

Reawakening Digital Innovation and Collaboration Strategy: Strategies to Improve Business Performance

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Abstract: - **Purpose:** The objective of this study is to examine the effect of company resources on digital innovation, collaboration strategy, and business performance, as well as the effect of company resources on business performance through digital innovation and collaboration strategy. **Research Design:** This study uses a quantitative research approach. Observations were made in a cross-section time horizon, in 2022. The Population of this study is the ISP industry, which amounted to 474 companies, and the unit of observation was the management. Sampling used stratified random sampling. ISPs are grouped based on the size of each company based on the number of customers and branch cities are divided into 3 groups: small, medium, and large. Samples were taken many as 100 respondents. Sampling from each classification is done randomly based on a list of population members. Testing the causality hypothesis in this study used PLS (Partial Least Square). **Results:** the hypothesis testing reveals that company resources play a significant role in developing digital innovation and collaboration strategies. Company resources do not significantly directly affect business performance, but significantly affect business performance through digital innovation and collaboration strategy. **Findings:** The study provided managerial implications for ISP company management in Indonesia, that collaboration strategy and digital innovation can increase the influence of the development and utilization of company resources on business performance so that companies no longer have to develop and own all of their resources independently. By elaborating their collaboration strategy and digital innovation, companies can focus on developing key resources and additional digital innovations needed to increase the company's competitive advantage. **Limitation:** the measurement of variables was carried out based on the management's perception of the conditions and situations faced during the COVID-19 pandemic in 2021-2022. To get a deeper understanding and truly describe the details of the empirical conditions, it is necessary to complement qualitative research through confirmatory and in-depth interviews.

Key-Words: - company resources, digital innovation, collaboration strategy, business performance, internet service provider.

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1 Introduction

A survey conducted by the Indonesian Internet Service Providers Association (APJII) (2018) reveals the increase in internet penetration in Indonesia is almost nine times greater than population growth. This cannot be separated from the role of the Internet Service Provider/ISP which is currently facing hyper-competition conditions. This condition occurs because currently 474 local ISP players are registered as members of APJII and have a permit from the Ministry of Communication and Information Technology. In addition to competing with fellow local ISPs, competition will also occur with Global ISPs, both operating in Indonesia and abroad.

During the Covid-19 pandemic, there was a decline in revenue at local ISPs, especially those

that relied on a B2B business model that served non-retail customers. In addition, there has also been a stagnation/decline in the company's profitability. This is related to internet access rates which have continued to decline from year to year, starting in 2009 until now.

The increasing need for IoT implementation increases the need for internet access to connect various applications to various IoT sensors. However, only ISPs who are also Telecommunication Operators get more benefits, due to the location of IoT sensors which generally tend to be scattered and mobile (Mobile). In addition, currently, ISPs in Indonesia generally have limited resources and the ability to innovate and collaborate to become IoT service providers consisting of connectivity service providers,

platforms, and IoT solutions/applications. Companies are required to be able to utilize resources to anticipate threats and opportunities in the business environment to improve their performance. Companies need to discern the correlation between resources, capabilities, competitive advantage, and profitability to maintain a long-term competitive advantage, [1]. However, the phenomenon in the ISP industry shows that there are obstacles related to capital ownership and an insufficient number of experts. The company's resources are only able to provide internet access services, as well as the limited mastery of Digital Technology and the performance of ICT infrastructure which tends to lag behind ISPs in other countries. In addition, ISPs doing B2B business need to keep the company's cash flow resources positive during the Covid-19 pandemic. These various phenomena greatly affect the profitability of ISP companies in Indonesia.

In addition, APJII also stated that the current performance of ISPs is related to the development of cooperation between industry players and relevant stakeholders, which had not yet been fully established optimally. In addition, the creativity of industry players in developing the ISP industry tends not to fully refer to the existing market demands. During this pandemic, many ISP companies are experiencing a decline in revenue, so they need to immediately innovate to find new business models and new services, such as Smart Home services using IoT (Internet of Things), Video, Games, and others. The phenomenon of digital innovation in ISP companies shows that there are still difficulties for companies in segmenting customers to seize market share. In addition, there is a tendency for companies to be slow to innovate in the face of digital disruption, especially innovation of new products/services and business models. There are five key areas in managing innovation in digital products and services, including user experience, value proposition, digital evolution scanning, skills, and improvisation, [2], [3].

