

Individual Dexterity and Psychological Empowering Leadership for Digital Workplace

Ardian Adhiatma, Universitas Islam Sultan Agung, Indonesia

Olivia Fachrunnisa, Universitas Islam Sultan Agung, Indonesia*

 <https://orcid.org/0000-0003-3298-6903>

Ken Sudarti, Universitas Islam Sultan Agung, Indonesia

ABSTRACT

This research aims to test a concept of individual dexterity in improving individual performance for the digital workplace. Individual dexterity is the ability of individuals to explore fingers and other senses when in contact with information technology devices (finger dexterity) and exploit the idea or ideas to complete the work independently (manual dexterity). One hundred fifty respondents who work in creative industries and using information technology-based communication tools to finish their daily job were involved in this research. Data were collected using a questionnaire and analyzed using SmartPLS. The results show that individual dexterity is able to predict the performance of individuals who work in a digital environment. In addition, psychological empowering leadership and individual readiness to change play a role as significant triggers to the formation of individual dexterity which then increases individual performance.

KEYWORDS

Individual Dexterity, Individual Performance, Individual Readiness to Change, Psychological Empowering Leadership

1. INTRODUCTION

One of the changes that must be addressed by organization nowadays is technological advances which may affect employee performance. The resources owned by companies such as capital, methods, and machines could not provide optimum results if not supported by workforce that have optimum performance. In this century, the digital workforce dominate the structure body of organization. We termed the digital workforce as a generation who grow in the ease of access to digital information and even has been used as one of the primary needs. According to Prensky (2001), there is two types of human relationship to technology which are digital native and digital immigrant. Digital native is persons (especially children and teenagers), which since its inception has been exposed with incessant technological developments, such as the development of computers, the internet, animation and so on

DOI: 10.4018/IJTHI.299354

*Corresponding Author

This article published as an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0/>) which permits unrestricted use, distribution, and production in any medium, provided the author of the original work and original publication source are properly credited.

associated with the technology. While digital immigrant is people (especially old) who during their lives of children and teenagers took place before the development of the computer. Digital native and digital immigrant can have a digital fluency competency that should be used to manipulate the data, creatively represent information, solve problems, and design new products or change ways of working (Colbert & Yee, 2016).

Digital fluency is expected has an impact on the employees' ability to compete and collaborate within the digital workforce. The digital workforce has developed a lot of competence in the course of their interactions with technology, they may feel comfortable with the technology-based instruction (Kraiger & Ford, 2006), provide low-cost solutions and can be replicated to help employees develop the skills they need. In addition to bringing a high level of digital fluency to the workplace, workers can respond with good digital motivational strategies similar to those used in the virtual world.

Rapid changes in external environment such as new technologies and the growing number of competitors in the world economy, causing the short product life cycle and rising tensions between exploration and exploitation (Malhotra & Hinings, 2015). Due to the rapid changes in the external environment, organizations face difficulties with long-term survival. Solis-Molina, Hernández-Espallardo, and Rodríguez-Orejuela (2018), argued that the organization has its ambidexterity. Much of the research on organizational ambidexterity showed that organizations that managed to create a balance between exploration and exploitation are performed better in the short and long term. Organizations that successfully combine both activities can be called as "ambidextrous organizational" (Benschop, Leenders, Doorewaard, & Brink, 2013). In fact, a combination of both activities resulting in a struggle organizational ambidexterity (Reyt & Wiesenfeld, 2015). The reason is that both of those capabilities need more scarce resources. Hence, some times employees have to make a choice between the two. However, Patel, Messersmith, and Lepak (2013) show that ambidexterity is not only achieved at the organizational level but can also at the individual level. Factors that affect ambidexterity at an individual level provides insights and new methods on how to develop ambidexterity into the organization. In this way, they are expected to adapt to the changing environment and technology will be more successful in the short and long term period. Organizational ambidexterity is a concept that is applied at the organizational level, however, this concept needs to be lowered to an individual level which can be termed as individual dexterity.

Organizational ambidexterity is an organization's ability to do two jobs at once (O'Reilly & Tushman, 2013). Junni, Sarala, Taras, and Tarba (2013) explained that the combination of both components will produce a better performance than using only one component. Moreover, organizational ambidexterity is the ability of an organization to simultaneously pursue exploration and exploitation of innovation (O'Reilly & Tushman, 2013). Exploitation activities related to aspects such as improving the efficiency, implementation, and execution, while exploration activities intended to modify existing models, experiments and radically affect organizational routines (March, 1991). Research by (Chao, Kadivas, & Gaimon, 2009; An-Qiang, Wen-Jiang, & Xia, 2018) declared a synergism between exploration and exploitation of the unit that will release the unused potential of both so that the achievement of individual units will improve individual performance.

Dexterity is the harmony and adaptation ability to develop contextual terms. Contextually, ambidexterity behavior is the capacity to simultaneously show the alignment and adaptability across all business units. When the contextual level has been reached, every individual in one unit can provide value in their own functional area, but at the same time, each individual alerts to changes in the environment tasks, and act according to circumstances.

Information technology advancement will facilitate activities organization that can improve performance. The goal of organizational changes is placing human at the central element, away from the factor of method, social, organization and purpose. But there are two important aspects to improve employee performance, such as internal-external aspects of employee and working methods (Jansen, Simsek, & Cao, 2012). An internal-external aspect of employees includes a relationship with leaders,

department, organizational commitment, job satisfaction, and organizational culture. IT developments have the ability to prosecute individuals both soft skills and hard skills in order to achieve optimal performance. These capabilities along with the necessity to use IT tools and utilization of effective social media usage through the development and usage of IT.

Studies by Jansen et al., (2012) mentioned that individual performance is significantly determined by the level of ambidexterity. Ambidexterity is an integrated phenomenon at the organization level, however, personal characteristics and individual work context will lead to the link between agility behavior and performance (Smith & Tushman, 2005). Exploitation and exploration activities should have integrated into lower hierarchical levels (top-down), so that workers, line managers up to top managers must have in order to improve the performance of individual ambidexterity (Birkinshaw & Gibson, 2004). Sustainability in the organizational ambidexterity can be realized with a bottom-up approach, or better known as contextual dexterity. Contextual dexterity includes a series of process activities that encourage and motivate individual members of the organization in making a decision, by means of creative and innovative in their daily work specification (Chang, Yang, Martin, Chi, & Tsai-Lin, 2016), so individual dexterity affects individual performance.

