generation Z in Indonesia consider technology literacy as necessary. Furthermore, the self-efficacy of technology usage among Generation Z in Indonesia is the highest among ASEAN countries. Generation Z also has characteristics very different from previous generations, known as the boundary-less

generation (Abinowo, 2022). They emphasize social relationships with a good balance and a significant impact. According to research findings, 60% of Generation Z aspire to pursue work that positively impacts the world (Alton, 2018). Equally important, Generation Z is also a generation with high creativity and innovation because they enjoy learning and seeking experiences in new things while creating usefulness. Therefore, they are highly interested in entrepreneurial activities (Chillakuri, 2020). The EY Ripples and JA Worldwide survey indicates that 53% of Generation Z aspire to run their own businesses (Lindzon, 2021). Similarly, in Indonesia, out of the 46 surveyed countries, Generation Z in Indonesia exhibits the strongest entrepreneurial spirit (Hinduan et al., 2020).

Research conducted by Roblek et al. (2019) indicates that Generation Z views the future of technology as essential in driving social innovation to achieve improved education quality, gender equality, decent employment, economic growth, and reduced inequality. Other studies indicate that Generation Z is inclined to rapidly manifest their social ideas through technology-based entrepreneurial activities to seize opportunities (Alton, 2018). This indicates that technology-based and socially oriented entrepreneurship is an entrepreneurial activity that will capture the attention of Generation Z in the future.

Entrepreneurship must be pursued as it is an integral element that drives financial growth, job creation, economic competitiveness, and progress for social benefit (Liñán et al., 2005). Entrepreneurship is currently seen as a tool to address socio-economic challenges (Farooq et al., 2018). Entrepreneurship is not solely profit-oriented but also addresses social issues through the utilization of technology. An entrepreneur who cares about their surrounding environment can

identify community needs and then find ways to meet those needs while generating profits (Harianti et al., 2023). The application of entrepreneurship to solve social issues with a technology-based approach can be called techno-sociopreneurship. The concept of techno-sociopreneurship consists of two essential components: technopreneurship and sociopreneurship. Technopreneurship can be defined as entrepreneurship that applies technology to create added value through innovation to compete globally (Soomro & Shah, 2020). Meanwhile, sociopreneurship is defined as entrepreneurial activities designed to create social values that effectively alleviate social issues within the community (Wang et al., 2019). Techno-sociopreneurship is expected to significantly contribute to stimulating the economy and effectively addressing ongoing social issues in Indonesia.

The application of Techno-sociopreneurship in society can take the form of creating a system to reduce unemployment or layoffs, establishing an online trading platform for agricultural products to boost the income of farmers, implementing an online marketing system for technological innovations in food and traditional crafts, targeting homemakers. It can even create job opportunities for people with disabilities through technological innovations.

The concept of techno-sociopreneurship needs to be further introduced to Generation Z, as they are the generation that will make significant contributions in the coming years. Techno-sociopreneurship requires support from various parties to create a conducive entrepreneurial ecosystem. Entrepreneurial intent is critical to driving entrepreneurial activities. Higher education institutions also play a role in guiding Generation Z by optimizing their skills and expertise.

Therefore, identifying antecedent variables that can determine the intent of young generations to engage in entrepreneurial behavior, especially techno-sociopreneurship, is necessary.

## **Literature Study**

### **Innovation in Technology and Society**

Innovation encompasses all activities involving the development of ideas, technology, production processes, product marketing, and new manufacturing or equipment creation. Innovation is developing and applying knowledge and technology to create greater value for products or processes (Farida et al., 2022). Innovation is the deliberate application of new ideas to benefit the performance of an organization (Akbari et al., 2021). Innovation is crucial in entrepreneurship. Countries with innovative entrepreneurship will achieve a high level of sustainability (Yordanova et al., 2020).

Technological innovation contributes to economic development through new ideas in products and processes created to adapt to a dynamic environment, supporting increased production, job creation, and environmental protection (Diaconu & Asachi, 2011). Presently, a significant portion of innovative solutions are generated through information technology. Technological innovation does not just impact the economic system but can also improve the social system within society. Information technology is a supporting instrument in creating social value through entrepreneurial activities that can enhance social, economic, and environmental conditions (Maiolini et al., 2016). The application of technology in entrepreneurship is essential for national development and is a dynamic pathway for economic growth, competitiveness and solutions of

national importance (Liñán et al., 2011). Appropriate technological innovations allow new solutions to emerge that can improve people's quality of life in education, gender equality, decent work, economic growth, and reducing injustice (Bulut et al., 2013; Roblek et al., 2019). Information technology will help through its ability to facilitate connectivity and simplicity (Maiolini et al., 2016).

