

Essential Integration of eHRM 4.0 Approach, IT Infrastructure and CEO Support to Support Supply Chain Performance in Small-Scale Logistics Companies

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Abstract

INTRODUCTION: IT infrastructure resources in large-sized companies have evolved into large-scale intelligent enterprise systems due to the emergence of Big Data, Internet of Things, and artificial intelligence technologies.

OBJECTIVES: The purpose of this study was to analyze the effect of eHRM implementation and the availability of IT infrastructure on top management/CEO support and the performance of logistics companies in Semarang city.

METHODS: This study uses a quantitative method with an analytical tool using SEM-PLS. The sampling method for this study used a purposive sampling technique with a total sample of 120 samples.

RESULTS: IT infrastructure has a significant effect on top management support in logistics companies, the role of eHRM has a significant effect on top management support, the role of eHRM has a significant effect on CEO support, eHRM has a significant effect on company performance, IT infrastructure has a significant effect on company performance, support CEO has a significant effect on company performance, IT infrastructure has a significant effect on company performance, and the role of eHRM has no significant effect on company performance.

CONCLUSION: IT Infrastructure and CEO Support influence Supply Chain Performance in Small-Scale Logistics Companies.

Keywords: eHRM, IT Infrastructure, CEO Support, Company Performance, Logistics Company.

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1. Introduction

Logistics includes all management activities such as the arrangement of raw materials, production, storage including finished products, customer service and after-sales service (Freitas et al. 2019). The field of logistics has changed since its inception, which means that new technologies and collaborations can work easily and effectively to compete to enter new markets, achieve more production and use technology beyond their personal boundaries (Kagermann, 2014; Hirt and Willmott, 2014).

In a competitive environment, especially post-pandemic, the logistics business including purchasing,

distribution, management such as inventory, packaging, manufacturing, and customer service has decreased, as a result companies must focus on increasing efficiency and performance in logistics business processes to ensure the quality of goods, products and information in all of the company's products.

Recently, logistics management has become important and has been recognized as a key factor in competitive advantage (Rushton et al. 2022; Barreto et al. 2017). Some researchers propose that logistics business processes include storage, transportation and distribution which means physical goods. Over the years, logistics has evolved from one-party (private) logistics to multi-party logistics, using e-logistics networks aimed at global operations. This requires the use of technology, especially

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IT infrastructure that can support outsourcing which defines logistics services especially to reduce operational costs.

IT infrastructure resources in large-sized companies have evolved into large-scale intelligent enterprise systems due to the emergence of Big Data, Internet of Things, and artificial intelligence technologies (Lobaziewicz, 2018). Therefore, the way in which critical IT resources, such as IT infrastructure and IT people, affect the assimilation of IT in large enterprises requires further examination. Top management support may influence the effectiveness of IT resources, this proposition has not been tested empirically. Furthermore, Gao et al. (2020) have empirically proven that IT resources are more effective with high levels of top management support, indicating a positive synergy or complementary relationship between IT resources and top management support. Limited evidence has shown that there are negative synergy or substitution relationships between some types of IT resources and top management support, whereas there are positive synergies or complementary relationships between other types of IT resources and top management support. However, such a situation may occur with respect to large-sized companies, not small-sized companies.

2. Literature Review

2.1. e-HRM to CEO Support

Senior leadership support describes the desire of the senior management hierarchy to provide and fund every type of resource for IT adoption in the company (Wrede et al., 2020). In addition, senior leadership support is a benchmark for utilizing employee knowledge in IT applications to gather financial resources, infrastructure, and employee competencies (Abualoush et al. 2018). Previous studies in similar fields extracted and reached general consensus that senior leadership support is a strong denominator for successful IT adoption (Ikram et al., 2020; Pafford & Schaefer, 2017). Impossible, (Hassan et al., 2017; Khayer et al. 2020) explore that senior leadership support is an insignificant driver for the adoption of IT applications. Based on the discussion of the literature above, the following hypotheses are proposed to test eHRM practices in a logistics company in Central Java:

H₁: eHRM Practice has a positive effect on top management/CEO support

2.2. e-HRM Practice on Organizational Performance

The advantage of implementing eHRM is its direct effect on employee productivity. Research claims that employees perceive eHRM as a work process change agent in work and leads them to feel satisfied with work in pre and post

implementation (Marler and Fisher, 2013). However, satisfaction levels can steadily decrease if there is difficulty with use (Garg et al. 2018). Thus, the cause of satisfaction in one's job is multifaceted in which the attitude towards the job is noteworthy. In fact, the work environment is at the core of job satisfaction (Al-Alwan et al., 2022). Work situation determines job satisfaction. Consequently, if the work situation is positive, employees feel satisfied and vice versa. Based on the literature discussion above, the following hypotheses are proposed to test eHRM practices in logistics companies in Central Java:

H₂: eHRM Practice has a positive effect on the performance of logistics service companies in the city of Semarang

2.3. IT Infrastructure to Top Management/CEO Support

Consistent with socio-technical systems theory (Sony and Naik, 2020), IT infrastructure resources are considered as a technical aspect of IT, while IT human resources are considered as a social aspect of IT. Due to the differences between IT infrastructure resources and IT human resources, the mechanisms by which CEO support interacts with these two IT resources may also differ. With information deepening, intelligent IT infrastructure resources (eg knowledge management systems) have become an important IT platform used by large companies to support business strategies. Under such circumstances, CEO support may have less impact on IT business-spanning capabilities as IT employees may turn to these IT resources to enhance IT assimilation (Gao et al., 2019). For example, when IT infrastructure resources are abundant, IT employees may turn to IT infrastructure resources (e.g. intelligent knowledge management systems) to direct IT practices, IT employee inclination towards CEO as a guide to direct IT practices into alternative channels, IT employees tend to reduce dependency on the CEO, and IT technical knowledge and managerial skills embedded in IT infrastructure resources are more likely to enable IT business synergies (Jarrahi et al., 2017). Thus, we propose the following hypothesis:

H₃: IT infrastructure has a positive effect on top management/CEO support

2.4. IT Infrastructure on Organizational Performance

Tu and Wu, (2021) shows that companies that use IT and combine it with other complementary resources can bring sustainable competitive advantages to companies, thereby helping companies achieve better organizational performance. Developing effective IT capabilities creates uniqueness and provides competitive advantage for organizations (Liao et al. 2017). Furthermore, according to

the dynamic capabilities of Mikalef et al. (2020), resources cannot directly generate competitive advantage: resources must be transformed into dynamic capabilities to achieve better performance. While IT cannot directly bring competitive advantage to firms, IT links between firms can provide rapid response and the ability to adapt quickly to market changes (Shan et al., 2019). Um, (2017) found that the effective use of IT by firms can create closer relationships with supply chain partners and increase firm flexibility.

H4: IT infrastructure has a positive effect on organizational performance

2.5. Top Management/CEO Support for Company Performance

The role of the CEO is rarely considered when examining the relationship between TMT tenure diversity and firm performance (Tanikawa and Jung, 2019). In this study, we aim to understand the relationship between the CEO and TMT members as a principal-agent relationship (Cruz et al., 2010) and we assume that strong CEOs tend to control and suppress the behavior of TMT members, especially by introducing power asymmetry and centralization in between team members. more top management team meetings is a signal of more effective efforts by top management to share information, improve team dynamics, and improve decision making. Ford et al. (2017) demonstrated that effective management meetings provide relevant information and advice to team members and motivate team members to become better at performing the tasks assigned to them. Also, the management team consists of members who are interdependent in achieving a common goal and whose success depends on their ability to cooperate and coordinate their actions. In addition, previous in-depth studies have examined the moderating role of CEO power by using founder status as a proxy for CEO power (Ntim et al., 2019).

H5: Top management/CEO support has a positive effect on Organizational Performance

2.6. IT Infrastructure on Logistics Company Performance through CEO Support

Gao et al. (2019) argues that CEOs' positive beliefs about IT effectiveness can result in managerial decisions to direct IT human resources to be able to assimilate IT effectively. In addition, Eisenberger et al. (2020) showed that CEO support contributes to the perceived organizational support (POS) of IT employees, which is important for IT employees to deal with their psychological processes (Eisenberger et al., 2020). In particular, IT employees in large companies who have a strong sense of POS are more likely to feel obligated to use IT resources to meet business objectives. The respect and attention from POS fulfill the

socio-emotional needs of IT employees in large companies and increase their affective commitment, which has also been shown to strengthen the effectiveness of IT human resources (Caesens et al., 2017).

