

## Adoption of Website Technology as a Business Funding Platform for Student MSMEs: Diffusion of Innovation (DOI) Theory Perspective

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### Abstract

*This study investigates the adoption of GEMAH, a digital platform connecting investors and micro, small, and medium enterprises (MSMEs) owned by students, using the Diffusion of Innovation (DOI) framework. The findings highlight GEMAH's advantages in providing efficient and accessible funding tailored to the digital preferences of Gen Z entrepreneurs. However, challenges remain in usability and information clarity, which are critical for first-time users. Trialability fosters user confidence, yet a lack of testimonials and case studies limits trust, and the platform's early development stage constrains observability. Additionally, regulatory and infrastructural gaps underscore the importance of institutional support from universities and financial authorities like OJK. This study suggests improving GEMAH's features, enhancing transparency, and fostering user trust through regulatory assurance and collaboration with educational institutions. GEMAH holds potential as a sustainable solution for financial inclusion and the growth of student MSMEs in Indonesia.*

**Keywords:** *fintech, technology adoption, MSMEs, business funding*

### Introduction

The digital era has driven innovation across various sectors, including finance. Financial digitization, commonly known as financial technology (fintech), adds value to financial transactions (Vakkapatla, 2024) by enhancing accessibility for business actors. Financial access has resulted in numerous financial applications available on smartphones and websites, simplifying the funding process for businesses. These applications not only provide easier access to business capital but also introduce transparency, efficiency, and speed in the funding application and disbursement processes. Furthermore, government support and the growth of the digital financial ecosystem have accelerated their acceptance (Sartika et al., 2021). Financial services integrated with technology complement government policies and regulatory frameworks, enabling broader financial inclusion for millions lacking access while redefining the landscape of financial services (Guild, 2017). The innovation in financial service opens a potential opportunity to enhance living standard (Kanga et al., 2022) and present innovative solutions to traditional funding challenges, allowing business actors to focus on growth and market opportunities.

The development of fintech has been significant for entrepreneurs, including university students who face funding constraints despite institutional support. These challenges include limited networks, insufficient information, and complex requirements from traditional financial institutions like banks. Fintech can support business owners in accessing funding (Minarni, 2024). Fintech platforms utilizing models such as peer-to-peer lending, joint ventures, and crowdfunding offer innovative solutions by providing more accessible, transparent, and affordable funding. Among fintech innovations, funding platforms that act as intermediaries connecting fund providers and those who need funding are needed.

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To address this case, students have developed a digital platform called GEMAH (*Gerakan Modal Usaha Mahasiswa*), a website-based fintech solution that connects investors and student entrepreneurs. GEMAH provides easier access to funding, supports business development, and fosters social impact by connecting reliable investors with credible student entrepreneurs. GEMAH offers investors an accessible platform to identify potential businesses, facilitating economic impact and trust in student ventures. GEMAH is a platform that is still in the development stage. Adoption on a new platform is still a question of whether it is acceptable or not.

Some theories cover up technology adoption, such as the Technology Acceptance Model (TAM), Theory of Planned Behaviour (TPB), Theory of Reasoned Action (TRA), and Diffusion of Innovation (DOI). They capture the technology adoption in MSMEs (Choudrie & Culkin, 2013). From those theories, Diffusion of Innovation (DOI) theory, introduced by (Rogers & Shoemaker, 1983), explores factors influencing technology adoption. The theory highlights five innovation characteristics: relative advantage, compatibility, complexity, trialability, and observability. While DOI has traditionally been applied to physical technologies like smartwatches (Choe & Noh, 2018), it is increasingly being used to study digital financial applications, such as Unified Payment Interfaces and mobile wallets (Fahad & Shahid, 2022; Shaw et al., 2022). However, dimensions like complexity and trialability in the context of high-risk new technologies remain underexplored. Moreover, the abstract nature of digital technologies and their intangible outcomes challenge the understanding of how trialability and observability function in such contexts.

Study of Sundjaja & Tina (2019) shows that factors such as information quality, service quality, and perceived value significantly influence user intention on funding platforms. Other factors affecting fintech adoption include Performance Expectancy (PE), Effort Expectancy (EE), Facilitating Conditions (FC), Social Influence (SI), Task Technology Fit (ITF), Privacy Enablers (PE), and Privacy Inhibitors (PI) (Alkhwaldi, 2024; Bajunaied et al., 2023). Nugraha et al. (2022) found that perceived usefulness, perceived ease of use, government support, trust, and user innovation positively influence MSMEs' intention to adopt fintech. Social influence and perceived usefulness are key determinants of behavioral intention when integrating extended TAM, UTAUT, ServPerf, and WebQual frameworks (Singh et al., 2020).

