

# **BUSINESS INTELLIGENCE, STRATEGY INNOVATION, AND DIGITAL VALUE CREATION FOR BUSINESS PERFORMANCE ON DIGITAL CREATIVE INDUSTRIES**

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## **ABSTRACT**

Micro, Small and Medium Enterprises' (MSMEs) business performance in digital creative industries still remain an issue in Indonesia. This paper evaluates the influence of business intelligence on business performance through digital value creation mediated by innovation strategy. This research is conducted in the digital creative industries using 104 respondents consisting of managers and company owners in Indonesia. The method used is Partial Least Squares Structural Equation Modeling (PLS-SEM). The results show that business intelligence exhibits positive and significant impact both on digital value creation and innovation strategy. Apart from that, innovation strategy exhibits positive and significant impact on digital value creation. Lastly, digital value creation exhibits positive and significant impact on business performance. Likewise, the indirect influence of all variables in the model shows positive and significant results. A major limitation of this study is the study sample. Since the sample covers only eight cities in Indonesia, it does not represent the whole of Indonesia. However, since no empirical study has evaluated business intelligence through digital value creation mediated by strategy innovation, this study makes a unique contribution to business performance on digital creative industries in Indonesia.

**Keywords:** business intelligence, business performance, digital value creation, innovation strategy, digital creative industries, MSMEs.

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## **1. INTRODUCTION**

Business performance is the final result of an activity within an organization. Business performance includes the actual results of the strategic management process (Wheelen & Hunger, 2018). Evaluating business performance is a key factor in controlling resources effectively. In addition, business performance shows the mission and goals of an organisation (Evans et al., 1996). In a highly competitive environment, innovation is an important key for companies to gain a dominant position and obtain higher profits in an industry. Therefore, understanding innovation strategy practices that refer to business success is useful for a manager (Kalay & Lynn, 2015). Porter (1996) defines strategy as a set of activities that differentiate a company from its competitors and maintain its competitive position. An innovation strategy is a collection of ideas about the strategic role of a new product or service within a company (Ermaya, 2022).

The creative industries are an economic sector that focuses on products with artistic value and creativity, involving individual or group talent and expression. Therefore, having an innovation strategy is very important if a company wants to survive and develop in the digital creative industries. Startups in the digital creative industries are a variety of new companies that focus on creating applications, platforms, or other digital products related to art, entertainment, design, or media. Businesses need to balance the increase in new companies with their ability to innovate effectively. Indonesia as a whole has problems with innovation. Indonesia's Global Innovation Index (GII), with a score of 30.3 points, ranks 61st in the world, according to the World Intellectual Property Organisation. Two sub-indices, the innovation input and innovation output submarine-indices, assess the GII ranking. According to the United Nations Development Programme's (UNDP) latest Human Development Index (HDI) report, Indonesia's HDI score stands at just 0.713. This value is lower than the global average, which is 0.739 which is ranked in 112th.

Indonesia scored 51.13 out of 100 points in the World Talent Ranking report from the Institute for Management Development (IMD), placing it 47th out of 64 countries studied in 2023. Indonesia also still has problems with its competitiveness. The IMD states that Indonesia's Global Competitive Index (GCI) is in 34th place out of 64 countries with a score of 70.75. Companies are always in an uncertain and dynamic environment. Therefore, to manage uncertainty, organisations can implement effective strategies to improve their performance (Donaldson, 2001). In other words, implementing an innovation strategy in a company can ensure successful innovation implementation by reducing the critical possibilities that exist in the internal and external environment (Ermaya, 2022).

Low capital and human resources, particularly in the absence of professional management and expertise, contribute to the short lifespan of organizations in the digital creative industries (Waal et al., 2009). Therefore, performance problems that occur in the digital creative industries are still a major concern for research (Brouthers et al., 2014). The issue of business performance in the digital creative industries has attracted the attention of researchers who want to investigate it (Yu et al., 2014). The study of both the planning and execution of cultural and creative industries is a developing area of research (Feher et al., 2017). Therefore, the focus of this paper is to evaluate the influence of business intelligence on business performance through digital value creation mediated by innovation strategy.

