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Corporate restructuring for firm performance improvement: The strategic role of digital transformation and digital human capital

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Abstract

Corporate restructuring strategies are critical for improving firm performance, yet the effectiveness of such efforts can vary. In today's dynamic business environment, integrating digital transformation and digital human capital into these strategies has become increasingly important. This study aims to examine the moderating effect of digital transformation and digital human capital on the relationship between restructuring strategies and firm performance. Using cross-sectional data from 78 publicly listed companies that implemented restructuring strategies in 2023, including IPOs, warrants, and delisting actions, this study assesses their impact on firm's performance. Results show both organizational and portfolio restructuring positively influence firm's performance, with digital transformation serving as a critical moderator that enhance portfolio restructuring effectiveness. Financial restructuring, however, demonstrate a negative effect on firm's performance, moderated only slightly by digital human capital, which does not independently improve performance. The findings highlight the need for alignment between digital initiatives and restructuring strategies to optimize firm outcomes

Keywords restructuring strategy; digital transformation; digital human capital; firm performance;

INTRODUCTION

Corporate restructuring has become a strategic choice in a dynamic and competitive business environment (Paterson & Walters, 2023; Umar, 2023; Vo et al., 2024). Restructuring allows companies to optimize resources, overcome operational difficulties, and increase profits, all of which positively influence company performance (Bowman & Singh, 1993; Umar, 2023). The increasingly competitive and dynamic business situation with changing market trends encourages companies to implement more agile strategy formulations (El-Khalil & Mezher, 2020; Vial, 2019). This process not only involves human resource restructuring, operational efficiency, acquisitions or mergers, and other restructuring strategies but also requires a deep understanding of digital transformation in business (Hanelt et al., 2021; Plekhanov et al., 2023; Vial, 2019).

Digital transformation is now essential as it empowers companies to leverage digital technology to improve process efficiency, accelerate innovation, and achieve greater agility (Li et al., 2023; Verhoef et al., 2021). Digital transformation through digitization and digitalization involves human resources. In this context, human digital capital is also a factor that needs to be considered. Employees' digital skills play an important role in implementing and maximizing company performance (Ghi et al., 2022; Grimpe et al., 2023; Vial, 2019). Companies' initiatives to increase their digital use require digital skills to achieve a successful digital transformation.

Failure to make strategic adjustments can lead to reduced competitiveness, loss of market share, which can ultimately threaten the sustainability of their business (Verhoef et

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al., 2021). In recent years, there has been increasing interest in digital transformation to leverage firm performance. Digital transformation offered a way to increase efficiency, automate processes, and facilitate data-driven decision-making (Lemon & Verhoef, 2016; Warner & Wäger, 2019). Companies that did not adopt digital technologies, missing out on greater flexibility and innovation opportunities (Feliciano-Cestero et al., 2023; Vial, 2019). Furthermore, the lack of a digitally competent workforce can lead to competency gaps, suboptimal implementation of solutions, and ultimately poor business performance in the long term.

Corporate restructuring, digital transformation, and human digital capital present significant challenges to firm performance. Empirical studies indicate that restructuring was critical for improving firm performance (Bowman & Singh, 1993; Vo et al., 2024); however, inconsistent results persist across contexts. While some firms benefit from restructuring in terms of efficiency and profitability, others face disruption and failure to adapt, suggesting a gap in the understanding of the conditions under which restructuring is most effective. Early previous study by Bowman & Singh (1993) has been mentioned that restructuring can improve firm performance through efficiency and resource optimization. Similarly, Belesta et al., (1999) demonstrated that cost cutting positively impact on financial performance. Atiase et al., (2004) found that firm undertaken restructuring experienced increased earnings and operating income. More recently, Umar (2023) and Vo et al., (2024) confirmed that well-executed restructuring strategies can streamline operations, eliminate redundancies, and improve resource allocation. However, the literature also documented significant failures and mixed result. Khurana and Lippincot (2000) found that restructuring benefits were limited, with profitable firms showed minimal improvement. Other studies reported that restructuring impact negative effect particularly when restructuring disrupts organizational capabilities (Klosowki, 2012).

