
Strategic HRM, Digital Marketing Capability, and Startup Performance: The Mediating Role of Entrepreneurial Orientation in Generation Z Digital Startups

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ABSTRACT

This study examines the effect of Strategic Human Resource Management and Digital Marketing Capability on Generation Z Digital Startup Performance, with Entrepreneurial Orientation as a mediating variable. The research addresses the limited integration of organizational capability and entrepreneurial orientation perspectives in explaining startup performance. A quantitative approach was employed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with data from 200 founders and managers of digital startups in Indonesia. The results indicate that Strategic HRM and Digital Marketing Capability have positive and significant effects on both Entrepreneurial Orientation and startup performance. Entrepreneurial Orientation partially mediates these relationships. The structural model demonstrates strong explanatory power ($R^2 = 0.62$) and satisfactory goodness-of-fit indicators. The findings suggest that organizational capabilities must be activated through entrepreneurial orientation to generate superior performance. This study contributes to the development of an integrative capability-based framework within the context of Generation Z digital startups and provides strategic implications for integrated HR and digital marketing management.

Keywords: Entrepreneurial Orientation, Digital Marketing Capability, Digital Startup Performance, Human Resource Management

1. INTRODUCTION

The rapid development of digital transformation in recent years has brought significant changes to the dynamics of business competition. Technological advances such as artificial intelligence, big data analytics, cloud computing, and the increasing use of social media have driven the emergence of digital startups as a key driver of the modern economy. Indonesia itself is known as one of the countries with the largest number of startups in the world and has the greatest digital economy potential in Southeast Asia. However, the high growth of digital startups is not commensurate with the level of business success. Various global reports indicate that approximately 70–90% of startups fail to survive their first five years of operation (CB Insights, 2023). This phenomenon demonstrates that startup success is not solely determined by technological innovation or business ideas, but also influenced by managerial capabilities and organizational strategies that are able to adapt to changes in the dynamic business environment.

In a demographic context, the current startup ecosystem is starting to be dominated by Generation Z, a group of digital natives who have high technological literacy, are adaptive to change, and are oriented towards innovation and work flexibility (Schroth, 2019). Recent studies have shown that Gen Z entrepreneurs have strong digital fluency and innovative tendencies, but face challenges in organizational management and long-term business sustainability (Fatonah et al., 2024; Rosário & Dias, 2023). This shows that digital technical capabilities alone are not enough to guarantee optimal startup performance. Huwaida, L.A. et al. (2024) underscore the importance of tailoring s-commerce strategies to meet the demographic's unique preferences and behaviors. The study highlights that businesses can better engage Gen-Z by understanding what drives their

purchasing decisions. Because Gen-Z is tech-savvy and socially connected, understanding these key factors helps businesses create more effective strategies.

Theoretically, organizational performance, from a Resource-Based View (RBV) perspective, is determined by internal capabilities that are valuable, rare, difficult to imitate, and irreplaceable. In the context of digital startups, two crucial strategic capabilities are strategic human resource management (SHRM) and digital marketing capability. Research shows that SHRM practices based on knowledge sharing, agility, and digital competency development significantly influence innovation performance and firm performance (Anwar, G., & Abdullah, N.N., 2021; Alolayyan, M. et al., 2021).

Another study found that high-performance work systems can encourage employee entrepreneurial behavior through psychological empowerment (Chaudhary et al., 2024). This finding confirms that HR management not only directly impacts performance but also shapes an organization's entrepreneurial orientation.

On the other hand, digital marketing capability has been shown to be a crucial determinant of competitive advantage for digital startups. This capability encompasses data analytics, social media engagement, technology-based customer relationship management, and digital insight-based marketing strategies (Kim, J., & Jin, W., 2024). Trainor et al. (2014) assert that digital marketing capability is a source of competitive advantage based on dynamic capabilities, while Foltean et al. (2019) show that this capability enhances customer engagement, which ultimately impacts firm performance. However, most of these studies examine the influence of digital marketing capability only partially and have not integrated it with HR management practices into a comprehensive model.

