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INNOVATION CULTURE AND AMBIDEXTERITY: STRATEGIES TO DEAL WITH ENVIRONMENTAL UNCERTAINTY

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ABSTRACT

This study aimed to investigate the role of exploration and exploitation ambidexterity as a mediating factor in the relationship between innovation culture and innovation performance. Additionally, environmental uncertainty was examined as a moderating factor in the interaction between ambidexterity and innovation performance. The research used an explanatory deductive approach, conducting a survey with a purposive sampling method involving 205 SMEs in the creative industries across Malang, Solo, Semarang, and Denpasar. Path analysis with ordinary least squares regression was used to test mediation and moderation effects. The findings revealed that the relationship between innovation culture and innovation performance is mediated by exploration and exploitation ambidexterity. The study also confirmed that the dynamic environment significantly moderates the impact of exploration on innovation performance. However, environmental uncertainty was not found to moderate the effect of exploitation on innovation performance. This research combines perspectives from resource-based theory and dynamic capabilities, offering valuable insights into the role of ambidexterity within SMEs.

Keywords : *Exploration, Exploitation, Ambidexterity, Innovation Performance.*

ABSTRAK

Penelitian ini bertujuan untuk menyelidiki peran ambidexterity eksplorasi dan eksploitasi sebagai faktor mediasi dalam hubungan antara budaya inovasi dan kinerja inovasi. Selain itu, ketidakpastian lingkungan juga diuji sebagai faktor moderasi dalam interaksi antara ambidexterity dan kinerja inovasi. Penelitian ini menggunakan pendekatan deduktif eksplanatori dengan melakukan survei menggunakan metode purposive sampling yang melibatkan 205 UMKM di industri kreatif di Malang, Solo, Semarang, dan Denpasar. Analisis jalur dengan prosedur regresi kuadrat terkecil biasa digunakan untuk menguji efek mediasi dan moderasi. Hasil penelitian menunjukkan bahwa hubungan antara budaya inovasi dan kinerja inovasi dimediasi oleh ambidexterity eksplorasi dan eksploitasi. Penelitian ini juga mengonfirmasi bahwa lingkungan dinamis secara signifikan memoderasi pengaruh eksplorasi terhadap kinerja inovasi. Namun, ketidakpastian lingkungan tidak terbukti memoderasi pengaruh eksploitasi terhadap kinerja inovasi. Penelitian ini menggabungkan perspektif dari teori berbasis sumber daya dan kapabilitas dinamis, memberikan wawasan berharga mengenai peran ambidexterity dalam UMKM.

Kata Kunci : Eksplorasi, eksploitasi, ambideksteritas, kinerja inovasi

INTRODUCTION

Creative industries are defined as a group of economic activities related to the creation or use of knowledge and information (Purnomo & Kristiansen, 2018; Wu & Wu, 2016). According to data compiled from the 2018 World Conference on Creative Economy, Indonesia's creative industry sector contributed IDR 852 trillion to the gross domestic product, or 7.3 percent of Indonesia's total GDP over the past three years (World Intellectual Property Organization, et al., 2024). Additionally, the sector has contributed USD 19.4 billion in exports, which accounts for 12.88 percent of Indonesia's total exports. In terms of employment, the creative industry provides jobs for 15.9 million people, or 13.9 percent of the country's total workforce (World Intellectual Property Organization, et al., 2024). This means that 14 out of every 100 people in Indonesia work in the creative industry.

The COVID-19 pandemic has led to several challenges for SMEs in the creative industry, including cash flow issues, supply chain disruptions, and shifts in community demand (Lu et al., 2020; Seraphin, 2021). These challenges have caused production bottlenecks, a reduction in the workforce, financial difficulties, and increased raw material prices (Brodjonegoro, 2020; Kuckertz et al., 2020). The impact of the pandemic has increased the need for SMEs in the creative industry to adapt to new business practices and societal changes in a

context of environmental uncertainty (Kuckertz et al., 2020; Lavie & Rosenkopf, 2006; Lu et al., 2020).