This study explores the possibility of adding new dimensions to DOI, such as environmental readiness and policy support. These additions could enrich the understanding of fintech adoption in developing countries, where challenges like low digital literacy, inadequate infrastructure, and cultural barriers persist. This exploratory qualitative study serves as a foundation for future discussions on expanding DOI dimensions.

## Literature Review

### *Diffusion of Innovation Theory*

Rogers & Shoemaker (1983) introduced the Diffusion of Innovation (DOI) theory as a significant framework for understanding the introduction and dissemination of innovations and how such innovations can be adopted by individuals or groups within a society. Drența & Lobonțiu (2016) identified five key characteristics influencing the rate of innovation adoption: relative advantage, compatibility, complexity, trialability, and observability.

These characteristics provide insights into the factors that encourage or hinder the adoption of technological innovations, including the context of financial technology adoption by Micro, Small, and Medium Enterprises (MSMEs). In the context of student entrepreneurs managing MSMEs, DOI theory offers a crucial guide for observing potential barriers and challenges. DOI characteristics also provide practical guidance for developers of platforms such as website-based peer-to-peer lending, which is the focus of this research.

### *Relative Advantage*

Relative advantage refers to the extent to which an innovation is perceived as better than existing solutions. In the context of financial technology, studies have shown that MSMEs using fintech platforms experience improved operational efficiency, cost savings, and broader access to financial services. This provides a significant competitive advantage over traditional methods (Moghavvemi et al., 2012). For students managing MSMEs, relative advantage includes the ease of accessing funds without the complex bureaucracy of conventional banking. Similarly, digital platforms offering flexibility and transparency influence MSMEs' decisions (Karim et al., 2022).

### *Compatibility*

Compatibility reflects how well an innovation aligns with existing values, needs, and practices of an organization. MSMEs require financing solutions to support expansion, reorganization, or business continuity, especially during and after the COVID-19 pandemic (Nugraha et al., 2022). Technologies aligned with their operational needs are more likely to be adopted, while those that disrupt existing workflows may face resistance (de Mattos et al., 2024). In a university setting, compatibility may involve integrating fintech with existing entrepreneurship training or support systems, enhancing its acceptance.

### *Complexity*

Complexity measures the difficulty of understanding and using an innovation. Research indicates that MSMEs often avoid technologies requiring extensive training or high technical skills (Nugroho et al., 2017). For student entrepreneurs, technological complexity can be a significant barrier due to limited time and experience. Shaikh et al. (2023) highlights that low technical skills and efficiency issues are primary challenges in technology adoption. Thus, overly complex solutions are less likely to gain traction among student-led MSMEs.

### *Trialability*

Trialability provides MSMEs the opportunity to evaluate the benefits of a technology before committing to full adoption. Pilot programs or trial access can build trust in new technologies (Astuti et al., 2020). For students, trialability ensures they can assess the platform's usefulness without significant risk, such as simulations or limited access for beginners in entrepreneurship.

### *Observability*

Observability relates to how visible the benefits and outcomes of using a technology are to others. In the fintech context, observable benefits like faster and more secure transactions positively influence user behaviour (Singh et al., 2020). For students, seeing peers succeed through fintech platforms reinforces trust and adoption. Economic benefits observed through successful implementations can significantly drive technology adoption (Saadah & Setiawan, 2024).

### *Fintech Adoption by MSMEs in Indonesia*

Fintech has emerged as a transformative factor in enhancing financial inclusion and access for MSMEs in Indonesia. Fintech solutions provide innovative services such as digital payments and peer-to-peer lending, which offer inclusive financial access (Saadah & Setiawan, 2024). However, despite its potential, fintech adoption among Indonesian MSMEs remains relatively low, indicating the need for targeted government policies and improved financial literacy (Nugraha et al., 2022).

The Indonesian government plays a crucial role in promoting fintech adoption by encouraging digital alternatives, developing regulatory frameworks, and initiating financial literacy programs (Batunanggar, 2019). Nonetheless, challenges such as digital infrastructure gaps (Shaikh et al., 2021) and low financial literacy (Kurniasari et al., 2021) continue to hinder the widespread adoption of innovative financial technologies.