H6: IT infrastructure has a positive effect on company performance through the support of top leaders

2.7. eHRM on the Performance of Logistics Companies through CEO Support

E-HRM is seen as offering the possibility to improve administration to HR division customers, increase productivity and cost-worthiness within HR offices, and enable HR to become the main accomplice in achieving authoritative goals. e-HRM can enable HR capacity to build its value and add to the company's advantages. Broader innovation settings and frameworks in the HR space could be additional sources of revenue (Harvey and Turnbull, 2020). However, we can expect that innovative resources and frameworks will have lower barriers to constraining capacities than, implied, knowledge preferences embedded in socially complex timelines. Al-Omouh, K. S. (2020) claims that the proactive level of top management in adopting forward-thinking survival and sustainability strategies is an important driver for enhancing the role of Information Technology (IT) skills in achieving corporate entrepreneurship. This proactive nature is critical for companies to recognize and understand IT-enabled opportunities and respond quickly in unpredictable business settings. Current theory and studies show that the leadership position of project managers and encouragement from upper management is very important for higher institutions (Maqbool et al., 2017).

H7: eHRM Practice has a positive effect on company performance through the support of top leaders

3. Method

The survey was conducted among a sample of 180 logistics companies in Semarang from different industries. This study used a purposive sampling technique. Purposive sampling is a sampling technique with certain considerations in Sugiyono, (2016:85). The reason for using this purposive sampling technique is because it is suitable for use in quantitative research, or studies that do not generalize according to Sugiyono, (2016 85). Of the 180 research sample companies used in this study, there were 120 companies. To ensure the validity of the sample, this study considers two main factors when selecting companies from companies that have a fleet of at least 5 fleets. First, small and medium enterprises are not considered. Second, we communicate with selected enterprise executives and check their websites to ensure that the IT infrastructure resources in the selected companies have rapidly developed into large-scale

intelligent enterprise systems. Second, the selected companies rely heavily on intelligent enterprise systems to enable their business operations.

We contacted the IT executives of this logistics company. Then, we sent out 200 questionnaires to companies that agreed to answer the questions. Specifically, IT executives were asked to answer questions related to their company's IT practices (eg IT resources, and CEO support). With a response rate of 60.5 percent, we received 125 usable questionnaires from this great

company. IT executives have worked for their respective organizations for an average of 5 years. Sample demographics are listed in Table 1.

Then, we used Hair et al. (2019) method for evaluating common method bias in our study by constructing a partial least squares (PLS) model. Our results show that the main variable loadings are all significant at the 0.001 level, whereas any common method factor loadings are not significant (Table 2). Therefore, we conclude that general method bias does not threaten our quantitative data.

Table 1. Sample Demographics

Characteristic	Range	Frequency	Percentage
Industry sector	Transfer and Rent	12	10
	Cargo and Load	29	24,16
	Transportation Services	26	21,66
	Import and Export Management	15	12,5
	Supply & Delivery Services	18	15
	Travel & Transport	12	10
	Travel agent	8	6,6
Enterprise age	< 5 years	23	19,16
	5 – 7 years	17	14,16
	8 – 10 years	36	30
	11-13 years	16	13,33
	14- 16 years	12	10
	>16 years	6	5
Number of employees	< 10 people	-	-
	10 – 15 people	8	6,6
	16 – 20 people	6	5
	21 – 25 people	10	8,33
	26 – 30 people	21	17,5
	31 – 35 people	8	6,66
	36 – 40 people	13	10,83
	41 – 45 people	12	10
	46 – 50 people	24	20
	>50 people	18	15

Based on the table above, it shows that the largest number of logistics companies that were sampled in this study were cargo and cargo logistics companies with a total of 29 respondents (24.16%), while for the age of the

companies the most were companies that had been operating between 8-10 years. with a total of 36 companies (30%) and on average these companies have between 46-50 employees with a total of 24 companies (20%).