Although Indonesia's innovation level improved to position 54 in the 2024 Global Innovation Index (GII), compared to 61 in the previous year, its innovation success rate still lags behind the regional average of Southeast Asia, East Asia, and Oceania (World Intellectual Property Organization, et al., 2024). According to the GII 2024, Indonesia's innovation ranking remains below average in several areas such as creative outputs, business sophistication, market sophistication, human capital and research, knowledge and technology outputs, and infrastructure (World Intellectual Property Organization, et al., 2024). Additionally, Indonesia's innovation output ranking has declined, dropping from 63rd in 2023 to 67th in 2024, highlighting significant innovation challenges and the need for further development (World Intellectual Property Organization, et al., 2024).

One of the reasons many organizations struggle to drive innovation is their difficulty in absorbing valuable ideas from others. This issue underscores the importance of cultivating an innovation culture within SMEs to foster an environment that encourages creativity and innovation (Hilmarsson et al., 2014). SMEs need to establish a long-term innovation culture that promotes collaboration, autonomy, support for research, trust, critical thinking, and employee recognition. A strong innovation culture can have a significant impact on corporate success (Camisón & Villar-López, 2014). It is evident that an innovation culture fosters the creation of new products or more inventive services, which will positively influence the firm's long-term success (Lee et al., 2017).

Several studies suggest that innovation culture influences innovation performance (Abdul Halim et al., 2015; Camisón & Villar-López, 2014; Hilmarsson et al., 2014), while a study by Hanifah et al. (2019) presented contradictory findings, showing that innovation culture did not contribute to innovation performance. Similarly, research by Lee et al. (2017) argued that innovation culture could affect innovation performance through SMEs' ability to balance exploration and exploitation or engage in ambidexterity (Seraphin, 2021). These conflicting findings have led to ongoing discussions in recent academic literature (Lee et al., 2017; Ramdan et al., 2022), suggesting that mediating variables may influence SME performance. This controversy inspired this paper to explore the deeper relationship between these variables, specifically the mediation role proposed by several prior studies (Lee et al., 2017; Ramdan et al., 2022) in the context of environmental uncertainty.

LITERATURE REVIEW

Innovation Culture and Innovation Performance

Organizational culture is considered a key factor in determining a firm's ability to innovate (Tushman & O'Reilly, 1996). When cultural traits are ingrained within an organization, they serve as the foundation for fostering innovation, particularly within SMEs (Ramdan et al., 2022). This implies that creating a culture focused on innovation is crucial for promoting innovation and achieving greater corporate success (Lee et al., 2017). In other words, for SMEs to have a significant impact on business performance, it is essential for them to develop an innovation-driven culture.

Innovation generally refers to a company's tendency to develop new processes, products, or ideas, while culture is understood as the characteristics of a group that emerge from the fundamental assumptions and knowledge accumulated over time (Abdul Halim et al., 2015; Hanifah et al., 2019). A strong organizational culture motivates employees to perform better and achieve the organization's objectives (Prajogo, Kusumawati, et al., 2020). Conceptually, innovation culture is a management approach that promotes creativity, risk-taking, idea development, and the creation of new opportunities in product development (Ramdan et al., 2022). Lee et al. (2017) define a "pro-innovation culture" as an organization's openness to adaptation, acceptance of new ideas, and the ability to implement new processes. Thus, the innovation culture in this study refers to the implementation of strategies that encourage employees to be more creative, take risks, develop ideas, and create new opportunities to enhance firm quality and productivity (Lee et al., 2017; Ramdan et al., 2022). Employees who are creative, able to develop ideas, enthusiastic, willing to take risks, and energetic contribute to achieving organizational success (Prajogo, Wijaya, et al., 2020).

Key elements of innovation culture include creativity, risk-taking, openness to new ideas, and an entrepreneurial mindset (Hilmarsson et al., 2014). Employees in companies with a strong innovation culture view uncertainty as an opportunity, value their colleagues' contributions, and see themselves as creative and inventive (Bilan et al., 2020; Hurley & Hult, 1998). The desire to be creative and the degree to which employees focus on learning new methods are also integral components of innovation culture, which in turn influences their ability to generate and implement new ideas (Hilmarsson et al., 2014). Additionally, the infrastructure that supports these behaviors, the components of the innovation process, and management's commitment to innovation also play a crucial role (Aksoy, 2017; Michaelis et al., 2018).