## **2. LITERATURE REVIEW**

### ***2.1. Digital Creative Industries***

The latest advancements in digital technologies, such as big data, cloud computing, and blockchain, have played a significant role in driving economic transformation and development. These technologies have also led to the improvement and modernization of the industrial structure (Zhao et al., 2024). Currently, there is a global lack of standardized definitions for digital creative industries. Related concepts include the creative industry, copyright industry, data content industry, and cultural creative industry (Zhang et al., 2023). The advent of digital technologies has revolutionised the process of creating, distributing, and utilising many forms of creative work. According to Feher et al. (2017), they have increased the accessibility of cultural items, disrupted traditional business models and the copyright system, and blurred the distinction between producers and consumers.

The digital creative industries are an economic sector that produces products and services that use creativity and digital technology as their main elements. Innovation emerges continuously in new forms of content, technology, and business models that create new opportunities for creative professionals and companies around the world. It has also been a source of significant economic growth in many countries. Aside from that, the digital creative industries also create new jobs and add value to a country's economy as a whole.

### ***2.2. Business Intelligence***

The concept of business intelligence has been around since the 1950s and grew out of a technology known as decision support. Companies use decision support to make decisions that give them a competitive advantage. The study of business intelligence applied in organisations has gained interest in recent years, although this concept has a long history (Dishman and Calof, 2008). Business intelligence incorporates elements and processes from other fields, such as the military, government administration, and, to some extent, intelligence-driven cultures (Maune, 2014), where intelligence practices have a long history. Initially, business intelligence focused on integrating internal data, but attention has increasingly shifted to benefits with external data (Anderson-Lehman et al., 2008).

Companies use business intelligence systems to support their strategic business goals, reengineer business processes, provide quality information, and enhance decision-making (Watson & Wixom, 2007). This gave rise to a concept that became a new popular technology for researchers and practitioners (Olszak & Ziemia, 2006).

Business intelligence helps to improve company operations more efficiently. In addition, business intelligence can also help companies find new opportunities and re-engineer their operational activities (Howson, 2007). Literature shows that many organisations have implemented business intelligence systems using maturity and critical success factors (CSF) models (Dawson & Van Belle, 2013).

### **2.3. Innovation Strategy**

Lendel & Varmus (2011) argue that innovation strategy determines tactics that form approaches to goals, methods, and ways to increase a company's innovative potential. Innovation strategy enables leaders to follow competitor activities, achieve customer market information, use company resources effectively, and make efficient investments in research and development (Oke et al., 2012). Verhees & Meulenber (2004) have demonstrated that these activities positively influence a company's innovation performance.

A company carries out business activities in an uncertain environment by implementing effective strategies (Donaldson, 2001). Innovation is an important component of sustainable competitive advantage, but most organisations tend to focus on routine activities that are not conducive to innovation. Therefore, leaders must provide direction and create an environment that supports creativity and innovation through various organisational learning processes, new knowledge, and essential competencies (Birasnav et. al., 2013). Innovation can increase efficiency, productivity, competitiveness, and its implications for performance (Meyer & Subramaniam, 2014).

### **2.4. Digital Value Creation**

Value creation has become a major research topic in the strategic and stakeholder management literature (Windsor, 2017). Value creation is the generation of profits from trade, transactions, investments, and relationships between producers and consumers. Digital value creation can be defined as any generation of products and services based on the use of digital information and communication technology that produces the qualities desired by consumers in goods and services (Ermaya, 2022). The opposite of value creation is value destruction (James, 2009). Certain business activities, such as mergers and acquisitions, can result in value creation or value destruction (Wu et al., 2016).

Zwick et al. (2008) base the idea of value co-creation on the assumption that companies and stakeholders can integrate in a way that improves economic and organisational performance and increases stakeholder satisfaction. Prahalad & Ramaswamy (2004) introduced the concepts of value and customer co-creation. Co-creation is a very broad term with many applications. Customers play a more significant role in value co-creation than the organisation itself, co-creating value at various points of interaction and value bases (Ramaswamy & Prahalad, 2004).

### **2.5. Business Performance**

Business performance is one of the most important issues in management research, but it has been defined differently over the years because it has many meanings (Gavrea et al., 2011). The 1980s viewed business performance as an organization's ability to achieve its goals with the least amount of resources. This causes profit to become one of many performance indicators (Campbell, 1977). Lebas and Euske (2006) define business performance as a set of financial and non-financial indicators that offer information about the level of achievement of goals and results.