In addition, contextual dexterity will be strengthened if leaders show high behavioral and psychological empowerment, individuals also have a readiness to change related to the information technology revolution, so it is expected will increase individual performance. Since, there is still lack of research that discuss the relationship between individual dexterity and individual performance, this research aims to develop and test a concept of individual dexterity as a result from the existence of psychological empowering leadership and individual readiness to change which in turn will individual performance in digital workplace.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1. Psychological Empowering Leadership

Psychological empowering leadership is an implementation process conditions allowing a leader to share power with employees significantly by interpreting the work of employees, providing decision-making autonomy of the larger, expressing confidence in the ability of employees to resolve bottlenecks in performance (Zhang & Bartol, 2010). It conceptualized as a psychological state or set of cognition. Firth, Chen, Kirkman, and Kim (2014) defined psychological empowerment as a process of increasing the feeling of success on employees itself through the identification of conditions that foster powerlessness and move with informal techniques that provide success information. Thomas and Velthouse (1990) argue that psychological empowering leadership defined as a psychological state that is manifested in four cognitive meaning, competence, self-determination and impact. In particular, it means involves a feeling that one's work is important personally. Joint fourth this in mind, the individual wants and feels capable of forming a role in their work, meaning a high level (Margaryan, Littlejohn & Vojt, 2011). According to Thomas and Velthouse (1990), it is resulting in commitment increase, involvement, and concentration. Competence refers to the confidence or belief by individuals that they have the expertise and skills needed to achieve their goals (Rogiest, Segers, & Witteloostuijn, 2018; Zhang & Bartol, 2010). High levels of competence resulted in increased confidence which in turn leads to businesses and a higher persistence in the face of adversity (Thomas & Velthouse, 1990). Determination of the career itself refers to the sense of control, autonomy, and freedom of choice to fulfill tasks that are reasonable and done in an appropriate manner (Oldham & Fried, 2016). Determining the level of his own career had a positive effect on an individual's belief that they have the ability to affect the working environment and the results of its work. Individuals have a greater ability to recognize opportunities and are more motivated (Klerk, 2016).

2.2. Individual Readiness to Change

Ho, Kong, Lee, and Dubreuil (2018) explained that in order to be sustained, the organization needs to change and acts through its members. A successful change will survive only if people change behavior dynamically in their work. They also found many change efforts fail because leaders often underestimate the changes central role played by individuals in the process of change. To support this idea, previous research has empirically demonstrated that individual is not a passive recipient of the organizational changes, but they are actors who actively interpret and respond to what is happening in their environment. Furthermore, some recent researches also showed that employees' attitudes toward organizational change affect their behavior support towards change. Thus, it can be concluded that people who have a positive attitude toward organizational change is more likely change their behavior and fight for change initiatives (eg; Malhotra & Hinings, 2015; Rogiest et al., 2018; Bouckennooghe & Devos, 2008; Shin, Taylor, & Seo, 2010)

Individual readiness to change is defined as the extent to which a person believes that a change was needed and that he has the capacity for such changes. When assessing readiness to change, previous research studies tend to only focus on one aspect, such as perception of personal benefit from changes (Bouckennooghe & Devos, 2008), or evaluation of the organization's capacity to make a successful change (Battilana, Dimitriadis, & Gargiulo, 2012). Given the importance of readiness for change, we still need more research investigating how to prepare an organization and carried out actions that effectively captures the nature of readiness for change.

In addition, Choi (2011) argued that individual readiness for organizational change is the belief that changes are necessary and will probably succeed. Moreover, Barger, Lehn, and Smith (2015) also emphasizes the trust of employees to benefit from these changes. However, researchers agree that individual readiness for organizational change involves evaluation of individual capacity and organizations to make a successful change, the need for a change and benefits that can be obtained from the organization and its members change (Holt, Armenakis, Harris, & Field, 2007).

More recently, through the study of scale development, An et al., (2018) more clearly define this concept as multifaceted construction with four dimensions: individuals trust to specific changes in efficacy, suitability of change, change management support, and personal benefits of such changes. Individual readiness for organizational change lies in the concept of individual level. Individuals in the same unit may have a similar readiness for organizational change. However, we cannot assume similarities readiness among people at any level in an organization.

H1: Psychological empowering leadership relates positively to the individual's readiness to change.

2.3. Individual Dexterity

Individual dexterity can be conceptualized as the combination of individual exploration and exploitation (Mom, et al., 2009). The basic concept is a fusion of between exploitation and exploration at the individual level. In addition, ambidexterity can be seen as a relationship between exploration and exploitation and how the organization responses changes in business management conflict today. Ambidexterity can happen at the organizational level, and also at the individual level (Chang et al., 2016; Keitzman et al., 2013) define individual dexterity as "the ability of individuals to adjust the level of cognitive flexibly in a dynamic context with the right shift between exploration and exploitation". Thus, individual dexterity involved in how individuals can balance between exploratory and exploitative tasks in the context of their daily work.

Research by Ardito, Benson, Petruzzelli, and Gregori (2018) concluded that ambidexterity often occurs in relation to technological innovation. They expand the definition into two basic dimensions: (1) an exploratory innovation shows activity intended to enter the market of new products, and (2) exploitative dimensions of innovation activity being done to improve existing market position. There are four basic types of ambidexterity that facilitate the implementation of marketing strategies which

are structural ambidexterity, contextual ambidexterity, punctuated ambidexterity and peripatric ambidexterity (Revilla & Rodríguez-Prado, 2018).

Additionally, contextual dexterity is a process or a system that encourages people to split time between activities. Therefore, contextual dexterity allows individual to dynamically and flexibly decide how to divide their time between activities of exploratory and exploitation (Gibson & Brikshaw, 2004). Individual efforts in pursuit of exploratory and exploitation can be exhibited at the organizational level. This paper emphasizes on the development of information technology applications that require individuals to have a balance between exploration and exploitation in the context of finger capability and manual capability.

Individual dexterity can be created from internal support and external support. Internal support such as motive to change and readiness to change are main support, while psychological support from leader also believed as a trigger for individual dexterity. Psychological empowering leadership is a leader who empowers members through the process of increasing feelings of personal goals member (employee). This can be measured by increasing the meaning of work, encouraging participation in decision-making. This psychological confidence will express high performance, autonomy and gives the determination of his own career in the future. By empowering psychologically, an individual will try to determine how to finish their work independently. This independence makes individual dexterity grows.

H2: Psychological empowering leadership relates positively to individual dexterity.