Therefore, companies are required to be able to build capabilities thru Innovation as a competitive advantage in utilizing the resources they have, like the RBV concept, companies can understand the relationship between resources, capabilities, competitive advantage, and profitability to maintain a long-term competitive advantage, [1]. The company implements its collaboration strategy to deal with changes in the business environment by the condition of its resources to improve performance. Through collaboration, companies are expected to be able to have "Strategic Resources"

that will have a long-term competitive advantage over other companies that do not have them, [1].

This research was conducted at the observation unit of the management of ISP companies in Indonesia, and the measurement of variables was carried out based on the management's perception of the conditions and situations faced during the COVID-19 pandemic in 2021-2022. In addition, this research was carried out using quantitative methods that only relied on statistical results, so to get a deeper understanding and truly describe the details of the empirical conditions, it is necessary to complement with qualitative research through confirmatory and in-depth interviews, which have not been applied in this study.

Regarding the situation of the analysis unit, this study contributes a construct of collaboration strategy that was developed based on the combination (cohesion) of the concept of collaboration with the concept of collaborative advantage through a shared meta-strategy.

From the results of the study, it is hoped that a finding model will be obtained that describes the role of company resources, digital innovation, and collaboration strategy on business performance so that they can provide useful managerial implications for the management of ISP companies in Indonesia.

2 Literature Review

The description of the variables used in this study is based on the findings of previous studies that are explained as follows:

Business performance is the output or result of business activities, [4]. Performance is the result of activities measured by some measures that have been determined in the formulation of strategy as part of the strategic management process related to profitability, market share, or cost reduction, [5]. Company performance is measured by financial ratios to compare the company's performance in several periods, compare the company's performance with the performance of competitors, and compare the company's performance against the industry average, [7]. So, business performance describes the results of all company activities within a certain period as measured by several predetermined sizes.

There are several indicators used to measure the performance of a company: sales growth, assets, and profitability, [4], [5], [6], [7]; ROE (Return on equity), ROA (return on assets), EPS (earnings per

share) and Tobin's Q ratio, [8], ROA, [9], ROA and ROE, [10]. Organizational performance was measured by two dimensions, namely subjective performance, and objective performance. Subjective performance includes measures of sales, net income, and cash flow. Objective performance is measured by customer satisfaction, market share, and employee turnover, [11].

The company's resources and capabilities are the basic building blocks of the company's competitive strategy. Resources are divided into two main categories, namely: tangible resources and intangible resources, [12]. Each company is distinguished by a set of unique resources consisting of tangible assets, intangible assets, and organizational capabilities. There are three basic resources needed by companies, namely tangible assets, intangible assets, and organizational capabilities, [13]. Resources are organizational assets and become the basic building for the organization. Resources consist of tangible assets, human assets, and intangible assets. Tangible assets such as plant, equipment, finance, and location. Human assets such as the number of employees, employee skills, and employee motivation. Intangible assets such as technology (patents and copyrights), culture, and reputation, [5].

Companies need dynamic tools to support the digital innovation process. To that end, the digital innovation management framework identifies five key areas to measure and evaluate the management of digital product and service innovation, which includes: user experience, value proposition, digital evolution scanning, skills, and improvisation, [3].

Digital innovation is the use of information and communication technology to drive innovations that impact organizational structures, processes, and landscapes, [14]. Digital innovation is a new combination of physical and digital components to produce new products, [15]. This definition implies a focus on product innovation, which distinguishes it from the study of IT innovation that leads to process innovation. A must, although an inadequate condition for digital innovation is that new combinations rely on digitization. Digitization makes physical products programmable, addressable, sensible, communicable, memorable, traceable, and associable. Digital innovation demands that companies re-examine the organizational logic and usability of enterprise IT infrastructure.

The concept of collaboration is expressed as a process in which parties who see different aspects of a problem can constructively explore their differences and seek solutions that go beyond their

limited vision of what is possible, [16]. In further research it is explained that collaboration is a management process in which two or more companies work together to solve problems and find solutions beyond their limited capabilities, to achieve common goals, [16], [17], [18]. At first, and perhaps most importantly, collaboration was a matter of internal cooperation. However many organizations have considered and even pursued external collaboration, but it is often to the detriment of their efforts at internal collaboration, [19].