Performance appraisals are an important component of the management process in all types of organizations. Lewin & Minton (1986) recognize business performance as a multidimensional

construct that encompasses various goals, types of organizations, and levels within the organization. An organisation requires a major movement towards efficiency so that employees and managers use all their experience, abilities, and capacities for organisational goals (Chegini, 2013).

## 2.6. Hypotheses Development

Organizational activities yield knowledge, which is known as business intelligence (Siswono, 2013). The main goal of a business intelligence system is to improve the timeliness and quality of input for the decision-making process (Ali & Miah, 2017). Business intelligence is an important part of effective business management. Caseiro & Coelho (2018) examine the direct effect of business intelligence on business performance and the indirect effect through network learning and innovation strategies on 228 startups in various countries in Europe using SEM. The results show that there is a positive influence of business intelligence capacity on network learning, innovation strategy, and business performance. This paper proposes a research hypothesis based on these theories.

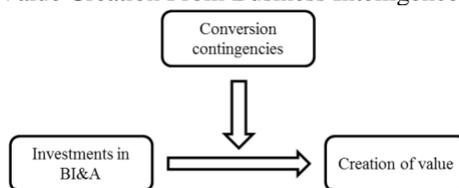
*H<sub>1</sub>: Business intelligence is positively related to innovation strategy.*

According to Wang & Ahmed (2004), innovation strategy is the main strategy for creating new product or service developments, establishing new production, supply, and distribution methods, making changes in management processes, and providing concepts and processes to gain competitive advantage and performance. Meanwhile, Kuratko & Hodgetts (2004) state that innovation strategy is the formation of new ideas and the development of remaining resources to create wealth. Bashir & Verma (2017) use the Connect broadband case study in India to investigate innovation in business. The research results show that the innovation strategy model can be an internal and external source of value co-creation. This paper proposes a research hypothesis based on these theories.

*H<sub>2</sub>: Innovation strategy is positively related to digital value creation.*

Value co-creation is, essentially, a theory for managing any business or organisation (Brandenburger & Nalebuff, 1997). It is considered an innovative method for developing systems that involves the integrated exchange of ideas (Ramaswamy, 2008). Yogev et al. (2012) conduct research on 159 managers and experts in the field of business intelligence in Israel using SEM technique. The results show that business intelligence largely contributes to value co-creation by improving strategic and operational business processes. This research is also strengthened by the framework that depicts the linkage between business intelligence and digital value creation in sports organization (Caya & Bourdon, 2016).

**Figure 1:** Model of Value Creation From Business Intelligence in Competitive Sports



This paper proposes a research hypothesis based on these theories.

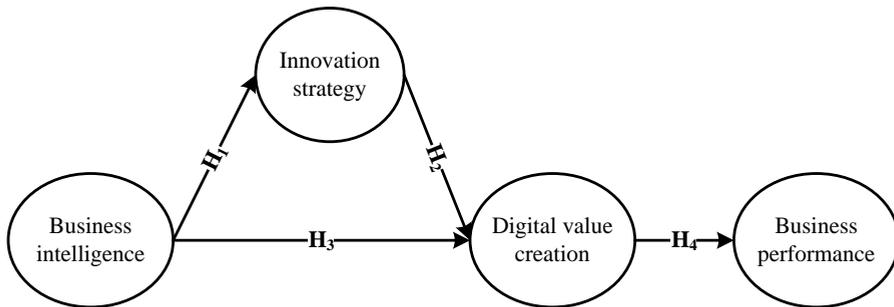
*H<sub>3</sub>: Business intelligence is positively related to digital value creation.*

MSMEs are highly favoured by entrepreneurs as a prevalent type of business (Budiarto et al., 2023). In order to sustain their business, companies must have superior business performance to remain competitive. (Ermaya, 2022). Nuryakin et al. (2017) examine the influence of value co-creation and market knowledge competency on business performance in MSMEs. The results show that there is a positive and strong relationship between value co-creation and business performance. This paper proposes a research hypothesis based on these theories.

*H<sub>4</sub>: Digital value creation is positively related to business performance.*

Based on various theories for research and evaluation, a research model is proposed, as shown in Figure 1.

**Figure 2: Theoretical Framework**



### 3. METHODOLOGY

#### 3.1. Data Collection

Data for the study are collected using a survey questionnaire administered to ASPILUKI, an association that accommodates companies operating in the field of information technology. The research subjects are all organizations in the digital creative industries, with a research implementation period spanning from March 2024 to May 2024. The unit of analysis is all organizations in Indonesia's digital creative industries, and the observation unit is the business actors (owners and managers) who understand the business situation in depth.