Furthermore, the entrepreneurship literature positions Entrepreneurial Orientation (EO), which encompasses innovation, proactivity, and risk-taking, as a key determinant of innovation-based firm performance (Wales et al., 2023; Soares & Perin, 2020). However, recent studies have shown that the relationship between organizational capabilities and performance is often indirect. Irawan, T.T. et al, (2023) found that dynamic capabilities mediate the relationship between strategic orientation and the international performance of digital firms. This finding opens up the argument that EO has the potential to function as a mediating mechanism between internal capabilities (SHRM and digital marketing capabilities) and startup performance.

However, there are several significant research gaps. First, previous studies tend to analyze the influence of SHRM and digital marketing capability on performance separately, not in a simultaneous integrative model. Second, the role of Entrepreneurial Orientation as a mediating variable in the relationship between internal capabilities and digital startup performance is still very limited empirically. Third, research specifically highlighting digital startups managed by Generation Z in developing countries, particularly Indonesia, is still limited. This is despite the digital-native, collaborative, and flexible characteristics of this generation that have the potential to produce different dynamics of variable relationships compared to previous generations. Fourth, there is still little research that integrates the perspectives of RBV, Dynamic Capability Theory, and EO Theory into a single, unified conceptual framework to explain digital startup performance.

The absence of this integrative model creates a crucial conceptual and empirical gap that needs to be filled. Without a comprehensive understanding of how HR management practices and digital marketing capability are activated through entrepreneurial orientation, digital startup development strategies risk being partial and unsustainable. Given the high startup failure rate and the enormous potential of Indonesia's digital economy, this research is highly urgent.

Therefore, this study aims to develop and test an integrative model of HR management and digital marketing capability on the performance of Generation Z digital startups, with Entrepreneurial Orientation as a mediating variable. Theoretically, this research contributes to enriching the development of capability-based theories and digital entrepreneurship through a cross-perspective approach. Practically, this research is expected to generate strategic recommendations for Generation Z startup founders in building HR management systems and

digital marketing strategies aligned with entrepreneurial orientation to increase business competitiveness and sustainability in the digital economy era.

2. METHOD

This study employs a quantitative approach using explanatory research design. The quantitative approach was chosen because the study aims to examine the causal relationships among variables, specifically the influence of Strategic Human Resource Management (SHRM) and Digital Marketing Capability on Generation Z Digital Startup Performance, with Entrepreneurial Orientation serving as a mediating variable. Explanatory research is used to explain the cause-and-effect relationships among constructs through hypothesis testing that has been formulated previously (Sugiyono, 2022).

The analytical method used in this study is Partial Least Squares Structural Equation Modeling (PLS-SEM) with the assistance of SmartPLS 4 software. The PLS-SEM approach was selected because it is capable of analyzing complex relationships among latent variables, including mediation models, and is suitable for predictive and theory development research (Hair et al., 2022). In addition, PLS-SEM offers flexibility in data analysis as it does not require strict normality assumptions and can be effectively applied to relatively moderate sample sizes.

The study was conducted on digital startups managed by Generation Z in Indonesia from July 2025 to December 2025. The research population consisted of founders, co-founders, and managers of digital startups operating in technology-based business sectors. The startups selected as research objects were startup companies that utilized digital platforms in their operational and marketing activities.

The sampling technique employed in this study was purposive sampling, which is a method of selecting samples based on specific criteria aligned with the research objectives (Sekaran & Bougie, 2020). The criteria for respondents in this study were: (1) aged between 18–27 years as representatives of Generation Z, (2) holding positions as founders, co-founders, or managers of digital startups, (3) being involved in strategic organizational decision-making, and (4) having at least one year of experience in startup management. The total sample size of this study was 200 respondents, which met the adequacy requirements for SEM-PLS analysis.