Despite empirical gaps research, several critical gaps remain in the restructuring and firm performance relationship. There is a research gap in the limited exploration of how digital transformation specifically interacts with different restructuring strategies. Although much research has focused on the benefits of digital tools for firm performance, these studies often overlook the need to align with a firm's restructuring efforts to achieve optimal outcomes. Traditional restructuring research developed in pre-digital context fails to account for how digital transformation fundamentally alters organizational dynamics. According to Vo et al., (2024), digital transformation combined with corporate restructuring has significant effect on the firm performance. However, the effects of each restructuring strategy differ and lack on investigated of how digital factors moderate restructuring.

Existing research focused primarily on technological aspect of digitalization while overlooking the critical role of human digital capabilities. Although human capital theory suggested that employee's skills significantly influence strategic initiative outcome (Grimpe et al., 2023), restructuring literature has not examined how digital human capital affects restructuring success. While the role of human capital has been widely studied (Diaz-Fernandez et al., 2017; Ghi et al., 2022; Pasban & Nojedeh, 2016), its digital dimension, which includes digital skills, competencies, and adaptability, remain underexplored. Digital human capital enables organizations to achieve their best performance through digital skill (Grimpe et al., 2023; Vrchota et al., 2020), digital competences (S. Barykin et al., 2020; Imjai et al., 2023; Siddoo et al., 2019), digital mindset, and digital culture (Viloria-Núñez et al., 2023). Current theories do not adequately capture how digital skills influence the effectiveness of restructuring strategies, particularly in technology-intensive environments. Human capital plays a strategic role in organizational performance (S. Y. Barykin et al., 2020; Ghi et al., 2022). However, firms do not specifically provide employees with digital skills. Dynamic market conditions may require firms to be agile in transforming their core business. However, no study has examined the moderating effects of digital human capital and digital transformation on the relationship between corporate restructuring and firm performance.

While studies examined direct effects of restructuring and digital factors separately, few investigated their interactive effects comprehensively. The literature lacks integrated models that simultaneously consider multiple restructuring and multiple digital factors. Current literature often treated digital transformation as a single concept, failing to distinguish with digital human capabilities. From resource-based perspective (Barney et al., 2005), digital transformation and digital human capital represent distinct organizational resource that may complement or substitute for restructuring benefits.

Recent empirical studies on listed companies in Indonesia highlight various approaches to corporate restructuring strategies (Nurharjanto et al., 2018). Several Indonesian companies have incorporated digital transformation as a core element of the organization through activities such as developing digital platforms, understanding the market, improving customer experience, data-driven decision-making, and recruitment processes. For example, companies in the financial and retail sectors have integrated digitalization to streamline processes, reduce costs, and reach new customer segments. Companies use cloud computing, big data, data analytics, AI, and robots.

In terms of human resource strategy, several Indonesian companies have focused on digital human resources by investing in digital competency training programs in their workforce (Sayudin et al., 2023). These initiatives are designed to upskill employees in areas such as data analytics, digital marketing, and cybersecurity in line with the strategic shift towards digital transformation. However, other Indonesian companies have chosen training that is aligned with their core business areas, rather than specific digital skills, reflecting a more traditional approach to human resource development within a restructuring framework. This mixed approach indicates varying levels of priority by Indonesian companies towards digital transformation and digital human resources as an integral component of restructuring, with implications for future competitive advantage in an increasingly digital marketplace.