Resource-based View, Ambidexterity, and Dynamic Capability Theory

Exploration and exploitation ambidexterity is considered a dynamic capability possessed by a

company (March, 1991; O'Reilly & Tushman, 2013). According to Birkinshaw and Gupta (2013), ambidexterity refers to an organization's ability to manage contradictions and various pressures, both in the present and the future, to achieve efficiency and effectiveness, optimize its existing resources, and generate new innovations. Furthermore, ambidexterity is seen as a dynamic capability that allows an organization to simultaneously explore and exploit resources (Birkinshaw & Gupta, 2013; Collis, 1991; March, 1991; O'Reilly & Tushman, 2013; Teece, 2017; Teece et al., 2016).

From the resource-based view (RBV), capability is a key source of a company's sustainable competitive advantage. The RBV asserts that owning a collection of valuable, rare, inimitable, and non-substitutable (VRIN) resources provides an organization with a competitive edge (Barney, 1991; Barley et al., 2018). These resources include all assets, capabilities, organizational processes, company characteristics, information, knowledge, culture, and both tangible and intangible resources (Barney, 1991; Wernerfelt, 1984).

To meet the demands of innovation in the modern world, ambidexterity capability is essential for an organization to explore new opportunities while simultaneously exploiting its existing assets (Hughes, 2018). Exploration involves discovering new ideas, experimenting, taking risks, being flexible, and fostering innovation. On the other hand, exploitation is the process of improving, selecting, producing, optimizing efficiency, and executing activities (Birkinshaw & Gupta, 2013; Cho et al., 2019; Gnyawali et al., 2016; He & Wong, 2004; Ikhsan et al., 2017; Jansen et al., 2012; Lubatkin et al., 2006; March, 1991; Senaratne & Wang, 2018). According to some literature, exploration is the act of seeking new knowledge, while exploitation involves managing existing knowledge or utilizing and developing what is already known (Bengtsson & Johansson, 2014; Benner & Tushman, 2015; Birkinshaw & Gupta, 2013; Vermeulen & Barkema, 2001).

Environmental Uncertainty

Environmental uncertainty is a fundamental concept in contingency theory. It can be defined as either the situation where an individual, such as a manager, lacks crucial information about the environment, or as the state of the organizational environment, which is characterized by poor-quality information (Yu et al., 2023). According to research by Benner and Tushman (2003, 2015), ambidexterity plays a vital role in process development as an organizational response to environmental changes. Yu et al. (2022) noted that "uncertainty" is a key characteristic of environmental change (Teece et al., 2016). The external environment of an organization is no longer stable and predictable, with its dynamic and uncertain nature presenting a significant challenge to traditional management practices (Wang et al., 2019). Ivancic et al. (2017) suggested that an organization can be influenced by external factors beyond its control. Changes in the external environment often lead to shifts in internal strategies as well (Spyropoulou et al., 2018; Wang et al., 2019; Wang et al., 2018).

Ambidexterity as a Mediator between Innovation Culture and Innovation Performance

According to Resource-Based Theory, which focuses on a firm's competitiveness derived from internal resources that are rare, inimitable, and non-substitutable (Barley et al., 2018b; Barney, 1991), innovation culture can create value that is difficult to obtain, imitate, and replace (Park et al., 2016). Key components of innovation culture include attitudes toward innovation, technology, information sharing, entrepreneurship, business activities, and handling uncertainty (Park et al., 2016). In the context of Resource-Based Theory, innovation culture is an internal resource that supports the creation of innovation performance (Ghasemzadeh et al., 2019; Martín-de Castro et al., 2013).

O'Reilly and Tushman (2013) and Martín-de Castro et al. (2013) further argue that organizations with an innovative culture are more inclined to experiment, take risks, and support new innovations. Innovation culture is defined as a set of shared beliefs, values, and behaviors among employees that enhances innovation performance in products, services, and processes (Ali & Park, 2016; Ghasemzadeh et al., 2019). Brettel and Cleven (2011) also emphasized that improving innovation performance can be achieved by fostering cultural norms that encourage change, openness in sharing innovative ideas, creativity, and forward-thinking (Ghasemzadeh et al., 2019; Martín-de Castro et al., 2013).