The research data consisted of primary and secondary data. Primary data were collected through the distribution of online questionnaires using Google Forms. The use of online surveys was chosen because it was considered more effective in reaching digital startup respondents located across various regions. Meanwhile, secondary data were obtained from scientific journals, digital startup industry reports, scholarly articles, and official publications relevant to the research topic.

The research instrument employed a five-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree. The use of the Likert scale aimed to measure respondents' perceptions and evaluations of the research variable indicators in a systematic and measurable manner (Sugiyono, 2022).

The Strategic Human Resource Management variable was measured through indicators including digital competency-based recruitment, technology-based training, performance evaluation, knowledge sharing, and innovation-based reward systems. Digital Marketing Capability was measured through social media management capability, content strategy, utilization of data analytics, customer engagement, and campaign optimization. Entrepreneurial Orientation was measured through the dimensions of innovativeness, proactiveness, and risk-taking, while Digital Startup Performance was measured through revenue growth, profitability, customer growth, product innovation, and competitive advantage.

Data analysis was conducted through two main stages, namely the evaluation of the measurement model (outer model) and the structural model (inner model). The evaluation of the outer model was carried out to assess the validity and reliability of the constructs through testing

of outer loading, Average Variance Extracted (AVE), Composite Reliability (CR), Cronbach's Alpha, and discriminant validity using HTMT (Heterotrait-Monotrait Ratio). According to Hair et al. (2022), indicators are considered valid if they have outer loading values above 0.70 and AVE values above 0.50. Constructs are considered reliable if they have Composite Reliability and Cronbach's Alpha values above 0.70.

Furthermore, the evaluation of the inner model was conducted to measure the strength of relationships among constructs through R^2 values, effect size (f^2), predictive relevance (Q^2), and model fit indices such as SRMR and Goodness-of-Fit (GoF). Hypothesis testing was performed using the bootstrapping technique with 5,000 resamples to obtain t-statistic and p-value results. Hypotheses were accepted when the t-statistic value exceeded 1.96 and the p-value was below 0.05 (Hair et al., 2022).

This study also conducted mediation analysis using indirect effect and Variance Accounted For (VAF) to examine the mediating role of Entrepreneurial Orientation in the relationship between Strategic Human Resource Management and Digital Marketing Capability on Digital Startup Performance. In addition, Multi-Group Analysis (MGA) was employed to compare the model between founders and managers of digital startups, allowing the identification of differences in the influence of relationships among variables based on leadership positions within the organization.

Therefore, the research method was designed to generate an empirical model capable of comprehensively and systematically explaining the relationships among organizational capabilities, entrepreneurial orientation, and the performance of Generation Z digital startups.