Table 2. The Item-to-Construct Loadings

Indicator	eHRM	IT Infrastructure	CEO Support	Logistics Company Performance
HRM1	0.852	0.628	0.659	0.344
HRM2	0.798	0.570	0.672	0.525
HRM3	0.825	0.586	0.615	0.641
HRM4	0.828	0.622	0.676	0.628
HRM5	0.770	0.559	0.652	0.538
IIT1	0.846	0.709	0.624	0.495
IIT2	0.492	0.713	0.561	0.606
IIT3	0.579	0.782	0.625	0.593
IIT4	0.638	0.820	0.684	0.716
IIT5	0.556	0.762	0.686	0.654
CEO1	0.619	0.499	0.792	0.653
CEO2	0.425	0.592	0.745	0.499
CEO3	0.532	0.755	0.706	0.592
CEO4	0.514	0.519	0.819	0.589
CEO5	0.456	0.576	0.767	0.523

PLC1	0.537	0.551	0.570	0.794
PLC2	0.518	0.735	0.586	0.753
PLC3	0.338	0.745	0.622	0.749
PLC4	0.344	0.676	0.559	0.813
PLC5	0.525	0.636	0.484	0.779

Table 3. Descriptive Statistics

Variable	Mean (SD)	AVE	CR	Cronbach's α	eHRM	IIT	CEO	PLC
eHRM	5.484 (0.659)	0.653	0.915	0.902	0.820			
IT Infrastructure	5.356 (0.784)	0.548	0.942	0.936	0.703	0.734		
CEO support	5.387 (0.834)	0.549	0.868	0.822	0.778	0.677	0.739	
Logistics company performance	5.335 (0.839)	0.702	0.942	0.932	0.742	0.794	0.646	0.844

Note: The square root of AVE shown on the matrix diagonal is italicized. The construct correlation is shown from the diagonal

Table 3 shows that all indicators have an outer loading > 0.70 as needed, with Cronbach alpha and composite reliability greater than 0.7 which indicates the internal consistency of the construct is reliable. The AVE measures a convergent validity check, where all values have an AVE of 0.50, indicating that all constructs explain at least 50 percent of the item variance and therefore establish validity (Hair et al., 2019).

In our study, using the procedure recommended by Sharma et al. (1981), we used SmartPLS 3.0 to perform a hierarchical regression analysis. Table IV summarizes the results of the analysis. As shown in Table IV, the influence of eHRM 4.0, IT infrastructure and CEO support to support supply chain performance in a logistics company is assessed in Model 1. H1, and H2, H3, H4 and H5 are assessed in Model 2. H6 and H4 are evaluated in Model 3 and 4.

Table 4. Results of Hierarchical Analysis

	Model 1	Model 2	Model 3
<i>Independent variables</i>			
eHRM	0.038	0.011	0.678
IT Infrastructure	0.025	0.030	0.078
CEO support		0.012	0.058
<i>Interaction terms</i>			
HRM x LS			0.093
IIT x LS			0.045
ΔR^2 (PLC)		0.056	0.147
f^2 (effect size)		0.458	0.077
R^2 (PLC)		0.469	0.324
<i>F hierarchical</i>		15.920	5.970

Note: Sample size is 120. All path coefficients are standardized. * $p < 0.05$; ** $p < 0.01$, one-tailed tests

In Model 1, all independent variables have a significant effect on CEO support. These results indicate that the existence of eHRM and IT infrastructure can work optimally with support from the leadership/CEO with $\beta < 0.038$, $P < 0.05$; $\beta < 0.025$, $P < 0.05$ Therefore, H1 and H2 are supported. In Model 2, eHRM, IT infrastructure and CEO support are proven to explain the performance of logistics companies ($\beta < 0.011$, $P < 0.05$; $\beta < 0.030$, $P < 0.05$; $\beta < 0.012$, $P < 0.05$). Therefore, H3, H4 and H5 are supported. Model 3 examines the moderating effect of CEO/leader support in improving eHRM and IT infrastructure. Based on the results of the analysis, it was found that eHRM on the performance of logistics companies through CEO support ($\beta < 0.093$, $p < 0.01$), while IT infrastructure on the performance of logistics companies through CEO support showed ($\beta < 0.045$, $p < 0.01$) so that, H6 is not supported, and H7 is supported.