However, SMEs need the ability to manage the elements of innovation culture effectively to achieve innovation performance (Hilmarsson et al., 2014; Ramdan et al., 2022). In other words, firms require capabilities that enable them to produce new products or more innovative services by cultivating an innovation culture, which helps them outperform competitors (Sebastian Ion & Eduard Gabriel, 2024; Van Breda-Verduijn & Heijboer, 2016). The various components of innovation culture, such as attitudes toward innovation, technology, information sharing, and entrepreneurial activities, support both the exploration of new innovations and the exploitation of existing businesses (Lee et al., 2017; Ramdan et al., 2022; Volberda & Van Bruggen, 1997). Several studies suggest the importance of balancing a firm's exploration and exploitation competencies (Hughes, 2018; March, 1991; Wilden et al., 2018).

If a company focuses too much on exploration, it may neglect the benefits of exploitation. On the other hand, excessive focus on exploitation can expose the company to the risk of

product obsolescence (Hughes, 2018; Hughes et al., 2017; Ikhsan et al., 2017; Wilden et al., 2018). This occurs when a company concentrates on exploiting existing products and ignores potential changes in markets or technologies (Alcalde-Heras et al., 2019; Benner & Tushman, 2015). Thus, firms need the capability to balance exploration (gaining new knowledge) with exploitation (reinforcing existing knowledge) within their innovation culture (Sorensen & Stuart, 2000). Ambidexterity in exploration and exploitation enables firms to adapt to changes while simultaneously developing their current business (Hughes, 2018; Ikhsan et al., 2017; Wilden et al., 2018). Specifically, ambidexterity is crucial when adopting an innovation culture to help employees respond quickly to environmental changes while fostering creativity and resource mobilization (Sebastian Ion & Eduard Gabriel, 2024). A study by Jahan and Akbar (2019) on 414 high-tech companies in India also found that when ambidexterity in exploration and exploitation is integrated through an innovation culture, the likelihood of creating innovative new products increases.

Based on the previous literature, the following hypothesis were formulated:

H1: Exploration mediates the effect of innovation culture on SMEs' innovation performance.

H2: Exploitation mediates the effect of innovation culture on SMEs' innovation performance.

Environmental Uncertainty as a Moderator in the Relationship between Ambidexterity and Innovation Performance

Environmental uncertainty refers to the extent to which future events can be predicted or anticipated (Kafetzopoulos, 2022; McKelvie et al., 2011; YahiaMarzouk & Jin, 2022). Studies suggest that companies operating in stable environments tend to develop structured systems, hierarchies, roles, and responsibilities (Kafetzopoulos, 2022). In contrast, environments with higher levels of uncertainty require more information processing, making traditional planning and forecasting methods less effective, and compelling firms to focus on utilizing their available resources or adjusting to unexpected situations (Yu et al., 2023).

Several studies have shown that the impact of exploration and exploitation ambidexterity on innovation performance is influenced by the conditions of the external environment (Cao et al., 2009; Wang et al., 2019). The relationship between antecedents, ambidexterity, and also business performance is shaped by environmental uncertainty (Raisch et al., 2009; Raisch & Birkinshaw, 2008). Moreover, environmental factors affect market share, product returns, and resource availability, all of which significantly alter a company's approach to innovation and exploration.

In general, exploitation is considered vital in stable, predictable environments, while exploration becomes more significant in dynamic, uncertain settings (Chang et al., 2011). Furthermore, the degree of environmental uncertainty—whether it involves complexity, rate of change, risk level, or resource availability—can influence the relationship between antecedents, organizational ambidexterity, and performance (Kafetzopoulos, 2022; Lee et al., 2017). According to contingency theory, organizations are most effective when their design aligns with the nature of their core activities and the external environment (Hughes, 2018). In changing and uncertain environments, successful adaptation requires organizations to engage in both exploration and exploitation to sustain long-term success (Hughes, 2018; Kafetzopoulos, 2022).

Based on the above discussion, the following hypothesis are proposed:

H3: Environmental uncertainty strengthens the effect of exploration on innovation performance.

H4: Environmental uncertainty strengthens the effect of exploitation on innovation performance.