The concept of collaboration strategy was developed based on the combination (cohesion) of the concept of collaboration, [16], [17], [18], [19] with the concept of collaborative advantage through a shared meta-strategy, [20] that is a planned cooperative activity for mutual benefit, which involves all relevant stakeholders including horizontal stakeholders (lateral, internal), vertical stakeholders (customers, suppliers), and complementary stakeholders, in developing business activities to create sustainable company performance. Partnership strategy stems from the business strategy, which determines the overall objectives of the business unit alliance and the configuration of the portfolio business alliance, [21]. The portfolio includes partnerships with suppliers, complementary, customers, and competitors. Collaboration is "a joint decision-making process among key stakeholders of a problem domain about the future of that domain", [16].

The construct of the collaboration concept in this study is a novelty as a contribution to the collaboration strategy literature.

2.1 Variable Dimensions

The company resource variables are measured through tangible resources and intangible resources, [12], [22], [23].

The digital innovation variable is measured by five dimensions: user experience, value proposition, observation of digital evolution, skills, and improvisation, [3].

The collaboration strategy variable is measured through: partnerships with suppliers, partnerships with customers, partnerships with laterals, internal partnerships, and partnerships with complementary, [21], [24], [25].

Business performance in this study is measured through three dimensions namely: profitability, asset growth, and market share, [4], [5], [6], [7].

2.2 Hypothesis Development

The influence of company resources on digital innovation

HR is an important element in achieving innovation for companies in the company's ever-changing operating environment, [26]. There is a positive and significant effect of entrepreneurship, marketing capabilities, relational capital, and empowerment on innovation capability and performance, [27]. the combination of three capabilities namely market, technology, and capability management created a unique configuration known as the source of the company's core competencies that shape the company's strategic decisions as a synergistic innovation management model, [28].

Based on the findings of these studies, the first hypothesis is formulated as follows:

H1: company resources have a significant effect on digital innovation.

The influence of company resources on collaboration strategy

The partnership is carried out to identify and respond to market changes in search of flexibility and innovative ways to develop company activities, [29]. Collaborative competitive advantage is the result of a strategy to access complementary resources through collaboration with other organizations, [30].

Based on the findings of these studies, the second hypothesis is formulated as follows:

H2: company resources have a significant effect on the collaboration strategy.

The influence of company resources on business performance

There was a strong positive correlation between the e-HRM and company organizational performance, [31]. HR practices affect bank performance positively, [32]. Manager competence affected business performance, [33]. Meanwhile, capital resources had an insignificant and mixed effect on the operating performance and financial performance of the company. Intellectual capital also affects stock market performance, but not significantly, [34].

Knowledge and competence, digital technology, and reputation affect business, [35]. Digital capabilities affect business performance. Digital innovation positively and significantly impact business performance, and digital innovation mediates the influence of innovation capability on business performance, [36].

Based on the findings of these studies, the third hypothesis is formulated as follows:

H3: company resources have a significant effect on business performance.

The influence of company resources on business performance through digital innovation

Entrepreneurial orientation, company resources, and SME branding are related to company performance through innovation, [22]. The knowledge management process affects innovation capability, innovation capability affects organizational performance, and the knowledge management process affects organizational performance through innovation capability, [37]. Digital capabilities have a significant influence on business performance. Digital innovation has a positive and significant impact on business performance, and digital innovation can mediate the effect of innovation capability on business performance, [36]. Digital orientation and digital capabilities have a positive effect on digital innovation and also that digital innovation mediates the effect of technology orientation and digital capabilities on financial and non-financial performance, [11]. Based on the findings of these studies, the fourth hypothesis is formulated as follows:

H4: digital innovation mediates the influence of company resources on business performance.

The influence of company resources on business performance through collaboration strategy

An organization's ability to integrate and collaborate within a network or to develop partnerships increases the opportunity to leverage its capabilities and benefit from the synergies generated through collaboration, [30]. Companies should emphasize enhancing collaboration to build core competencies through strategic alliances and technical cooperation all of which can help companies to achieve a competitive advantage higher and helps the company's growth, [38]. Based on the findings of these studies, the fifth hypothesis is formulated as follows:

H5: collaboration strategy mediates the influence of company resources on business performance.

3 Methods

This study uses a quantitative research approach. Observations were carried out in a cross-section/one shot, in 2022. The population of this study was the ISP company industry, and the unit of observation was the management. Stratified random sampling was used as the sampling method. Elements of the population were grouped at certain levels aiming at taking samples evenly throughout the group so that

the sample represented the character of all heterogeneous population elements.

