# ANSWERING TO THE CALLS OF DIGITIZATION: THE CRUCIAL ROLE OF ENTREPRENEURIAL AGILITY

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**Abstract**

**Introduction/Main Objectives**: The purpose of this study is to examine the mediating role of entrepreneurial agility in the relationship between digital platform capability and business model innovation adoption, while also considering the moderating role of technology opportunism and environmental dynamism. **Background Problems**: Digitization currently influences every aspect of individual, including the way they carry out business. Therefore, it is important to understand the way firms respond to this condition while conducting their business. **Novelty**: This study addresses how the business model innovation adoption can be more advanced and supported by digital platform capability by considering various conditions to deal with changes in technology and the environment, including entrepreneurial agility, environmental dynamism, and technology opportunism. **Research Methods**: This study is carried out using quantitative approach by distributing questionnaire to the owners or managers of creative MSMEs in Bandung, West Java. The respondents are chosen using purposive sampling method, with the number of samples of 120 respondents. The data is then analyzed with Structural Equation Modeling with AMOS 3.0. **Finding/Results**: Digital platform capability has a positive influence on entrepreneurial agility, which has a positive influence on business model innovation adoption. Entrepreneurial agility mediates the relationship between digital platform capability on business model innovation adoption, and this relationship is moderated by technology opportunism and environmental dynamism. **Conclusion**: This study highlights the importance of digital platform capability for firms, as it can lead them to have entrepreneurial agility, and ultimately carry out business model innovation adoption.

**Keywords:** *Digital Platform Capability, Entrepreneurial Agility, Business Model Innovation Adoption, Technology Opportunism, Environmental Dynamism*

1. Introduction

In this era, technology has become a necessity that cannot be separated from individuals. Even today's existing technology continues to grow and affect how individuals and organizations or companies run. Individuals use social media to exchange news, carry out daily communication, get new information, and shop. However, technological developments do not stop there. The existence of big data analytics, the Internet of Things, various digital platforms with various functions, and cloud computing today also allows for more effective communication and better connectivity (Li et al., 2020; Ahmed et al., 2022). This massive technological change can be both a challenge and an opportunity for organizations, depending on how they deal with it. Thus, this development requires companies to be able to respond appropriately, thereby increasing their ability to innovate and earn more profits.

Digital platform capability is one of the capabilities that companies and individuals in it need to have to face these challenges. Digital platform capability is the ability to use digital tools and cutting-edge technology as a means to face competition, while increasing the company's performance, innovation, and competitive advantage (Cenamor et al., 2019; Mikalef & Pateli, 2017; Sedera et al., 2016) . Managers or company owners who have digital platform capability are predicted to be more flexible and agile, or agile in controlling and running their business. Changes and uncertainties in the current environment also require companies to adapt quickly and respond flexibly (Shams et al., 2021), so they are not bullied and able to survive.

Therefore, it is important for managers or company owners to have entrepreneurial agility, or managerial cognitive abilities to anticipate, exploit, and exploit entrepreneurial opportunities related to digital entrepreneurship (Mazzel et al., 2017). Entrepreneurial agility is important for shaping innovations that can help companies deal with change (Mazzel et al., 2017; Sambamurthy et al., 2007). Meanwhile, when managers or company owners adopt business model innovations, this can be a mechanism to seize opportunities and take advantage of them (Chesbrough, 2007; Karimi & Walter, 2021).

Several previous studies have suggested researching agility in the context of emerging markets (Ferraris et al., 2021; Jafari-Sadeghi et al., 2021), considering that environmental dynamics can influence the decision-making process in companies. Karimi and Walter (2021) examine the relationship between digital platform capability, entrepreneurial agility, and business model innovation adoption in print media companies, and suggest expanding research on this topic to other organizational contexts. They also emphasized the need for future research to find out how digital entrepreneurship can be more advanced and supported by digital platform capability by considering various conditions to deal with changes in technology and the environment (Karimi & Walter, 2021).