#### 3.2. Sample Selection

This research tests hypotheses, analyses the relationship among variables, and determines the magnitude of their influence on other variables. SmartPLS 4 software is used to determine the influence among variables. This research uses non-probability sampling with total sampling method. Thus, the population in this study consisted of 134 companies spread across eight cities.

There are only 104 valid questionnaires. This is due to incomplete or non-returned questionnaires, which hinder the accurate processing of the received data. This study uses a 95% confidence interval ( $Z = 1.96$ ). The likert scale, which ranges from 1 (strongly disagree) to 5 (strongly agree), is used to gauge the constructs. The respondents' characteristics are detailed below:

**Table 1:** Respondent Characteristics

		N	% to N
Type of entity business	Legal entity	87	84%
	Business entity	17	16%
	Total	104	100%
Location	Jakarta	70	67%
	Bandung	6	6%
	Tangerang	17	16%
	Yogyakarta	5	5%
	Bekasi	2	2%
	Bangka Belitung	1	1%
	Sidoarjo	2	2%
	Gorontalo	1	1%
Total	104	100%	
Year of operation	< 2001	38	37%
	2001 - 2010	34	33%
	> 2010	32	31%
	Total	104	100%
Number of employees	< 51 persons	54	52%
	51 - 100 persons	37	36%
	> 100 persons	13	13%
	Total	104	100%
Marketing area	Domestic	42	40%
	Domestic and International	62	60%
	Total	104	100%
Profit growth	< 11%	34	33%
	11 - 20%	57	55%
	21 - 30%	9	9%
	> 30%	4	4%
	Total	104	100%
Length of work experience	< 11 years	46	44%
	11 - 20 years	47	45%

Expertise	> 20 years	11	11%
	Total	104	100%
	IT	90	87%
	Non IT	14	13%
	Total	104	100%

#### 4. RESULTS AND DISCUSSION

This research employs a reflective measurement model to measure business intelligence, strategy innovation, digital value creation, and business performance. The value of a valid loading factor must be greater than 0.70 (Hair et al., 2021) or exactly above 0.708 (Hair et al., 2019). According to the table, all loading factors are greater than 0.7.

**Table 2:** Cross Loading Value

Variable	Question	Cross Loading
Business Intelligence (BI)	The business capability infrastructure enables fast response times to system usage.	0,916
	The business capability infrastructure meets organizational requirements.	0,873
	The crew demonstrates an understanding of business capabilities that align with business needs to obtain information.	0,884
	The business capability crew possesses the ability to spearhead the system design and development process.	0,859
	Utilization modeling and optimization extensively to enhance business processes.	0,853
Innovation Strategy (IS)	The task involves a comprehensive analysis of administrative and operational information.	0,743
	The digital products and services provided are simple to comprehend.	0,764
	Digital products and services are designed to provide customers with significant experiences.	0,800
	The ability to analyze the customer base and divide it into segments.	0,842
	The company's efforts to differentiate and limit the components of its digital product and service portfolio are accurate.	0,825
	The capability to adjust newly developed components and hardware.	0,786
	The capacity to identify evolving user behavior in various contexts and markets is crucial.	0,795
	The ability to strike a balance among general digital skills and particular digital roles.	0,833
The ability to put together a team with the appropriate mix of skills for every digital project.	0,737	

	The capability to arrange tasks in a way that strikes a balance between structure and flexibility.	0,845
Digital Value Creation (DVC)	The ability to dedicate time to improvising tasks	0,783
	The company is able to offer different solutions from those of its competitors.	0,779
	Customers recognize the company as a pioneer in the markets where it operates.	0,804
	It is important to retain even less profitable customers for as long as possible.	0,749
	Regular customers are rewarded through loyalty programs and other measures.	0,853
	The offers are among the most comprehensive in the industry.	0,911
	Key partners have a strong influence on how comprehensive our offering.	0,859
Business Performance (BP)	Our solutions enable customers to take advantage of time and effort savings.	0,795
	The Internet provides more efficient access and use of products than traditional channels.	0,786
	Product innovation drives the growth rate of a company's operating income.	0,779
	The degree of achievement in attaining noteworthy operational profit for the company.	0,767
	Success rate in retaining existing customers.	0,847
	The degree of customer contentment with newly introduced product.	0,815
	The rate at which new products are approved for launch on the market.	0,827
	The success level in carrying out company operational efficiency.	0,843
	The degree of achievement in enhancing employee skills.	0,722
	The success rate in retaining existing employees.	0,733

Common Method Bias (CMB) describes the systematic variance that comes from the same source or procedure and is shared by several measurements or constructs. To test CMB, Harman's one-factor test was used. The results showed that the single-factor variance only accounted for 37.2% of the total variation, which was less than the 50% criterion. It implies that the study did not find CMB to be a major concern.