Social innovation refers to innovative activities to address social challenges based on novelty (Maiolini et al., 2016). According to Aueswald (2009), social innovation is a new solution to overcome social problems more effectively, efficiently and sustainably for society. Social innovation arises from social interaction in responding to social needs based on current conditions (Marcy & Mumford, 2007). Many opportunities for social innovation can be done through technology, such as social capital search, digital relationships in bridging social capital, and the affordability of network transparency in social capital ties (Kraus et al., 2019).

### **Techno-sociopreneurship**

Technopreneurship is a form of entrepreneurship by applying technology to create added value through something innovative to compete in global business (Soomro & Shah, 2020). Technopreneurship combines the power of technology with the core of entrepreneurship to produce innovative products that can be sold in business by adapting to changes in world technology at any time (Hoque et al., 2017). Technopreneurship is an innovative application in engineering science and knowledge formed with business management to achieve the goals and perspectives to be achieved (Fowosire et al., 2017).

Sociopreneurship is the act of pioneering novelty in methods, processes, products, and services aimed at solving social and environmental challenges through a business (Chahine, 2016). Social entrepreneurship is an innovative solution to improve economic, social, and environmental problems towards sustainable social transformation based on business principles (Tran & von Korflesch, 2016). Social entrepreneurship is still widely assumed to be a social service provider or activist, so many are not interested in doing this entrepreneurial activity (Martin & Osberg, 2007). Social entrepreneurship is not merely a social action. However, it is an entrepreneurial activity, like a commercial business in general, that generates profits but also aims to improve social conditions through innovative solutions (Wu et al., 2021). Techno-sociopreneurship is an entrepreneurial activity that combines technology with a business model to meet social needs and impact society positively.

## **Method**

The literature review of previous research on entrepreneurial intentions discusses traditional entrepreneurship. This research tries to conduct a literature review by collecting several journals related to technopreneurship and sociopreneurship. This method is done to deepen knowledge about the development of science, clarify the problems studied and find out the latest methods in solving problems.

## Results

Based on the results of literature based on journals over the past ten years related to sociopreneurship and technopreneurship, several literature reviews were obtained as shown in Table 1.

Table 1: Literature Review

Researcher	Methodology	Contributions/Findings
Roblek, Vasja et al. (2019)  Smart technologies as social innovation and complex social issues of the Z generation	Qualitative research by asking questions to 144 students of the Faculty of Economics, University of Ljubjana, Slovenia	The results state a new conceptualization of smart technology as social innovation.  This research is a social innovation framework that refers to new ideas that solve social, cultural, economic and environmental challenges for the benefit of people and planet, economic and environmental challenges for the benefit of people and planet.
Bulut et al. (2013)  Which one triggers the other? Technological of social innovation	Quantitative research with a sampling of 767 students at 10 universities in Turkey and analyzed by SEM multiple regression	Social innovation will affect technological innovation.  The results also show that innovative attitudes, risk-taking, proactivity, independence, desire for progress, tolerance for ambiguity have a significant influence on the intention to carry out social innovation where the most influential variables are innovative and proactive.  Meanwhile, creative variables and locus of control do not have a



Researcher	Methodology	Contributions/Findings
		significant influence on the intention to innovate socially.
<p>Maiolini, R., Marra, A., Baldassarri, C., &amp; Carlei, V. (2016).</p> <p>Digital technologies for social innovation: an empirical recognition on the new enablers</p>	<p>The research uses network analysis methodology</p>	<p>It was found that social innovation is related to communication channels, software development, operating systems, specialized devices, platforms, divided into: (a) mobile as a device; (b) Web and social media as channels/platforms; (c) marketing, education, and e-commerce fields as businesses relevant to the development of social innovation</p>
<p>Kraus, S et al (2018)</p> <p>Digital Entrepreneurship: A research agenda on new business models for twenty first century</p>	<p>Systematic research and literature review</p>	<p>The result of clustering related to the derivatives of digital entrepreneurship is Social Digital Entrepreneurship</p>
<p>Tran &amp; Korfflesch (2016)</p> <p>A Conceptual model of social entrepreneurial intention based on the social cognitive career theory</p>	<p>Literature review on entrepreneurship in general and social entrepreneurship in particular to identify gaps in each study.</p>	<p>The conceptual model of social entrepreneurial intention is: Self-efficacy, personality (sociability, conscientiousness, extraversion, emotional stability and openness), contextual factors (role models, education, support) have a direct effect on social entrepreneurial intention.</p>
<p>Wu et al (2019)</p>	<p>A sample of 331 MBA students at Tianjin University, China was taken.</p>	<p>It was found that self-efficacy is able to moderate the relationship between sharing achievement and social</p>