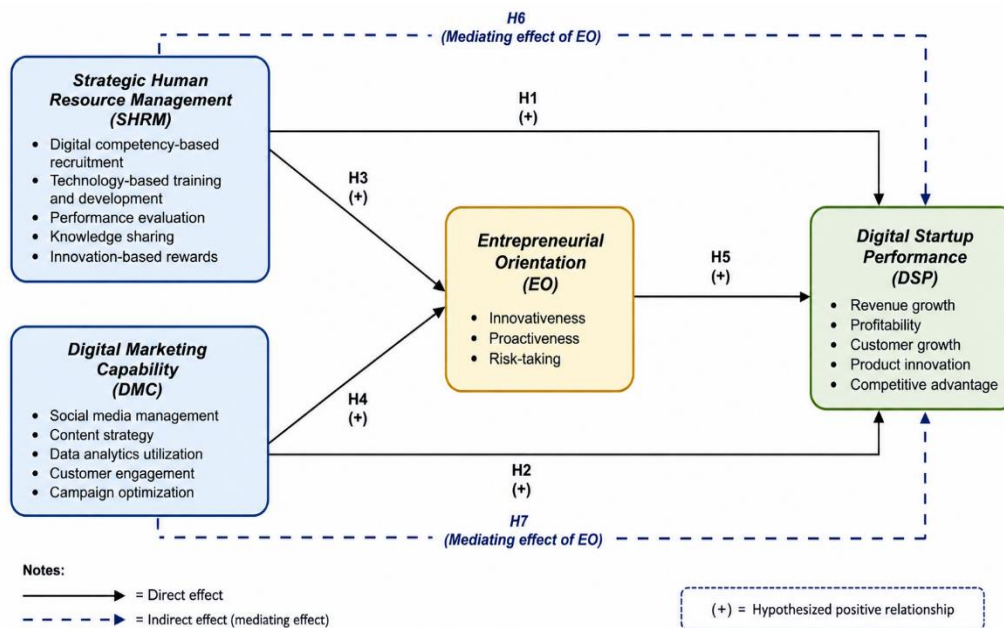


Figure 1. Model of Relationships Between Variables

Research Hypotheses

Direct Effects

H1 : Strategic Human Resource Management has a positive effect on Digital Startup Performance.

H2 : Digital Marketing Capability has a positive effect on Digital Startup Performance.

H3 : Strategic Human Resource Management has a positive effect on Entrepreneurial Orientation.

H4 : Digital Marketing Capability has a positive effect on Entrepreneurial Orientation.

H5 : Entrepreneurial Orientation has a positive effect on Digital Startup Performance.

Mediating Effects

H6 : Entrepreneurial Orientation mediates the relationship between Strategic Human Resource Management and Digital Startup Performance.

H7 : Entrepreneurial Orientation mediates the relationship between Digital Marketing Capability and Digital Startup Performance.

3. RESULTS AND DISCUSSION

3.1 General Description of Respondents

This study involved 200 respondents from Generation Z digital startups in Indonesia who held positions as founders, co-founders, and managers. Based on age characteristics, the majority of respondents were within the 22–25 years age range, indicating the dominance of young productive individuals in managing digital startups. In terms of position, most respondents were founders and co-founders, meaning that the information obtained reflects the perspectives of individuals who play strategic roles in organizational decision-making. Furthermore, most of the startups included in this study had been operating for 3–5 years, indicating that they were in the early business development or growth stage. In terms of the number of active team members, the majority of startups consisted of 3–10 members, reflecting the characteristics of early-stage startups with organizational structures that are relatively simple, dynamic, and flexible.

3.2 Measurement Model Evaluation (Outer Model)

The measurement model evaluation was conducted to assess the validity and reliability of the constructs.

Table 1. Outer Loading Results (Convergent Validity)

Construct	Number of Indicators	Outer Loading Range	Description
Strategic Human Resource Management (X1)	10	0.811 – 0.879	Valid
Digital Marketing Capability (X2)	10	0.842 – 0.885	Valid
Entrepreneurial Orientation (Z)	8	0.821 – 0.874	Valid
Digital Startup Performance (Y)	10	0.812 – 0.871	Valid

Source: SmartPLS 4 data processing results, 2025.

Based on Table 1, All indicators have outer loading values above 0.70, indicating that they meet the convergent validity criteria (Hair et al., 2022).

Table 2. Measurement Model Evaluation

Construct	AVE	Composite Reliability (CR)	Cronbach's Alpha	Description
Strategic Human Resource Management (X1)	0.711	0.961	0.954	Valid & Reliable
Digital Marketing Capability (X2)	0.729	0.964	0.959	Valid & Reliable
Entrepreneurial Orientation (Z)	0.711	0.952	0.941	Valid & Reliable

Construct	AVE	Composite Reliability (CR)	Cronbach's Alpha	Description
Digital Startup Performance (Y)	0.668	0.953	0.944	Valid & Reliable

Source: SmartPLS 4 data processing results, 2025.

Based on Table 2, the measurement model evaluation results indicate that all constructs meet the validity and reliability criteria. All indicators have outer loading values above 0.70 and AVE values above 0.50, indicating that convergent validity is achieved. In addition, the Composite Reliability (CR) and Cronbach's Alpha values for all constructs are above 0.70, demonstrating good internal consistency. Therefore, all constructs are considered valid and reliable for structural model analysis.

