

The Role of Personal and Organisational Resources to Improve Remote Work Performance: Perspective of Job Demand-Resource Model

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ABSTRACT

Manuscript type: Research paper

Research aims: This study examines how personal and organisational resources improve remote work performance via the Job Demand-Resource model, with digital capability as a moderator.

Design/Methodology/Approach: This study surveyed 269 employees at a laptop manufacturing company in Indonesia, analysed using PLS-SEM.

Research findings: Remote knowledge and training, and modelling leadership, positively influence remote work efficacy, while physical condition does not. Digital capability significantly but negatively moderates the efficacy-performance relationship.

Theoretical contribution/Originality: This study extends the JD-R model by showing a job resource can weaken rather than strengthen the efficacy-performance relationship, offering new insight into digital capability as a double-edged resource.

Practitioner/Policy implications: Organisations should calibrate digital capability investment to employees' existing skill levels rather than apply uniform digital upskilling.

Research limitation: This study is limited by its cross-sectional design and single-industry sample, warranting longitudinal and cross-sector replication.

Keywords: JD-R Model, Remote Work Efficacy, Digital Capability, Remote Work Performance

JEL Classification: O15

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1. Introduction

During the pandemic, remote work became very popular, thus encouraging organisations to change their work practices and implement remote work (Tramontano et al., 2021). Changes in organisational work patterns can be implemented effectively by using space, time, and technology to be more productive (Battisti et al., 2022) and using a home as a workplace (Tleuken et al., 2022). Remote work was already popular before the COVID-19 pandemic, but it has not been widely applied because it requires technological developments and communication via the internet. Workers who know of operating new technologies will be better prepared to do remote work (Saura et al., 2022).

Remote work is the beginning of a company's digital transformation. However, during a pandemic, workers are forced to be interested in understanding the opportunities and challenges of implementing new technology (Ferreira et al., 2021). The trend towards adopting remote work may not only be a temporary solution to the COVID-19 pandemic, but also a permanent measure to allow workers to work full-time at home (Iwashita, 2021). Lack of employee experience in this work pattern is one of the challenges in implementing remote work (Tramontano et al., 2021). Workers with low remote work experience are not ready to support remote work practice (Jaiswal et al., 2022). Along with technological changes, new skills are needed to operate digital technology to support remote work practice (Matli, 2020).

Recent studies indicate that the post-pandemic remote work trend will persist and evolve into a permanent hybrid work model (Adrijan et al., 2025). Research by (Agrawal et al., 2023) revealed that 78 per cent of organisations have integrated remote work into their long-term strategy. Furthermore, the digital transformation accelerated by the pandemic has created new challenges regarding employee readiness and technology infrastructure (Smite et al., 2023). In the context of the manufacturing industry, particularly the technology sector, adopting remote work exhibits a unique pattern that requires a combination of high digital skills and strong organisational support (Kraus et al., 2023). Empirical research across various industries shows that the success of remote work depends heavily on the complex interaction between personal resources, job resources, and digital capabilities (Javaid et al., 2024).

Using the Job Demand-Resource (JD-R) model, this study explores the possible combination of job and personal resources to cope with high job demands in a remote work style. The JD-R is a

psychological model that helps explain the relationship between job characteristics, employee well-being, and job performance. This model proposes that job characteristics can be categorised into two main categories: job demands and job resources. Job demand refers to a job's physical, psychological, social, or organisational aspects that require sustained physical or psychological effort and are associated with certain physiological and psychological costs. On the other hand, job resources refer to the physical, psychological, social, or organisational aspects of work that help achieve work goals, reduce job demands and associated physiological and psychological costs, and stimulate personal growth and development. Self-efficacy refers to an individual's belief in his or her own ability to perform specific tasks and achieve goals successfully. In the context of the JD-R model, self-efficacy plays an essential role in mediating the relationship between job demands, job resources, and employee well-being and performance. High levels of self-efficacy can act as a personal resource that helps individuals cope with job demands more effectively.

Self-efficacy is a belief in one's ability to organise and carry out the actions necessary to manage a prospective situation (Bandura et al., 1999). Self-efficacy is assessing and believing in one's creative potential to create and develop ideas and solutions. Workers with high self-efficacy will be more active in exploring their creative potential to do a great job and more easily achieve high job satisfaction. Increased job satisfaction will increase performance, which indirectly affects individual skills. Individuals who have high job satisfaction will continue to be encouraged to create creative ideas, concepts and products that will also hone their creative abilities. (Lange & Kayser, 2022) found a strong relationship between remote work self-efficacy and performance self-efficacy. However, the remote working style relies on digital technology, and this study believes that digital capability plays an important role in the success of individual performance. Remote working after the COVID-19 pandemic can be done based on digital technology (Battisti et al., 2022).

Digital capability is needed to implement remote work practices access to technology, including hardware, software, and internet connectivity, is critical to successful remote work (Craft, 2020). Digital-based work management and remote work can have a negative impact on mental health (Yang et al., 2022). Furthermore, digital-based management also has a negative impact on the physicality of workers (Geldart, 2022; Vomacka, 2022). The literature on the relationship between remote working and self-instructed

performance is extensive. Therefore, digital skills are needed to strengthen the relationship between remote work and performance self-efficacy. Remote working after the COVID-19 pandemic can be done using digital technology (Battisti et al., 2022). Thus, management's beliefs and style influence employee effectiveness.