3. Result and Discussion

First: Our research provides some theoretical insights by showing how IT infrastructure has a significant effect on top management support in logistics companies. At least four theoretical implications of our research are presented below. Technologies provide all the important infrastructure needed to carry out digital transformation or IT transformation in today's digital era, as well as protecting data which is the most important asset for organizations and companies (Gao et al., 2019). Without the support of the IT leader/CEO, the infrastructure will not work. Integration into this structure will overcome the vertical structure, connecting factories within the region or even abroad. In this case, transportation and logistics are

important (Benešová and Tupa, 2017). These results suggest that IT infrastructure resources can replace the influence of CEO support, but do not complement the influence of CEO support in large companies. On the other hand, although CEO support can play a positive moderating role in the effectiveness of IT human resources, this contingent role is not significant. This result may have various explanations. Due to intelligent IT systems, large-sized companies operate as well-functioning organisms and clarify problem-solving methods, methods of achieving goals, and external as well as internal communication (Jarrahi et al., 2017). With this, IT employees can skillfully implement business goals, thereby reducing dependence on guidance from the CEO (Piotr, 2016). Another explanation is that CIOs, who are in charge of IT initiatives, may have the strongest predictive power in IT assimilation, not CEOs (Hambrick, 1995). In general, our findings show that CEO support does not affect IT assimilation directly, but rather influences IT assimilation by interacting with the strategy of how IT resources are used. Therefore, IT executives cannot neglect the support role of the CEO and should combine CEO support with various IT resources to enhance IT assimilation in large-sized enterprises. Our findings are consistent with the general opinion that IT infrastructure is significantly positive for CEO support (Gao et al., 2019). Previous studies in similar fields extracted and reached general consensus that senior leadership support is a strong denominator for successful IT adoption (Imron et al., 2019).

Second, this study presents the role of eHRM which has a significant effect on CEO support. In the human dimension, the attitude of senior executives is identified as a statistically significant factor influencing eHRM practices at the organizational level. These results not only support the findings of previous studies in developing countries (Wrede et al., 2020) but also confirm the results of studies conducted in Western nations (Al-Qirim, 2007; Agarwal and Prasad, 1998). The findings also contradict the results (Abualoush et al. 2018). In addition, the results of research conducted in developed countries validate the findings of this study. However, the results are inconsistent with the findings of previous studies conducted in developing countries (Al-Dmour, 2017).

Third: this study presents that eHRM has a significant effect on the performance of logistics companies in Semarang. The results show that eHRM practices have a significant linear impact on organizational performance. It is proven that the rapid development of the internet so far has encouraged the implementation and application of Electronic Human Resource Management (E-HRM) (Marler and Fisher, 2013). E-HRM is basically a decentralization of HR functions for management and employees, but at the same time, the use of E-HRM which has multiple functions can be carried out with technology to develop its full potential (Garg et al. 2018). In general, E-HRM is believed to provide a number of key benefits to organizations, such as increasing efficiency and reducing costs associated with HRM, facilitating the shift of the role

of HR to a more strategic level and improving client service, from handling administrative entities using paper and pencil and HR tasks labor intensive (Al-Alwan et al., 2022).

Fourth: this study presents the role of IT infrastructure that has a significant effect on the performance of logistics companies in Semarang. This study shows that the proper use of IT infrastructure can help enterprises realize the benefits of IT, and that the integration and flexibility of IT infrastructure can help build stronger supply chain capabilities, including information exchange, coordination, activity integration, and responsiveness (Tu and Wu, 2021). Previous studies in the literature assessing the impact of IT infrastructure on organizational performance have always focused on the integration or flexibility of separate IT infrastructure; however, little research has explored the impact of concurrent integration and flexibility of IT infrastructure on overall organizational performance (Liao et al. 2017). Therefore, to fill this research gap, this study uses a resource-based view (RBV) to explore the relationship between IT infrastructure integration and flexibility on the one hand and organizational performance on the other hand, with supply chain capabilities as a mediating variable. The results of this study can be used for reference and as a basis for further relevant research. This study shows that the proper use of IT infrastructure can help enterprises realize the benefits of IT, and that the integration and flexibility of IT infrastructure can help build stronger supply chain capabilities, including information exchange, coordination, activity integration, and responsiveness (Shan et al., 2019).