Therefore, this study also considers the influence of environmental dynamics and technology opportunism, because these two things can affect how companies run their business. Environmental dynamism is the level of environmental instability and uncertainty (Chan et al., 2016). The moderating role of environmental dynamism today still needs to be looked at more deeply (Ahmed et al., 2022). Technology opportunism is a process that makes it possible to find out the right technology and respond to technological developments quickly (Voola et al., 2012).

This study provides several contributions to the literature related to entrepreneurship. First, this study examines the relationship between digital platform capability, entrepreneurial agility, and business model innovation adoption in the context of creative SMEs. This also responds to suggestions from Jafari-Sadeghi (2021; Ferraris et al., 2021; Karimi & Walter, 2021) to enrich research on digital platform capability in various organizational contexts. Second, this study uses two moderators, namely environmental dynamism and technology opportunism, to find out when digital platform capability affects entrepreneurial agility more strongly, and when entrepreneurial agility affects business model innovation adoption. The use of these two moderating variables refers to the suggestions of previous researchers (Ahmed et al., 2022; Karimi & Walter, 2021).

1. Literature Review

**2.1 Digital Platform Capability and Entrepreneurial Agility**

Digital platform capability is the organizational ability to continue to be connected with the business world through online markets (Jun et al., 2021). Cenamor et al. (2019) defined digital platform capability as the firm’s ability to utilize the latest advanced digital tools and technologies, as this will be useful for firms to engage in the use of information, communication, and technology-based resources. Digital platform has provided useful information in the form of forecasting, production information, and customer trend (Warner & Weager, 2019). One of the topics that are abundantly discussed by both academicians and practitioners is regarding the ability of firms to operate digital platforms (Nwankpa & Roumani, 2019). This is because digital platform capability has been recognized as a source of competitive advantage in facing the current development in the digital economy. This capability enables firms to integrate their main knowledge, utilize their internal and external organizational resources, and face the rapid changes of the market as well as respond to the dynamic environment (Ahmed et al., 2022; Cenamor et al., 2019).

The volatile and rapidly changing business environment require both firms and individuals in it to be agile. As a way to respond to this condition, it is necessary for managers or leaders in firms and organizations to have entrepreneurial agility, due to its crucial role to shape innovations in facing the dynamics in the environment. Sambamurthy et al. (2007) defined entrepreneurial agility as the firm’s ability to anticipate the changes in the environment and respond to the market dynamics by innovating with new business model or approaches. On the other hand, Karimi & Walter (2021) defined entrepreneurial agility as managerial cognitive abilities to anticipate, visualize, and exploit entrepreneurial opportunities associated with digital entrepreneurship.

Ahmed et al. (2022) carried out a study that links digital platform capability with organizational agility, and found that these two variables are positively related. It is also found that IT-enabled capabilities, which include digital platform capability, have a positive relation with agility (Martinez-Caro et al., 2020; Huang et al., 2014). Dubey et al. (2020) proved that engaging in data technology can help managers to understand the dynamic changes in their environment and improve their agility. Firms with the ability to utilize digital platforms have capability to develop, integrate, and use digital platforms and technology. With digital platform capability, firms and managers can also integrate knowledge from their internal and external resources. This knowledge can help them to anticipate and exploit the opportunities that are related to the digital entrepreneurship. It is expected that digital platform capability can enable firms to be more flexible and quicker to respond to the changes. Therefore, digital platform capability is predicted to have positive influence on entrepreneurial agility. The first hypothesis proposed is as follows:

**H1.** Digital platform capability positively influences entrepreneurial agility.

**2.2 Entrepreneurial Agility and Business Model Innovation Adoption**

Entrepreneurial agility is defined as managerial cognitive abilities to anticipate, visualize, and exploit entrepreneurial opportunities associated with digital entrepreneurship (Karimi & Walter, 2021). Managers or firms with entrepreneurial agility can have strategic leadership to recognize threats and seize opportunities, and they can put resources together to implement a strategy and organizational design to respond to the external environment (Mazzei et al., 2017; Mazzei, 2018). This managerial cognitive ability consists of three aspects, namely strategic foresight, systemic insight, and entrepreneurial mindset (Sambamurthy et al., 2003; Karimi & Walter, 2021). It can be a means for managers or firms to perceive and seize opportunities and threats as well as implementing entrepreneurial actions to face the volatile business environment.

