

Uncertain Supply Chain Management

homepage: www.GrowingScience.com/uscm

Supply chain performance of Indonesian SMES: The role of digital leadership, supply chain innovation and E-HRM

Yusuf Ronny Edward^{a*}, Calen^b, Nagian Toni^a and Thomas Sumarsan Goh^c

^aUniversitas Prima Indonesia, Indonesia

^bProdi Manajemen, Universitas Murni Teguh PSDKU Pematang Siantar, Indonesia

^cUniversitas Methodist Indonesia, Indonesia

ABSTRACT

Article history:

Received June 22, 2024
Received in revised format July 26, 2024
Accepted September 30 2024
Available online
October 5 2024

Keywords:

Supply Chain Performance
Indonesian SMEs
Digital Leadership
Supply Chain Innovation
E-HRM

The purpose of this study is to analyze the relationship between digital leadership variables and supply chain performance, supply chain innovation and supply chain performance and the relationship between electronic human resource management (E-HRM) and supply chain performance. The research method used in this study is a quantitative survey method research design. The technique used in selecting samples in this study is simple random sampling. Data collection in this study was done online by distributing questionnaires through the Google Form platform and obtaining direct responses from respondents. The number of respondents studied was 786 small and medium enterprises (SMEs) owners in Indonesia. The study uses path analysis techniques for data and hypothesis testing. Statistical testing on the path analysis model can be done using the partial least square method. The study uses a Likert scale, which is categorized into five categories: (1) strongly disagree, (2) disagree, (3) neutral, (4) agree, and (5) strongly agree. Data analysis in this study used Smart Partial Least Square (SPLS) software version 3.00. Model evaluation in testing with SPLS consists of two stages, namely, evaluation of the outer model and inner model. The evaluation of the outer model consists of factor loading tests, Average Variance Extracted, cross-loading, Cronbach's alpha, and composite reliability, while the evaluation of the inner model consists of the coefficient of determination (R²), cross-validated redundancy (Q²), Goodness of Fit (GoF), and hypothesis testing. The results of this research analysis are that digital leadership has a positive and significant relationship with supply chain performance, supply chain innovation has a positive and significant relationship with supply chain performance and e-HRM has a positive and significant relationship with supply chain performance. Digital Leadership involves leaders who can drive digital transformation and implement innovative strategies to leverage digital technologies. This involves the ability to understand and leverage technologies such as artificial intelligence, etc. In addition, digital leadership also involves sensitivity to change and the ability to drive innovation, collaboration, and technology adoption across SMEs.

© 2025 by the authors; licensee Growing Science, Canada.

1. Introduction

In this digital era 5.0, SMEs are on a positive trend with their numbers continuing to grow every year. This positive trend will have a positive impact on the Indonesian economy. Based on data from the Ministry of Cooperatives and SMEs, the contribution of SMEs to the National GDP is 60.5%. As many as 56% of online SMEs show satisfaction with government programs, compared to 48% of offline SMEs. SMEs have an important and strategic role in national economic development, especially in spurring economic growth and workforce absorption (Benitez et al., 2022). SMEs also play a role in distributing development results and are even able to save the economic crisis. Competitive strategy has a positive effect on SME performance and competitive strategy has a significant relationship with the company's market share. Therefore, SMES need to study the development of updated information to please and satisfy customers in increasing SME business sales turnover

* Corresponding author

E-mail address yusufronny77@gmail.com (Y. R. Edward)

ISSN 2291-6830 (Online) - ISSN 2291-6822 (Print)

© 2025 by the authors; licensee Growing Science, Canada.

doi: 10.5267/j.uscm.2024.10.005

by implementing the right business strategy for the sustainability of their business. Adopting digital technology can provide benefits including; reduced costs, flexibility, reduced errors, faster response times, and labor cost efficiency in marketing. Consumer services using e-commerce can develop the SME market, which can compete if aligned with adopting strategic information systems (SIS), since it can help companies control well, even in the company's operational environment (Chatterjee et al., 2023). So that SMEs can also adopt various policies to improve company performance and digital transformation by making updated developments in business models. The supply chain for the production and distribution process of products from SMEs is not yet clear. This can be seen from the fact that there are still few cooperatives or associations of similar entrepreneurs who support SME actors so that entrepreneurs can buy raw materials cheaper and distribute production results with shorter and more efficient chains. SMEs have not been able to develop rapidly and factors inhibiting the development of SMEs include minimal funds or costs that limit the procurement of training activities, inadequate human resources in carrying out SME activities, limited production and management techniques, and relatively difficult marketing (Susananto et al., 2023).

The impact of innovation also contributes to the creation of useful characters to be more easily remembered and has an impact on increasing company profits, where profit plays a role in the welfare of all elements of the company. Innovation is related to small and medium business actors' need to implement the role of Information Technology in their business, this is done because of the influence of globalization on the rapid development of information as a form of new knowledge (Arzu Akyuz et al., 2010). Information technology is also useful in terms of accelerating the production process and marketing products in other ways such as online sales. In this era of globalization, information technology continues to develop. Almost all activities start through information technology. Where everything is easier to reach via the internet. With information technology, it can facilitate performance to be more optimal. In micro, small and medium enterprises, in addition to innovation, good SME performance is also needed. There are many SME management models where there are differences in how to select, build, distribute, and protect the core competencies of the company. Good performance results from good work it can lead to competitive advantage (Dubey et al., 2023).

Digital leadership style is the term given to leaders 4.0 or leaders in the industrial era 4.0. However, not all leaders in SMEs today are called digital leaders. The main factors for becoming a digital leader are SME goals, HR, change management, output, errors and conflicts, communication, and innovation. Digital leadership style is fast-paced, team-focused, cross-hierarchical, cooperative, and has a strong focus on innovation (Kutieshat & Farmanesh, 2022). Leadership is an important managerial activity in every SME, especially in policy and decision-making. An effective leader is a leader whose members can feel that their needs are met, both work motivation, recreation, and other needs that they deserve. The dimensions of innovation consisting of product innovation, process innovation, and market innovation are investigated thoroughly and can gain greater benefits if SMEs develop, communicate and establish good relationships, and get orientation and innovation. Increasingly diverse and unique product innovations are also opportunities to be offered to buyers. The hope is that by increasing orientation and innovation, business performance for actors can be improved (Shin et al., 2023).