#### **4.1. Business Intelligence**

Business intelligence is measured by six valid indicators. The strongest indicator (CL = 0.916) is reflected by "The business capability infrastructure enables fast response times to system usage". According to field findings and interviews with respondents, information technology capabilities are the spearhead of company resources. A company will not be successful in competition if it does not have information technology capabilities. This helps companies speed up system utilisation.

This paper is supported by the results of research conducted by Mithas et al. (2011), which state that within a company, information technology capability is influenced by organisational capability on business performance. Muazu & Abdulmalik (2021) state that information technology capabilities have a significant influence on competitive advantage. The research conducted by Garrison et al. (2015) shows that information technology capabilities are influential in facilitating the success of cloud computing. Similar things were expressed by Sidiq & Astutik (2017), and showed that information technology capabilities had a positive effect (54%) on customer orientation and business performance.

#### ***4.2. Innovation Strategy***

Innovation strategy is measured by ten valid indicators. The strongest indicator (CL = 0.845) is reflected by "The capability to arrange tasks in a way that strikes a balance between structure and flexibility". Workplace flexibility refers to the capacity of employees to modify their work arrangements in terms of location, timing, and overall duration of work-related activities (Rau & Hyland, 2002). Firms frequently employ flexible work practices as a component of their human resource strategy to attract, incentivize, and retain valuable employees (Hill et al., 2008). Employers are also encouraged by the government to use flexible working arrangements. As a result, employers have provided flexible working alternatives as the employment arrangement for their employees (Cully et al., 1999). Flexible working environments empower individuals to exert control over their work arrangements, thereby reducing the impact of job-related stress (Halpern, 2005). According to Richman (2006), the presence of flexible working practices, which allow individuals to effectively balance their job and home responsibilities, is significantly associated with increased levels of organizational commitment.

#### ***4.3. Digital Value Creation***

Digital value creation is measured by eight valid indicators. The strongest indicator (CL = 0.911) is reflected by "The offers are among the most comprehensive in the industry". These results are supported by previous research, for example, Auliana (2012), which proves that digital value creation has a positive and significant effect on MSMEs. Digital value creation has the potential to reduce the cost of contact between participants, generate vast quantities of data, and facilitate relationships between parties (Reddy & Reinartz, 2017).

#### ***4.4. Business Performance***

Business performance is measured by eight valid indicators. The strongest indicator (CL = 0.847) is reflected by "Success rate in retaining existing customers". Companies can retain existing customers because Indonesia's digital creative industries are in a high growth cycle (Ermaya, 2022). According to Murphy & Murphy (2002), a 2% improvement in customer retention is equivalent to a 10% reduction in costs. Companies that can successfully develop and implement client retention strategies have the potential to gain a competitive edge, increase profitability, and establish a positive reputation. There is compelling evidence that client retention leads to significant business advantages. As a result, firms strive to improve customer lifetime value. A company can uphold customer retention and loyalty through various strategies, including providing excellent service and utilising database marketing (Nasir, 2021).

#### 4.5. Construct Reliability and Validity

The construct validity test is carried out by calculating the Average Variance Extracted (AVE). A good AVE's value must be greater than 0.50 (Hair et al., 2019). The results can be concluded that one latent variable is able to explain more than half of the variance of the indicators in the average (Ghozali, 2016). Also the output of Cronbach Alpha and Composite Reliability for all variables have a value greater than 0.70. Therefore, it can be concluded that all constructs have good reliability.