Fifth: this study presents the role of CEO support which has a significant effect on the performance of logistics companies in Semarang. Good leadership results in a higher level of trust and involvement in people, which in turn results in better company performance. Someone who feels safe and empowered will have strong intrinsic motivation to work with passion and enthusiasm, which has a positive impact on the goals of the unit (Tanikawa and Jung, 2019). This mechanism is not only theoretical but can (and should) be measured in practice. The solution of the e-HRM model is to be optimistic, the basic business will be processed by the information system and the characteristics of e-HRM will be promoted from functional to strategic (Ford et al. 2017). The development of a human resource management system is an important thing in supporting ERP success (Alsharari, 2022). The implementation of e-HRM in small and medium enterprises has a significant impact on industrial competition in Malaysia. e-HRM is very important in increasing profits in a work organization (Aust et al. 2020).

Sixth: this study presents the role of IT infrastructure that has a significant effect on the performance of logistics companies through the support role of the CEO. At the same time, to integrate IT infrastructure, two aspects are needed: data consistency and cross-functional application integration. It can provide for enterprises in the supply chain network, enable information to be conveyed in various application systems, maintain data consistency and

real-time sharing capabilities, and help enterprises quickly grasp market information to develop the most rapid and appropriate response to customer demands (Eisenberger et al., 2020). As a result, companies with flexible and integrated IT infrastructure will be able to strengthen their supply chain capabilities, thereby influencing organizational performance (Gao et al. 2019). This study also provides a conceptualization of supply chain capabilities, which can be considered as a high-level construct, with components of information exchange, coordination, activity integration, and responsiveness. Business managers must understand that these four dimensions of supply chain capabilities are interrelated, and they must be able to coordinate and integrate all supply chain partners in IT so that they can take full advantage of their IT investment (Caesens et al., 2017). In addition, a company's supply chain capabilities can display better organizational performance, which mainly comes from balanced supply chain activities (as opposed to dispersed and unbalanced supply chain activities).

Seventh: this study presents that the role of eHRM has no significant effect on the performance of logistics companies through the support role of the CEO. This research contrasts with the results of Bondarouk et al., (2017) showing that e-HRM and the quality of HR services have a significant effect on improving employee performance. Therefore, HR managers must ensure that they properly design e-HRM systems to support the workflow of the organization. In particular, managers should focus on the impact of e-HRM on the quality of HR services holistically (Maqbool et al., 2017). Since this is the stage where e-HRM can improve employee performance, this study argues that the mere introduction of e-HRM is not enough to improve employee performance or organizational performance; companies will benefit only if e-HRM helps employees carry out their various tasks more quickly or more easily (Harvey and Turnbull, 2020). Maqbool et al., (2017) stated that studies on e-HRM have been conducted in the context of advanced European and US economies, and paid little attention to differences in social settings.

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4. Conclusion

Based on the results of the analysis and discussion, it can be concluded that IT infrastructure has a significant effect on top management support in logistics companies, the role of eHRM has a significant effect on top management support, the role of eHRM has a significant effect on CEO support, eHRM has a significant effect on company performance, IT infrastructure has a significant effect on performance company, CEO support has a significant effect on company performance, IT infrastructure has a significant effect on company performance, and the role of eHRM has no significant effect on company performance.

Policies and practices within organizations that are mutually integrated into the system involve two factors so that e-HRM can be implemented, namely readiness and full support from all organizational resources and the existence of adequate IT infrastructure which is supported and protected by top management/CEO policies. In addition, e-HRM is also a means for management and employees to be more effective and efficient in measuring organizational performance and reducing the impact of cost bias.

However, this study has certain limitations; first, it only focuses on the analysis of the relationship between e-HRM implementation and performance. The model we have developed is limited to compiling employee correspondence regarding the implementation of e-HRM activities. However, the nature of this relationship may change at some stage. This can develop into a more complex picture that allows for several different points of view, especially when viewed from organizational behavior. So, it is suggested for further research to assess aspects of e-HRM implementation involving regulatory readiness and company resources in implementing e-HRM. In addition, this research sample is still lacking and has weaknesses that can lead to bias.

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