Supply chain innovation is the development and implementation of new processes, products, services, and service delivery mechanisms to significantly improve efficiency, effectiveness, and quality. The need to generate new ideas that have never existed before is not innovation (Rustina et al., 2024). However, it can also refer to the adoption and replication of ideas implemented by other SMEs to apply to their SMEs. In today's digital era, the field of human resource management has also experienced significant technological advances, not only about digitizing traditional HR processes, but also leveraging technology to transform and improve HR practices Electronic human resource management (e-HRM) as a way to implement HR strategies, policies, and practices in SMEs. E-HRM utilizes web-based technology, computer hardware and software, and electronic network resources to support HRM activities. E-HRM is also known by various other terms such as e-human resource, human resource intranet, HR portal, web-based HR, virtual HR, computer-based human resource management system, self-service, business-to-employee, and electronic HRM services (Sukati et al., 2012). e-HRM is the implementation of HRM strategies, policies and practices in SMEs through the support of web-based technology. E-HRM involves the use of technology to facilitate and enhance HRM activities in SMEs. E-HRM encompasses a wide range of operations and functions within the HRM domain. It involves the creation of SME HR strategies and guidelines that can be accessed through an intranet or web-based platform. These strategies and guidelines may cover various aspects of HR management such as recruitment and selection, training and development, performance management, compensation and benefits administration. E-HRM also involves the effective management and deployment of strategic skills of the SME workforce. This may include processes such as talent acquisition, skills assessment, workforce planning and succession planning. In addition, e-HRM integrates human resource activities with the Internet and human resource information systems to deliver HR services seamlessly (Mihardjo et al., 2019). e-HRM is the integration of human resource activities, the internet, and HR information systems, to provide HR services efficiently and effectively (e-HRM is necessary for achieving SME success. The use of e-HRM is related to the size of the SME, HR functions, competition, and information technology. E-HRM is a set of information technology configurations for HRM activities through coordination and control of data and internal and external communications of SMEs. E-HRM is the use of information technology to implement best HRM practices to achieve SME effectiveness (Wairisal & Risambessy, 2024). The purpose of this study is to analyze the relationship between digital leadership variables and supply chain performance, supply chain innovation and supply chain performance and the relationship between E-HRM and supply chain performance.

2. Literature Review

2.1 Digital Leadership

Digital leadership is the integration of digital technology, a combination of leaders, resources, hardware, and technology in the leadership practices of school leaders towards sustainable change in the use of technology in schools to improve leadership and teaching and learning processes (Ardi et al., 2020). A digital leader is someone who can utilize information technology to achieve common goals in SMEs (Juwaeni et al., 2022). Digital leadership is also known as electronic leadership (e-Leadership). E-leadership occurs in the context of the environment. Where work is done through information technology, especially the use of the Internet. Digital leadership is associated with directing SMEs towards digital transformation to become more adaptive in a rapidly changing social and digital ecosystem. DLC must facilitate SME change and ensure that no employee is left behind in the digital transformation journey (Obeidat et al., 2016). Leadership must offer appropriate training to encourage digital literacy in employees and must motivate employees hedonically to participate in the digital transformation process and become more accustomed to the digital workplace. Leaders must prioritize tasks so that even though employees have more freedom in working. Digital leadership is a concept that refers to a person's ability to lead and manage in a digital technology-driven environment (Sardi et al., 2021). A digital leader not only adopts the latest technology but also has a strategic vision that allows him/her to use the technology effectively. They can motivate, inspire, and direct people in SMEs to adapt to ongoing technological changes. Digital leadership involves the ability to think ahead, anticipate future trends, and make decisions based on data and analysis. It also includes the ability to communicate effectively in a connected digital world, build strong collaborations, and drive innovation and transformation in SMEs (Arif et al., 2014).

2.2 Supply Chain Innovation

Supply chain innovation is the ability to see things in a different way than usual and new supply chains (thinking out of the box) (Zhang & Chen, 2024). Supply chain innovation is a way to apply new supply chains and ideas. It can be concluded that supply chain innovation is the ability to apply company creativity to solve problems and find opportunities to improve supply chain performance. With the many new supply chains offered by companies, consumers are more interested and choose products produced by the company, resulting in good business performance. Supply chain innovation is the application of new ideas to the supply chain to be sold to the public to meet consumer needs and satisfaction and increase economic growth (Qrunfleh et al., 2014). The indicators of supply chain innovation used in this study are supply chain development research, the number of supply chain creations, and company leadership in new products produced (Hult et al., 2004). Supply chain innovation plays an important role in a company's ability to maintain and improve its competitive advantage. Supply chain innovation involves the development and introduction of new or improved products or services into the market. Supply chain innovation can take different forms, such as incremental improvement, radical innovation, and innovation. This enables companies to meet changing customer needs, gain market share, and differentiate themselves from competitors. Successful product innovation requires a supportive SME culture, effective research and development processes, market intelligence, and collaboration with customers and suppliers (Soehaditama et al., 2023). Supply chain innovation is a cornerstone of competitiveness in the creative industries, where uniqueness and novelty often drive consumer interest. SMEs can enhance their innovative capabilities by collaborating with external partners. In the creative sector, this can involve partnerships with artists, designers, and other industry stakeholders (Maestrini et al., 2017). SMEs that actively engage in product innovation not only differentiate themselves from competitors but also contribute to the dynamics of the overall creative ecosystem. Innovation is the tendency to support original and creative new ideas in the creation of new products or changes to a product. Innovation is used to transform an existing opportunity into a new idea that sells. Innovation is the process of creating new ideas and implementing them directly. Innovation is a new idea that is expressed in a product that makes the product appear with a new visual and much better benefits (Zhang & Chen, 2024). Supply chain innovation is the entire process that starts from a new idea, discovery and development of a new market that mutually influences each other. The result of the introduction of a new way in the form of innovation has a very big impact on changes in comparing the utility test of the benefits of a product produced by the company and the price set by the manufacturer. Indicators that influence product innovation are product quality, product variants, product style and design. Supply chain innovation is something that is an object or goods produced, ideology, belief, attitude, information, behaviour, mindset, or movement towards a process of change in the order of community life (Waheed et al., 2019). The new nature referred to as innovation is not always something that is newly created or discovered, but can be interpreted as never having been known or applied to a particular community. Supply chain innovation usually refers to adjectives such as: updating, changing, or creating processes or products, and deeply doing something so that it becomes more effective. In the context of business or enterprise, this can mean implementing new ideas, improving existing services, and creating other more dynamic products. Innovation is the ability to apply creative solutions to problems and opportunities to improve or enrich human (Hult et al., 2004).