The increasing number of remote workers, as many as 80 per cent of Americans working in multinational companies, have several options, including remote work and digital-based work management, that can drastically improve employee skills and allow them to work anywhere. However, remote work creates complexity across locations, devices, platforms, and people (Internal, 2020). In developing countries, remote work has been widely applied (Gottlieb et al., 2020). As many as 50 per cent of laptop manufacturing companies in Indonesia use the remote work system, indicating that not all workers work remotely fully. However, implementing a remote work system after a pandemic is not impossible if employees are equipped with adequate digital skills.

Changes in remote work patterns affect work productivity, satisfaction, and compromise as well as work-life balance for remote workers (Sandoval-Reyes et al., 2021). Other studies suggest that new technologies make remote work more efficient (Saura et al., 2022). Meanwhile, the lack of understanding of the types of time and the social construction of time has led to a failure to incorporate and adapt the information system development (ISD) methodology of remote work (O Connor et al., 2022). Therefore, there is no significant relationship between remote work and work-life balance (Rañeses et al., 2022) and physical conditions have a negative effect on mental health and remote work self-efficacy (Sandoval-Reyes et al., 2021). Based on the inconsistencies in the results of previous research regarding the determining factors of remote work efficacy that will increase remote working performance, future research needs to evaluate the combination of personal resource and job resource factors in overcoming remote work as a job demand. This research is different from other research regarding remote working, which was conducted during the pandemic by (Tleuken et al., 2022), (Anka et al., 2020) and (Tramontano et al., 2021). However, remote work research has rarely been carried out after the pandemic.

Although research on remote work has grown rapidly, several important gaps remain. First, most studies focus on the pandemic period (2020-2021) with little attention to long-term post-pandemic adaptation (Ribeiro et al., 2024). *Second*, the role of digital capabilities as a moderator in the relationship between self-efficacy and remote

work performance has not been explored in depth, particularly in the context of the JD-R model (Scholze & Hecker, 2024) , (Ulfert-Blank & Schmidt, 2022). *Third*, previous research has tended to overlook the specific combination of personal and organisational resources that most effectively enhances remote work performance (Bilderback & Kilpatrick, 2024), (Urrila et al., 2025). This study fills these gaps by integrating the perspectives of the JD-R model and self-efficacy theory in the context of post-pandemic remote work, focusing on the moderating role of digital capabilities.

This study aims to provide society with an understanding that employees with an excellent digital experience will increase productivity. Besides, this research is expected to offer a new conceptual framework and basic knowledge of the relationship between remote work efficacy and remote work performance with digital capability as a moderating variable. Apart from that, this research contributes to solving the gap in previous research and improves employee performance with the demand for remote working.

2. Literature Review

2.1 JD-R Model

Research on the JD-R model addresses the relationship between job demands and employee well-being, the role of job resources, job performance, the work environment, and self-efficacy. Self-efficacy mediates the relationship between job demands, job resources, and employee well-being, helping individuals cope with job demands more effectively (Bakker, A. B., & Demerouti, 2016; Bakker & Demerouti, 2014; Schaufeli & Bakker, 2004). However, (Jeon et al., 2022) argue that the JD-R and Stress-Strain Outcome models are limited because they overlook work-family conflict. Job characteristics can independently or jointly influence well-being, so whether job demands drain or energise employees depends on the resources available in the job (Marzocchi et al., 2023).

Remote working has become a demand for organisations today, and employee readiness regarding efficacy is needed to work with the help of digitalisation. Personal resources (physical condition, digital competency) and job resources (leadership, knowledge and training policies) help employees stay motivated, increasing remote work performance.

2.2. *Self-Efficacy Theory*

(Wood & Bandura, 1989) first introduced self-efficacy theory within social learning theory, later developed into social cognitive theory. Self-efficacy refers to people's belief in their ability to control the functioning and problems that affect their lives, mobilising the motivation, cognitive resources, and courses of action needed to meet situational demands.

Individuals form self-efficacy assessments from four sources: performance accomplishments, vicarious experience, social persuasion, and physiological and emotional states. Employee self-efficacy plays an important role in remote work performance, as well as attitudes toward remote work and the organisation. A person with too-high self-efficacy without proper training and adequate ability will lead to disaster (Zulkosky, 2009).

In the remote working style, employees are expected to have high self-efficacy to shift from a traditional working style to a remote one. This study introduces remote work efficacy as the self-efficacy of those who choose to work remotely, requiring adaptation of physical and emotional resources.

2.3. *Remote Work in Post-Pandemic Era: Recent Developments*

Recent literature shows significant evolution in understanding post-pandemic remote work. (Uru et al., 2022) found that transitioning from emergency to planned remote work requires reconfiguring organisational and personal resources, and effectiveness depends heavily on cultural context, industry sector, and digital maturity (Kraus et al., 2022). Findings on digital capability remain contradictory: (Ibrahim & Aldawsari, 2023) and (Barba-Sánchez et al., 2024) found that high digital capability strengthens the self-efficacy-performance relationship, while (Khalequzzaman et al., 2025) and (Fernández-Fernández et al., 2023) found that excessively high digital capability can create technostress that undermines performance. This paradox motivates the moderating role examined in this study.