2.4. Individual Performance

Changes in technology make the interdependence between job enrichment, expansion of employment, employee satisfaction and employee performance. Job enrichment and job expansion make employees feel that they belong to the organization and thus improves performance. Employee performance or individual performance is defined as individual behavior, attitude and motivation to achieve the goal. According to Shin et al., (2010), there are factors that cause the increased performance of employees during work which is working independently, organizational support, training, and organizational justice within. Individual performance is defined as any behavior or act that is relevant to the purpose of the organization. Individuals who have a readiness for change is likely to have individual high dexterity, which will ultimately improve their performance. If this is associated with the ability to work explorative and exploitative, individuals who are ready to change will demonstrate higher performance.

H3: Individual Readiness to change relates positively to the individual dexterity (finger dexterity and manual dexterity).

H4: Individual dexterity (finger dexterity and manual dexterity) relates positively to individual performance.

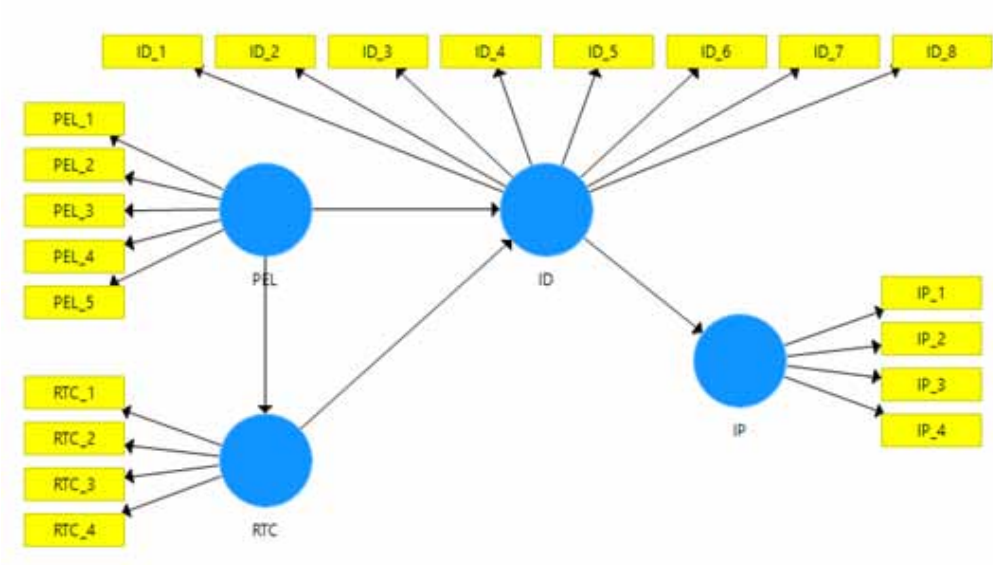
The empirical model simply conveys that individual performance can be stimulated through psychological empowering leadership, individual readiness to change and individual dexterity. It can be pictorially described in Figure 1.

3. METHOD

3.1. Data

With regard to the research background, data is suitable to be collected from individual developers of software applications designer in Indonesia since they are part of the worker in creative industry which require high IT skills in their daily work. However, we are not able to determine the total

Figure 1. Research Model



number of its population. Fraley and Vazire (2014) recommended that if the population is not known, the sample size is at least five times the number of questionnaire items.

We distributed our questionnaire to 320 respondents from snowballing effects in such a community. The questionnaire is also completed with a letter that requests them who acquire the topic of this study to complete the questionnaire. By the end, after four months, 150 respondents involved in this study (response rate is 46.87%). The questionnaire contains several items that address psychological empowering leadership, individual readiness to change, individual dexterity and individual performance.

3.2. Measures

The following definition of each variable along with indicators are presented in Table 1. The scale of response is ranging from 1 (strongly disagree) – 5 (strongly agree).

3.3. Data Analysis

We use PLS 3.2.0 software as suggested by Ringle, et al. (2018). PLS is used for the purpose of prediction, test model fit and able to test theory (Hair et. al., 2017). SEM analysis has five stages as follows (Latan, 2013).

3.3.1. Models Specification

Activities in this step are to develop a model based on theoretical studies to support research on issues that were examined. Furthermore, the model defines a conceptual construct that will be examined and determine its dimensions. Any relationship hypothesized direction must be clear and build from well-founded theory.

3.3.2. Model Identification

This stage is an important stage in SEM, if the model can not be identified, it will be cannot be estimated or calculated. It is important for researchers conducted this stage to determine whether the

Table 1 Variables and Indicators

Variable	Indicators
Psychological Empowering Leadership is a leader who empowers members through the process of increasing the feeling of successful performance (Zhang & Bartol, 2010)	1. Creating pleasure situation to get meaning work 2. Encourage psychological participation in decision-making 3. Expressing psychological confidence in the high performance 4. Give autonomy 5. Encourage self-determination for their own career.
Individual readiness to change is defined as a pioneer of behavioral cognitive against rejection or support of business change (Arizqi & Fachrunnisa, 2016)	1. Response to change 2. Challenge to change 3. Benefits of change 4. Encouragement to change
Individual dexterity is the individual's ability to incorporate new ideas and harness the power of information technology to complete several jobs at one time (Mom et al., 2009).	1. Coordinating ten fingers 2. Coordinating both hands 3. Coordinating IT applications 4. Using senses 5. Finishing several different jobs in one time 6. Using several IT applications in one time 7. Coordinating IT devices to finish work 8. Teamwork capability
Individual performance is the behavior, actions, attitudes, and motivation of individuals in accordance with the objectives of the organization (Shin et al., 2010)	1. Meet the deadline 2. Meet the targets 3. Use resources efficiently 4. Work in a team

model has a unique value or not. This identification by calculating the degrees of freedom and the value of degrees of freedom must be positive.

3.3.3. Model Estimation

Once the data is collected then models are estimated. Generally, the estimation method used is the maximum likelihood (ML).

3.3.4. Models Evaluation

Activities in this step are evaluation and interpretation of analytical results. This stage aims to evaluate the overall model. This process begins with data normality test subsequently followed by testing the measurement model to analyze the factors confirmation to test the validity and reliability of latent variables, followed by testing the structural models, as well as the last judge overalls, fit the model by referring to the goodness of fit (GoF).

3.3.5. Models Modifications

This activity with regard to the evaluation and interpretation of the model. If the value of the model GoF does not fit, it is necessary to modify models.