**Table 3:** Cronbach's Alpha, Composite Reliability and Average Variance Extracted

Variable	$\alpha$	CR	AVE
BI	0,926	0,943	0,733
IS	0,939	0,947	0,643
DVC	0,929	0,942	0,670
BP	0,915	0,931	0,629

#### 4.6. Fornell-Larcker Criterium

Evaluation of discriminant validity, a form of evaluation to ensure that variables are theoretically different and empirically proven, needs to be done by looking at the "Fornell-Larcker Criterium". According to it, the root AVE of a variable is greater than the correlation among the variables. Innovation strategy has a greater AVE root (0.802) and a greater correlation with BI (0.421), DVC (0.556), and BP (0.375). These results demonstrate that the variable innovation strategy meets the discriminant validity criteria. The variable digital value creation also exhibits discriminant validity, with its AVE root (0.818) surpassing the correlations with BI (0.578) and business performance (0.439). Lastly, the discriminant validity of business performance (0.793) is greater than the correlation with business intelligence (0.293).

**Table 4:** Fornell-Larcker Criterium

	BI	IS	DVC	BP
BI	0,856			
IS	0,421	0,802		
DVC	0,578		0,818	
BP	0,293			0,793

#### 4.7. Heterotrait–Monotrait Ratio (HTMT)

Hair et al. (2021) recommend HTMT because it is considered more accurate in detecting discriminant validity. HTMT is the mean value of the item correlations across constructs in proportion to the (geometric) mean of the average correlations for the items measuring the same construct. The recommended value for the same construct is less than 0.90 (Hair et al., 2019). The test results indicate that the variable pair's HTMT value is below 0.90, indicating the achievement of discriminant validity.

**Table 5: HTMT**

	<b>BI</b>	<b>DVC</b>	<b>BP</b>
IS	0,422	0,577	0,406
DVC	0,609		0,472
BP	0,317		

#### 4.8. Collinearity Statistics (VIF)

Testing the hypothesis of influence between research variables is a key component of the structural model evaluation. The structural model evaluation check is carried out by checking the inner VIF (Variance Inflated Factor). An Inner VIF value lower than 5 indicates that there is no multicollinearity between variables (Hair et al., 2021). From the research results, it is found that all inner VIF values are lower than 5. It means the parameter estimation results are robust or unbiased.

**Table 6: Collinearity Statistics (VIF)**

	<b>IS</b>	<b>DVC</b>	<b>BP</b>
BI	1,000	1,215	
IS		1,215	
DVC			1,000

#### 4.9. Hypothesis Test

The first hypothesis ( $H_1$ ) is accepted, namely that there is a positive influence of BI on IS with a path coefficient of 0.421 and p-value ( $0.000 < 0.05$ ). The value of  $T_{statistics}$  is greater than 1.96 ( $4.962 > 1.96$ ), meaning that the impact is significant. The influence's strength is moderate ( $f^2 = 0.215 < 0.350$ ). Duan and Cao's (2015) research strengthens this paper by demonstrating that business intelligence directly enhances environmental scanning, thereby influencing company innovation strategies.

The second hypothesis ( $H_2$ ) is accepted, namely that there is a positive influence of IS on DVC with a path coefficient of 0.380 and p-value ( $0.000 < 0.05$ ). The value of  $T_{statistics}$  is greater than 1.96 ( $3.626 > 1.96$ ), meaning that the impact is significant. The influence's strength is moderate ( $f^2 = 0.217 < 0.350$ ). Ermaya's (2022) research results, indicating a significant influence of the external environment and innovation strategy on digital value creation, strengthen this paper. In addition, Pudjiarti & Suharnomo (2018) conduct research on 188 SMEs through stratified random sampling and find that innovation capabilities triggered by the external environment and competitive advantage are positively related to value co-creation. Wong et al (2016) conducts literature research which states that the aim of digital innovation and value co-creation strategies is to create innovation opportunities simultaneously with customers through an ever-changing external environment.

The third hypothesis ( $H_3$ ) is accepted, namely that there is a positive influence between BI on DVC with a path coefficient of 0.418 and p-value ( $0.000 < 0.05$ ). The value of  $T_{statistics}$  is greater than 1.96 ( $5.172 > 1.96$ ), meaning that the impact is significant. The effect's strength is moderate ( $f^2 = 0.263 < 0.350$ ). This paper is supported by Elbashir et al. (2008), who, in a survey-based

study, find that BI is positively related to value co-creation through business process improvement.