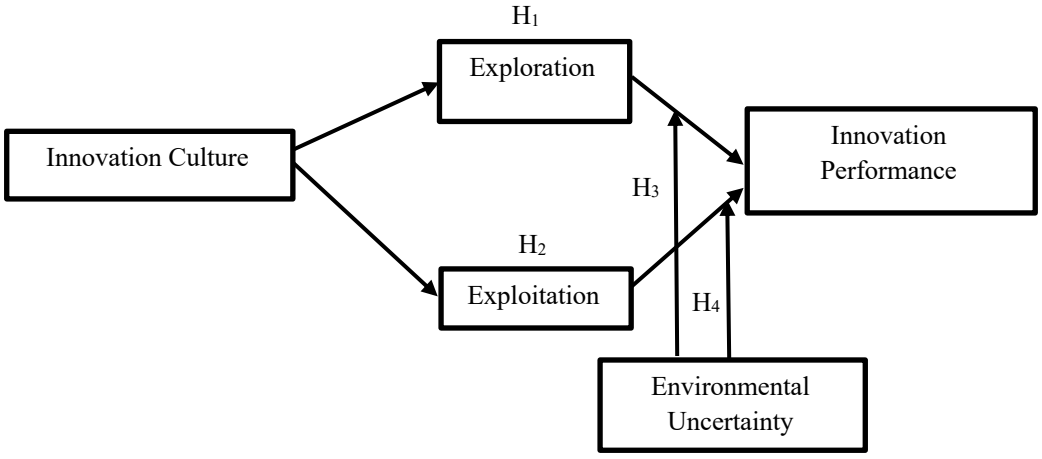

Figure 1. Research Mode

RESEARCH METHOD

The research respondents were SMEs in the creative industry located in Malang, Solo, Semarang, and Denpasar. These four areas were selected because they serve as model regions for other areas to develop an ideal creative economy (Mashud et al., 2022). The study utilized an online survey method. A total of 215 respondents participated in this research. Out of 215 responses, 205 were valid for analysis. Data collection through the survey took place from July 2024 to September 2024. To ensure a representative sample of respondents, databases from the Ministry of Cooperative and SMEs of the Republic of Indonesia, local cooperatives, business incubators, and other sources were used. A purposive sampling technique was employed, with the following criteria: SMEs operating in the creative industry, engaged in innovation, and with a minimum of four years of operation. Of the 248 distributed questionnaires, 215 were returned, yielding a high response rate of 86.7%. According to Baruch & Holtom (2008), an organizational-level research response rate of 40-50% is considered good. Of the returned questionnaires, 205 (82.7%) were complete and valid for analysis.

This study uses a hypothetical-deductive approach to address the research questions. It incorporates several variables: the dependent variable, independent variable, mediating variable, and moderating variable, all of which were measured on a 5-point scale (1= strongly disagree; 5= strongly agree). The independent variable was innovation culture, the dependent variable was innovation performance, environmental uncertainty served as the moderating variable, and exploration and exploitation ambidexterity were considered mediating variables. The dependent variable, innovation performance, was measured through two dimensions: product innovations (technically improved or entirely new products) and process innovations (new or modified production methods) (Liu et al., 2017). A five-item scale from Liu et al. (2017) was used to measure innovation performance, with a sample item like "Our product improvements have received a very positive market reaction."

The independent variable, innovation culture, was assessed using a five-item scale proposed by Aksoy et al. (2017), with a sample item such as "Our managers have the courage to innovate and take risks." The moderating variable, environmental uncertainty, was measured using a four-item scale adopted from YahiaMarzouk & Jin (2022), with a sample item like "How our market will change over the next 4 years is unpredictable." The mediating variable, ambidexterity, reflects the company's ability to simultaneously explore (measured by five items) and exploit (measured by four items) (Atuahene-Gima, 2005). A sample item for this variable is "Acquired manufacturing technologies and skills are entirely new to the firm."