Contemporary research also offers a new perspective on physical conditions. While classic studies emphasise physical conditions for productivity (Ángeles López-Cabarcos et al., 2022), recent work by (Horcajo et al., 2022) and (Dholariya, 2025) found that psychological conditions are more dominant than physical conditions in shaping self-efficacy in remote work, consistent with (Shimura et al., 2021) and (Boccoli et al., 2024), who found that remote work flexibility reduces physical stress, making psychological aspects more crucial.

3. Hypothesis Development

3.1. *Antecedent of Remote Work Efficacy*

Training is an important organisational resource within the JD-R Model for facing high work demands, enabling employees to develop the skills, knowledge, and competencies necessary to cope with increasing job demands and improve performance in challenging situations. This underscores the role of HR management in providing relevant and beneficial training, important for maintaining employee welfare and performance.

Workers with remote work experience and training gain information about their past performance achievements, and the longer someone works remotely, the more experience they accumulate (Almpanis & Joseph-Richard, 2022). Information technology experience and training are key to implementing a remote work environment effectively (Battisti et al., 2022; Ferreira et al., 2021). Relevant training also contributes to self-efficacy: completing tasks well builds job satisfaction and confidence in mastering similar tasks (Lange & Kayser, 2022), reflecting the ability to manage work-life boundaries through digital technology and access work anytime, anywhere (Tramontano et al., 2021). Experience and training are thus related to self-efficacy in remote work (Donati et al., 2021).

H_1 : Remote knowledge and training influence remote work efficacy

The pandemic enabled workers to achieve better team collaboration and communication despite lockdown conditions (Saura et al., 2022), with remote work offering advantages such as time saved on commuting and more flexible time (Lange & Kayser, 2022). However, when job demands exceed available resources, an imbalance occurs that leads to work stress (Van Zoonen et al., 2021), and employees experiencing high stress are more likely to see declining performance (Cobos, 2022).

Self-efficacy can be key to reducing job stress and improving employee health. Remote work reduces psychological and physiological stress through reduced commuting time, increased flexibility, and better work-life balance (Rañeses et al., 2022), though persistent excessive stress can produce job anxiety. Employees with high self-efficacy tend to feel less stressed and better able to control work demands (Lange & Kayser, 2022).

Effective remote work management by managers can strengthen workers' assessment of their own ability to perform remote work effectively (Uriarte et al., 2021), increasing confidence in facing

challenges and threats (Bandura et al., 1999) and supporting stable emotional levels, performance, and motivation (Yekimov et al., 2020). Effective remote work behaviour modelled by others therefore positively influences individual self-efficacy beliefs (Armbruster & Mercado, 2021; O Connor et al., 2022).

Remote work can also provide a better environment: a home offers a quieter space away from office interruptions and distractions (Anderson & Kelliher, 2020). Personal resources, defined as individuals' belief in their ability to control and influence their environment include self-efficacy, which helps workers overcome negative emotional consequences of emergencies and supports performance and competitive advantage (Manuti et al., 2022; Pagliuca, 2021). Although remote workers have considerable autonomy in virtual organisations, they still rely on their own abilities to complete tasks (Rañeses et al., 2022), reflecting a belief in their ability to control their own functioning (Hesti Widiyanti, 2024).

Although physical fitness has traditionally been considered crucial for work performance (Sørli et al., 2022), the remote work context presents a different dynamic, with prior research showing inconsistent results: some studies found a positive relationship (Ameen et al., 2023; Geldart, 2022), while others found none (Berger Ploszaj et al., 2025; Rañeses et al., 2022) likely reflecting the shift from physical to cognitive work in a digital environment.

In remote work, the main challenge is no longer physical strength but the psychological ability to self-regulate, manage work-life boundaries, and maintain motivation in isolation (Açikgöz et al., 2024). Ergonomics and physical conditions become more manageable in remote work because individuals have greater control over their environment (Demerouti, 2023; Wilson & Campbell, 2020). This study therefore examines whether physical conditions still significantly shape remote work efficacy in the post-pandemic era, or whether this influence has shifted toward psychological factors.

H_2 : Physical condition influences remote work efficacy

Leadership requires an interdisciplinary approach, and as digital developments reshape leadership phenomena, new approaches are needed to understand them (Banks et al., 2022) including understanding technology, clear communication, supporting technology needs, encouraging collaboration, and exemplifying inclusive leadership. Leaders influence employee behaviour, conditions, and achievements; employee involvement relates to understanding how to continuously contribute to organisational goals

through their knowledge (Widianti, 2023), supported by structures such as flexible work arrangements (Makowski, 2023). An effective leadership model thus influences not only organisational performance but also employee engagement, productivity, collaboration, and overall team well-being in a remote work environment.

H_3 : Modeling leadership influences remote work efficacy

3.2. *The Role of Digital Capability as a Moderating Variable between Remote Work Efficacy and Remote Work Performance*

Digital capability allows individuals and organisations to adapt, innovate, and perform effectively in an increasingly digitalised work environment supporting adaptation to change, efficiency, innovation, connectivity, and career development. Companies need workers able to use technology to compete and collaborate effectively (Adhiatma, Fachrunnisa, et al., 2022; Adhiatma, Sari, et al., 2022), making digital capability key to individual and organisational success in the digital era.