The fourth hypothesis (H<sub>4</sub>) is accepted, namely that there is a positive influence between DVC on BP with a path coefficient of 0.439 and p-value (0.000 < 0.05). The value of  $T_{statistics}$  is greater than 1.96 (5.084 > 1.96), meaning that the impact is significant. The effect's strength is moderate ( $f^2 = 0.239 < 0.350$ ). Research by Fonjong & Hongyun (2019) supports this, demonstrating a positive and significant influence of value creation on business performance in MSMEs in Cameroon. Mariyudi & Matriadi (2017) conclude that the creation of shared value has a positive influence on perceived service quality and customer satisfaction, which has implications for business performance.

**Table 7:** Path Coefficient

	$\beta$	<i>M</i>	<i>SD</i>	<i>T</i> <sub>Statistics</sub>	$f^2$	<i>P</i> <sub>Values</sub>	Hypothesis
BI → IS	0,421	0,430	0,085	4,962	0,215	0,000	H <sub>1</sub> Accepted
IS → DVC	0,380	0,376	0,105	3,626	0,217	0,000	H <sub>2</sub> Accepted
BI → DVC	0,418	0,414	0,081	5,172	0,263	0,000	H <sub>3</sub> Accepted
DVC → BP	0,439	0,445	0,086	5,084	0,239	0,000	H <sub>4</sub> Accepted

**Table 8:** Specific Indirect Effect

	$\beta$	<i>M</i>	<i>SD</i>	<i>T</i> <sub>Statistics</sub>	<i>P</i> <sub>Values</sub>	Affect
BI → DVC → BP	0,184	0,191	0,058	3,185	0,002	Positive
IS → DVC → BP	0,167	0,172	0,058	2,872	0,004	Positive
BI → IS → DVC → BP	0,070	0,073	0,029	2,411	0,016	Positive
BI → IS → DVC	0,160	0,16	0,052	3,075	0,002	Positive

Testing of the structural model is carried out by looking at the  $R^2$  value, which is a model goodness-fit test. Cohen (1988) recommends assessing the  $R^2$  value for endogenous latent variables at 0.26 (substantial), 0.13 (moderate), and 0.02 (weak). In addition, Falk & Miller (1992) recommend that the  $R^2$  value be  $\geq 0.10$  for the variance explained by a particular endogenous construct to be considered adequate. The measurement results show that all endogenous variables are greater than 0.10.  $Q^2$  is predictive relevance, which measures whether a model has predictive relevance or not. The measurement results show that all  $Q^2$  values are greater than zero. This shows that the model has good predictive relevance.

**Table 9:**  $R^2$  and  $Q^2$

	$R^2$		$Q^2$	
	Score	Conclusion	Score	Predictive relevance
Business Performance	0,193	moderate	0,113	Yes
Digital Value Creation	0,453	substantial	0,280	Yes
Innovation Strategy	0,177	moderate	0,094	Yes

#### 4.10. Robustness Check

PLS is SEM analysis with predictive purposes (Hair et al., 2021). Therefore, it is necessary to develop a form of validation measure to demonstrate the predictive power of the model. PLS prediction serves as a validation of the PLS prediction test's power. To show that the PLS results have a good measure of predictive power, they need to be compared with the basic model, namely the linear regression model (LM). The PLS model is said to have predictive power if the RMSE (Root mean squared error) or MAE (mean absolute error of the PLS model) is lower than the linear regression model (Shmueli et al, 2019). The result shows that the proposed PLS model has medium predictive power.

Fimix-PLS is a method for uncovering unobserved heterogeneity in structural models (Sarstedt et. al., 2011). Fimix-PLS presupposes that the separation of all units will prevent heterogeneity issues in the structural model. To determine the best number of segments, Sarstedt et al. (2011) recommend using the AIC (Akaike Information Criterion), BIC (Bayesian Information Criteria), CAIC (Consistent AIC), and EN (Normed Entropy Statistics) measures. Consistent AIC is used to select the best model by minimizing overfitting and selecting the right number of segments. This is important because FIMIX-PLS identifies segments in the data, and AICc helps ensure that the selected model has a good balance between model fit and complexity, especially at small sample sizes.

EN is used to measure heterogeneity or diversity in segments generated by the model. A high entropy value indicates that the segments have high heterogeneity, meaning that they are very different from each other. Conversely, a low entropy indicates high homogeneity between segments. EN values that are closer to 1 indicate that the segment-class separation is getting better (Rigdon et al., 2010). The analysis results conclude that  $k = 4$  is the optimal segmentation, producing the highest EN value (0.767).