RESULT AND DISCUSSION

The majority of respondents employed between 5 and 12 people (77.29%) and had been in operation for 4 to 11 years (70.74%). Most of the SMEs were located in the Malang, Solo, Semarang, and Denpasar areas, operating within creative industries such as fashion, furniture, crafts, leather processing, and textiles. Table 1 displays the descriptive statistics and correlation values for all variables. The mean scores for all variables range from 3.57 to 4.28 (indicating a moderate to high level), with standard deviations between 0.69 and 0.89. The correlation values between item pairs were below 0.5, suggesting no issues with multicollinearity (Hair et al., 2014). A 5-point Likert scale was used to rate each variable (1 representing strongly disagree and 5 representing strongly agree). As shown in Table 2, we conducted a reliability test to assess the quality of the instruments. According to Hair et al. (2014), all Cronbach's alpha values exceeded 0.7, which is considered excellent. To ensure the validity of the instrument, we also performed a confirmatory factor analysis (CFA) with a factor loading threshold of 0.5 (Hair et al., 2014). Any items with a score below 0.5 were excluded. Table 2 summarizes the results of this test. Therefore, we concluded that the instrument used in this study is both valid and reliable.

Table 1
Descriptive Statistics and Correlation

			Correlations				
Variables	**Mean**	**SD**	**1**	**2**	**3**	**4**	**5**
Innovation Culture (1)	3.57	0.81	1				
Exploration (2)	4.07	0.87	0.32**	1			
Exploitation (3)	4.28	0.69	0.34**	0.52**	1		
Innovation Performance (4)	3.70	0.89	0.55**	0.32**	0.29**	1	
Environmental Uncertainty (5)	3.73	0.86	0.17**	0.18**	0.28**	0.21**	1

Note: ***Significant at < 0.01

Table 2
Validity and Reliability Result

Item Codes	Factor Loadings	Cronbach's alpha
IC_1	0.8	0.82
IC_2	0.83	
IC_3	0.83	
IC_4	0.84	
IC_5	0.7	
EXR_1	0.87	0.87
EXR_2	0.89	
EXR_3	0.83	
EXR_4	0.81	
EXR_5	0.58	
EXP_1	0.61	0.88
EXP_2	0.78	
EXP_3	0.81	
EXP_4	0.86	
IP_1	0.72	0.79
IP_2	0.67	
IP_3	0.75	
IP_4	0.77	
IP_5	0.74	
IP_6	Dropped	
EU_1	0,74	0.87
EU_2	0.78	
EU_3	0.76	
EU_4	0.68	

To test the proposed hypotheses (mediation roles: H1, H2, and moderation roles: H3, H4), we employed hierarchical regression for both mediation and moderation testing, as recommended by Hayes (2018). Hayes (2018) suggested using a bootstrap confidence interval based on 5000 bootstrap samples to estimate and test the indirect paths simultaneously. As shown in Table 3, the effect of innovation culture on innovation performance through exploration is significant (coefficient = 0.06; LLCI = 0.01; ULCI = 0.15), as the interval did not include 0. Therefore, H1 is accepted. Similarly, the effect of innovation culture on innovation performance is significantly mediated by exploitation, as presented in Table 4 (coefficient = 0.07; LLCI = 0.02; ULCI = 0.13). Since the interval does not include 0, H2 is also accepted. The moderating role of environmental uncertainty on the relationship between exploration and innovation performance is significant (coefficient = 0.18, $p < 0.01$; LLCI = 0.08; ULCI = 0.28), supporting H3 (Table 3). However, environmental uncertainty was not found to moderate the influence of innovation culture on innovation performance, as the interval includes 0 (coefficient = 0.09, $p = 0.21$; LLCI = -0.058; ULCI = 0.25), meaning H4 is not supported (Table 4).

Table 3
Exploration Mediates the Influence of Innovation Culture on SMEs Innovation Performance

Testing hypotheses	Exploration Coefficient	SE	Variables Innovation Performance Coefficient	SE
Testing Hypothesis 1				
Innovation Culture	0.54**	0.11	0.14*	0.18
Exploration			0.11	0.04
Bootstrap indirect effects of				
Innovation Culture – Exploration – Innovation Performance			0.06*	
LLCI			0.01	
ULCI			0.15	

N= 205; **p < 0,01; *p < 0,05 (*two-tailed test*); a = *bootstrap sample size* = 5000; CI 95%; LLCI=*Lower Limit Confidence Interval*; ULCI=*Upper Limit Confidence Interval*