Strategic foresight is the ability to anticipate threats and opportunities that are related to the changing business environment, technology changes, and the competitors. The second is systemic insight, namely the ability to view business opportunities in technology, anticipate competitors’ moves, and designing actions for new products or services. The third is entrepreneurial mindset, which includes the perspective for making decision and promote flexibility, creativity, continuous innovation, and renewal, by also focusing on and captures the benefit of uncertainty (Ireland et al., 2003).

Foss & Saebi (2017) defined business model innovation as a change that occurs in a company’s business model or its components, and affect the company’s practices offered to its customers or partners. Business model innovation holds a company’s alteration of its value, core components, or new components of its business model (Wirtz et al., 2016; Hartmann et al., 2016). It can also be the outcomes of the integration of both new and old products or services, improvement or conversion in the market positions or process management (Bjorkdahl & Magnus, 2013), as well as the adoption, relations, or replacement of business activities (Zott et al., 2011; Bouwman et al., 2019). There are four elements of business model innovation adoption according to Berends et al. (2016), namely conceptualization, creation, adaptation, and experimentation of business model.

Karimi & Walter (2021) have proven the positive influence of entrepreneurial agility on business model innovation adoption of the firm. The managerial cognitive ability which is embedded in entrepreneurial agility, namely strategic foresight, systemic insight, and entrepreneurial mindset, enable firms and managers to make decisions according to their intuition and knowledge. Their ability to combine information, anticipate the threats an d opportunities, and wide perspectives that is based on entrepreneurial aspects such as flexibility and creativity will have an influence on their decision to adopt business model innovation. In line with this argument, (Levine et al., 2017; Shepherd et al., 2015) also stated that the components of managerial cognitive ability ties together the strategic intelligence, sensitivity, and agility to seize opportunities, and ultimately implementing business model innovation adoption. Based on these explanations, the second hypothesis proposed is as follows:

**H2.** Entrepreneurial agility positively influences business model innovation adoption.

**2.3 The Moderating Role of Technology Opportunism**

Currently, technology is viewed as a core element of a firm’s strategy, and it acts as one of the crucial factors for firms to achieve their competitive advantage. In simple terms, technology opportunism can be understood as the ability to sense and respond to technological developments (Voola et al., 2012). It can also be defined as the firm’s capability to adopt new technologies in a strategic and timely manner (Lee & Grewal, 2004; Urban & Maphumulo, 2021). The concept of technology opportunism was first introduced by Srinivasan et al. (2002), who pointed out that firms with technology opportunism can actively scan the markets, seek information, knowledge, signals, trends, and others that can lead firms to gain competitive advantage.

Voola et al. (2012) suggested that technology opportunism allows firms to sense and respond to new technologies, which have a positive impact towards the firms’ competitive advantage. Digital platform capability is expected to lead to entrepreneurial agility in firms with high level of technology opportunism compared to firms with low levels of technology opportunism. This is because firms with high level of technology opportunism tend to be more aware and able to take advantage of technological developments. They are also more likely to have the ability to integrate their knowledge they have gained from digital platform capability, thus enable them to build their entrepreneurial agility. Based on these explanations, the fourth hypothesis proposed is as follows:

**H3.** Technology opportunism positively moderates the relationship between digital platform capability and entrepreneurial agility, such that the relationship between digital platform capability and entrepreneurial agility is stronger when the technological opportunism possessed by the firms is high rather than low.