Given those research gaps, this study investigates the moderating effects of digital transformation and digital human capital on corporate restructuring strategies and firm performance. This study explores how restructuring efforts, such as organizational, financial, and portfolio adjustments, affect performance outcomes when integrated with digital initiatives. Corporate actions showed how firm maintain their performance amid the development of digital technology trends. The contribution of this study is obvious as the resulting outcomes can be capitalized as a guideline to determine strategic restructuring actions for companies.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Corporate restructuring strategy and firm performance

Corporate restructuring strategies are significant actions taken by companies to adapt to changing environments, improve efficiency, and enhance performance (Bowman & Singh, 1993). These strategies can involve various forms of organizational change, including financial restructuring, portfolio restructuring, and organizational restructuring. Corporate restructuring is essential to strategic decision-making at multiple levels. At the industry or macro level, restructuring impacts industry concentration, size, and competitive dynamics. At the organizational level, restructuring influences firm performance, ownership, organizational structures, and strategic focus (Klosowski, 2012). Furthermore, at the individual level, restructuring affects the motivation and commitment of both employees and managers (Ballesta et al., 1999). The relationship between corporate restructuring and firm performance has been a subject of extensive research (Vo et al., 2024; Klosowski, 2012; Umar, 2023), with studies exploring the effectiveness of different restructuring strategies and the conditions under which they are most successful.

Furrer (2016) discusses three pivotal kinds of company restructuring: financial, portfolios, and organizational. Financial restructuring refers to a series of actions taken by a company to change or improve its financial structure to be more efficient and in accordance with the company's strategic goals. Financial restructuring is often carried out when a company is experiencing financial difficulties or as a proactive step to increase the company's value, strengthen its financial position, and improve profitability. The main objectives of financial restructuring are to improve financial ratios, reduce debt burdens, increase equity capital, and improve the company's overall financial performance.

Portfolio restructuring, which involves strategically adjusting a company's mix of business units, assets, and investments, is another pivotal type of corporate restructuring. This restructuring approach allows organizations to refine their operational focus, divest underperforming or non-core units, and reallocate resources to more promising business segments or emerging growth opportunities. By optimizing their portfolio, companies can improve efficiency, enhance profitability, and position themselves for long-term success (Riofrío et al., 2014).

Organizational restructuring involves changes to a company's structure, such as altering reporting relationships, revising job responsibilities, or modifying management layers. This type of restructuring aims to improve the efficiency and effectiveness of the organization, often in response to changes in the business environment or strategic goals. Organizational restructuring can include initiatives like downsizing, de-layering, or the implementation of new organizational designs. Several company actions show the existence of restructuring strategies that occur in the company such as mergers, MSOP/ESOP (Management Stock Option Plan/Employee Stock Ownership Plan), HMETD (Hak Memesan Efek Terlebih Dahulu), reverse stock split, IPO, private placement, warrants, buy back, and partial delisting.

The relationship between corporate restructuring strategies and firm performance is complex and multifaceted, with empirical studies yielding mixed results. While some studies report positive relationships, others find negative or no significant associations. This complexity arises from various factors, including the type of restructuring, the firm's specific context, and the chosen performance metrics. Restructuring can streamline operations, eliminate redundancies, and improve resource allocation, leading to increased efficiency and profitability (Bowman & Singh, 1993; Atiase et al., 2004; Umar, 2023, Vo, 2024). Atiase et al. (2004) found that firms undertaking restructuring experienced increased earnings and operating income compared to a control group. Ballesta et al. (1999) showed that firms reducing labor expense intensity had higher annual returns, suggesting that cost-cutting measures can positively impact financial performance. Khurana & Lippincott (2000) found that restructuring aimed at eliminating personnel or exiting a line of business was positively associated with returns for loss-making firms.