2.3 e-HRM

e-HRM is a set of information technology configurations of HRM activities such as policies, practices, and services through coordination and control of data and internal and external communication of SMEs. There is research that seeks the relationship between the use of digital applications and work effectiveness (Belitski et al., 2019). The results found that the

use of digital applications of various types and their impact on employee work results will determine the level of work effectiveness. This can be created from the individual side according to the way of working and from the company side as a means of competence through training on the application of applications. The use of e-HRM is to utilize e-HRM in the activities and activities needed (Strohmeier et al., 2007). The use of e-HRM can improve operational efficiency, speed up processes, improve data visibility, and enable SMEs to be more responsive to HR needs. However, it is also necessary to pay attention to challenges such as data security issues, employee involvement, and technology maintenance. Therefore, continuous evaluation of the effectiveness of EHR implementation is very important. Here are some contexts of e-HRM implementation that can be the focus of research: HR Process Automation: testing the extent to which e-HRM supports the automation of HR processes such as recruitment, training, performance evaluation, and absence management (Utomo et al., 2023). Data Integration: evaluates the extent to which HRIS can integrate HR data with other systems within SMEs. Recruitment and Selection Use of Online Platforms: examines the effectiveness of using online platforms for recruitment processes, including candidate sourcing, initial screening, and virtual interviews. Employee Development: explores the effectiveness of online education and training programs accessed through an e-HRM platform. Performance Management: Evaluates e-HRM systems in supporting performance management, including performance monitoring and ongoing feedback (Strohmeier et al., 2020). Analyzes the effectiveness of self-service payroll that allows employees to independently access salary and benefits information. Employee Data Security: evaluates data security policies and measures within e-HRM systems to protect employees' personal and sensitive information. Through research in this area, SMEs can better understand the impact and potential of e-HRM in improving HR management and identify areas for improvement to support successful e-HRM implementation. HR management practices that use information technology and equip employees with the skills, knowledge, and attitudes to use systems and technologies are called e-HRM. E-HRM is a set of information technology configurations of HRM activities for coordination, control, and internal and external communication of SMEs. E-HRM is needed to improve the quality of HRM services. The main drivers of HRM service quality are the strength of HRM and e-HRM. The relationship can be mediated by the frequency of e-HRM use (Hashmi et al., 2022). That performance is the result of the implementation of employee work to the SME where he works, and if given tasks and responsibilities has high abilities, skills and motivation, of course, will contribute to the performance of the company (Prabhu et al., 2023).

2.4. *Supply chain performance*

Supply chain performance is the ability of an SME to achieve profits, gain competitive advantage, increase market share, and maintain long-term profitability. This depends on the use of appropriate SME strategies and practical planning and Performance should be defined as the result of work because the results are closely related to strategic objectives, customer satisfaction, and the economic role of SMEs (Prabhu et al., 2023). Supply chain performance also refers to the level of performance in implementing a program of activities or policies to achieve the goals, objectives, visions, and missions of SMEs as outlined in the SME strategic plan. Supply chain performance is a common factor used to measure the impact of a company's strategy in facing competition. Supply chain performance is not something that can just happen but requires a process (Shin et al. (2023). Supply chain performance in this study is measured using indicators, namely sales profit growth, customer growth, market share growth, and sales volume growth. Supply chain performance is the result of a process that refers to and is measured over a certain period based on previously established provisions or agreements. Supply chain performance is a person's success in carrying out tasks, work results that can be achieved by a person or group of people in SMEs according to their respective authorities and responsibilities or how a person is expected to function and behave according to the tasks assigned to him and the quantity, quality, and time used in carrying out tasks (Munir et al. (2023). Supply chain performance takes into account business responsibilities between all those involved in the business and defines market performance as the extent to which an SME achieves market results. This supply chain performance must be measured subjectively to measure how much performance is within SMEs and is right for customers and services. The success of supply chain performance can be measured from the extent to which a company's success rate is in a certain period, through the assets it owns. To achieve good supply chain performance, entrepreneurs must have the ability to run a business properly, one of which is entrepreneurial ability (Hove et al. (2018).

2.5. *Hypothesis Development*

2.5.1. *The Influence of Digital Leadership on Supply Chain Performance*

Digital Leadership affects SME Performance (Chatterjee et al, 2023). The better the Digital Leadership implemented by an SME, especially in the Bengkulu Police, the better the SME Performance will be. Digital Technology based on the results of hypothesis testing states that it affects SME Performance (Purwanto & Sulaiman, 2023). This is by and supports previous research which states that the Digital Leadership variable affects SME performance (Asbari et al., 2024). The application of technology in SMEs can have a significant impact on effectiveness and efficiency and increase competitiveness because information technology provides data regarding the running of the SME so that SMEs can obtain the data needed as a basis for making strategic decisions, especially for SME Performance (Susananto et al., 2023). In the Industrial Revolution 4.0 Era, SME Performance is greatly driven by the development of Technology that helps in improving performance. Based on this study, the following hypothesis is formulated:

H₁: *Digital leadership has a positive and significant relationship with supply chain performance.*

2.5.2. The Influence of Supply Chain Innovation on Supply Chain Performance

According to the results of the study, there is a significant influence of supply chain innovation on supply chain performance (Mihardjo et al., 2019). Supply chain innovation variables have a positive and significant effect on performance. According to research (Arif et al., 2014), innovation variables have a positive and significant effect on supply chain performance. Other studies show a positive and significant effect of innovation variables on supply chain performance. According to the results of other studies, there is a significant effect of creativity on supply chain performance. Research (Permana & Soediantono, 2022) shows a significant and positive effect of creativity variables on performance. According to research, innovation variables have a positive and significant effect on supply chain performance. Furthermore, research shows that creativity variables have a positive and significant effect on employee performance (Wairisal & Risambessy, 2024). Other studies state that there is a positive and significant effect of innovation variables on performance. The results (Sardi et al., 2021) support previous research which states that creativity and innovation have a positive effect on performance, meaning that the higher the creativity and innovation of employees, the more performance increases directly. The results of this study are in line with previous research stating that creativity and innovation have a positive effect on performance, meaning that the better the creativity and innovation carried out by employees, the better the performance of the supply chain. Based on this study, the following hypothesis is formulated:

H₂: *Supply chain innovation has a positive and significant relationship with supply chain performance.*

2.5.3 The Influence of e-HRM on Supply Chain Performance

e-HRM has also been found to have a positive influence on supply chain performance (Shin et al., 2023). EHRM aims to increase individual self-efficacy and promote positive emotions, which in turn positively affects supply chain performance. A study also found a positive relationship between eHRM and supply chain (Wang et al., 2022). Thus, job performance is very complex and can be influenced by various factors such as job ambivalence, work experience, locus of control, and e-HRM (Gledson et al. (2024). This study is needed to better understand the mechanisms underlying this relationship and the factors that influence it. There is a positive and significant influence of e-HRM use on supply chain performance (Arijanto et al., 2022). The use of e-HRM affects the performance of SMEs, the better the use of e-HRM will increase employee productivity. Work discipline and work motivation have a positive and significant effect on employee performance (Hove et al., 2018). Work motivation is also able to mediate the relationship between performance-based compensation and work discipline in employees. Simultaneously, compensation, job training and competence have a significant effect on the supply chain (Wagner & Bode, 2008). Based on the study, the following hypothesis was formulated:

H₃: *e-HRM has a positive and significant relationship with supply chain performance.*

3. Method

The research method used in this study is a quantitative survey method research design. The technique used in selecting samples in this study is simple random sampling. Data collection in this study was done online by distributing questionnaires through the Google Form platform and obtaining direct responses from respondents. The number of respondents studied was 786 SMEs owners in Indonesia. Data Analysis Technique This study uses path analysis techniques for data and hypothesis testing. Statistical testing on the path analysis model can be done using the partial least square method. This study uses a Likert scale which is categorized into five categories, including: (1) strongly disagree, (2) disagree, (3) neutral, (4) agree and (5) strongly agree. Data analysis in this study used Smart Partial Least Square (SPLS) software version 3.00. Model evaluation in testing with SPLS consists of two stages, namely, evaluation of the outer model and inner model. The evaluation of the outer model consists of factor loading tests, Average Variance Extracted, cross-loading, Cronbach's alpha, and composite reliability, while the evaluation of the inner model consists of the coefficient of determination (R²), cross-validated redundancy (Q²), Goodness of Fit (GoF), and hypothesis testing.

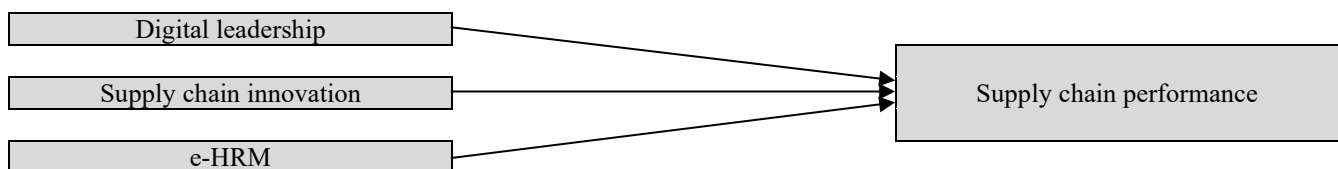


Fig. 1. Research Model

4. Result and Discussion

4.1. Respondent Characteristic

The number of respondents studied was 786 Indonesian SME owners. The characteristics of respondents based on age have choices consisting of less than 25 years, 25-50 years, and more than 50 years. The number of respondents aged less than 25

years was 25%, respondents aged 25-50 years were 50%, and those aged over 50 years were 25%. The characteristics of respondents based on gender have choices consisting of men and women, obtained 70% male gender, and 30% female gender. The characteristics of respondents based on education level have choices consisting of high school, diploma, bachelor's, master's and doctoral, obtained 15% high school education level, 25% diploma education level, 20% bachelor's education level, 30% master's education level and 10% doctoral education level.

4.2. Validity Testing

The next stage in analyzing the model is to analyze the validity test of the PLS-SEM model as in Fig. 2.

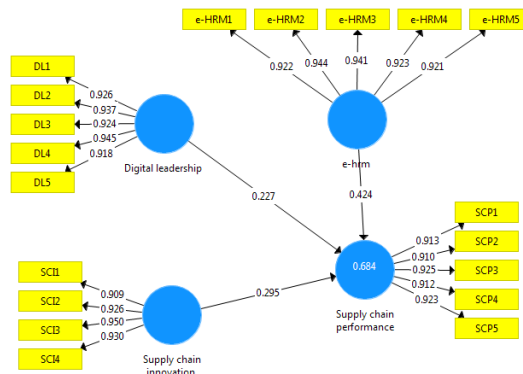


Fig. 2. Validity Testing

Fig. 2 shows that the value of all outer loadings is above 0.5. Based on the data presented in Fig. 2, it can be concluded that all indicators used in this study have met the requirements and can be said to be valid.

4.3. Reliability Testing

Table 1 is the result of the AVE test which shows that the variables have an AVE value greater than 0.60 so that the construct can be concluded to be reliable.

Table 1

AVE Testing

Variables	AVE Value
Digital leadership	0.612
Supply chain innovation	0.623
e-HRM	0.674
Supply chain performance	0.653

Table 2 shows that Cronbach's alpha in most constructs is more than 0.6, so the construct can be concluded to be reliable.

Table 2

Cronbach's alpha Testing

Variables	Cronbach's alpha Value
Digital leadership	0.723
Supply chain innovation	0.717
e-HRM	0.754
Supply chain performance	0.723

Table 3 shows that the composite reliability value in all constructs is more than 0.7, so it can be concluded that the construct in this study is reliable.

Table 3

Cronbach's alpha Testing

Variables	composite reliability Value
Digital leadership	0.712
Supply chain innovation	0.734
e-HRM	0.718
Supply chain performance	0.745

Table 3 shows that the R2 value in this study is which can be said that the coefficient of determination (R2) in this study has a strong influence.

Table 3
Cronbach's alpha Testing

Variables	R ² value
Supply Chain Performance	0.684

Table 4 shows that the Q2 value is more than 0, which is 0.113, 0.176, 0.117 which can be interpreted that the relationship between research variables is considered relevant. Based on the GoF calculation above, the GoF value in this study is 0.432, so it can be said that the model used has a relatively large fit.

Table 4
Q2 Testing

Variables	Q2 Value
Digital leadership	0.123
Supply chain innovation	0.162
e-HRM	0.166
Supply chain performance	0.108

4.4. Hypothesis testing

Hypothesis testing is used to determine the relationship between variables by looking at the bootstrapping results of the t-statistic and p-value sections. The requirement for a hypothesis in a study not to be rejected is if the t-statistic value is greater than 1.96 and the p-value is less than 0.5. Fig. 3 and Table 5 show the results of the bootstrapping that has been done.