The survey was conducted by selecting a sample of the population, namely licensed ISP companies operating in Indonesia and being members of APJII (Indonesian Internet Service Providers Association) totaling around 474 and grouped (subpopulation) based on the size of each company based on the number of customers and branch cities which are divided into 3 groups, namely: small, medium and large. Samples were taken from as many as 100 respondents. Sampling from each subpopulation was carried out randomly based on a list of population members. The measurement scale in this study uses an ordinal scale using the Likert method which produces ordinal data. The ordinal measurement scale is a scale where the data shows a certain order or order, [39]. Testing the causality hypothesis in this study used PLS (Partial Least Square), which is a multivariate statistical technique that can be used to handle many response variables as well as explanatory variables at once.

4 Analysis and Discussion

4.1 Goodness of Fit

Structural equation modeling is an ideal data analytical tool to test the complex relationships among many analytical variables. SEM can analyze the pattern of the relationship between latent extracts and indicators, latent extracts with each other, and measure measurement error. This analysis can simultaneously test multiple mediating relationships, estimate latent variables based on related measures, and address practical problems such as abnormality. Besides that, it that can test the extent to which the hypothesized model provides an appropriate characterization of the collective relationship among the variables, whereby the researcher can assess the "fit" between the model and the sample data.

A guideline for assessing if a theory-based model fits empirical data or if the resulting model describes actual conditions. As a statistical test, Structural Equation Model (SEM) can explain the strength of a model to assess its suitability of the model by using several index criteria.

The Goodness of fit of this study is shown in the following Fig.1, Chi-Square = 732.68, and the Chi-Square p-value = 0.83034 > 0.05. Therefore, referring to the Chi-Square index, the suitability of this research model is fit, [40]. The RMSEA is less than 0.05. Besides that, Goodness of Fit Index (GFI)

= 0.96 > 0.80, likewise AGFI. So, it is concluded that the research model is in an empirical condition. The structural model framework in this study is formulated as follows:

$$\text{DIGITALI} = 0.69 * \text{CompResources} , R^2 = 0.47$$

$$\text{COLLAB} = 0.61 * \text{CompResources} , R^2 = 0.38$$

$$\text{PERFORMANCE} = 0.47 * \text{COLLAB} + 0.42 * \text{DIGITALI} + 0.046 * \text{CompResources} , R^2 = 0.61$$

4.2 Measurement Model

After the model is declared fit, the next process is to see indicators in a construct which is called the construct validity test (latent variable). It is carried out through the convergent validity test, which is an indicator that composes data that the construct has a high loading factor with that construct's internal reliability and composite reliability commonly used to evaluate construct reliability. And convergent validity was achieved through Average Variance Extracted and factor loadings with an expected value >0.50.

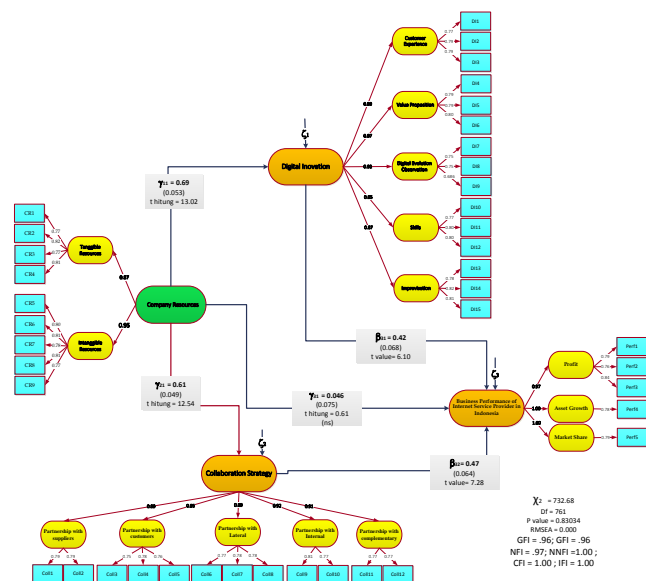


Fig. 1: Estimate Model Results

In Figure 1 it is known that the loading factor is > 0.50, and the t value of the loading factor is higher than the t-table at a significance of 5%. It shows that dimensions and indicators are valid in measuring latent variables, [41]. Composite Reliability and Cronbach Alpha are used to see the level of reliability of indicators and dimensions in measuring research variables. If Cronbach's Alpha value is greater than 0.70, [42], then the dimensions and indicators are reliable to measure the research variables.