By divesting non-core businesses and focusing on core competencies, firms can enhance their competitive advantage and improve long-term performance (Umar, 2023; Sari, 2022). Sari (2022) argues that restructuring guided by business strategy is more likely to lead to increased productivity and profit. Paterson & Walters (2022) identified asset retrenchment and a focus on core businesses as effective turnaround strategies. Financial restructuring can reduce debt burdens, improve liquidity, and enhance financial stability, positively impacting firm performance (Umar, 2023). investigated the link between reorganization and financial distress, suggesting that specific financial characteristics can predict the type of restructuring a firm might undertake. The type of restructuring strategy employed plays a crucial role in its impact on performance. Different strategies, such as financial restructuring, organizational restructuring, and portfolio restructuring, have varying effects on different performance metrics.

H1: Restructuring strategy has effect to firm performance.

The moderating role of digital transformation

Digital transformation is more than just adopting new technologies; it's a fundamental shift in how organizations operate, interact with customers, and create value (Verhoef et al., 2021; Chen & Srinivasan, 2023). Tang (2021) positioned digital transformation as a critical component of broader business transformation strategies. By leveraging suitable technologies in conjunction with human resources, methodologies, and operational practices, companies can enhance their adaptability, respond to customer requirements, and stimulate expansion. Rêgo et al. (2021) highlighted that digital transformation goes beyond digitizing resources; it involves changing core operations, products, and business processes, leading to revised or entirely new business models. Digital transformation leverages the use of digital technologies. This includes technologies like cloud computing, big data analytics, artificial intelligence, the Internet of Things, social media, mobile technologies, data analytics, emotional intelligence, and new product development as crucial skills for workers in the digital age (Vial, 2019; Huseynli, 2022, Kraus et al., 2021).

Digital transformation significantly impacts firm performance, although the relationship is complex and depends on various factors. Successful transformations can lead to substantial improvements, while failed ones can be costly and disruptive. Digital transformation has positive impacts on improving efficiency and productivity, increased revenue growth, enhance customer satisfaction, improve employee engagement, and foster innovation and enables the development of new products and services (Vial, 2019; Verhoef et al. 2019).

Digital transformation and corporate restructuring are distinct but increasingly intertwined processes. Digital transformation might drive corporate restructuring through shifting business modes, process optimization and automation, changing customer demands, and create new competitive landscape. Digital technologies empower customers, leading to evolving expectations and demands. Organizations may need to restructure to become more customer-centric and agile in responding to these changes (Stonehouse & Konina, 2020). Digital transformation streamlines processes and automates tasks, potentially leading to redundancies or the need for different skill sets. This can trigger restructuring to optimize workforce allocation and resource utilization. Vo et al. (2024) highlighted how digital transformation improves operational efficiency through automation and data analytics, leading to restructuring for optimized workflows. When aligned strategically, digital transformation and corporate restructuring can create synergistic effects, leading to enhanced performance and competitiveness.

H2: Digital transformation moderates the effect of restructuring strategy on firm performance.

The moderating role of digital transformation and digital human capital

Digital human capital refers to the combined knowledge, skills, abilities, and experience of individuals that enable them to effectively utilize and adapt to digital technologies in the workplace (Grimpe et al., 2023l Viloria-Nuñez et al., 2023). It's not just about technical proficiency, but also encompasses a broader range of competencies, including technical skill, cognitive abilities, digital literacy, learning agility, and data literacy. Grimpe et al (2023) mentioned how digital human capital is often acquired and advanced on the job, highlighting the importance of continuous learning. Abdallah et al., (2021) emphasized the importance of digital skills for successful digital transformation, including team building and management.

Organizations need employees with the right digital skills to implement and manage digital transformation initiatives successfully. Rožman et al., (2023) highlighted the importance of human capital in organizational success, especially in the context of Industry 4.0 and rapid technological advancements. Digital human capital fosters innovation, improves productivity, and enhances an organization's competitiveness in the digital marketplace. Employees with strong digital skills can deliver better customer service and create more engaging online experiences (Guerra et al., 2022; Bilal et al., 2024). As automation and artificial intelligence transform the workplace, digital human capital becomes essential for navigating the future of work (Grimpe et al., 2023).