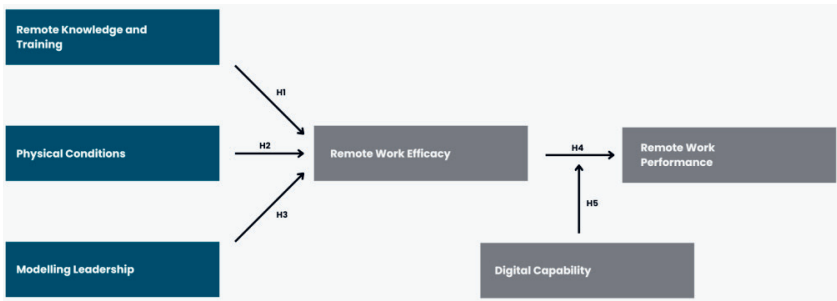
Access to technology hardware, software, and internet connectivity is critical to successful remote work (Crafting, 2020), and digitalisation contributes to work flexibility (Donnelly & Johns, 2021). Software can capture and digitise worker knowledge to standardise and speed up tasks, requiring governance of the digital transition to ensure smooth transformation.

The pandemic forced a rapid shift to remote work that required new roles and skills from employees and organisations alike. Organisations must provide adequate infrastructure such as protective software and IT procedures, while employees need training in ethical and fair access, privacy, confidentiality, and related issues (Green, 2022; Slavković et al., 2022). Organisations with strong digital transformation show better remote work performance both during and after the pandemic (Lissillour et al., 2022; Slavković et al., 2022), and remote work self-efficacy strengthened by good digital skills increases remote work performance.

H_4 : Remote work efficacy influences remote work performance

H_5 : Digital capability moderates the relationship between remote work efficacy and remote work performance

Figure 1: Empirical Model



4. Methodology

4.1. Sample and Data Collection

This study used a quantitative approach with all employees in a laptop manufacturing company in Indonesia as respondents. Based on the JAKPAT Survey conducted from 8 to 21 March 2020, it was found that 33% of workers in Jakarta, Bogor, Depok, Tangerang, and Bekasi, Indonesia, had started working remotely even before official regulations from the Government. A laptop manufacturing company in Indonesia studied workers in China, America, Japan, Germany, and Italy. It was found that as many (87%) workers felt ready to switch to remote work, if necessary, and 46% felt they agreed with the implementation of remote work. Furthermore, 77% of workers asked that companies encourage implementing remote work in the future. Laptop manufacturing companies in Indonesia still implement the remote work system, although not all workers work remotely.

For the data collection technique, this study used questionnaires and analysed some literature or other references that support the concept of this research. The research object used was a laptop manufacturing company in Indonesia. The questionnaire was created online and distributed to all respondents via email. The sample selection technique used simple random sampling, which is a simple technique because the sample of members from the population was selected randomly without looking at similarities. The distribution of the questionnaire obtained sample data from 350 respondents, based on the response rate and collected questionnaires, and the survey was entirely completed without any blanks in the survey, with as many as 269 respondents.

The data that has been obtained from the respondents is then carried out to identify the following characteristics: (a) consisting of 70% male and 30% female, (b) with 1-5 years working 65% and 5-10

years working 35%, (c) has an educational status of undergraduate (80%), postgraduate (25%) and doctoral degree (5%).

4.2. *Measurement Model*

This study used a 5-point Likert scale ranging from strongly disagree (1) to strongly agree (5). All constructs were measured using scales validated in previous literature and adapted for the remote work context. Remote Knowledge and Training was measured using three items adapted from (Slavković et al., 2022), including: (1) Remote work training provided by managers, (2) Ability to work remotely effectively, and (3) Mastery of various remote work methods. The original scale had a reliability of $\alpha = 0.87$.

Physical Conditions were measured using four items adapted from (Sjöblom et al., 2022), including: (1) Concerns about computer use, (2) Inability to manage computer systems effectively, (3) Doubts about computer use and fear of making mistakes, and (4) Computers tend to intimidate me. The original scale demonstrated a reliability of $\alpha = 0.82$.

Modelling Leadership was measured using seven items adapted from (Staples et al., 1999), including: (1) Running meetings effectively, (2) Having good communication skills, (3) Soliciting and listening to employee ideas and solutions, (4) Using applications effectively, (5) Using available information technology tools effectively, (6) Supporting information technology needs with equipment, financial support, and training, and (7) Assessing performance based on results achieved. The original scale had a reliability of $\alpha = 0.89$.

Remote Work Efficacy was measured using four items adapted and modified from (Bandura et al., 1999) and (Tramontano et al., 2021), including: (1) Confidence in being able to stay focused and productive while working remotely, (2) Confidence in being able to manage time efficiently and complete work tasks well while working remotely, (3) Confidence in being able to communicate effectively with coworkers and superiors while working remotely, and (4) Confidence in being able to overcome work obstacles and complete tasks well while working remotely. The original scale showed a reliability of $\alpha = 0.91$.

Digital Capability was measured using four items adapted from (Werder & Richter, 2022), including: (1) Technology skills, (2) Digital literacy, (3) Online collaboration skills, and (4) Digital security skills. The original scale had a reliability of $\alpha = 0.86$. Remote Work Performance was measured using six items adapted from (Sabine Sonnentag, 2002) and adapted for the remote work

context. These items included: (1) Achievement of work goals, (2) Productivity, (3) Work quality, (4) Communication effectiveness, (5) Collaboration skills, and (6) Focus and organisation. The original scale demonstrated a reliability of $\alpha = 0.90$.

All items were modified to suit the remote work context at a laptop manufacturing company in Indonesia. The adaptation process involved back-translation and a pilot test with 30 respondents to ensure content validity.