### *Fintech Adoption by Student MSMEs in Indonesia*

Venture capital is a major driver of business growth, doubling business activity in specific regions (Samila & Sorenson, 2011). Peer-to-peer lending and crowdfunding offer alternatives to venture capital for students seeking funding through direct investments from both on-campus and external investors.

Research shows that factors such as perceived usefulness, ease of use, government support, trust, and innovation significantly influence MSMEs' fintech adoption intentions (Nugraha et al., 2022). These factors are especially relevant for students who often have limited resources and require simplified funding processes (Wright et al., 2017).

However, challenges like low financial literacy, trust in digital platforms (Batunanggar, 2019), and infrastructural and technical resource constraints (Shaikh et al., 2021) pose barriers to student adoption of such platforms. To address these challenges, universities should offer entrepreneurship programs and business incubators to prepare students for fintech adoption. Collaboration between higher education institutions and fintech providers can foster ecosystems supporting student MSME growth.

### *External Factors and Research Gaps*

In addition to the DOI characteristics, external factors such as government regulations (Kurniasari et al., 2021), digital infrastructure (Setiawan et al., 2021), and technological literacy (Hartono et al., 2024) play a critical role in fintech adoption. Strong government support through conducive regulations and digitalization subsidies can accelerate adoption (Kurniasari et al., 2021).

However, research gaps remain in understanding how university ecosystems—such as business incubators or university policies—influence website-based fintech adoption. Additional DOI dimensions, such as environmental readiness (infrastructure and resources) and policy support, warrant further exploration to provide a comprehensive understanding of fintech adoption in the context of student MSMEs.

## **Research Method**

This study employs a qualitative research method, which is typically used to explore technology adoption by delving deeply into user experiences, perceptions, and contextual factors influencing adoption decisions. Qualitative research on technology adoption often utilizes an exploratory design to gain in-depth insights into user experiences.

GEMAH is designed to be a digital platform (website) that connects micro, small, and medium enterprises (MSMEs) managed by students and investors. The website provides comprehensive information about MSMEs and their funding needs while facilitating secure and transparent fund distribution processes. The website addresses challenges faced by student entrepreneurs with limited access to funding. Investors often struggle to find potential and reliable MSMEs, while fund distribution processes remain manual and time-consuming. GEMAH specifically targets students interested in entrepreneurship but constrained by financial limitations, helping them access the funding and mentorship necessary for business growth. External investors, including entrepreneurs, professionals, and philanthropists, are also targeted to provide funding, mentorship, and networking opportunities to support student MSMEs.

This study involves two categories of respondents who utilize the GEMAH platform: 1) Student Respondents who have operated their businesses for at least three months, engaged in selecting or running business projects, and enrolled in entrepreneurship-related courses; 2) Investor Respondents that can be an individual or organizational investors, including students and external parties, who meet GEMAH's criteria.

Data collection for this study was conducted over approximately two months, from September 2024 to December 2024, using various techniques to ensure comprehensive insights. This study implemented observation and in-depth interviews (IDI). Structured observational studies were conducted, where planned activities were carried out (Sekaran & Bougie, 2016). Direct observation involved allowing respondents to explore the GEMAH website and assessing their interactions with the platform. The observations aimed to understand user interaction with the technology and its implementation dynamics. Some observation steps: 1) participants accessed the GEMAH website; 2) participants were divided into student MSME owners and investors, exploring the website and registering as users; 3) participants with difficulties navigating the website could consult an instructor; and 4) Observers recorded notes and compiled observation reports. Then, semi-structured interviews were conducted to gain deeper insights. These interviews started with open-ended questions designed beforehand and adapted based on the respondents' thought processes. This format allowed for additional questions to be posed during the interviews (Cooper & Schindler, 2014).

### *Data Analysis*

Data analysis was performed using thematic analysis, which identifies and reports patterns in qualitative data. Often employing an inductive approach, this method derives themes directly from the data (Weckesser & Denny, 2022). Using the DOI framework, the study mapped how GEMAH users, including student MSMEs and investors, adopted the platform. To ensure data validity in qualitative research, the following techniques were employed: 1) Triangulation integrates multiple data collection methods (interviews, observations, documentation) to enhance the validity of findings. This approach strengthens research outcomes by providing a comprehensive data perspective (Belotto, 2018) and 2) Member checking involves verifying findings with participants to ensure accurate representation of their experiences (Belotto, 2018). This process enhances the credibility of qualitative research by confirming initial interpretations with participants (Weckesser & Denny, 2022).