**2.4 The Moderating Role of Environmental Dynamism**

Chan et al. (2016) defined environmental dynamism as the level of unpredictability and instability in a firm’s environment. Environmental dynamism can also be understood as the volatility and unpredictability of the environment in organizations (Pagell & Krause, 2004). This uncertain condition of the environment can have a negative impact to the way firms operate. When firms do not realize and unable to keep up with the dynamic changes in their environment, they might suffer loss. As the current condition of business environment is highly volatile and rapidly changing, environmental dynamism becomes one of the aspects that must be considered by firms. Xiao et al. (2020) also suggested that a dynamic and unstable environment significantly influences the firms’ capabilities, and have a negative Ahmed et al. (2022) suggested that environmental dynamism can have a significant impact on business process, and this requires firms to promptly respond to the condition. Therefore, firms must realize and recognize the environment in which they carry out their business.

The adoption of business model innovation often depends on the condition of the external environment. Firms tend to make investment in digital technologies to improve their agility (Altschulier et al., 2010), thus carrying out business model innovation adoption. However, with firms being under highly dynamic environment, they might not be able to carry out business model innovation adoption although they already have entrepreneurial agility. Firms can be uncertain to undertake the adoption of business model innovation because they feel like they have no control to what occurs in the environment. On one hand, it occurs because firms are not certain about the right approach or innovation, as well as the right time to adopt it (Ahmed et al., 2022). The higher the environmental dynamism experienced by firms, the less likely firms with entrepreneurial agility carry out business model innovation adoption, and vice versa. Therefore, based on this explanation, the fifth hypothesis proposed is as follows:

**H4.** Environmental dynamism negatively moderates the relationship between entrepreneurial agility and business model innovation adoption, such that the relationship between entrepreneurial agility and business model innovation adoption is stronger when the environmental dynamism faced by the firms is low rather than high.