4.3 Common Method Bias Assessment

Because the data were simultaneously collected from a single source (self-report), this study tested for common method bias (CMB) using two approaches. *First*, Harman's single-factor test was conducted by entering all items into an exploratory factor analysis without rotation. The results showed that the first single factor explained 32.4% of the variance, below the 50% threshold, indicating the absence of a serious CMB (Behavior et al., 2024). *Second*, a full collinearity VIF test was conducted using WarpPLS. The results showed an AFVIF value of 1.845, well below the threshold of 3.3 recommended by Kock (2015). This confirms the absence of multicollinearity and significant CMB. Thus, the data is considered not substantially affected by common method bias.

4.4 Data Analysis

The analysis method of this study used the Partial Least Squares (PLS) method through statistical test tools based on variance-based structural equation models (SEM). Furthermore, analysis of the research data was carried out using Warp PLS and applying verification analysis consisting of three stages, namely measurement of the outer model, evaluation of the structural model (inner model), and testing of the research hypothesis (Hair et al., 2012).

This outer model test used composite reliability indicator block data, which measures a construct by evaluating the composite reliability value. A dimension is considered reliable if it has a composite reliability value above 0.77. The structural inner model is evaluated using the R-Square for the dependent construct and the Stone-Geisser Q-Square test for predictive relevance. If the R-Square value is more significant than 0.2, latent predictors significantly influence the structural level. The structural inner model is also evaluated by looking at the Q-Square predictive relevance for the constructed model. Q-Square measures how well the model produces

the observed values and parameter estimates. A Q-Square value greater than 0 (zero) indicates the model has a predictive relevance value. In contrast, a Q-Square value less than 0 (zero) indicates the model has less predictive relevance.

Table 1: Confirmatory Factor Analysis Results for the Measurement Models

Variable	Factor loadings	p-value	Composite Reliability	R Square
Remote knowledge and training			0.855	
Remote work training by managers	(0.808)	0.00		
Ability to work remotely effectively	(0.785)	0.00		
Master various remote work methods	(0.849)	0.00		
Physical conditions			0.896	
Computer use concerns	(0.871)	0.00		
Inability to manage computer device systems properly		0.00		
Doubts about using computers and fear of making mistakes		0.00		
Computers intimidate me	(0.701)	0.00		
Modelling leadership			0.884	
Run meetings effectively	(0.725)	0.00		
Having good communication skills	(0.728)	0.00		
Solicit and listen to employees' ideas and solutions	(0.631)	0.00		
Use the application effectively	(0.714)	0.00		
Use available information technology tools effectively	(0.801)	0.00		
Support information technology needs with equipment, financial support, and training	(0.783)	0.00		
Assess performance based on the results achieved	(0.660)	0.00		

Variable	Factor loadings	p-value	Composite Reliability	R Square
Remote work efficacy			0.863	0.422
Confidence in being able to stay focused and productive while working remotely	(0.796)	0.00		
Confidence in being able to manage time efficiently and complete work tasks well when working remotely	(0.835)	0.00		
Confidence in being able to communicate effectively with colleagues and superiors even while working remotely	(0.838)	0.00		
Confidence in being able to overcome work obstacles and complete tasks well when working remotely	(0.803)	0.00		
Digital Capabilities			0.919	
Technology Use Skill				
Digital Literacy	(0.820)	0.00		
Online Collaboration Skill	(0.776)	0.00		
Digital Security Skill	(0.804)	0.00		
Remote work performance			0.893	0.419
Achievement of Work Goals	(0.734)	0.00		
Productivity	(0.785)	0.00		
Work quality	(0.724)	0.00		
Communication Effectiveness	(0.780)	0.00		
Collaboration Ability	(0.763)	0.00		
Focus and Order	(0.793)	0.00		

Based on the table above, many of the research variable indicators have a value of > 0.7 , so they meet the requirements of convergent validity. The discriminant validity test used the cross-loading value. An indicator is declared to meet discriminant validity if the indicator's cross-loading value on the variable is the largest compared to other variables. Based on the table above, each indicator on the research variable has the most significant cross-loading value on the variable it forms compared to the cross-loading value on other variables. This means that the indicators used in this study have good discriminant validity in compiling their respective variables. It can be

seen that the composite reliability value of all variables in this study is >0.6, which means that all variables have a high level of composite reliability to test the reliability value of indicators on a variable. A variable can be declared fulfilled if it has a composite reliability value of > 0.6 (Ghozali, 2014). The inner model is evaluated using R-squared for the dependent construct. The results of calculating the effect of the digital capability (DC) variable through the remote work self-efficacy (RWSE) are getting better, and it will strengthen the remote work performance (RWP) and organisational performance (OP). The R-Square relationship between DC and RWSE to RWP shows a value of 0.422 or 42.0% and 0.419 or 47%, respectively. Digital skills and self-efficacy in working remotely contribute to achieving remote work performance. This indicates that the DC and RWE have a strong relationship with RWP.

5. Results

5.1 Model Fit and Quality Results

Model Fit and Quality Results are used to evaluate the extent to which the structural and measurement models (inner and outer models) fit the observed data. The results show the extent to which the model fits the existing data and the extent of the model's quality.