Investing in digital human capital development through targeted training, upskilling, and reskilling programs yields positive returns in firm performance. Lajili et al. (2020) found a positive relationship between human capital resources and firm performance, while Hatch & Dyer (2004) emphasized the impact of firm-specific human capital investments on learning and performance. Halid et al. (2020) discussed the positive impact of digital HRM on organizational performance. Grimpe et al. (2023) highlighted the importance of digital expertise in multinational corporations, suggesting its contribution to firm performance. Rožman et al. (2023) emphasizes the role of strategic talent management in achieving competitiveness, further supporting the link between digital human capital and firm performance.

H3: Digital human capital moderates the effect of restructuring strategy on firm performance.

H4: Digital transformation and digital human capital jointly moderate the effect of restructuring strategy on firm performance.

METHODS

The research design of this study is quantitative, utilizing a sectional data approach to analyze variables that represent corporate restructuring strategies, digital transformation, and digital human capital. The population consists of Indonesian listed companies that have undertaken restructuring actions in 2023, such as Initial Public Offerings (IPO), issuing warrants, delisting, rights issues with preemptive rights (HMETD, Hak Memesan Efek Terlebih Dahulu), non-preemptive rights issues, and Management/Employee Stock Ownership Programs (MSOP/ESOP). These actions are used as indicators of restructuring activities within companies.

The sample includes 120 listed companies reported to have engaged in corporate restructuring actions on the Indonesia Stock Exchange (IDX). However, upon further examination of the required variables in the annual financial reports, only 78 companies were found to have complete data suitable for analysis. Next, the author conducted a data search of the company's financial reports for the last 3-year period, namely 2021-2023. This subset ensures that all the necessary financial and strategic data are available for robust and comprehensive analysis, supporting the evaluation of how restructuring and digital initiatives impact firm performance.

This study builds on previous research that examined the influence of corporate restructuring strategies on firm performance, the impact of digital transformation, and the role of digital human capital.

$$\mathrm{FP} = \beta_0 + \beta_1.\mathrm{OR} + \beta_2.\mathrm{FR} + \beta_3.\mathrm{PR} + \beta_4.\mathrm{DX} + \beta_5.\mathrm{DHC} + \beta_6.\mathrm{OR} * \mathrm{DX} + \beta_7.\mathrm{FR} * \mathrm{DX} + \beta_8.\mathrm{PR} * \mathrm{DX} + \beta_9.\mathrm{OR} * \mathrm{DHC} + \beta_{10}.\mathrm{FR} * \mathrm{DHC} + \beta_{11}.\mathrm{PR} * \mathrm{DHC} + \varepsilon \quad (1)$$

The operationalization of each variable based on the literature is shown in Table 1.

Table 1.
Variables and indicators measurement

Strategy	Variables	References
Portfolio restructuring	Total asset, ROE, ROA	(Paterson & Walters, 2023; Sayyidah Alifah Rahmani & Erma Setiawati, 2024; Umar, 2023; Vo et al., 2024)
Organization restructuring	Total asset, Revenue, ROE	
Financial restructuring	Debt-to-equity ratio (DER), total liability, total equity	
Digital transformation	Combination of digital use, digitization, and digital transformation. Express with 1 (present) or 0 (absence)	(Chen et al., 2023; Ghi et al., 2022; Vo et al., 2024)
Digital human capital	Digital competence training in the firm. Express with 1 (present) or 0 (absence)	(S. Barykin et al., 2020)
Firm performance	Return of Asset (ROA)	(Chen et al., 2023; Ghi et al., 2022; Vo et al., 2024)

RESULTS AND DISCUSSION

Restructuring strategy of listed company

This study covers 78 companies identified as carrying out corporate restructuring actions in 2021-2023. These corporate actions include Employee Stock Ownership Plans (ESOP)/Management Stock Ownership Plans (MSOP), Rights Offerings (HMETD/non-HMETD), Initial Public Offerings (IPO), Warrants, and Delisting. These companies cover ten industrial sectors traded in the Indonesian stock market. The highest representation is in the non-primary consumer goods, energy, finance, and technological sectors.