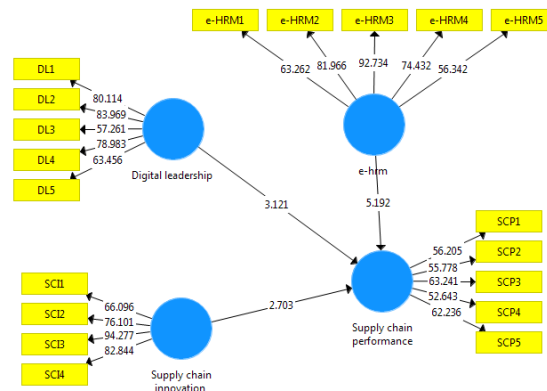


Fig. 3. Hypothesis testing

Table 5
Hypothesis Testing

Correlation	P Value	T Values	Remark
Digital leadership → supply chain performance	0.000 < 0.050	3.121 > 1.96	Supported
Supply chain innovation → supply chain performance	0.000 < 0.050	2.703 > 1.96	Supported
e-HRM → supply chain performance	0.000 < 0.050	5.192 > 1.96	Supported

4.5. Relationship between Digital Leadership and Supply Chain Performance

The results of the Hypothesis Test prove that Digital Leadership has a positive and significant relationship with supply chain performance. The results of this study support the results of research showing that there is a positive impact of digital transformation on performance. It was also emphasized that there was a significant difference in the level of product and service quality, product and service development capacity, productivity, and overall performance levels between companies that had undergone digital transformation for less than two years and those that had been in the process for more than two years supporting the latter. Digital transformation is an opportunity to improve the business performance of a group of businesses that are considered to have limited access to markets and funding sources, such as women-owned businesses. Likewise, research proves the influence of digital transformation on company performance (Dubey et al., 2023). According to (Shin et al., 2023), SMEs that adopt digital leadership show better business results. Stronger financial performance. In the era of Industry 4.0, the role of leaders must follow the pattern of SME needs. Leadership style is influenced by the rapid development of technology by changing the traditional leadership style to digital leadership. A digital leader can inspire his employees to fight for and defend ideas (Rustina et al., 2024). The sharpness in implementing digital leadership benchmarks shows a fast, cross-hierarchical, cooperative, and team-oriented approach that often integrates innovation. Increasing the effectiveness of system use cannot be separated from the participatory leadership style. Good digital leadership disseminates leadership information to several people who work cooperatively and interdependently to achieve the goals of an SMEs (Kutieshat & Farmanesh, 2022).

Leadership in the digital era requires leaders to have a fast responsive attitude to rapid changes in the SME sector. It is further explained that the role of leadership in implementing digital transformation in SMEs is certainly a. Leadership is central to adopting the use of technology in the era of Industry 4.0. In the digital era, leaders need to be well-equipped with digital and emotional agility in operating in uncertain and complex environments. Today, in decision-making processes and innovation, efficient leaders work in a fast-learning cycle. The results of this response are also by research which states that knowledge and skills are very significant, this is due to the digital leadership needed to lead the digital transformation process in SMEs. The results of this study also support research stating that knowledge and skills are elements that provide a positive influence for a digital leader. Digital leadership is starting to be felt by business managers, where in a situation like this how can a leader work from home through digital technology, then they must master digital technology in their leadership. Digital leadership is the use of an SME's digital assets to achieve business goals both at the SME and individual levels. In many companies or SMEs, recent digital technology has driven significant changes in the competitive environment and roles of SMEs. Changes are needed in many dimensions of SMEs such as roles, work culture, and technology (Sukati et al., 2012).

Information technology enables the smoother, faster, more efficient and successful execution of a company's business activities. Information technology, as explained, increases the competitiveness of a business by making it possible to provide better customer service in less time and in a manner that is not limited by geography or the passage of time (Kutieshat et al., 2022). Therefore, managers can more efficiently carry out their responsibilities as leaders of SMEs or companies by utilizing information technology. Many software programs have been created specifically to address the problems faced by managers. Argue that a manager can implement e-leadership ideas and methods by utilizing appropriate information technology. Many businesses are still led by managers who are unaware of, or ill-equipped to take advantage of, the e-leadership opportunities presented by today's ubiquitous information technology. Leadership is not a title or position, but rather the ability to mobilize others and their resources to overcome challenges and produce desired results (Arif et al., 2014). A virtual leader manages employees and resources virtually to achieve the goals of the SME. Claim that influencers can use new technologies to connect with their audiences and improve their work and commercial models. We no longer communicate with each other through the use of mostly direct means. E-business, or commerce conducted through electronic means such as the World Wide Web, is full of e-leadership. Improvements in technology have led to the replacement of traditional leadership by leadership, often known as distance leadership. Research on e-leadership reveals five distinct principles of conventional leadership that have an impact on the importance of the competencies assigned. In traditional leadership, face-to-face communication occurs between the leader and his followers, but in the case of e-leadership communication, communication occurs through electronic media such as the Internet, between the leader and the followers (Mihardjo et al., 2019). Virtual leaders must have good communication skills. In the case of traditional leadership, leaders and their followers are the primary members, but in the case of e-leadership leaders are called virtual leaders and followers are called virtual followers (Ardi et al., 2020).

4.6. Relationship between Supply Chain Innovation and Supply Chain Performance

The results of the Hypothesis Test prove that Supply Chain Innovation has a positive and significant relationship with supply chain performance. If innovation is implemented well in an SME, then the performance of the SME will be better (Zhang & Chen, 2024). Based on this explanation, innovation also means that it has an important function in the success of SME performance. Innovation will bring changes and improvements in the implementation of SME activities. With the better implementation of innovation, BPOM as a supervisor of drug and food distribution for the community which is an agent, will produce maximum performance and provide satisfaction in providing services to the public. The results of this test are also in line with the research. This means that if the Innovation used increases its competence, it will have an impact on increasing SMEs' Performance (Qrunfleh et al., 2014). By innovating, SMEs react to dynamic market changes and to create or maintain their competitiveness. It can be said that "innovation is an almost obligatory survival strategy. In an SME, innovation begins with the presence of intelligent individuals who have a "sense" to find new needs which then create or improvise them into new methods, processes or resources to meet these new needs. Innovation management is a tool used by SMEs leaders to develop SME products and innovations in other words innovation management is the management and implementation of a process. Innovation is an effort to maintain the existence of SMEs in the environment. Innovation in an SME is an important thing to do to make SMEs better in achieving goals and targets effectively and efficiently. The existence of SME innovation is expected to be able to respond to the complexity of the environment and the dynamics of environmental change, especially in tight competition and improve supply chain performance (Zhang & Chen, 2024).