Table 2: Model Fit and Quality Results

No	Model fit and quality indices	Fit Criteria	Results	
1	Average path coefficient (APC)	Accepted if $p < 0.05$	0.314	Accepted
2	Average R-squared (ARS)	Accepted if $p < 0.05$	0.420	Accepted
3	Average adjusted R-squared (AARS)	Accepted if $p < 0.05$	0.415	Accepted
4	Average block VIF (AVIF)	Accepted if ≤ 5	1,204	Accepted
5	Average full collinearity VIF (AFVIF)	Accepted if ≤ 5	1,845	Accepted
6	Tenenhaus GoF (GoF)	Small > 0.1, Medium > 0.25, Large > 0.36	0.534	Large
7	Sympson's paradox ratio (SPR)	Accepted if ≥ 0.7	0.800	Accepted
8	R-squared contribution ratio (RSCR)	Accepted if ≥ 0.9	0.976	Accepted
9	Statistical suppression ratio (SSR)	Accepted if ≥ 0.7	1,000	Accepted
10	Nonlinear bivariate causality direction ratio (NLBCDR)	Accepted if ≥ 0.7	0.800	Accepted

Based on Table 2, it can be seen that all model fit and quality index criteria are met. Therefore, it can be said that the Goodness of Fit Model is fulfilled and is a model that this research can use for hypothesis testing.

5.2 Hypothesis test

Hypothesis testing is carried out by comparing the calculated t value with the *t*-table value. If the estimated t value is greater than the t table, then there is a significant relationship between the variables, or the hypothesis is declared supported, and vice versa. When the t-value is smaller than the *t*-table, there is no significant relationship between the variables, or the hypothesis is not supported.

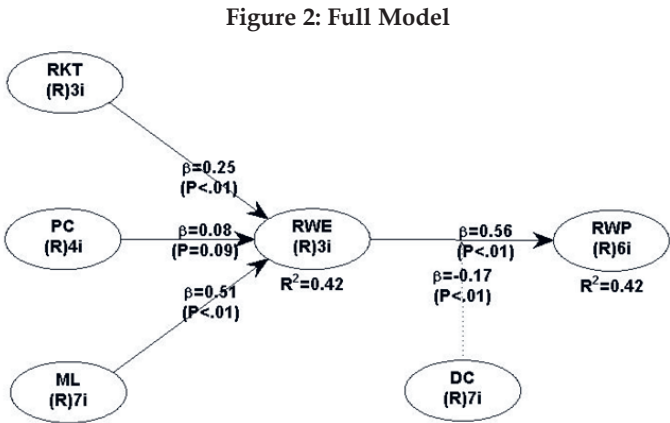


Table 3. Hypothesis Test Results

Hypothesis	P-Values	Path coefficients	Results
H_1 : CTR→RWE	<0.001	0.249	Supported
H_2 : PC→RWE	0.088	0.082	Not supported
H_3 : ML→RWE	<0.001	0.510	Supported
H_4 : RWE→RWP	<0.001	0.560	Supported
H_5 : DC*RWE→RWP	0.002	-0.170	Supported

RKT (Remote Knowledge and Training), RWE (Remote Work Efficacy), RWP (Remote work Performance), PC (Physical Conditions), ML (Modelling Leadership), DC (Digital Capability)

In Table 3 and Figure 2, it is explained that RKT has a significant effect on RWE (p -value <0.01) and Path coefficients (0.249), ML on RWE (p -value <0.01) and Path coefficients (0.510), RWE on RWP (p -value <0.01) and Path coefficients (0.560), RWE has no effect on RWP (p -value <0.88) and Path coefficients (0.082) and DC strongly moderates RWE on RWP has (p -value <0.02) and Path coefficients (-0.170), so it can be concluded that H_1 , H_3 , H_4 , H_5 are accepted and H_2 is rejected.

5.3 Interpretation of Moderation Effect

The results of testing H_5 indicate that digital capability moderates the relationship between remote work efficacy and remote work performance negatively ($\beta = -0.170$, $p = 0.002$). This finding indicates that digital capability weakens the positive relationship between remote work efficacy and performance, rather than strengthening it as initially hypothesised.

To better understand this moderating effect, this study conducted a simple slope analysis at two levels of digital capability: high (+1 SD) and low (-1 SD). The results showed that: At low levels of digital capability, the relationship between remote work efficacy and performance is very strong ($\beta = 0.645$, $p < 0.001$), At high levels of digital capability, the relationship between remote work efficacy and performance is weaker but still significant ($\beta = 0.475$, $p < 0.001$)

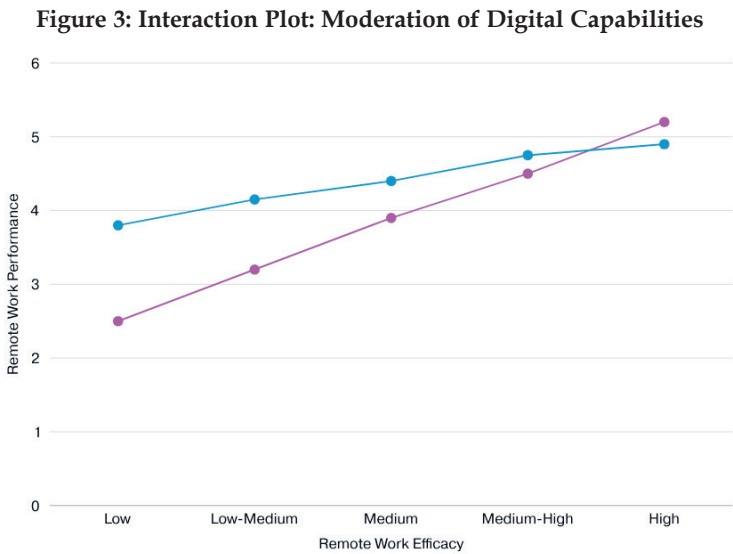
This pattern indicates that while remote work efficacy still improves performance at both levels of digital capability, the performance increase is steeper for individuals with low digital capability. In other words, individuals with low digital capability benefit more from increased remote work efficacy than those with high digital capability.