4. RESULT AND DISCUSSION

4.1. Descriptive Analysis

This study uses a sample of 150 respondents. Demographics of respondents in this study include; gender, age, education, tenure, and type of work which provided in Table 2.

Table 2. Demographics of Respondents

	Total	Percentage
Number of samples	150	100%
Gender		
Male	106	70.67
Female	44	29.33
Age		
<30 yrs	75	50
30-50 yrs	55	36.67
> 50 yrs	20	13.33
Education		
High School	24	16
Diploma	34	22.67
Bachelor	76	50.67
Master	16	10.67
Work		
IT staff	39	26
Non IT Staff	12	8
Non-private	5	3.33
Private employees	7	4.67
Network technician	10	6.67
Entrepreneur	8	5.33
Programmers	7	4.67
Administration staff	14	9.33
Others	48	32
Tenure		
<5 yrs	38	25.33
1-5 yrs	69	46
> 10 yrs	43	28.67

In table 1, we can observe that respondents are 106 male (70.67 percent) and 44 are female (29.33 percent). Most of the respondents aged less than 30 years (50 percent), 55 respondents in the range 30-50 years old, and only 20 respondents (13.33 percent) were aged over 50 years. The educational background of the respondents notes that 50.67 percent of respondents graduated from a degree program, 22.67 percent hold diploma program (22.67 percent), and 24 respondents (16 percent) are graduate from high school, only 16 respondents hold master degree program (10.67 percent).

4.2. Hypothesis Testing

A variance based PLS approach is preferable for covariance-based methods since PLS imposes less strict restrictions on sample size distribution (Chin et al. 2003). PLS is defined as an SEM technique in which measurement models and the theoretical structural models are simultaneously assessed (Chin,

1998). In addition, an equal method can be used to resolve multicollinearity problems in multivariate regression analysis. Although prediction of measurement and structural parameters simultaneously happens, PLS measurement using confirmatory factor analysis models, estimate the structural model of a test of the path associations among the hypotheses.

4.3. Measurement Model

The initial stage before test measurement models test is to estimate the model (Figure 2). Evaluation of measurement models is used to test internal consistency (Cronbach alpha and composite reliability); convergent validity (indicator reliability and AVE); and discriminant validity (Fornell-Larcker, Cross Loading, and HTMT). The test results of the measurement model of Table 2 shows that the model is valid and reliable. Reliability indicator shows the value of all indicator loading factor of more than 0.70 and AVE values above 0.50. Internal consistency reliability demonstrates the value of Cronbach alpha and composite reliability of more than 0.70. To test the discriminant validity, Fornell-Larcker researchers used a matrix and HTMT (heterotrait-monotrait ratio of correlations) as suggested by (Henseler, Ringle, & Sarstedt, 2016). In Fornell-Larcker matrix (Table 4), the value of the square root of AVE (diagonal) greater than all the values, and the value of HTMT (Table 3) is less than 1. Hence, it can be concluded that the discriminant validity of the measurement models was confirmed.

4.4. Evaluation Model

The evaluation results of PLS models Encryption run 1, the outer loading all indicators are more than 0.70, showing that all indicators are valid, then there is no indicator that needs to be eliminated.

4.5. Structural Evaluation Model

Results of the coefficient of determination in Table 5 shows the R-square values of all variables > 0.5. (Hair et al., 2017) recommends that R-square 0.75, 0.50 and 0.25 shows that the model's ability to predict is (strong, moderate and weak). It can be concluded, individual dexterity, psychological empowering leadership and individual readiness to change has a strong capability (0.641; 0.776 and 0.718) in predicting individual performance.

Figure 2. Estimation Model

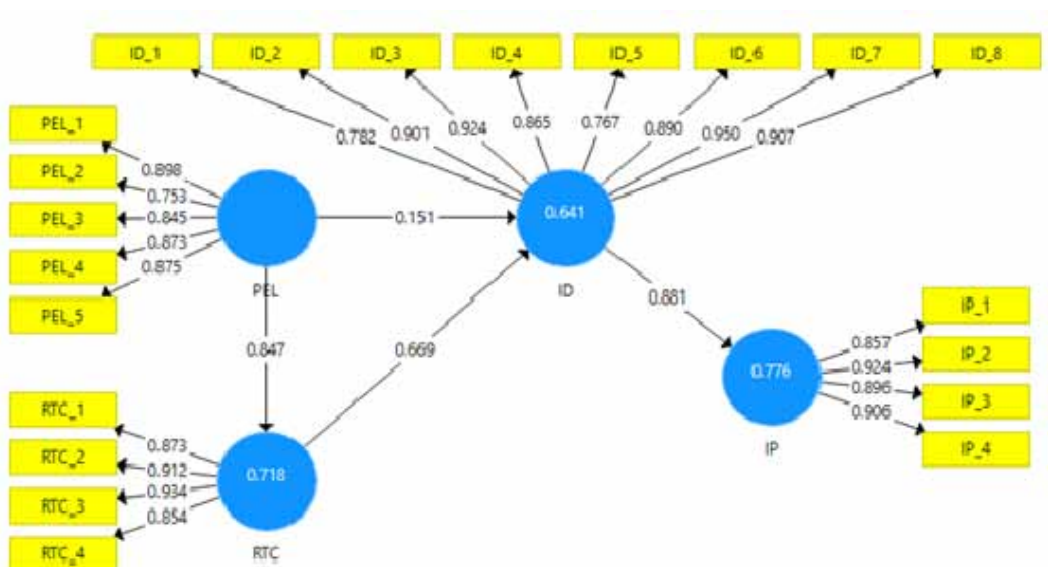


Table 3. Measurement evaluation model

Latent Variable	Indicators	Convergent Validity		Internal Consistency Reliability		Discriminant Validity
		Loadings	AVE	Composite Reliability	Cronbach Alpha	HTMT
		>0.70	>0.50	>0.70	>0.70	<1
ID	ID_1	0.782	0.766	0.963	0.956	YES
	ID_2	0.901				
	ID_3	0.924				
	ID_4	0.865				
	ID_5	0.767				
	ID_6	0.890				
	ID_7	0.950				
	ID_8	0.907				
IP	IP_1	0.857	0.80.	0.942	0.918	YES
	IP_2	0.924				
	IP_3	0.896				
	IP_4	0.906				
PEL	PEL_1	0.898	0.723	0.929	0.903	YES
	PEL_2	0.753				
	PEL_3	0.845				
	PEL_4	0.873				
	PEL_5	0.875				
RTC	RTC_1	0.873	0.799	0.941	0.916	YES
	RTC_2	0.912				
	RTC_3	0.934				
	RTC_4	0.854				