Table 4
Exploitation Mediates the Influence of Innovation Culture on SMEs Innovation Performance

Testing hypotheses	Exploitation Coefficient	SE	Variables Innovation Performance Coefficient	SE
Testing Hypothesis 2				
Innovation Culture	0.22**	0.05	0.138	0.07
Exploitation			0.29**	0.09
Bootstrap indirect effects of				
Innovation Culture - Exploration – Innovation Performance			0.07*	
LLCI			0.02	
ULCI			0.13	

N= 205; **p < 0,01; *p < 0,05 (*two-tailed test*); a = *bootstrap sample size* = 5000; CI 95%; LLCI=*Lower Limit Confidence Interval*; ULCI=*Upper Limit Confidence Interval*

Table 5
Environmental Uncertainty Strengthens the Effect of Exploration on Innovation Performance

Variabel	Coefficient	SE	t	p
Testing Hypothesis 3				
Bootstrap Exploration x Innovation Performance	0.18**	0.052	3.41	0.01
LLCI	0.08			
ULCI	0.28			

N= 205; **p < 0,01; *p < 0,05 (*two-tailed test*); a = *bootstrap sample size* = 5000; CI 95%; LLCI=*Lower Limit Confidence Interval*; ULCI=*Upper Limit Confidence Interval*

Table 6
Environmental Uncertainty Strengthens the Effect of Exploitation on Innovation Performance

Variabel	**Coefficient**	SE	t	p
Testing Hypothesis 4				
Bootstrap Exploitation x Innovation Performance	0.09	.0790	.1.22	.2182
LLCI	- 0.58			
ULCI	0.25			

N= 205; **p < 0,01; *p < 0,05 (*two-tailed test*); a = *bootstrap sample size* = 5000; CI 95%; LLCI=*Lower Limit Confidence Interval*; ULCI=*Upper Limit Confidence Interval*

Our study provides empirical evidence of how innovation culture enhances innovation performance through exploration in the context of SMEs in the creative industry in Malang, Solo, Semarang, and Denpasar. Specifically, exploration mediates the relationship between innovation culture and innovation performance, aligning with previous studies (Lee et al., 2017; Ramdan et al., 2022). These findings indicate that innovation culture can boost the innovation performance of SMEs through the exploration process (Ramdan et al., 2022; Roberts et al., 2016).

Another key finding is that exploitation also mediates the relationship between innovation culture and innovation performance. Businesses cannot rely solely on exploration; exploitation is equally important. Processing ideas, creativity, information, and knowledge within an innovation culture also requires the ability to exploit resources effectively (Ramdan et al., 2022). This is consistent with the research by Lee et al. (2017), which suggests that innovation culture supports innovation performance when a company is capable of both exploring innovations and exploiting existing businesses.

In addition to confirming the mediating role of ambidexterity, this study finds that environmental uncertainty strengthens the relationship between exploration and innovation performance. However, environmental uncertainty does not strengthen the relationship between exploitation and innovation performance. This may occur because, in uncertain environments, organizations tend to focus more on exploration rather than exploitation. Exploitation tends to become the primary focus when a company operates in a stable environment (Chang et al., 2011).

CONCLUSION

The ongoing COVID-19 pandemic has forced SMEs to adapt to new conditions with limited resources (Papadopoulos et al., 2020). SMEs are challenged with balancing ambidextrous actions, such as exploring new opportunities while maintaining their existing businesses to ensure survival (Lu et al., 2020). To navigate this, organizations require an innovation culture that fosters the generation of ideas, creativity, and the courage to enhance innovation performance (Ali & Park, 2016; Hilmarsson et al., 2014).

However, innovation culture alone cannot directly improve innovation performance; it must be managed in a way that encourages both the exploration of new opportunities and the exploitation of existing businesses (Lee et al., 2017; Ramdan et al., 2022). Over-reliance on exploration poses a high risk of failure for the company, while focusing solely on exploitation may cause the company to fall behind competitors (Hughes, 2018; March, 1991). This research highlights the need for companies to combine both exploration and exploitation capabilities to achieve innovation performance. However, in the face of environmental uncertainty, exploration tends to take precedence over exploitation (Chang et al., 2011).

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