Supply chain innovation has a positive and significant effect on the performance of the SME supply chain, this means that the higher the product innovation, the better the performance of SMEs. So SMEs need to innovate more often on every product they produce. This is very reasonable because the market area or marketing area of SMEs is local, if SMEs do not develop their products it will cause boredom for consumers, it can cause new competition where competitors can easily imitate the products produced. So it can be concluded that SMEs need to innovate products both during the pandemic and post-pandemic. This is because product innovation can restore the existence and performance of SMEs (Waheed, et al., 2019). Product innovation Product innovation carried out by SMEs can improve overall performance. The ability of SMEs to innovate new products can help improve performance product innovation is very dependent on how the environment changes. To be able to develop product innovation, investment costs are needed so that later the product development carried out can become a monopoly advantage. Product innovation has been shown to improve business performance, but this must be balanced with

the knowledge of end customers to help improve business performance. Further measurements show that process innovation has a positive but insignificant effect on SME performance. These results indicate that the higher process innovation carried out has not been able to improve the performance of SMEs (Soehaditama et al., 2023). This is because the process innovation carried out in SMEs has not been needed, because so far the existing SMEs have found production methods that are by market needs, if a new method is developed it is feared that it will affect their performance. Likewise adopting new technology, is not certain to improve business performance in terms of income, because the implementation of new technology certainly incurs higher costs. So that the financial turnover owned by SMEs becomes less healthy, and this causes it to affect SME operations. This provides an illustration that SMEs during the pandemic or post-pandemic are not considered suitable for carrying out process innovation, but process innovation still needs to be carried out if economic conditions have begun to stabilize. The success of developing process innovation is highly dependent on infrastructure and human resources. Supply chain innovation tends to be successful in large companies. Process innovation significantly improves industry performance (Dubey et al. (2023)). The success of process innovation is highly dependent on management, orientation, and business development. Management innovation has a significant negative effect on SME performance, these results indicate that the better management innovation is carried out, the lower the performance of SMEs. Thus, it can be explained that management innovation related to the development of administrative systems, purchasing systems, management methods and new information systems is not yet fully needed by SMEs today, considering that the scope of business activities carried out is still limited and management is simple, this makes the tendency to carry out management innovation not a priority for SMEs. Related to the pandemic conditions where almost all SMEs are experiencing an unfavorable situation, this condition makes it increasingly difficult to carry out management innovation. Although the results of this study do not match the existing empirical findings, such as the findings stating that the success of SMEs is due to their ability to apply management (Purwanto & Juliana, 2022). Management that is managed autonomously can make SMEs able to present changes in them. To produce good innovation, the level of innovation and category of SMEs must be adjusted.

Innovation is the introduction of new and better ways of doing things in the workplace, where innovation and creativity are indeed very much needed by human resources who produce goods made from crafts. According to the results of this study, innovation does not affect employee creativity and performance because in an investment company, there are applicable SOPs and changes can be seen as an innovation if the change is new to an individual, group, or (Sukati et al., 2012). So, Innovation can be improved if the services, products, processes and SME businesses in the company are also improved, then employee performance in the company will also increase. Innovation performance is a performance that is measured from three dimensions, which include product innovation, process innovation and managerial innovation, which have implications for improving quality and efficiency. Innovation is carried out by developing new products, services and methods for SMEs and is carried out for the benefit of SMEs. States that innovation performance is the creation or acceptance, adaptation and utilization of new values. This can be done through the regeneration and expansion of products, services and markets, creating new ways of product development and building new management systems. Innovation is the process of developing new outputs by adopting new ways of working, including product development. In addition, innovation is also associated with better performance improvement by producing new services, processes and products. Innovation is considered the generative renewal and competence of SMEs to adapt to the environment (Kutieshat et al., 2022). However, innovation is considered a daily problem for SME members in defining problems, responding to unexpected events, creating solutions and developing new ways and procedures to organize work, through the use of experience, skills, motivation and knowledge. SME innovation practices are organized, and established by using a series of standard actions or systems such as designing an idea or thought, evaluation and managerial efforts for innovation such as flexible roles, rotation, and organizing groups. Innovation performance is seen as an increase in the daily work of SME members and the level of individual exploration (Bondarouk et al., 2017).

4.7. e-HRM has a positive and significant effect on supply chain performance

The use of superior e-HRM will increase staff productivity. The results of the study found that there is an effect of the use of e-HRM on supply chain performance. The use of e-HRM affects supply chain performance. E-HRM is a special form of HR management information system to improve business processes and achieve more efficient results because it is used by employees of SMEs and outside SMEs. There is a relationship between the use of technology-based applications (such as e-HRM) and the expectation of good performance. Performance management is one aspect of HR management, which includes HR planning, recruitment and selection, employee development, compensation, industrial relations, and performance management (Benitez et al., 2022). The use of digital applications on work effectiveness and its impact on employee work results can be created according to the way of working as a means of competence through training on the applications used. The human resource management information system is a special form of information system for HR needs. The human resource management information system aims to improve HR business processes and achieve more efficient results. The human resource management information system is not the technology itself, but the integration of HR processes with information and communication technology. Human resource management information systems can improve effectiveness and efficiency of SMEs. HRM helps organize the employee performance appraisal process, set work goals, provide feedback, and design development plans. This helps improve employee productivity and work quality (Chatterjee et al, 2023). Several benefits can be gained from the use of E-HRM in a company. First, the use of E-HRM can streamline the costs incurred by the company in the HR process. Through E-HRM, companies can reduce the use of paper or the need to print documents to

save time. Furthermore, E-HRM can also help improve more effective and efficient HR services to employees. This is because E-HRM has an independent system, where employees can access information and submit their needs independently. In addition, E-HRM can also help develop HR strategy orientation for the company. This is because E-HRM collects employee data which is then analyzed to identify what are the right strategies in HR management. The implementation of EHRM provides positive benefits for SMEs. EHRM helps employees catch up on their day-to-day work – providing the HR function with the opportunity to create new avenues to contribute to SME effectiveness through means such as knowledge management and the creation of intellectual and social capital (Susananto et al., 2023).

EHRM helps many SMEs to build a more committed workforce (Arzu Akyuz et al., 2010). The use of EHRM in SMEs can maximize the potential and productivity of their employees. Technology plays an important role in HRM, allowing easy interaction and communication between employees and managers. In addition, the presence of EHRM makes it easier for employees to access information about their tasks and responsibilities, as well as access data and process data related to personal data such as information on salaries, employee personal data, performance management, training, recruitment and others (Arzu Akyuz et al., 2010) EHRM also improves and enhances the quality of SME services to the public. By looking at the various benefits mentioned, it can be concluded that the implementation of EHRM provides time and cost efficiency for SMEs.

4.8. Research Implication

The findings of this study on the relationship between digital leadership, e-HRM and innovation with supply chain performance are important information for small business entities. This is because every small business management must continue to improve its innovation performance. Especially in the ongoing era of change lately. This means that if management intends to improve innovation performance, it must start to learn about knowledge management and improve its organizational skills. Because empirically, these two factors can build an entrepreneurial orientation. While entrepreneurial orientation can spur business performance. So the findings are very clear, the findings of this research can help management in formulating decisions that can contribute to better innovation performance. The e-HRM system can make human resource management more effective and important for an agency or company. Looking at the existing phenomenon, it can be seen that there is an increase in the adoption and implementation of the e-HRM system in various SMEs, this has changed the way HRM works. Changes in the methods and functions of management can affect employee satisfaction and SME performance. In order not to cause problems and bring negative impacts in implementing EHRM, SMEs need to pay attention to several important things that are the key to implementing EHRM in SMEs, because, without these things, EHRM implementation will not necessarily be successful. Steps that must be considered in implementing EHRM such as sufficient costs, information and communication technology infrastructure such as computers and other hardware, level of connectivity or availability of internet networks, readiness of human resources, application design that facilitates work and guarantees the confidentiality of employee personal data, legal instruments, because EHRM is closely related to the creation, distribution of data or information and intellectual copyright that must be protected by law, and paradigm changes. In this case, the role of management is needed to change the paradigm, way of thinking, how to behave and how to work and behave so that employees can accept the implementation of EHRM in SMEs well.