Table 4. Fornell-larcker criterion

	ID	IP	PEL	RTC
Individual Dexterity (ID)	0.875			
Individual Performance	0.881	0.896		
Psychological Empowering Leadership (PEL)	0.718	0.802	0.850	
Individual Readiness to Change (RTC)	0.797	0.880	0.847	0.894

4.6. Predictive Relevance (Q-Square)

The previous cross-validation test hypotheses communality and redundancy indices estimate the quality of the structural model. It means that the CV communality global ensures that the quality of the structural model fit the indices are positive for all the blocks, considering the measurement

Figure 3. Evaluation Model

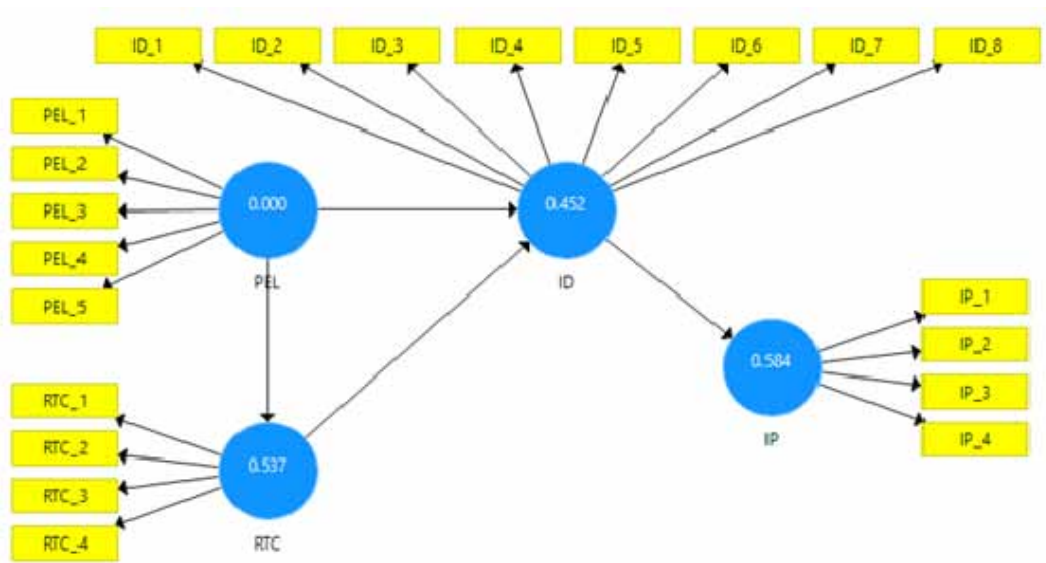


Table 5. Coefficient of determination (R-square)

	R Square	Adjusted R Square
Individual Dexterity	0.641	0.636
Psychological Empowering Leadership (PEL)	0.776	0.775
Individual Readiness to Change	0.718	0.716

models as a whole. In addition, a metric to evaluate the quality of each structural equation is offered by CV redundancy index. This index should be positive for all endogenous constructs (Tenenhaus et al., 2008). This study provides the models of equal and suitable predictive validity since all the latent variables have values for cross-validation (CV) redundancy and commonality. Table 6 and Figure 4 shows the value of the Q-square all dependent variables more than 0.

The next step after analyzing the quality of the structural equation is to examine the relations between all constructs. According to Chin (1998), bootstrapping (500 sub-samples) generates standard errors and t-values. Figure 5 shows the results of the structural model analysis, showing the path coefficients along with reviews their significance levels. Beta and t-value (sign) for each hypothesis is shown in Table 7.

Table 6. Quality of structural equation

Variable	CV commonality	CV redundancy
Individual Dexterity	0662	0452
Individual Performance	0616	0584
Psychological Empowering Leadership	0554	
Individual Readiness to Change	0610	0537

Figure 4. Predictive Relevance (Q-square)

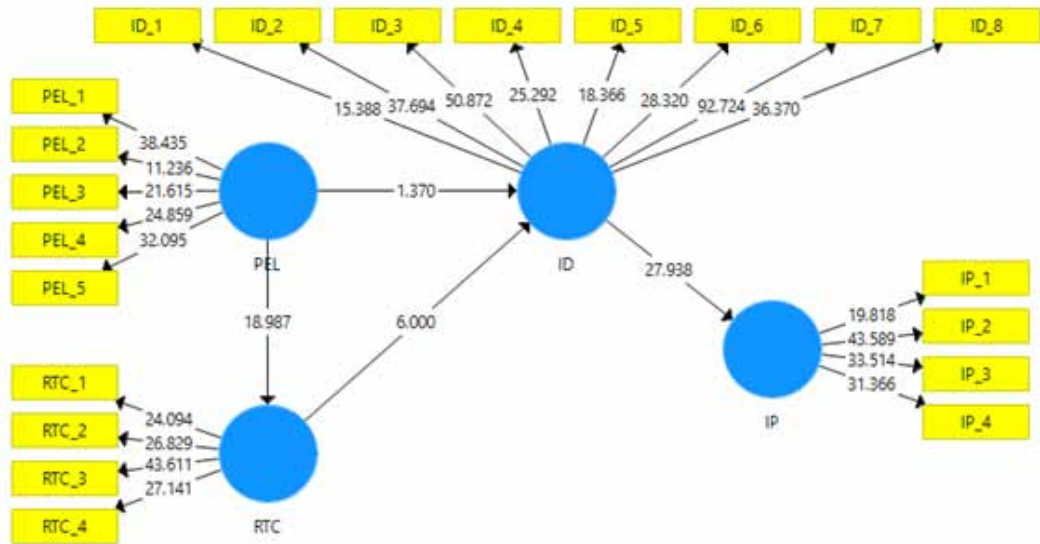
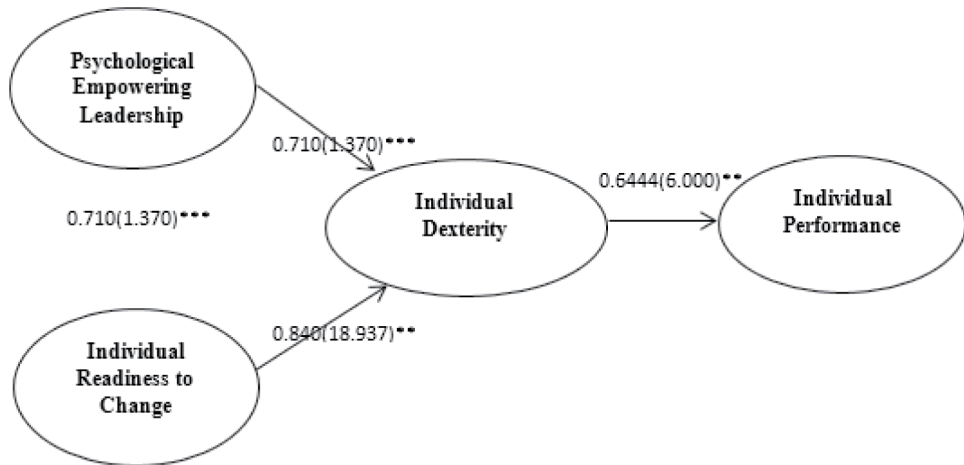