The interaction plot (see Figure 3) visualises this moderating effect. The graph shows that:

1. Both lines (high and low digital capability) move upward, confirming the positive relationship between remote work efficacy and performance.
2. The line for low digital capability (in blue) has a steeper slope.
3. At high levels of remote work efficacy, the performance difference between the two groups becomes smaller.

These findings indicate a ceiling effect or substitution effect, where high digital capabilities can partially substitute for remote work efficacy in improving performance. Individuals with high digital capabilities may already have a strong performance base,

so adding remote work efficacy provides a minor incremental contribution.



6. Discussion

6.1. Understanding the Negative Moderation of Digital Capability

This study’s most unexpected finding is the negative moderating effect of digital capability on the remote work efficacy-performance relationship (H5): for individuals with high digital capability, increases in remote work efficacy contribute less to performance than for individuals with low digital capability. Several theoretical explanations are plausible. **First**, a substitution effect: within Conservation of Resources theory (Hobfoll et al., 2003), individuals with high digital capability already hold a strong resource pool, so adding psychological resources such as efficacy yields smaller marginal benefit (Rigotti & Fosch-Villaronga, 2024). **Second**, a ceiling effect: these individuals may already operate near maximum performance capacity, consistent with a threshold effect in digital work (Hennelly & Ctori, 2022) and the law of diminishing returns (Berger Ploszaj et al., 2025). **Third**, technology overreliance: workers with high digital capability may lean on tools and automation to manage remote work challenges, reducing the role self-efficacy plays in driving performance, and focusing more on optimising technology than on building self-confidence (Chatterjee et al., 2023; Maran et al.,

2022). **Fourth**, complexity and cognitive load: higher digital capability often means using more tools and systems simultaneously, leaving less cognitive energy available to convert efficacy into performance gains (Berger Ploszaj et al., 2025; Ribeiro et al., 2024).

This finding aligns with research on the inverted U-shaped relationship between digitalisation and work effectiveness (Chen et al., 2024), where excessive digitalisation can hinder effectiveness. Within the JD-R model, this suggests that a job resource such as digital capability does not automatically enhance a personal resource such as remote work efficacy, but can create more complex dynamic interactions supporting the view that 'more is not always better' in digital resources (Hosain et al., 2025), and that organisations risk suboptimal outcomes by overinvesting in digital capability without balancing psychological and social factors.

Hypothesis testing found that remote knowledge and training, and modelling leadership, positively and significantly influence remote work efficacy, while digital capability moderates the relationship between remote work efficacy and remote work performance among laptop manufacturing employees in Indonesia strengthening or weakening it depending on the level of digital capability already held. These results align with research showing that digital skills increase employees' confidence in facing remote work challenges (Schneider, 2009), that technological transformation supports better remote work experiences (Lissillour et al., 2022; Tleuken et al., 2022), and that workers familiar with new technology are better prepared for remote work (Saura et al., 2022).

Individuals and organisations both play a critical role in improving remote work performance: individuals must manage time, motivation, and skill development, while organisations must provide infrastructure, clear communication, training, and a culture that supports employee well-being. This mutual reliance underscores why digital capability and self-efficacy together shape remote work performance.

Physical condition did not significantly affect remote work efficacy (H_2 rejected), suggesting that the shift from traditional to remote work requires more psychological than physical readiness. This is consistent with (Charalampous et al., 2019; Rañeses et al., 2022), who found that remote work reduces psychological and physiological stress through reduced travel time, increased flexibility, and better work-life balance.

This result also reframes the JD-R model: physical condition has traditionally been a crucial personal resource for coping with

physical job demands (Bakker, A. B., & Demerouti, 2016; Bakker & Demerouti, 2014) but remote work shifts job demands from physical ones (commuting, office environments) toward cognitive and psychological ones such as self-management and virtual collaboration (Ribeiro et al., 2024). Remote work reduces physical job demands by eliminating commuting and allowing flexible arrangement of the physical workspace (Saura et al., 2022; Wilson & Campbell, 2020), making psychological resources such as self-efficacy and self-regulation more relevant than physical ones consistent with this study's findings that cognitive and socio-organisational resources (training, leadership) significantly shaped remote work efficacy while physical condition did not.

These findings support the concept of 'resource contingency' (Bakker & Demerouti, 2014): the effectiveness of a resource depends on its fit with the demands of the situation, so as job demands shift from physical to cognitive-digital, relevant personal resources should shift correspondingly from physical fitness toward psychological readiness and digital competence.

Taken together, personal resources (self-efficacy, adaptability, time management) and job resources (technology access, leadership support, social support, autonomy) jointly shape remote work performance, with organisations best positioned to support workers by providing job resources while encouraging the development of personal resources through training and support programmes.