<b>Researcher</b>	<b>Methodology</b>	<b>Contributions/Findings</b>
Sharing Achievement and Social Entrepreneurial Intention	Data was processed with multiple regression analysis	entrepreneurial intention through perceived value.
Bacq & Alt (2018)  Feeling capable and valued: A prosocial perspective on the link between empathy and social entrepreneurial intentions	A sample of 281 students at universities in the USA and South Africa was taken. Data processed using SEM-PLS	It was found that Empathic concerns, perspective-taking affect self-efficacy. Self-efficacy and social value have a positive effect on social entrepreneurial intention and are able to mediate the relationship between perspective-taking and social entrepreneurial intention between perspective-taking with social entrepreneurial intentions, but not able to mediate between empathic concern with social entrepreneurial intentions.
Usman, S., Masood, F., & Khan, MA (2021)  Impact of Empathy, Perceived Social Impact, Social Worth and Social Network on the Social Entrepreneurial Intention	The sample was conducted by survey through purposive sampling method from 247 university students in Pakistan. Data was processed using PLS-SEM	It was found that Perceived social impact, social value, social network and empathy have a positive and significant effect on the intention of social entrepreneurship  Empathy has a positive and significant effect on perceived social impact, social value and social networks
Asma et al (2019)  Determinants of social entrepreneurial intentions for educational programs	A sample of 231 university students in Beijing and Shanghai was collected. Data was processed using AMOS	It was found that Experience is the biggest factor affecting the intention of social entrepreneurship.  Empathy, self-efficacy, moral obligation and social support have a positive and significant effect on the intention of social entrepreneurship.

Researcher	Methodology	Contributions/Findings
Hoque, Awang, Siddiqui (2017)  Technopreneurial Intention among University students of business courses in Malaysia	The sample was conducted randomly by distributing questionnaires to 384 students in Malaysia. Data processing is done with SEM	It was found that Technopreneurial learning self-efficacy has a positive and significant effect on technopreneurship intention.
Fowsire (2017)  Technopreneurship: A View of Technology, Innovation and Entrepreneurship	Literature study by adopting the situation in Nigeria	Technopreneurship is part of an innovation process. A technopreneur not only has technical ability but must have entrepreneurial skills.

## Discussion

Based on the results of the literature study that has been conducted, the researchers concluded that several variables can encourage students' intention to carry out technopreneurship activities. Compared to general entrepreneurship, this entrepreneurship has characteristics such as empathy, providing perceived social impact and social value benefits (Bacq & Alt, 2018; Usman et al., 2022) and technological literacy skills (Hoque et al., 2017).

Based on this, the first factor proposed by researchers is self-efficacy, which is a person's belief about his ability to carry out a task so that it will control his thoughts, feelings, and behavior (Robbins, 1996). Self-efficacy is an essential antecedent of entrepreneurial and pro-social behavior (Asma et al., 2019).

Furthermore, the variable that is also considered capable of increasing intention in technopreneurship is the feeling of empathy, which is the ability to identify and share feelings with

others emotionally (Mair & Noboa, 2006). Empathy consists of two factors: cognitive empathy, which is the ability to feel the feelings of others, and affective empathy, which is a reaction to other people's emotions (Bacq & Alt, 2018). Someone with an empathetic attitude will be more confident to help others through social entrepreneurship activities if they have high self-efficacy.

Since the role of technology can accelerate the process of change more quickly and effectively, the technopreneurial learning of students needs to be improved. Technopreneurial Learning continuously updates entrepreneurial knowledge, skills, and attitudes by continually adapting to technological and information advances (Hoque et al., 2017). Technopreneurial learning is the process of acquiring sustainable entrepreneurial knowledge, skills, and attitudes for creation and management to become an effective technopreneur (Nurhayati & Machmud, 2019).

Another factor that needs attention is an innovative attitude to develop a new idea to solve existing problems and then be implemented as a key to business success (Zimmerer, 2005). Innovative behavior is the ability to identify and carry out entrepreneurial activities in a new way in a dynamic way by making regular updates. Entrepreneurship is considered an essential agent of innovation that aims to adapt to the needs of society (Nasip et al., 2017).

## **Conclusion**

In the current era of globalization, entrepreneurship that applies technology can accelerate creating added value through something innovative to help solve existing social problems more effectively and efficiently. Therefore, techno-sociopreneurship is one of the driving forces that can help solve problems and, at the same time, improve the economy, especially in developing countries like Indonesia.

The concept of techno-solopreneurship is expected to be one of the alternative solutions to overcome Indonesia's social and economic problems, such as opening new jobs, reducing unemployment, and carrying out economic transformation so that it can impact national economic growth. Support from various parties, especially universities, is needed to prepare Generation Z to create entrepreneurship with techno-sociopreneurship. This research has identified several factors deemed necessary to be adopted in Generation Z to encourage students' interest in entrepreneurship with the concept of techno-sociopreneurship. Universities are expected to be able to include elements of these variables in the learning curriculum to form a conducive entrepreneurial culture.

This research has limitations because it only reviews some literature related to technopreneurship and sociopreneurship. Therefore, further review is needed so that it can provide more meaningful results for future research. Furthermore, the factors identified as influencing techno-sociopreneurship intentions need further analysis.

### **COMPETING INTERESTS**

The authors have no competing interests to declare.

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