**Table 10:** Fit Indices

	<b>K=2</b>	<b>K=3</b>	<b>K=4</b>	<b>K=5</b>
AIC	752,036	733,453	700,825	709,051
BIC	791,702	794,274	782,801	812,183
CAIC	806,702	817,274	813,801	851,183
EN	0,702	0,644	0,767	0,758

This research is supported by previous papers. Shiratina et al (2019) conducted a study of 30 female businesspeople and showed that to improve business performance, it is important to apply innovation through value creation in the sense that Muslim fashion products need to show the uniqueness of the innovations that have been created. It is also in line with the research conducted by Zaborek & Doligalski (2013) where they conducted a study of 150 business managers and showed that only the complementarity dimension is closely related to increased financial performance.

#### ***4.11. Theoretical Contribution***

This model does not analyze the direct relationship between: innovation strategy and business performance or business intelligence and business performance. This determination is based on the following:

1. Innovation strategy is assumed not to be able to automatically directly produce superior business performance, because further management decisions and actions are required.
2. Business intelligence is also assumed not to be able to automatically directly affect business performance, because it requires prerequisites and industry characteristics.

The strength of this model is that this model can be implemented in all types of organizations in various industries, especially MSMEs.

#### ***4.12. Practical Contribution***

Business performance is determined by the creation of digital value through the innovation strategy owned due to the encouragement of business intelligence. Digital value creation is obtained from the appropriate company innovation strategy. Innovation strategy is achieved by responding to competitors and customers. Companies respond to opportunities from competitor weaknesses or can make strategic alliances to get greater results. In addition, the company is also always ready to provide the products needed at a reasonable price.

Digital creative industry business actors must also be able to compete at various levels with other companies, where companies must be able to differentiate their products in order to produce unique products, so that products have a high level of difficulty for competitors to imitate and are also difficult to substitute with other products. Innovation strategies are used to maintain long-term growth.

#### ***4.13. Future Research Direction***

The limitation in this study is that the data processing carried out using a questionnaire research instrument has the potential to produce biased answers, because it is highly dependent on the accuracy of the business actor's answers. Although interviews have been conducted, they are only limited to confirming the research results which tend to use semi-closed questions. Thus, research with in-depth qualitative methods is still needed to obtain other sources and forms of data that can also be analyzed qualitatively.

This study uses sampling methods and techniques according to scientific principles. However, the selection of regions and the number of samples used do not guarantee that they fully represent the characteristics of all digital creative industry companies in Indonesia perfectly. Therefore, for further research, it is recommended to involve a wider area and a larger number of samples so that the research results can describe empirical conditions with a better level of accuracy.

#### ***4.14. Recommendation***

Recommendations for the Association to hold a discussion forum for related stakeholders such as members, government and academics to create a Law or regulation on the use of Indonesian applications more intensively, for example by providing policies for the Indonesian people to use local applications instead of using foreign-made applications. In addition, the association is also

expected to create a solid team from several of its members to create large project applications then introduce them at a lower selling price compared to existing competing products.

The government is expected to be able to stimulate the growth rate of the digital creative industry which is one of the wheels of the country's economy by reducing lower application creation taxes, especially for small business consumers so that these small business people can buy applications at affordable prices to facilitate the operation of their business activities. Also the government is expected to create a policy on the use of legal software and impose strict sanctions on pirated applications, because even though they have existed, they have not been implemented properly, for example with the many pirated software circulating on the market.

## **5. CONCLUSION**

This paper assesses how innovation strategy, through digital value creation, influences business performance. This research was conducted in the digital creative industries using 104 respondents consisting of managers and company owners in Indonesia. The method used is Partial Least Squares Structural Equation Modeling (PLS-SEM). The research results show that business intelligence can improve business performance. The results of this research show that business intelligence has a positive and significant impact on digital value creation and innovation strategy. Apart from that, innovation strategy has a positive and significant impact on digital value creation. Lastly, digital value creation has a positive and significant impact on business performance. Likewise, the indirect influence of all variables in the model shows positive and significant results. The proposed research model has good predictive relevance. In addition, the proposed PLS model has medium predictive power.

A major limitation of this study is the study sample, which does not represent the entire country. However, since no empirical study has evaluated business intelligence through digital value creation mediated by strategy innovation, this study makes a unique contribution to business performance in the digital creative industries in Indonesia.

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