## **Result and Discussion**

The participants in this study consist of student MSME owners and potential investors. According to Table 1, there are 26 student-led business ventures, with most being run collaboratively rather than individually. Based on the categorical of industries, participants engaged in various industries such as Fashion, Food and Beverage, Education, and Boarding House Service. Additionally, the majority of these businesses (86%) are located in Yogyakarta.

On the other hand, participants from the potential investors consist of people with different backgrounds such as educators, entrepreneurs, employees, and students. They also are from various generations and locations.

**Table 1. Profile of student MSME participants**

No.	Company	Industry	Location
1	Petopia Petlover	Animal Care Service	Yogyakarta
2	Kos Impian	Boarding House Service	Yogyakarta
3	SmartKos	Boarding House Service	Yogyakarta
4	EaseLine	Business Application	Yogyakarta
5	Go Mekanik	Car and Motorcycle Repair	Yogyakarta
6	With Own Think	Fashion	Yogyakarta
7	Tiktok Agency	Digital Marketing Agency	Yogyakarta
8	Near Book	Online Book Store	Yogyakarta
9	Edulumin	Education	Yogyakarta
10	Hambimbel	Education	Yogyakarta
11	Responku	Education	Yogyakarta
12	Teman Kampus	Education	Yogyakarta
13	Virtual Try On	Fashion	Yogyakarta

No.	Company	Industry	Location
14	Xurelle	Fashion	Bandung
15	RRB Ricebowl	Food and Beverage	Yogyakarta
16	Banacrush	Food and Beverage	Kalimantan Tengah
17	Ngemil Ngopi	Food and Beverage	Yogyakarta
18	Gameboost	Game	Yogyakarta
19	By.Kita	Fashion	Yogyakarta
20	Sneaker Sorcery	Laundry Service	Yogyakarta
21	Attorney Finder	Legal Service	Yogyakarta
22	Derma Smart	Online Consulting	Yogyakarta
23	Barengiin	Open Trip and Concert	Yogyakarta
24	Printify	Printing Service	Yogyakarta
25	Sharebook	Rent	Yogyakarta
26	Sekar Jagad Wedding	Wedding Planner	Yogyakarta
27	de.flowerbox_yk	Florist	Yogyakarta
28	AleQu	Souvenir Store	Kalimantan Timur
29	Mustroom	Handcraft	Yogyakarta
30	AR Garage Wash	Car Wash Service	Purworejo

Source: Processed Primary Data (2025)

### *Relative Advantage*

Innovation is considered advantageous when it offers superior solutions compared to traditional methods. Relative advantage, as defined by Rogers & Shoemaker (1983), implies that the innovation is more valuable than its predecessor. The *gemab.online* platform facilitates easier access to funding for student MSMEs, offering an investment-based model rather than loans. The platform acts as a bridge connecting student MSMEs with investors. Key benefits identified include enhanced access to information, increased efficiency, and broader reach. A student MSME participant noted:

“... [The website] enables faster access to information, broader reach, and time efficiency.” (Student MSME Participant)

Since most student MSME owners belong to Gen Z, the platform aligns well with their preference for online solutions. Participants acknowledged that the platform is in harmony with digital advancements, where online interactions have become the norm. From the investor perspective, the platform provides convenient access to information anytime, but its usability as an investment tool requires further improvement. Some investors remain uncertain about the platform's benefits compared to conventional funding methods.

### *Compatibility*

The *gemab.online* platform serves as a breakthrough in funding for students, with compatibility being evaluated based on how well the innovation aligns with users' existing values, experiences, and needs (Rogers, 2003). The platform meets the needs of Gen Z-run MSMEs, as Gen Z users are accustomed to online-based systems. A participant noted:

“... [The website] aligns with modern culture, promoting efficiency, transparency, and technology use. It supports collaboration, broad access to information, and innovation, consistent with adaptive business values.” (Student MSME Participant)

The platform simplifies the funding process for students, reducing the need for traditional methods of securing capital.

“... It simplifies the process for students without capital to start a business by providing funds from investors without the hassle of searching for them.” (Student MSME Participant)

While investors recognize the platform's compatibility with the digital era, some note the need for adaptation, as not all are accustomed to online business investments.