Figure 5. Structural model



H1 assesses a positive impact from the psychological empowering leadership on individual readiness to change. Diamantopoulos and Siguaw (2000) categorize path coefficients that are under 0.30 as causing moderate (effects), from 0.30 to 0.60 as strong, and up to 0.60 as very strong. Consequently, psychological empowering leadership establishes a strong, positive, significant effect on individual readiness to change (path coefficient = 0.876, $p < 0.001$). The higher level of psychological empowering leadership will affect individual readiness to change and also affect individual dexterity. Hypothesis 2 test results show that psychological empowering leadership has a positive and significant effect on individual dexterity (path coefficient = 0.710, $p < 0.001$). Therefore, H2 also admits empirical support from the data.

Table 7. Structural testing models

Path	Beta	T-Value (Sign)
PEL → RTC	0876	27 938 ***
PEL → ID	0710	1370 ***
RTC → ID	0840	18 937 ***
ID → IP	0644	6000 ***

*** p <0.001

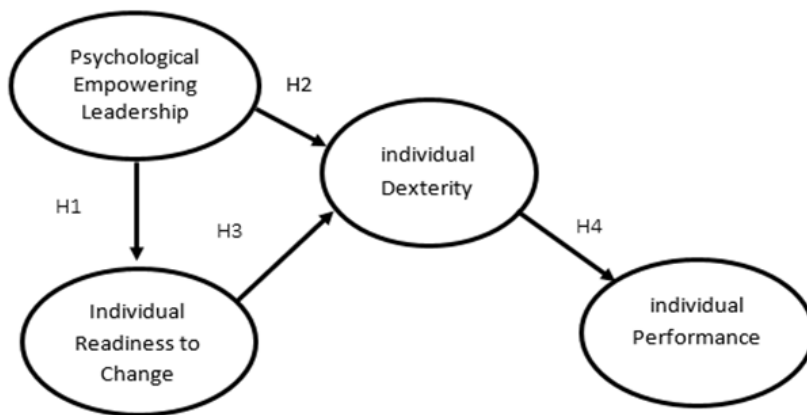
PEL: Psychological Empowering Leadership

ID: Individual Dexterity

RTC: Individual Readiness to Change

IP: Individual Performance

Figure 6. Research models (standardized solution)



The result of testing H3 and H4 also admit empirical support from the data. Individual readiness to change has a positive and significant relationship in individual dexterity (path coefficient = 0.840, $p < 0.001$) while individual dexterity has a positive and significant relationship on individual performance (path coefficient 0.644, $p < 0.001$). In conclusion, all effects of the H1, H2, H3, and H4 are very strong, positive and significant (path coefficient 0.876, 0.710, 0.840, and 0.644).

In order to observe the role of individual dexterity in relationship between psychological empowering leadership and individual performance, also between individual readiness to change and individual performance, we employed the mediated testing.

First, the direct model is examined to investigate whether psychological empowering leadership and individual readiness to change would have significant direct effects on individual performance. Figure 7 shows the results. In the direct model of relationships between Psychological Empowering Leadership and Individual Performance, the results indicate a positive effect of Psychological Empowering Leadership on individual performance (path coeff = 0.158, t-value = 2.093, p-values = 0.037). In addition, Individual Readiness to Change also has a positive significant effect on individual performance (coeff path = 0.301, t-value = 2.936, p-values = 0.003).

If all these conditions are satisfied and the effect of the independent variable becomes non significant in the presence of the mediator, then the effect of the independent variable is said to be “completely” or “fully” mediated by the mediator. If all these conditions are satisfied while the effect of the independent variable remains significant in the presence of the mediator, then the effect of the

Figure 7. Research model (Direct and Indirect Effect)

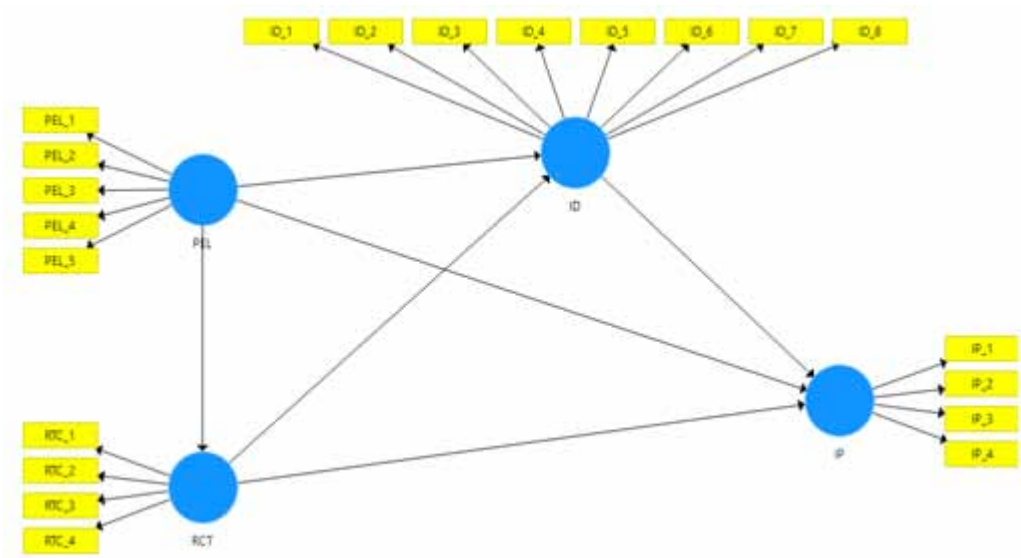
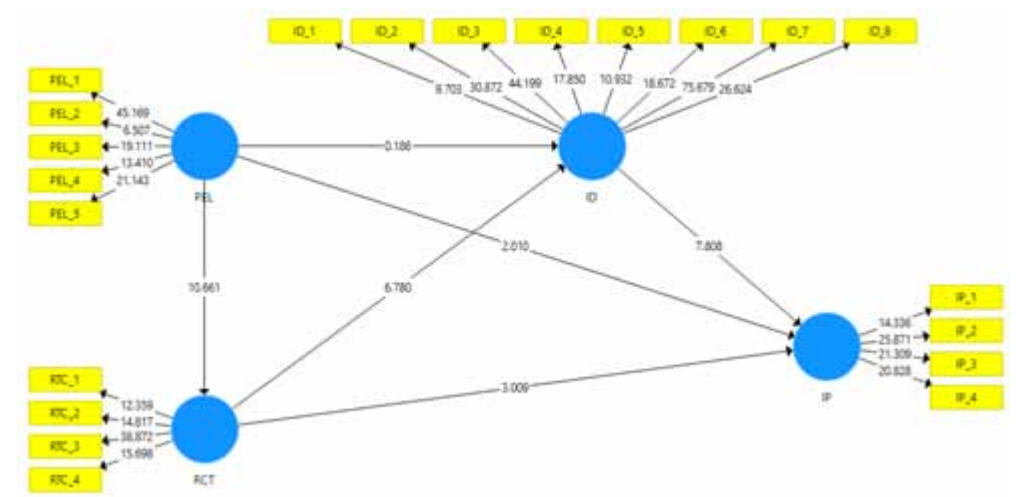