4.3 Hypothesis Testing

The results of hypothesis testing are shown in table 1.

Table 1. Hypothesis Testing

No	Structural Model	Path Coeff.	Std. Error	t-value	p-value	R ²	Conclusion
1	Company Resources -> Digital Innovation	0.69	0.053	13.02	0.000	0.47	Significant
2	Company Resources -> Collaboration Strategy	0.61	0.049	12.54	0.000	0.38	Significant
3	Company Resources -> Business Performances	0.046	0.075	0.61	0.542	0.00	not Significant
4	Digital Innovation -> Business Performances	0.290	0.052	5.58	0.000	0.290	Significant
5	Collaboration Strategy -> Business Performances	0.287	0.045	6.33	0.000	0.287	Significant

The results of hypothesis testing revealed a significance level of 95% ($\alpha = 0.05$), in table 1. conclude that:

- Company resources have a positive and significant direct effect on digital innovation and collaboration strategy, with of t-value > 1.98 (Prob < 0.05). Company resources have the dominant influence on digital innovation with $R^2 = 0.48$.
- Company resources give a positive and significant indirect effect on business performances both through digital innovation and collaboration strategy and dominant influence through digital innovation with $R^2 = 0.29$.
- Company Resources does not have a significant effect on Business Performances with a coefficient of 0.046 having Prob > 0.05

The findings of this research are obtained in Figure 2 based on the results of hypothesis testing.

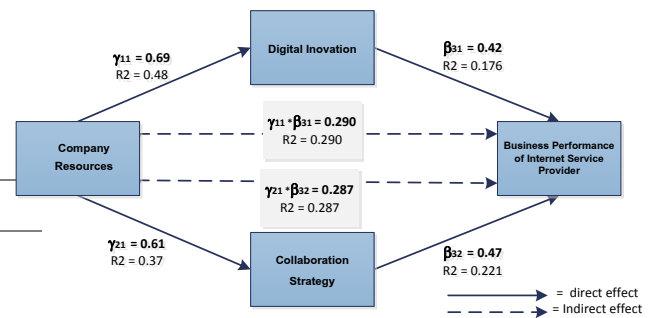


Fig. 2: Research Finding

The findings model illustrates that in the ISP industry, company resources play a significant role in developing digital innovation and collaboration strategies. Company resources do not affect business performance directly, but significantly affect business performance through digital innovation and collaboration strategy. These findings illustrate that company resources can encourage digital innovation and collaboration strategies to improve business performance.

In real terms, companies need resources to run a business to achieve the desired company performance. However, according to the result of hypothesis testing, the increase in company performance is not caused directly by the company's ability to control company resources, but other factors have a more significant contribution in improving the performance of ISP companies.

Company resources will contribute if the company can manage these resources as inputs or means to develop digital innovation and collaboration strategies that can encourage increased company performance. Company resources cannot directly improve business performance but must go through digital innovation and collaboration strategy so that their influence is significant. This is contrary to the results of previous research that aspects of company resources significantly affect business performance, [31], [32], [33]. Meanwhile, this finding supports the previous research that company resources insignificantly affect business performance, [34].

Company resources are the company-driven aspect. These results are following accordance with the RBV concept which reveals the importance of company resources to build a competitive advantage. For ISP companies, company resources are used to carry out digital innovations in anticipation of a hyper-competition market.

This finding supports the result of previous research which describes the significant role of company resources in digital innovation, [26], [27], [28].

Company resources are used as capital in the implementation of a collaboration strategy aimed at improving company performance. Without resources, it is difficult for companies to collaborate because the resources they have become a bargaining position in carrying out collaboration to obtain resources or capabilities that they do not have. With limited resources, collaboration is carried out to develop technology and overcome the limited strategic resources owned.

This finding is also in line with the previous research finding that company resources affect collaboration strategy, [29], [30].

Company resources have contributed to the company's performance through its role in the development of digital innovation. Mastery of company resources is a driving force in implementing digital innovations that have an impact on improving ISP company performance.

Today, ISP companies have to put more emphasis on company resources to be able to innovate because the business environment can only be adapted. Company resources are a company-driven aspect. These results are following the RBV concept which reveals the importance of company resources to build a competitive advantage. For ISP companies, company resources are used to carry out digital innovations in anticipation of a hyper-competition market.

These findings also support the results that company resources affect performance through digital innovation, [11], [22], [36], [37].