From the published financial reports, all the companies in the sample have utilized digital technology to some extent. All companies passed the digitization and digitalization stages. Companies have used technology to improve their businesses, but not all have transformed their business processes with technology. There are 35 companies that officially report the implementation of a digital transformation strategy and are proven by the transformation of business processes, increasing the digital capacity of HR, and the issuing capital. In their financial reports, companies mentioned how technology is used to identify consumer preferences and decide on competitive services through big data, data analytics, and cloud computing. Other companies automate their businesses using the IoT and smart technology. The financial sector has reported more digital transformation processes in customer service, security, data privacy, and fraud prevention.

In terms of digital human resources, 26 companies have invested in digital competency training for their employees, emphasizing the need to improve staff skills to align with digital transformation goals. Digital training is mostly conducted by financial companies. Training related to security and risk management, such as cyberattacks, cyber awareness, anti-fraud and risk control, and computer hacking investigators, is widely carried out by financial companies. For character development, training in digital resilience and a digital mindset are also provided to employees.

Interestingly, technology companies invest heavily in digital transformation but rarely provide digital training to their employees. Similarly, in the property and real estate, raw

Table 2.
The moderating role of digital transformation and digital human capital on the relationship between corporate restructuring and firm performance

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Control variables						
OR	1.102***	1.0985***	1.0998***	1.0210***	0.2234***	0.2156***
PR	1.0575***	1.0563***	1.0569***	1.0245***	0.3687***	0.3589***
FR	-0.1146*	-0.1134*	-0.1141*	-0.1058*	-0.0546	-0.0534
Moderating variables						
DX		-0.0845		-0.0654		-0.0623
DHC			0.0387		0.0298	0.0289
Interaction terms						
OR x DX				-0.7845***		-0.7658***
PR x DX				-0.6234***		-0.6089***
FR x DX				0.0756		0.0742
OR x DHC					0.7792***	0.7612***
PR x DHC					0.7478***	0.7298***
FR x DHC					-0.0810	-0.0792
R2	0.8841	0.8856	0.8845	0.9124	0.9124	0.9187
Adj-R	0.8794	0.8791	0.8782	0.9037	0.9037	0.9037
F-statistic	188.6*	140.75*	140.12*	140.67*	104.67*	68.45*
d.f residul	74	73	73	70	70	66
N	78	78	78	78	78	78

****$p \leq 0.001$, ** $p \leq 0.01$, *$p \leq 0.05$*

materials, consumer goods, and health sectors. These sectors not only report a few digital transformation strategies but also do not provide digital training to their employees. Apart from the property and real estate sectors, these sectors are included in the manufacturing industry.

The effect of restructuring strategy on firm performance

Table 2 represent the result of hypothesis test using multiple regression analysis. In model 1, we included only the control variables. We use linear regression on cross-sectional data to measure regarding the relationship between restructuring strategies and firm performance. Table 2 shows that all three restructuring strategies significantly affect firm performance, although in different ways. The organizational restructuring positively significant (1.102, p ≤ 0.001), portfolio restructuring positively significant (1.0575, p≤ 0.001), otherwise, financial restructuring has negative impact but significantly (-0.1146, p ≤ 0.05). This result providing support for Hypothesis 1. It also strongly aligns with Bowman & Singh (1993), Atiase et al., (2004), Umar (2023), and Paterson & Walters (2023).