**2.5 Conceptual Framework**

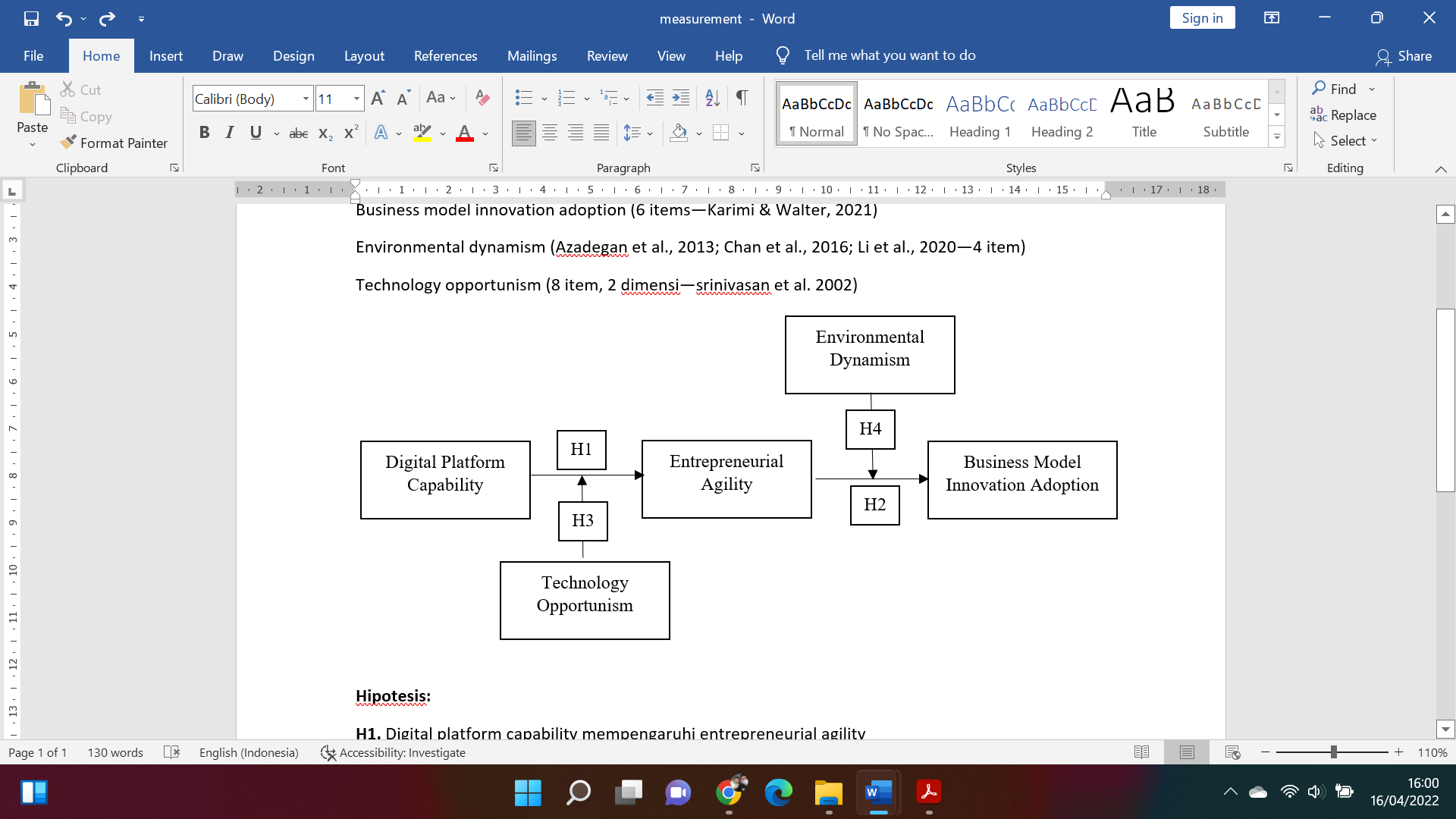


Figure 1. Research Framework

(Source: Karimi & Walter, 2021; Ahmde, et al, 2022; Urban, 2021)

1. Research Method

This study is carried out using quantitative approach, with the purpose to measure and understand the causal relationship between the variables. The population of this study is creative MSMEs in Bandung, West Java, with the number of samples of 120 respondents. The data is collected using survey method by distributing questionnaires to the respondents. The final number of questionnaires returned and used for data processing is 120 questionnaires, as all respondents provide complete answers.

The data is further analyzed using inferential method, using Structural Equation Modeling (SEM) with Partial Least Square, with the SmartPLS 3.3.9 software. PLS is one of the SEM techniques that can directly analyze latent variable, indicator variable, and measurement error (Wiyono, 2013). PLS is a powerful analysis method since it can be applied to all data scales, do not need much assumptions, and the sample size does not have to be large (Wiyono, 2013). Furthermore, path analysis model is used to analyze the relationship pattern between variables with the aim to understand the extent to which a variable can moderate other latent variables.

Each item of the questionnaire is measured using 5-point Likert scale, ranging from 1-5, with point 1 indicating that the respondents are strongly disagree, while point 5 indicating that the respondents are strongly agree with the statement. The variable measurement of this study is explained as follows:

1. Digital platform capability is measured using scales developed by Cenamor et al. (2019), which consists of two dimensions (platform capability and platform reconfiguration) and 8 items.
2. Entrepreneurial agility is measured using scales developed by Karimi & Walter (2021), which consists of three dimensions (opportunity foresight, systemic insight, and entrepreneurial mindset) and 10 items.
3. Business model innovation adoption is measured using scales developed by Karimi & Walter (2021), which consists of 6 items.
4. Environmental dynamism is measured using scales developed by Azadegan et al. (2013; Chan et al., 2016; Li et al., 2020), which consists of 4 items.
5. Technology opportunism is measured using scales developed by Srinivasan et al. (2002) which consists of two dimensions (technology sensing and technology responding) and 8 items.
6. Results and Discussion

The analysis of SEM model using SmartPLS software consists of several stages. The measurement model is built by describing a diagram that can make it easier to see a causal relationship to be tested. This causal relationship is indicated by arrows which indicate a direct relationship between one construct and another. The following is the measurement model for Partial Least Square in this study.