Company resources have a significant contribution to company performance through their role in developing collaboration strategies. Through collaboration, companies are expected to be able to have "Strategic Resources" that will have a long-term competitive advantage over other companies that do not have them, [1].

Collaboration is a means to develop technology and overcome the limitations of the main resources owned by the company to have a competitive advantage. ISP companies can build themselves, buy, and borrow (cooperate) to improve their mastery of technology and digital innovation to gain a competitive advantage.

This finding is also in line with the finding of the research that collaboration strategy mediated the influence of company resources on business performance, [30], [38].

The company's resources and capabilities are the basic building blocks of the company's competitive strategy, [12]. Tangible resources and intangible resources can be utilized by ISP companies as capital in developing digital innovation and

collaboration strategies with related parties to improve their business performance.

The findings of this study provide managerial implications for the management of ISP companies in Indonesia to improve business performance through the development of digital innovation and collaboration strategy that relies on the utilization and control of adequate company resources.

5 Conclusions

In the ISP industry, company resources play a significant role in developing digital innovation and collaboration strategies. Company resources do not give a direct significant effect on business performance but significantly affect digital innovation and collaboration strategy. Company resources can encourage digital innovation and collaboration strategies to improve the business performance of ISP companies in Indonesia.

The findings give managerial implications for the management of ISP companies in Indonesia that improve business performance and can be built through collaboration and digital innovation strategies that rely on the utilization and control of adequate company resources. The mediating effect of digital innovation and collaboration strategies on the relationship between company resources and company performance has a relatively similar coefficient of determination (0.290 and 0.287) so it is recommended that ISP companies in Indonesia apply digital innovation and collaboration strategy in parallel (simultaneously) to improve business performance by utilizing the company's resources.

The results of this study are novel and very interesting to apply, that is, even though a company has abundant resources, it will not directly affect business performance but will only have a significant influence on business performance if these company resources are used to develop digital innovation to answer the current rapid technological changes and the demands of customer satisfaction for the services provided which are increasingly diverse and complex. Likewise, company resources can be used as bargaining power in a collaboration strategy to be able to complement each other's resource needs and/or capabilities in collaborating with horizontal stakeholders, vertical stakeholders, and complementary stakeholders to improve business performance. It means collaboration strategy and digital innovation can increase the influence of the development and utilization of company resources on business performance so that companies no longer have to develop and own all of their resources independently. By elaborating their

collaboration strategy and digital innovation, companies can focus on developing key resources and additional digital innovations needed to increase the company's competitive advantage.

In addition, although this research was conducted on the ISP Industry in Indonesia, broadly speaking, the results of this discovery can be applied to other industries, especially those industries that are highly dependent on the use of technology in providing their services. The findings can be applied in general across industries if the industry has some of the same characteristics as the ISP company industry in Indonesia.

The result of this study also provides theoretical implications that strengthen and provides empirical evidence on the Resource Based View (RBV) theory [1] says that to have a competitive advantage, a company must have the capability to innovate using its available resources and the company can have strategic resources through collaboration.

The limitation of this research is that it has not studied how the mediation effect of Digital Innovation on the relationship between Collaboration Strategy and Business Performance, as well as how the mediation effect of Collaboration Strategy influences the relationship between digital innovation and business performance. It is interesting to investigate further to find out more about how the influence of digital innovation on collaboration strategies and vice versa on the relationship between company resources with business performance, and also to find out to improve business performance using company resources which are more give more significant effect, whether through digital innovation mediation through the mediation of the collaboration strategy or the mediation of the collaboration strategy first then through the mediation of digital innovation, and also to find out which of the two mediation relationships above are more influential when compared to digital innovation mediation and collaboration strategies on the relationship between company resources and business performance.

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Contribution of Individual Authors to the Creation of a Scientific Article (Ghostwriting Policy)

-Saiful Hidayat is the main author of this article and also plays a role in analyzing the statistical data generated in this study.

-Margono Setiawan is an expert in the field of economics and research management, she is also an expert in the field of economics so she is very instrumental in providing input on the use of theories in this research to produce quality research.

-Fatchur Rohman is an expert in the field of research management, he is very helpful in providing input and input in this research so that it can produce quality research.

-Ananda Sabil Hussein is an expert in Strategic Marketing, he plays a role in providing input and input in this research so that it can produce quality research.

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The authors have no conflicts of interest to declare that are relevant to the content of this article.

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