3.3 Structural Model Evaluation (Inner Model)

The structural model evaluation was conducted to examine the relationships among constructs in the proposed research model. The assessment included the evaluation of the coefficient of determination (R^2), effect size (f^2), predictive relevance (Q^2), and model fit indices.

Table 3. Coefficient of Determination (R^2)

Endogenous Variable	R^2	Interpretation
Entrepreneurial Orientation (Z)	0.47	Moderate
Digital Startup Performance (Y)	0.62	Strong

Based on Table 3, the R^2 value for Entrepreneurial Orientation is 0.47, indicating that Strategic Human Resource Management and Digital Marketing Capability explain 47% of the variance in Entrepreneurial Orientation. Meanwhile, the R^2 value for Digital Startup Performance is 0.62, indicating that the model explains 62% of the variance in startup performance, which can be categorized as strong.

Table 4. Effect Size (f^2)

Relationship	f^2	Interpretation
X1 → Y	0.08	Small
X2 → Y	0.10	Small-Medium
X1 → Z	0.16	Medium
X2 → Z	0.21	Medium
Z → Y	0.28	Medium-Strong

The results indicate that Entrepreneurial Orientation has the strongest effect on Digital Startup Performance, while Digital Marketing Capability shows a stronger influence on Entrepreneurial Orientation compared to Strategic Human Resource Management.

Predictive Relevance (Q^2)

The Q^2 values obtained for Entrepreneurial Orientation (0.32) and Digital Startup Performance (0.41) are greater than zero, indicating that the model has good predictive relevance.

Model Fit Evaluation

The model fit assessment produced the following results:

- SRMR = 0.056
- NFI = 0.924

- GoF = 0.620

These values indicate that the proposed structural model has a good level of fit and is appropriate for explaining the relationships among the constructs in this study.

3.4 Hypothesis Testing

Hypothesis testing was conducted using the bootstrapping procedure in SmartPLS 4 with 5,000 resamples. The hypotheses were accepted when the t-statistic value was greater than 1.96 and the p-value was less than 0.05.

Table 5. Summary of Hypothesis Testing Results

Hypothesis	Relationship	Path Coefficient (β)	f^2	VAF (%)	Decision
H1	X1 \rightarrow Y	0.20	0.08	-	Accepted
H2	X2 \rightarrow Y	0.25	0.10	-	Accepted
H3	X1 \rightarrow Z	0.35	0.16	-	Accepted
H4	X2 \rightarrow Z	0.40	0.21	-	Accepted
H5	Z \rightarrow Y	0.45	0.28	-	Accepted
H6	X1 \rightarrow Z \rightarrow Y	0.16	-	44%	Partial Mediation
H7	X2 \rightarrow Z \rightarrow Y	0.18	-	42%	Partial Mediation

Based on Table 5, all hypotheses were accepted. Entrepreneurial Orientation demonstrated the strongest direct effect on Digital Startup Performance with a path coefficient of 0.45. In addition, Entrepreneurial Orientation partially mediated the relationship between Strategic Human Resource Management and Digital Startup Performance, as well as the relationship between Digital Marketing Capability and Digital Startup Performance.

The VAF values of 44% and 42% indicate partial mediation, suggesting that organizational capabilities influence startup performance both directly and indirectly through Entrepreneurial Orientation. These findings highlight the important role of entrepreneurial orientation in transforming organizational capabilities into superior startup performance.

3.5 Discussion

This section discusses the findings of the study by relating the empirical results to existing theories and previous studies. The discussion focuses on the direct and mediating relationships among Strategic Human Resource Management, Digital Marketing Capability, Entrepreneurial Orientation, and Digital Startup Performance.

3.5.1 The Effect of Strategic Human Resource Management on Digital Startup Performance

The results indicate that Strategic Human Resource Management has a positive and significant effect on Digital Startup Performance. This finding suggests that strategic HR practices, such as digital competency-based recruitment, technology-oriented training, performance evaluation, and innovation-based reward systems, contribute to improving startup performance. This result is consistent with previous studies emphasizing that strategic HRM enhances organizational performance through the development of employee competencies and organizational adaptability (Alolayyan, M., 2021; Chaudhary et al., 2024).