7. Conclusion

This study develops a model to increase remote working performance based on the JD-R model: individuals and organisations need to work together to optimise their resources. The research results show that remote knowledge and training, as well as modelling leadership, influence remote work efficacy, while physical condition does not influence remote work efficacy. The first finding is that digital capabilities significantly contribute as a moderator in the influence between remote work efficacy and remote work performance. Digital capabilities are the key to individual and organisational success in facing challenges and opportunities in this digital era. This is in line with the research by (Adhiatma, Fachrunnisa, et al., 2022; Adhiatma, Sari, et al., 2022). Apart from that, the second research finding highlights the important role of self-efficacy in the context of the JD-R Model, as in line with research by (Bakker & Demerouti, 2014), (Bakker, A. B., & Demerouti, 2016), (Schaufeli & Bakker, 2004).

8. Theoretical Contributions

This research provides theoretical contributions, especially on the role of digital capability in remote work. Digital capability can contribute to the JD-R (Job Demands-Resources) model on the Job Demands side. Digital capability highlights how individuals must manage job demands related to digital technology, such as multitasking, information management, and adaptation to technological change. This enriches the understanding of job demands in the context of remote work, especially in terms of technology use. Meanwhile, on the Job Resources side, digital capability is considered an individual resource that allows them to manage job demands related to digital technology. In the JD-R model, digital capability can be considered an individual resource that protects and supports individuals in facing technology-related job demands.

Thus, digital capability can complement the JD-R model by enriching the understanding of how job demands and individual resources play a role in a remote work environment highly dependent on digital technology. This makes it possible to better understand the impact of digital technologies on individual well-being, productivity, and job satisfaction in remote working.

9. Managerial Implications

The significance of modelling leadership ($\beta = 0.510$) as the strongest predictor of remote work efficacy makes a clear case for investing in virtual leadership development specifically in training leaders to demonstrate effective remote work practices, provide psychologically safe feedback channels, and build trust in technology-mediated environments. Organisations that treat remote leadership as a straightforward extension of conventional management risk undermining employee efficacy at the source.

The negative moderation effect of digital capability signals that blanket digital upskilling programmes are insufficient and potentially counterproductive for already high-capability employees. A differentiated approach is warranted: employees with low digital capability benefit from technical training, while those with already high capability require psychological coaching, boundary management, and digital wellness support. Digital capability should therefore be treated not as a target to maximise, but as a variable to calibrate against individual employee profiles.

The non-significance of physical conditions as an antecedent of remote work efficacy suggests that organisational investments should

not be disproportionately directed toward home-office infrastructure. Resources are more effectively allocated toward structured remote work onboarding, continuous knowledge-sharing programmes, and leadership modelling initiatives – the factors this study empirically identifies as consequential for building and sustaining remote work efficacy.

10. Limitations and Future Research

This study has several limitations that offer directions for future research. First, the cross-sectional design limits the ability to establish definitive causality; high performance may also reinforce efficacy beliefs through mastery experiences (Bandura et al., 1999; Wood & Bandura, 1989), so future studies should employ longitudinal or cross-lagged designs to clarify temporal precedence. Second, reliance on single-source, self-report data raises common method bias concerns; although Harman's single-factor test and full collinearity VIF indicated the bias was not severe, future research should triangulate findings with supervisor ratings, peer evaluations, or objective performance metrics. Third, the sample was limited to employees at one laptop manufacturing company in Indonesia, a technology-intensive and digitally mature context; findings may not generalise to other industries, cultural contexts, or levels of digital infrastructure, so replication across sectors and cross-cultural comparisons would clarify boundary conditions (Connell et al., 2023). Fourth, the non-significant effect of physical condition on remote work efficacy (H_2) may partly reflect measurement limitations, as the items emphasised computer-related anxiety rather than broader physical health, ergonomics, or environmental quality; future studies should develop measures capturing home-office ergonomics, physical strain from prolonged technology use, and environmental conditions, and explore indirect pathways through psychological states such as stress. Fifth, the mechanisms underlying the negative moderation of digital capability ($\beta = -0.170$, $p = 0.002$) remain unclear despite the substitution, ceiling, overreliance, and cognitive-load explanations offered (Hennelly & Ctori, 2022; Rigotti & Fosch-Villaronga, 2024), qualitative methods and response-surface analysis could help identify thresholds and boundary conditions. Sixth, the model omits potentially relevant variables such as work-life balance, social support, autonomy, organisational culture, and personality traits, which future research should incorporate alongside alternative specifications such as mediation chains or reciprocal models. Seventh, this study offers limited practical guidance on

how to design and deliver training or leadership-development interventions; intervention studies and mixed-methods process evaluations would help clarify what works and why. Eighth, the single-time-point design misses developmental dynamics in how efficacy and digital capability evolve; longitudinal panel designs and experience-sampling studies would help capture these trajectories. Ninth, this study examined average effects across participants, potentially masking individual differences shaped by personality, career stage, or home environment; person-centered approaches such as latent profile analysis could identify distinct subgroups requiring tailored interventions. Finally, the rapidly evolving remote work landscape including AI tools, hybrid arrangements, and technostress extends beyond this study's scope, and ongoing research is needed to track these emerging phenomena. Despite these limitations, this study contributes meaningfully to understanding remote work performance through the JD-R model and self-efficacy theory, and these limitations represent opportunities for future research using longitudinal, multi-source, qualitative, and cross-cultural approaches.

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