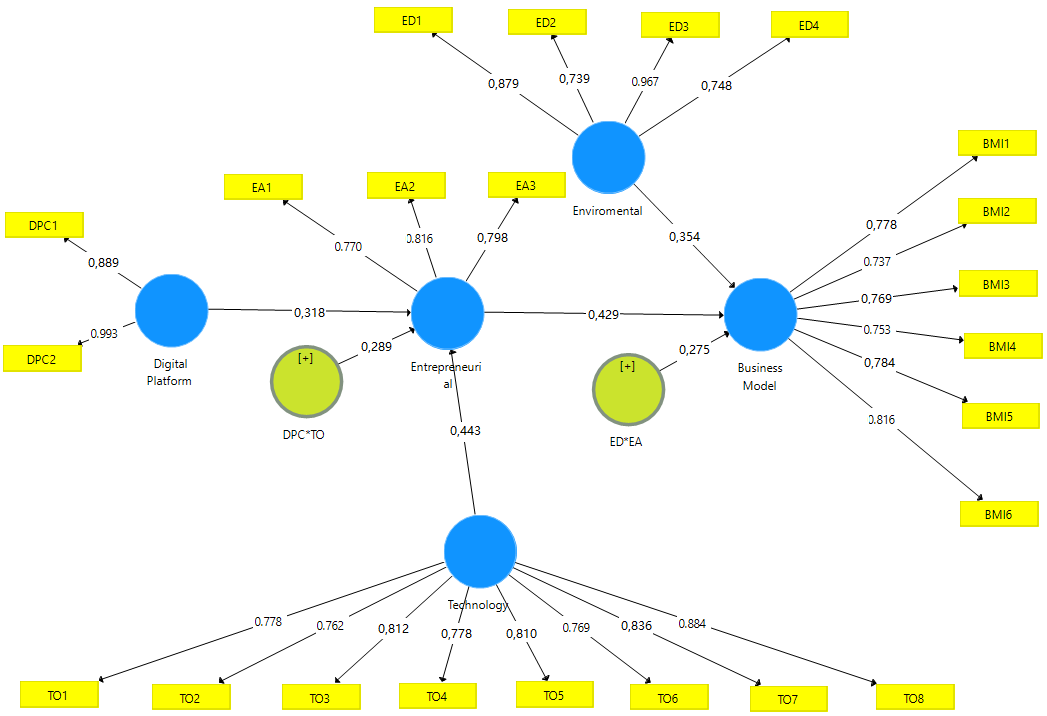


Figure 2. Partial Least Square Measurement Model Scheme

(Source: Processed Data, 2022)

**Convergent Validity Test**

**Outer Loading**

The indicator forming the latent variable is considered valid if it has a correlation value or outer loading > 0.70. According to Chin (1998) in Ghozali (2014). In this study, all indicators have a value > 0.70, with the smallest validity value being 0.737 on the business model indicator and the largest validity value being 0.993 on the digital platform indicator.

**Average Variance Extracted**

The model can be said to be good if the AVE value of each construct is > 0.50. From the output of the AVE test results in table 1, it can be concluded that all constructs of each latent variable produce an AVE value > 0.50. Thus, it can be concluded that the convergent validity of the construct is met.

Table 1. Results of Validity and Reliability Test

|  |  |  |  |
| --- | --- | --- | --- |
|  | Cronbach's Alpha | Composite Reliability | Average Variance Extracted (AVE) |
| Business Model Innovation Adoption | 0,834 | 0,871 | 0,531 |
| Digital Platform Capability | 0,851 | 0,768 | 0,574 |
| Entrepreneurial Agility | 0,770 | 0,793 | 0,563 |
| Environmental Dynamism | 0,772 | 0,776 | 0,586 |
| Technology Opportunism | 0,876 | 0,872 | 0,577 |

**Discriminant Validity Test**

Discriminant validity can be known from the result of cross loading between indicators and its construct. Based on Table 2, it can be known the correlation value of autonomy construct with its indicator is higher than the correlation of autonomy indicator with other constructs. Therefore, the discriminant validity of this study is met.