Figure 8. Bootstrapping Model



independent variable is said to be “partially” mediated. If some of these conditions are not satisfied, then there is no mediation (Baron and Kenny, 1986).

According to the results provided in table 8, it can be concluded as follows:

1. Condition (1) is supported, Psychological Empowering Leadership has significant effect to Individual Performance (path coeff = 0.534, t-value = 4.479, p values=0.000).
2. Condition (2) is not supported, Psychological Empowering Leadership has no significant effect to Individual Dexterity (path coeff = -0.019, t-value = 0.102, p values=0.855).
3. Condition (3) is supported, Individual dexterity has significant effect to Individual Performance (path coeff = 0.525, t-value = 7,647, p values=0.000).

Table 8. Direct Effect

Path	Path coef	Std Error	T values	P values	Decision
PEL → IP	0.158	0.076	2.093	0.037	Accepted
IRC → IP	0.401	0.103	2.936	0.003	Accepted
PEL → ID	-0.019	0.102	0.183	0.855	Rejected

- To examine condition (4), the results for the direct model (table 8, figure 6) were compared with those for the mediation model (table 9). With the inclusion of individual dexterity in the direct model, the effect of psychological empowering leadership on individual performance decreased from 0.534 to -0.010 and remained significant.
- Hence, since condition (3) is not satisfied, the individual dexterity does not mediate the relationship between psychological empowering leadership and individual performance.

Additionally, in order to test the role of Individual Dexterity in mediating the relationship between Individual Readiness to Change and Individual Performance, we analyze the condition according to Baron and Kenny, 1986 as follows:

- Condition (1) is supported, Individual readiness to change has significant effect to individual performance (path coeff = 0.30; t-value = 2.936, p values = 0.003);
- Condition (2) is also supported, individual readiness to change has significant effect to individual performance (path coeff = 0.765; t-value = 6.911; p values = 0.000)
- Condition (3) is supported, individual dexterity has significant effect to individual performance (path coeff = 0.525, t-value = 7.647, p values = 0.000).
- To examine condition (4), the results for the direct model (table 8, figure 6) were compared with those for the mediation model (table 9). With the inclusion of individual dexterity in the direct model, the effect of individual readiness to change on individual performance decreased from 0.401 to 0.301 and remained significant.
- The indirect effect of IRC on IP through ID is positive and significant (path coef= 0.401, t-value= 5.366 and p-values= 0.000) at $p < 0.001$ as well as interval confidence was different from zero (0.566, 0.858) and VAF higher than 20% and lower than 80% (Individual Dexterity has partial mediation effect between Individual Readiness to Change to Individual Performance). Hence, it can be concluded that individual dexterity takes role as mediating variable in relationship between individual readiness to change and individual performance.

Another finding is that based on table 8, the indirect effect of Psychological Empowering Leadership on Individual Dexterity through Individual Readiness to Change is positive and significant

Table 9. Mediation Effect Analysis

Path	Path coef	Std Error	T values	P values	Decision
ID → IP	0.525	0.525	7.647	0.000	Accepted
IRC → IP	0.401	0.075	5.366	0.000	Accepted
IRC → ID	0.765	0.111	6.911	0.000	Accepted
PEL → IP	0.534	0.119	4.479	0.000	Accepted
PEL → ID	-0.019	0.102	0.183	0.855	Rejected

Table 10. Mediation Analysis in PLS-SEM

Mediation Effect	Specific Indirect Effect			Total Effect			Confidence Intervals		VAF	Methods
	Path Coef	t-value	p-value	Path Coef	t-value	p-value				Bootstrapping
PEL→ID→IP	-0.010	0.177	0.860	0.692	6.899	0.000	0.111	0.824	-1.412	No mediation
PEL→IRC→IP	0.233	2.684	0.008	0.692	6.899	0.000	0.407	0.824	33.645	Partial Mediation
IRC→ID→IP	0.301	5.366	0.000	0.703	6.978	0.000	0.566	0.858	57.148	Partial Mediation
PEL→IRC→ID	0.592	5.188	0.000	0.573	4.629	0.000	0.764	0.744	103.24	Full Mediation
PEL→IRC→ID→IP	0.311	4.523	0.000	0.692	6.899	0.000	0.453	0.824	44.87	Partial Mediation

For a mediating effect, the relationships between variables should satisfy all of the following conditions (Baron and Kenny, 1986):

- (1) independent variables have significant effects on the dependent variable;
- (2) independent variables have significant effects on the mediator;
- (3) the mediator has a significant effect on the dependent variable; and
- (4) the effects of independent variables on the dependent variable diminish after the effects of the mediator are controlled for

(path coef= 0.592, t-value= 5.188 and p-values= 0.000) at $p < 0.001$ as well as interval confidence was different from zero (0.764, 0.744) and VAF higher than 80%. Hence, it can be concluded that individual readiness to change mediates the relationship between Psychological Empowering Leadership to Individual Dexterity. VAF (Variance Accounted for) is to calculate the ratio of the indirect effect to total effect (Nitzl, Roldán, & Capeda, 2017). VAF determines the extent to which the process of mediation explains the variance of the dependent variable.