### *Complexity*

Complexity measures the ease with which users can operate an innovation. According to Rogers (2003), reduced complexity enhances adoption. Participants found the *gemah.online* website visually appealing, simple, and user-friendly. However, some improvements, such as using original images instead of stock photos, were suggested to enhance branding and credibility.

*"The design is good, but it would be better to use original photos to create a unique identity for GEMAH."* (Investor Participant)

Despite its simplicity, some participants expressed confusion about the platform's purpose and functionality, requiring additional time to understand it:

*"... It's quite clear, but it takes time to understand how the website works, especially for first-time users."* (Student MSME Participant)

### *Trialability*

Trialability assesses the opportunity for users to test the innovation. Participants appreciated the platform's simple features and straightforward information:

*"... It doesn't require much effort to learn because the features are simple and the information is concise."* (Student MSME Participant)

However, the lack of detailed and professional information was noted as a drawback, particularly since trust is a key factor in financial platforms. Participants suggested adding demonstrations to explain the platform's usage:

*"... The interface is attractive, but for first-time users, it's unclear what the platform does. It would help to include a demo."* (Student MSME Participant)

### *Observability*

Observability measures how visible the benefits of the innovation are to others. Since *gemah.online* is still in the early stages, its impact on existing users has not yet been fully observed. Participants noted the absence of similar platforms in the current market, as most online funding systems are limited to loans.

### *New Element: Environmental Readiness*

The simplicity and ease of use of *gemah.online* were acknowledged. However, observations highlighted the need for clearer guidelines on user profiles, such as whether the "full name" refers to the student or business name, and for defining funding allocation requirements. Pre-registration education and stricter eligibility criteria were also suggested to improve platform usability.

### *New Element: Perceived Risks*

Participants identified risks associated with online funding platforms. While registration is simple, the lack of clear agreements between investors and MSMEs poses challenges:

*"... The collaboration between investors and business owners is risky without clear regulations."* (Investor Participant)

Clear agreements, such as MoUs, and transparency in financial and business monitoring are necessary to minimize risks.

#### *New Element: Policy Support*

The platform requires robust regulations and oversight from financial institutions to prevent fraud or financial misconduct. Policy support from the government is important in the development of fintech (Sartika et al., 2021). Participants emphasized the need for endorsements from regulatory bodies like Financial Service Authority (OJK) to ensure platform credibility:

*“... It would feel safer if there were assurances from OJK.”* (Student MSME Participant)

Investors also highlighted the importance of structured regulations for matchmaking and the inclusion of offline interactions to verify profiles:

*“... Risks remain significant if based solely on online profiles; follow-up meetings should be arranged offline.”* (Investor Participant)

Structured filters for MSME profiles, terms and conditions, and clear legalities were also recommended by participants.

### **Conclusions**

This study reveals that the GEMAH platform, a website-based technological innovation utilizing a peer-to-peer lending model, holds significant potential to enhance funding access for student-owned MSMEs. Using the Diffusion of Innovation (DOI) framework, five key elements—relative advantage, compatibility, complexity, trialability, and observability—were examined in depth.

The relative advantage of GEMAH is evident in its ability to provide efficient online funding access and connect students with potential investors. The technology's compatibility with the working patterns of Generation Z is a major factor in adoption, given their familiarity with digital solutions. However, the platform's complexity remains a challenge, particularly for first-time users, highlighting the need for improved navigation and clearer information to ensure a better user experience.

The platform's trialability through basic features provides a sense of security for new users. However, transparency and comprehensive information regarding benefits for both investors and student MSMEs need further improvement. Observability, in this context, has not been fully realized, as the platform is still in its early development stage. The absence of case studies or testimonials from previous users poses a barrier to building user trust. To enhance the visibility of its benefits, GEMAH should showcase success stories from early adopters, such as student MSMEs that have successfully grown through its funding support.

In terms of environmental readiness, it was found that infrastructure and regulatory preparedness do not yet fully support the platform's optimal operation. Specific regulations from financial institutions, such as the OJK, are necessary to ensure user protection and secure funding processes. Additionally, support from universities, such as through entrepreneurship education programs or business incubators, can strengthen the platform's adoption.

By addressing these elements, GEMAH has the potential to become a sustainable solution that not only enhances financial inclusion but also supports the development of student MSMEs in facing challenges in the digital era.

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