Table 2. Results of Discriminant Validity Test

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Business Model Innovation Adoption | Digital Platform Capability | Entrepreneurial Agility | Environmental Dynamism | Technology Opportunism |
| Business Model Innovation Adoption | 0,729 |  |  |  |  |
| Digital Platform | 0,105 | 0,703 |  |  |  |
| Entrepreneurial Agility | 0,157 | 0,106 | 0,750 |  |  |
| Environmental Dynamism | 0,078 | 0,179 | -0,060 | 0,694 |  |
| Technology Opportunism | 0,011 | 0,051 | -0,158 | 0,175 | 0,685 |

**Reliability Test**

Reliability test is used to measure the level of reliability of a construct. A construct can be said to be reliable if the value of Cronbach's alpha and composite reliability shows results greater than 0.70. From the results of the reliability test in table 1, it can be concluded that all constructs have a level of reliability that meets the criteria.

**Hypothesis Test**

Table 3. Results of Hypothesis Test

|  |  |  |  |
| --- | --- | --- | --- |
|  | Original Sample (O) | T Statistics (|O/STDEV|) | P Values |
| Digital Platform Capability on Entrepreneurial Agility | 0,318 | 3,599 | 0,001 |
| Entrepreneurial Agility on Business Model Innovation Adoption | 0,429 | 4,773 | 0,000 |
| Digital Platform Capability on Entrepreneurial Agility moderated by Technology Opportunism | 0,289 | 2,598 | 0,001 |
| Entrepreneurial Agility on Business Model Innovation Adoption moderated by Environmental Dynamism | 0,275 | 3,890 | 0,001 |

Based on the results of hypothesis test, it can be known that:

1. There is a positive influence of 0.138 of Digital Platform Capability on Entrepreneurial Agility. The results show significant influence, which is indicated by the p-value of <0.05. Therefore, hypothesis 1 is accepted.
2. There is a positive influence of 0.429 of Entrepreneurial Agility on Business Model Innovation Adoption. The results show significant influence, which is indicated by the p-value of <0.05. Therefore, hypothesis 2 is accepted.
3. There is a positive influence of 0.289 of Technology Opportunism which moderates the relationship between Digital Platform Capability and Entrepreneurial Agility. The results show significant influence, which is indicated by the p-value of <0.05. This means that Technology Opportunism can function as a moderator that strengthen the causal relationship between digital platform capability and entrepreneurial agility. Therefore, hypothesis 3 is accepted.
4. There is a positive influence of 0.275 of Environmental Dynamism which moderates the relationship between Entrepreneurial Agility and Business Model Innovation Adoption. The results show significant influence, which is indicated by the p-value of <0.05. This means that Environmental Dynamism can function as a moderator that weakens the causal relationship between entrepreneurial agility and business model innovation adoption. Therefore, hypothesis 4 is accepted.

Discussion

The results of this study indicates that the first hypothesis proposed, namely the positive influence of digital platform capability on entrepreneurial agility, is accepted. It can be known from the value of calculation results, 0,318, and p-value of 0,001<0,05. In other words, digital platform capability has a significant influence on entrepreneurial agility. The results of this study support the findings from previous studies conducted by Ahmed et al. (2022; Dubey et al., 2020; Martinez-Caro et al., 2020; Huang et al., 2014). Managers or leaders who have digital platform capability tend to exhibit entrepreneurial agility in carrying out their business. The higher the digital platform capability possessed by managers or leaders, the better the entrepreneurial agility they perform. Digital platform capability enables leader to understand the dynamic changes in their environment and improve their agility. It can be done because firms can integrate their main knowledge, utilize their internal and external organizational resources, and face the rapid changes in the market. Finally, digital platform capability can assist firms to be more flexible and quicker to respond to the challenges and condition that occurs in the business environment by having entrepreneurial agility.