However, the relatively moderate path coefficient indicates that HRM alone may not be sufficient to generate superior startup performance without the support of entrepreneurial behavior and strategic orientation. This finding supports the microfoundations perspective, which argues that organizational capabilities are rooted in internal systems and managerial practices (Puspaningtyas, M. et al., 2025).

3.5.2 The Effect of Digital Marketing Capability on Digital Startup Performance

Digital Marketing Capability was found to have a positive and significant effect on Digital Startup Performance. This finding demonstrates that the ability to manage digital platforms, utilize customer analytics, and optimize digital campaigns contributes directly to startup growth and competitiveness.

This result aligns with dynamic capability theory, which emphasizes the importance of sensing and seizing market opportunities through technological capabilities (Teece, 2016). Previous studies also found that digital marketing capability enhances customer engagement and firm performance in digital business environments (Foltean et al., 2022; Trainor et al., 2014).

The finding implies that digital marketing capability is not merely an operational tool but also a strategic capability that enables startups to respond quickly to market changes and customer needs.

3.5.3 The Effect of Strategic Human Resource Management on Entrepreneurial Orientation

The findings reveal that Strategic Human Resource Management positively influences Entrepreneurial Orientation. This indicates that organizational systems and HR practices play an important role in fostering innovativeness, proactiveness, and risk-taking behavior within startups.

This result is in line with previous research suggesting that innovation-oriented HR practices stimulate entrepreneurial behavior and organizational creativity (Chaudhary et al., 2024). Moreover, entrepreneurial orientation is increasingly recognized as a strategic behavior shaped not only by individual founders but also by organizational systems and managerial support (Wales et al., 2023).

Therefore, strategic HRM can be viewed as a structural foundation that strengthens entrepreneurial orientation within digital startups.

3.5.4 The Effect of Digital Marketing Capability on Entrepreneurial Orientation

The results also demonstrate that Digital Marketing Capability positively affects Entrepreneurial Orientation. This finding suggests that technological and digital capabilities encourage startups to become more proactive, innovative, and adaptive in responding to market dynamics.

The ability to utilize digital data and analytics allows startups to identify business opportunities more effectively and make faster strategic decisions. This result supports previous studies indicating that digital capability enhances organizational agility and innovation performance (Mikalef et al., 2020; Kim, J., & Jin, W., 2024; Appio, F., 2021; Zhang, F. & Zhu, L. 2021).

From the perspective of dynamic capability theory, digital marketing capability enables startups to continuously adapt and reconfigure their strategies in rapidly changing environments.

3.5.5 The Effect of Entrepreneurial Orientation on Digital Startup Performance

Entrepreneurial Orientation was found to have the strongest direct effect on Digital Startup Performance. This finding indicates that startups with higher levels of innovativeness, proactiveness, and risk-taking behavior tend to achieve better business performance.

This result is consistent with prior studies showing that entrepreneurial orientation is a key determinant of firm performance, particularly in dynamic and technology-driven industries (Irawan, T.T. et al., 2021; Wales et al., 2023; Soares & Perin, 2020). In the context of digital entrepreneurship, entrepreneurial orientation becomes increasingly important because startups operate in highly uncertain and competitive environments (Zahra & Nambisan, 2022; Sholokwu, B.M. (2024).

Therefore, entrepreneurial orientation acts as a strategic mechanism that transforms organizational capabilities into superior startup performance.

3.5.6 The Mediating Role of Entrepreneurial Orientation in the Relationship between Strategic HRM and Digital Startup Performance

The findings indicate that Entrepreneurial Orientation partially mediates the relationship between Strategic Human Resource Management and Digital Startup Performance. The VAF value of 44% indicates partial mediation, suggesting that strategic HRM influences startup performance both directly and indirectly through entrepreneurial orientation.