Our findings reveal that organizational restructuring has a very strong positive effect, as evidenced by high coefficients and highly significant p-values, indicating that internal organizational adjustments contribute positively to firm performance. Corporate actions through ESOP/MSOP and IPO may indicate that the company is redesigning to improve its ability to achieve its strategic goals and encourage employee engagement in the company. The organizational restructuring strategy addresses fundamental operational inefficiencies and creates performance improvement. This finding aligns with Paterson & Walters (2023) who emphasized that streamlining organizational processes and structures enable firm performance. Meanwhile, the portfolio restructuring strategy through mergers and acquisitions can improve firm performance but is quite risky when not agile in responding to market trends. The positive impact of portfolio restructuring echoes Riofrío et al., (2014) and Sari (2022) who suggested strategic focus and asset optimization as key benefits of business portfolio realignment.

Interesting results were observed for the financial restructuring strategy. Unlike studies by Atiase et al., (2004) and Khurana & Lippincot (2000) which found positive impact of financial restructuring, this study finding does not confirm those benefits. Otherwise, the weakening and inconsistent effect of financial restructuring in line with Kang (2004) and Sayyidah & Setiawati (2024) who found that financial restructuring particularly when reactive to distress, does not necessarily improve performance and can even signal instability. Financial restructuring has a significantly negative impact on firm performance, which may be caused by financial pressure, or the costs involved. However, financial restructuring requires careful consideration because of its potential drawbacks. Most of them carry out financial restructuring by improving their financial ratios.

The moderating effect of digital transformation on the relationship between restructuring strategy and firm performance

The findings highlight that digital transformation weakens the positive effect of restructuring strategy and firm performance (-0.0845) as shown on Table 2. Model 2 represent the role of digital transformation as single of variable moderator and Model 4 represent interaction term of digital transformation.

The moderating effect of organizational restructuring and digital transformation showed significant negative interaction (-0.7845, $p \leq 0.001$). The similar result found on portfolio restructuring and digital transformation interaction (-0.6234, $p \leq 0.001$). Surprisingly, there is not significant interaction moderating financial restructuring with digital transformation (0.0756, p=0.2830). This result providing supported of Hypothesis 2 in the negative moderating.

This result contrasts with that of Vo et al. (2024), who found that digital transformation had a positive impact on all restructuring strategies. The negative interaction effect between digital transformation and organizational/portfolio restructuring contradicts the common expectation that digital transformation always enhances restructuring outcome. While some literature highlighted the enabling role of digital transformation (Hanelt et al., 2021; Chen et al., 2023).

An emerging result is that digital transformation has a strong negative interaction with organizational restructuring, which may be due to misalignment of organizational design. As Warne & Wäger (2019) argue that digital transformation creates value when aligned with other strategic action, not a single strategic. Digital transformation may not be a direct driver of firm performance (Verhoef et al., 2021; Vial, 2019) especially when digitally mature and structurally did not align (Vo et al., 2024).

Digital transformation allows companies to streamline their business processes to quickly capture market changes and adapt their business models. Digital transformation should not be treated as parallel initiative. Instead, it must be embedded in the logic, process, and execution of restructuring strategies. Firm should avoid misalignment between structure and digital investment that lack of capability building and digital governance.

The moderating effect of digital human capital on the relationship between restructuring strategy and firm performance

Unexpectedly, as shown in Table 2 Model 3, the restructuring strategy with digital human capital moderation alone did not have a significant impact on organizational performance (0.0387, p=0.639). Meanwhile, Model 5 showed the positive significantly interaction on organizational restructuring (0.7792, $p \leq 0.001$) and portfolio restructuring (0.7478, $p \leq 0.001$). Otherwise, there is no significant interaction between financial restructuring and digital human capital (-0.0810, p= 0.4650). This result providing support of Hypothesis 3.

This finding consistent with the result of Grimpe et al. (2023) and Rožman et al. (2023) who emphasized that digital human capital enhances the effectiveness of firm performance. Employee equipped with digital literacy and competencies are more likely to adapt effectively to changes in structure, workflow, and digital system. Similarly, Abdallah et al. (2021) and Vrchota et al (2020) demonstrated that workforce digital competencies improve firm's ability to manage technology driven restructuring initiatives. In line with this result, S Barykin et al (2020) argued that structured digital competency training programs can significantly strengthen the outcome of strategic change.