Furthermore, the results of this study indicates that the second hypothesis proposed, namely the positive influence of entrepreneurial agility on business model innovation adoption, is accepted. It can be known from the value of calculation results, 0,429, and p-value of 0,000<0,05. In other words, entrepreneurial agility has a significant influence on business model innovation adoption. The results of this study support the findings from previous studies conducted by Karimi & Walter (2021; Levine et al., 2017; Shepherd et al., 2015). Managers or leaders who have entrepreneurial agility is proven to be able to carry out business model innovation adoption. The higher their entrepreneurial agility, the higher their ability to carry out business model innovation adoption. Entrepreneurial agility can be a means for managers or firms to perceive and seize opportunities and threats as well as implementing entrepreneurial actions to face the volatile business environment. The managerial cognitive ability embedded in entrepreneurial agility allows firms and managers to make decisions according to their intuition and knowledge. Managers who have entrepreneurial agility have the capacity to combine information, anticipate the threats and opportunities, and wide perspectives. It all will positively influence their decision to adopt business model innovation.

Regarding the third hypothesis, the results of this study indicate that the third hypothesis proposed, namely the moderating role of technology opportunism on the relationship of digital platform capability on entrepreneurial agility, is accepted. It can be known from the value of calculation results, 0,289, and the p-value of 0,001<0,05. In other words, technology opportunism can act as a moderator that strengthens the relationship between digital platform capability on entrepreneurial agility. This is because technology opportunism allows firms to sense and respond to new technologies, which have a positive impact towards the firms’ competitive advantage. Digital platform capability is expected to lead to entrepreneurial agility in firms with high level of technology opportunism compared to firms with low levels of technology opportunism. Firms with high level of technology opportunism tend to be more aware and able to take advantage of technological developments. They are also more likely to have the ability to integrate their knowledge they have gained from digital platform capability, thus enable them to build their entrepreneurial agility.

Finally, the results of this study indicate that the fourth hypothesis proposed, namely the moderating role of environmental dynamism on the relationship of entrepreneurial agility on business model innovation agility, is accepted. It can be known from the value of calculation results, 0,275, and the p-value of 0,001<0,05. In other words, environmental dynamism can act as a moderator that weakens the relationship between entrepreneurial agility on business model innovation adoption. The adoption of business model innovation often depends on the condition of the external environment. With firms being under highly dynamic environment, they might not be able to carry out business model innovation adoption although they already have entrepreneurial agility. Firms can be uncertain to undertake the adoption of business model innovation because they feel like they have no control to what occurs in the environment. It occurs because firms are not certain about the right approach or innovation, as well as the right time to adopt it. The higher the environmental dynamism experienced by firms, the less likely firms with entrepreneurial agility carry out business model innovation adoption, and vice versa.

1. Conclusion and Implications

Based on the analysis of the data and discussion that has been carried out, there are several conclusions that can be drawn. First, digital platform capability has a significant influence on entrepreneurial agility. Second, entrepreneurial agility has a significant influence on business model innovation adoption. Third, technology opportunism positively moderates the relationship between digital platform capability on entrepreneurial agility. Fourth, environmental dynamism negatively moderates the relationship between entrepreneurial agility on business model innovation adoption.

There are several implications provided from this study. First, this study highlights the importance of digital platform capability for firms, as it can lead them to have entrepreneurial agility, and ultimately carry out business model innovation adoption. Therefore, firms must realize and encourages both managers, leaders, and its members to have digital platform capability. Second, this study also shown two conditions that can have an influence on the relationship between the variables examined in this study, namely technology opportunism and environmental dynamism. Firms need to understand these two conditions and act promptly in order to be able to seize the best opportunities, while managing the threats which comes from the volatile business environment.

This study has a number of limitations. First, regarding the number of samples that is limited to 120 questionnaires. Although this number already fulfill the requirement for sample size, there is a need to add the number of samples, or the location in which it is carried out, to make sure the generalizability of this study. Second, although this study has pointed out the condition that underlies the relationship between digital platform capability, entrepreneurial agility, and business model innovation adoption, this study have not examined it in the moderated mediation model, but it only examined it partially. Future studies are suggested to carry out this analysis to understand more about the mechanisms by which digital platform capability influences business model innovation adoption.

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