This finding implies that strategic HR practices not only improve operational effectiveness but also foster entrepreneurial behaviors that enhance organizational performance. The result supports the microfoundations perspective, which emphasizes the role of internal organizational systems in shaping strategic behavior and organizational outcomes (Puspaningtyas, M. et al., 2025; Felin et al., 2015).

This study contributes to the literature by demonstrating that Strategic Human Resource Management functions not only as a structural capability but also as a microfoundational driver that activates Entrepreneurial Orientation as a mechanism for transforming organizational capabilities into startup performance within Generation Z digital startups.

3.5.7 The Mediating Role of Entrepreneurial Orientation in the Relationship between Digital Marketing Capability and Digital Startup Performance

The results further show that Entrepreneurial Orientation partially mediates the relationship between Digital Marketing Capability and Digital Startup Performance. The VAF value of 42% indicates that digital marketing capability enhances startup performance both directly and indirectly through entrepreneurial orientation.

This finding suggests that digital capability not only improves operational efficiency but also encourages startups to become more innovative and opportunity-driven. By leveraging digital analytics and marketing technologies, startups are able to strengthen their entrepreneurial mindset and strategic responsiveness.

This result is consistent with previous studies highlighting the role of digital capability in improving organizational agility and innovation (Mikalef et al., 2020; Kim, J., & Jin, W., 2024). Furthermore, dynamic capability theory explains that technological capabilities enable organizations to sense and seize market opportunities more effectively (Teece, 2016; Appio, F., 2021).

This study extends the literature by showing that Digital Marketing Capability serves not only as an operational capability but also as a dynamic capability enabler that strengthens Entrepreneurial Orientation as a strategic mechanism for converting digital capability into superior startup performance.

4. CONCLUSIONS AND SUGGESTION

4.1 Conclusions

This study examined the relationships among Strategic Human Resource Management, Digital Marketing Capability, Entrepreneurial Orientation, and Digital Startup Performance in Generation Z digital startups in Indonesia. The findings revealed that Strategic Human Resource Management and Digital Marketing Capability have positive and significant effects on both Entrepreneurial Orientation and Digital Startup Performance.

The results also showed that Entrepreneurial Orientation has the strongest direct influence on Digital Startup Performance, indicating that innovativeness, proactiveness, and risk-taking behavior are critical factors in enhancing startup competitiveness and business growth. Furthermore, Entrepreneurial Orientation partially mediates the relationships between Strategic Human Resource Management and Digital Startup Performance, as well as between Digital Marketing Capability and Digital Startup Performance.

These findings confirm that organizational capabilities alone are insufficient to generate superior performance unless they are supported by entrepreneurial strategic behavior. Therefore, the integration of strategic HR practices, digital marketing capability, and

entrepreneurial orientation becomes an essential factor in improving the performance of Generation Z digital startups.

In addition, this study contributes theoretically by extending the perspectives of dynamic capability and microfoundations through the identification of Entrepreneurial Orientation as a strategic mechanism that activates organizational capabilities into superior startup performance.

4.2 Suggestions

Based on the findings of this study, several suggestions are proposed for startup practitioners and future researchers.

For startup practitioners, it is important to strengthen strategic human resource management through digital competency development, continuous learning programs, collaborative culture, and innovation-oriented reward systems. Digital startups should also improve their digital marketing capability by maximizing data analytics, customer engagement, and adaptive digital campaign strategies.

Startup leaders are encouraged to cultivate entrepreneurial orientation within the organization by fostering innovation, proactive opportunity exploration, and calculated risk-taking behavior. These practices are expected to improve startup adaptability and competitiveness in dynamic digital business environments.

For future researchers, this study can be expanded by including additional variables such as innovation capability, organizational agility, digital transformation, or leadership style. Future studies are also recommended to employ longitudinal approaches and comparative analyses across industries or generations to provide broader insights into startup performance and entrepreneurial behavior.

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