Digital human capital provides significant results for the organizational and portfolio restructuring strategy. These results may indicate that the strategy of improving digital skills and competencies in a company does directly impact firm performance. This condition can occur when the company has a clear digital business model. Thus, the development of its employees' digital competencies can occur with a clear and directed business process. When a company does not have a clear vision, the digital capital owned by employees will be wasted or will not improve the company's performance. In terms of human resource capabilities, HR digital capital is only at the literacy stage and has not reached the competency stage.

Meanwhile, the absence of a significant moderating effect between digital human capital and financial restructuring indicates that financial restructure effort requires different capabilities such as financial management, governance, and risk control. They are the areas that may not influenced by general digital skillsets among staff. Particularly, in digital area, it needs specific digital skills on financial management.

The moderating effect of digital transformation and digital human capital on the relationship between restructuring strategy and firm performance

Model 6 integrated the full set of interaction terms between the three restructuring strategies and the two digital enablers, digital transformation and digital human capital. The result showed that digital transformation has significant negative moderating effect on organizational restructuring (-0.7658, $p \leq 0.05$) and portfolio restructuring (-0.6089, $p \leq 0.05$). The findings also showed that digital human capital has significant positive moderating effect on organizational restructuring (0.7612, $p \leq 0.05$) and portfolio restructuring (0.7298, $p \leq 0.05$). Both of digital transformation and digital human capital indicated not significant effect to financial restructuring. This result providing supported of Hypothesis 4.

When digital transformation and digital human resources are implemented together, both produce significant results regarding the influence of restructuring strategies on company performance. Consistent results are shown in the moderation of digital transformation. Digital transformation significantly improves the results when companies implement organizational and portfolio restructuring strategies. Meanwhile, digital human resources provide significance to the effects of organizational and portfolio restructuring strategies. This analysis showed that, organizational restructuring and portfolio restructuring strategies are more appropriate if formulated with digital transformation and digital human capital.

These results partially support Vial (2019) and Verhoef et al. (2021) who argued that digital transformation enhances firm performance, but only when integrated into broader strategic initiatives. These findings indicate that corporate restructuring efforts must be carefully aligned with appropriate digital initiatives to maximize performance results. Integrating digital transformation and digital human resources is critical for companies to achieve a competitive advantage and thrive in the digital era. The successful implementation of this integrated approach requires companies to strategically build digital capabilities across their organizational structures, processes, and workforce. This holistic approach can unlock synergies and enable companies to adapt and innovate in the face of the ever-evolving digital landscape.

CONCLUSION

This study aimed to determine the relationship between restructuring strategies and firm performance in moderating digital transformation and digital human capital. This study showed that different restructuring strategies impact firm performance in unique ways, with digital transformation and digital human capital moderating the relationship. One of the more significant findings of this study is that both portfolio and organizational restructuring strategies exhibit positive effects on performance, with organizational restructuring having the strongest impact. However, financial restructuring has a negative effect. Both digital transformation and digital human capital has not significant effect independently to firm performance. When digital transformation and digital human capital are implemented together, they produce significant results on the impact of restructuring strategies, particularly in enhancing the effects of portfolio and financial restructuring. Overall, this analysis emphasizes the importance of a strategic and aligned approach to restructuring and digital initiatives, particularly when integrating digital transformation and human capital investments for optimal firm performance. The results of this study were limited by the amount of data covering only two period. Future research should prioritize longitudinal design that track firm through complete restructuring cycle. Panel data approaches would be enabling researcher to control time-invariant due to dynamic evolution of business. The surprising negative interaction effect between digital transformation and digital human capital on strategic restructuring require deeper understanding. Some variables may be hinder like leadership, company culture, stakeholders' involvement, or market pressure. The future research agenda will extend our understanding of restructuring strategic among companies.

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