Supply chain Innovation management is a tool used by SME leaders to develop SME products and innovations in other words innovation management is the management and SME of a process. Innovation is an effort to maintain the existence of SMEs in the environment. Innovation in an SME is an important thing to do to bring SMEs to be better in achieving goals and targets effectively and efficiently. Digital Technology Affects SME Performance, The application of technology in SMEs can have a significant impact on effectiveness and efficiency and increase competitiveness because information technology provides several data regarding the running of the SME so that SMEs can obtain the data needed as a basis for them in making strategic decisions, especially for SME Performance. Digital Leadership Affects SME Performance, In the industrial era 4.0 the role of leaders must follow the pattern of SME needs. Leadership style is influenced by the rapid development of technology by changing traditional leadership styles to digital leadership. A digital leader can inspire his employees to fight for and maintain good ideas and leadership, disseminate leadership information to several people who work cooperatively and interdependently to achieve the goals of an SME. Although the implementation of EHRM provides positive benefits for SMEs, if it is not planned properly and implemented wisely, it will cause problems and obstacles for SMEs. Maniviannan (2013) in his research found obstacles in the implementation of EHRM in the form of technical obstacles including internet networks, less attractive designs the level of complexity in operating applications and the strength of traditional culture in carrying out tasks and work by employees. The implementation of EHRM by SMEs is caused by the lack of socialization of use which has an impact on personal knowledge, the size and facilities of SMEs or companies that are inadequate to implement EHRM, and support and perceptions from colleagues are also factors that determine the success of implementing EHRM into SMEs or companies. Furthermore, the obstacle to implementing the EHRM system is data confidentiality. EHRM allows employees to send and retrieve their data and information electronically so application capabilities are needed that can maintain the confidentiality of the data. Based on the discussion, the results of this study can be concluded as follows; Product innovation has a significant positive effect on SME performance, so it can be explained that the higher the product innovation carried out, the higher the performance of SMEs. However, process innovation has a positive but insignificant effect on SME performance, this explains that the more process innovation carried out in SMEs, it has not been able to significantly improve SME performance. While

management innovation shows a significant negative effect on SME performance, it can be explained that the higher the management innovation carried out can reduce SME performance.

5. Conclusion

The results of this research analysis are that digital leadership has a positive and significant relationship with supply chain performance, supply chain innovation has a positive and significant relationship with supply chain performance and e-HRM has a positive and significant relationship with supply chain performance. Digital Leadership involves leaders who can drive digital transformation and implement innovative strategies to leverage digital technologies. This involves the ability to understand and leverage technologies such as artificial intelligence, etc. In addition, digital leadership also involves sensitivity to change and the ability to drive innovation, collaboration, and technology adoption across SMEs. Digital Leadership also involves developing a digital-oriented SME culture, where digital skills are enhanced, creativity is encouraged, and adaptation to technological changes is done quickly. Digital leaders must also lead by example and inspire others to adopt and leverage digital technologies in their work. With strong digital leadership, SMEs can face the challenges and opportunities that arise with digital transformation. This allows them to adapt to market changes, build stronger relationships with customers, improve operational efficiency, and create sustainable innovation.

Suggestions From the research findings, the following suggestions can be given, to all existing SMEs to further improve product innovation because through product innovation, the existence and recovery of business conditions during the pandemic and post-pandemic. For process innovation, it is necessary to consider being carried out during the pandemic and post-pandemic because the findings show that process innovation has not significantly affected performance. However, it is still carried out if business conditions begin to stabilize because process innovation can support product innovation. Furthermore, management innovation has been proven to reduce SME performance so it needs to be considered to be implemented during the pandemic and post-pandemic, but it needs to be considered to be carried out after conditions are stable because the implementation of good management can help SMEs in carrying out their operations. The magnitude of the influence of product innovation variables, process innovation and management innovation on performance is still low, so a special approach is needed in implementing innovation in SMEs. The dominance of product innovation in influencing SME performance is a priority in pandemic and post-pandemic situations. Research Limitations From all the processes carried out and seeing the results shown, this study has limitations, including the need to conduct a study of the measurement indicators of the variables of product innovation, process innovation and management innovation considering the weak magnitude of the influence shown. The next limitation is the research design which is confirmatory research so that further research is expected to further investigate why innovation plays a less role in improving SME performance. Further researchers to further explore the conditions and problems of SMEs so that the results obtained can contribute to SMEs, especially the development of innovation.

References

- Ardi, A., Djati, S. P., Bernarto, I., Sudibjo, N., Yulianeu, A., Nanda, H. A., & Nanda, K. A. (2020). The relationship between digital transformational leadership styles and knowledge-based empowering interaction for increasing organisational innovativeness. *International Journal of Innovation, Creativity and Change*, 11(3), 259-277.
- Arif-Uz-Zaman, K., & Nazmul Ahsan, A. M. M. (2014). Lean supply chain performance measurement. *International journal of productivity and performance management*, 63(5), 588-612.
- Arijanto, R. (2022). The Role of Supply Chain Management on Competitive Advantage and SMEs Operational Performance During Post Pandemic and Digital Era. *Journal of Industrial Engineering & Management Research*, 3(6), 128 - 137. <https://doi.org/10.7777/jiemar.v3i6.410>
- Arzu Akyuz, G., & Erman Erkan, T. (2010). Supply chain performance measurement: a literature review. *International journal of production research*, 48(17), 5137-5155.
- Asbari, M. (2024). Linking Transformational and Transactional Leadership on Teacher Satisfaction during Digital Era. (2024). *PROFESOR: Professional Education Studies and Operations Research*, 1(01), 16-24. <https://doi.org/10.7777/4eeybk85>
- Belitski, M., & Liversage, B. (2019). E-Leadership in small and medium-sized enterprises in the developing world. *Technology Innovation Management Review*, 9(1), 64-74.
- Benitez, J., Arenas, A., Castillo, A., & Esteves, J. (2022). Impact of digital leadership capability on innovation performance: The role of platform digitization capability. *Information & Management*, 59(2), 103590.
- Bondarouk, T., Harms, R., & Lepak, D. (2017). Does e-HRM lead to better HRM service? *The International Journal of Human Resource Management*, 28(9), 1332-1362.
- Chatterjee, S., Chaudhuri, R., Vrontis, D., & Giovando, G. (2023). Digital workplace and organization performance: The moderating role of digital leadership capability. *Journal of Innovation & Knowledge*, 8(1), 100334.
- Dubey, R. (2023). Unleashing the potential of digital technologies in emergency supply chain: the moderating effect of crisis leadership. *Industrial Management & Data Systems*, 123(1), 112-132.
- Gledson, B., Zulu, S. L., Saad, A. M., & Ponton, H. (2024). Digital leadership framework to support firm-level digital transformations for Construction 4.0. *Construction Innovation*, 24(1), 341-364.
- Hashmi, A. (2022). Factors Affecting the Supply Chain Resilience and Supply Chain Performance: Supply Chain Resilience and Supply Chain Performance. *South Asian Journal of Operations and Logistics*, 1(2), 65-85.

- Hove-Sibanda, P., & Poee, R. D. (2018). Enhancing supply chain performance through supply chain practices. *Journal of Transport and Supply Chain Management*, 12(1), 1-13.
- Hult, G. T. M., Ketchen Jr, D. J., & Slater, S. F. (2004). Information processing, knowledge development, and strategic supply chain performance. *Academy of management journal*, 47(2), 241-253.
- Juwaini, A., Chidir, G., Novitasari, D., Iskandar, J., Hutagalung, D., Pramono, T., ... & Purwanto, A. (2022). The role of customer e-trust, customer e-service quality and customer e-satisfaction on customer e-loyalty. *International journal of data and network science*, 6(2), 477-486.
- Kutieshat, R., & Farmanesh, P. (2022). The impact of new human resource management practices on innovation performance during the COVID 19 crisis: A new perception on enhancing the educational sector. *Sustainability*, 14(5), 2872.
- Maestrini, V., Luzzini, D., Maccarrone, P., & Caniato, F. (2017). Supply chain performance measurement systems: A systematic review and research agenda. *International Journal of Production Economics*, 183, 299-315.
- Mihardjo, L., Sasmoko, S., Alamsjah, F., & Elidjen, E. (2019). Digital leadership role in developing business model innovation and customer experience orientation in industry 4.0. *Management Science Letters*, 9(11), 1749-1762.
- Munir, S., Mahmood, G., Abdullah, F., & Noreen, A. (2023). Exploring the impact of digital leadership on sustainable performance with mediating role of artificial intelligence. *Journal of Accounting and Finance in Emerging Economies*, 9(3), 213-226.
- Obeidat, S. M. (2016). The link between e-HRM use and HRM effectiveness: an empirical study. *Personnel review*, 45(6), 1281-1301.
- Permana, A. I., & Soediantono, D. (2022). The Role of Eco Supply Chain on Environment and Operational Performance of Indonesian Defense Industry. *Journal of Industrial Engineering & Management Research*, 3(3), 73 - 84. <https://doi.org/10.7777/jiemar.v3i3.284>
- Prabhu, M., & Srivastava, A. K. (2023). Leadership and supply chain management: a systematic literature review. *Journal of Modelling in Management*, 18(2), 524-548.
- Purwanto, A., & Juliana, J. (2022). The effect of supplier performance and transformational supply chain leadership style on supply chain performance in manufacturing companies. *Uncertain Supply Chain Management*, 10(2), 511-516.
- Qrunfleh, S., & Tarafdar, M. (2014). Supply chain information systems strategy: Impacts on supply chain performance and firm performance. *International journal of production economics*, 147, 340-350.
- Rustina, E., Tarigan, S., Makbul, Y., Ie, M., Pratiwi, H., Irmawati, I., ... & Wening, N. (2024). The partnerships and logistics leadership in the SMEs: The impact of digital supply chain implementation. *Uncertain Supply Chain Management*, 12(2), 1307-1316.
- Sardi, A., Sorano, E., Garengo, P., & Ferraris, A. (2021). The role of HRM in the innovation of performance measurement and management systems: a multiple case study in SMEs. *Employee Relations: The International Journal*, 43(2), 589-606.
- Shin, J., Mollah, M. A., & Choi, J. (2023). Sustainability and organizational performance in South Korea: The effect of digital leadership on digital culture and employees' digital capabilities. *Sustainability*, 15(3), 2027.
- Soehaditama, J. P., Zen, A., Sjarifudin, D., Widyastuti, T., & Karsono, B. (2023). Digital leadership for agile organization and organizational sustainability. *East Asian Journal of Multidisciplinary Research*, 2(5), 2165-2176.
- Strohmeier, S. (2007). Research in e-HRM: Review and implications. *Human resource management review*, 17(1), 19-37.
- Strohmeier, S. (2020). Digital human resource management: A conceptual clarification. *German Journal of Human Resource Management*, 34(3), 345-365.
- Sukati, I., Hamid, A. B., Baharun, R., & Yusoff, R. M. (2012). The study of supply chain management strategy and practices on supply chain performance. *Procedia-Social and Behavioral Sciences*, 40, 225-233.
- Susananto, P. H., Arief, M., Usman, B., & Tiarapuspa, T. (2023). Employee performance model based on e-HRM: employee green behavior as A performance indicator in the coal mining company. *Journal of Social Science*, 4(1), 16-29.
- Utomo, H. J. N., Irwanto, I., Wasesa, S., Purwati, T., Sembiring, R., & Purwanto, A. (2023). Investigating the role of innovative work behavior, organizational trust, perceived organizational support: an empirical study on SMEs performance. *Journal of Law and Sustainable Development*, 11(2), e417-e417.
- Wagner, S. M., & Bode, C. (2008). An empirical examination of supply chain performance along several dimensions of risk. *Journal of business logistics*, 29(1), 307-325.
- Waheed, A., Miao, X., Waheed, S., Ahmad, N., & Majeed, A. (2019). How new HRM practices, organizational innovation, and innovative climate affect the innovation performance in the IT industry: A moderated-mediation analysis. *Sustainability*, 11(3), 621.
- Wairisal, P., & Risambessy, A. (2024). The mediating effect of crisis leadership and digital technologies on emergency supply chain capabilities of logistic companies. *Uncertain Supply Chain Management*, 12(3), 1673-1680.
- Wang, T., Lin, X., & Sheng, F. (2022). Digital leadership and exploratory innovation: From the dual perspectives of strategic orientation and organizational culture. *Frontiers in Psychology*, 13, 902693.
- Zhang, J., & Chen, Z. (2024). Exploring human resource management digital transformation in the digital age. *Journal of the Knowledge Economy*, 15(1), 1482-1498.