In addition, the indirect effect of Psychological Empowering Leadership on Individual Dexterity through Individual Readiness to Change and Individual Dexterity is positive and significant (path coef= 0.311, t-value= 4.523 and p-values= 0.000) at $p < 0.001$ as well as interval confidence was different from zero (0.453, 0.824) and VAF higher than 20% and lower than 80%. Hence Individual Readiness to Change and Individual Dexterity have a partial mediation effect on the relationship between Psychological Empowering Leadership and Individual Performance.

5. DISCUSSION AND CONCLUSION

Research on the best way to plan and implement organizational factors that affect individual performance who works in the digital workplace era is growing. This needs theoretical development and practical lens for firms. Among factors discussed in extant literature, individual dexterity defines as an individual capacity for exploration and exploitation ideas to resolve organizational tasks (Gibson & Brikinshaw, 2004). This study shows that, in information technology-based organizations, an individual dexterity among members should also be established in order to create the conditions for the adequate capability of using IT application through psychological empowering leadership (Morabito, 2010). Competitive advantages based on individual capability in finger dexterity and manual dexterity as well as develop IT application is needed to improve individual performance. It means that individual dexterity usually seem like a dynamic capability, by focusing on the situation where the employee has continuous reconfiguration through using IT tools and application.

The first objective of this paper is to analyze the broaden specific of an individual capability type – individual dexterity – means an essential element to gain further innovation for digital-based firms. The results ensure that the existence of this kind of capability – combining features of finger dexterity and manual dexterity - along with elements psychological empowering leadership is antecedent to individual performance. First, the results of the study show individual dexterity improves individual

performance. These initiatives mainly regard experimentation through internal R&D and shifts in current technological trajectories (Gupta, Smith, & Shalley, 2006).

The results also provide that psychological empowering leadership and individual readiness to change, have significant relations toward individual dexterity. Again, the mixture between psychological empowering leadership and individual readiness to change is an effective way of promoting individual dexterity to do with incremental change via the exploitation and exploration ideas in term of IT hard skill and softskill. Psychological empowering leadership features such as creating leisure situation, motivate the employee to take the decision and organizes by themselves also contribute to the development of individual dexterity. Therefore, a greater tendency of leaders toward psychological empowering practices for organizational functioning and performance to consider efforts devoted the development and support the exploration-exploitation practices.

The second objective has analyzed the effect of individual readiness to change on individual dexterity. As the anticipation, a combination of readiness and support on changes gives positive relationships with individual dexterity. Traditionally, research demonstrates that this readiness have relation with individual capabilities as new or existing combined capabilities on using IT application can contribute to either finger dexterity or manual dexterity.

The third objective of this study has contributed to the organizational ambidexterity literature by showing that individual dexterity mediates the relationship between individual readiness to change and individual performance. Moreover, individual readiness to changes mediates the relationship between psychological empowering leadership and individual dexterity. As the hypotheses proposed, when a firm has a greater tendency toward psychologically oriented leadership, this firm develops and supports a larger volume of pleasure situation, the innovative engagement which then give positive effect to its individual readiness to change which then improve individual dexterity. The main point of this finding is that IT application-based organizations should have the capability to combine the practices oriented toward exploration skill (finger dexterity) and exploitation skill (manual dexterity), also psychological empowering leadership to maintain such employees' performance. The organizations should have the capability to flexibly change the stress on these elements in accordance with the situation demands (Klein et al., 2017). Therefore, developing an environment that encourages the use of both exploration and exploitation practices – through psychological empowering and change orientation – is an essential condition for leaders to improve an individual capacity.

An additional contribution of this paper is to investigate the relationship theories among individual dexterity, leadership, change management and individual performance through an extensive literature review, and anticipate some effects among these constructs. Indeed, the call for additional research on how individual dexterity can influence individual level processes and perform such work quality and work quantity is explained by this study.

However, this research has the following aspects of limitations. *First*, the research design of this study used cross-sectional, and the research design is incapable of ensuring the causal relationships set out in the hypotheses, even the results are consistent with theoretical reasoning. For further researcher could solve this issue by applying a longitudinal design. *Second*, the study analyzes individual dexterity such as finger dexterity and manual dexterity. Nevertheless, approaches that are more specific may be needed to take full advantage of each process so as to obtain distinct results (e.g., environment and time stage) (Rosing et al., 2017). Hence, when a firm requires creativity and experimentation to confront scenarios of radical change, other dexterity is probably most fitting. In this regard, future studies could try to analyze another type of individual dexterity with different environmental or temporal settings. *Third*, self-report data is used by this study. It may suffer from the effects of general method variance. Future research could be useful from independently achieving and using objective measures of performance. *Fourth*, the t-test to verify that non-response bias is applied in this study. The low response rate from respondents shows a potential limitation. Future research could focus on a wider range of high information technology industries in order to validate the results and increase the sample size of the study. *Fifth*, the respondents are Indonesian companies which have potential cultural

limitations. Therefore, different cultural contexts – countries or geographical areas can be targeted by future research – in order to validate the results for a wider spectrum of cultures and geographies.

In conclusion, this paper shows the effect of psychological empowering leadership and readiness to change on individual dexterity for further performance. The empirical evidence has important implications for managers and marks progress in the research of the moderating effects of organizational factors in the relationship between individual dexterity and performance.

REFERENCES

- An, N., Qiang, M., Wen, Q., Jiang, H., & Xia, B. (2018). The contribution of the project managers' capability to project the ending of performance under stressful conditions. *European Management Journal*. Advance online publication. doi:10.1016/j.emj.2018.04.001
- Ardito, L., Benson, E., Petruzzelli, A., & Gregori, G. (n.d.). The influence of production, IT, and logistics process innovations on ambidexterity performance. *Business Process Management Journal*, 24(5), 1271–1284. doi:10.1108/BPMJ-11-2017-0306
- Arizqi, & Fachrunnisa, O. (2017). Empowering Leadership, Quality of People and Quality of Work Methods For Individual Readiness to Change. *MIX: Jurnal Ilmiah Manajemen*, 7(2).
- Bangeron, L., Lehn, K., & Smith, J. (2015). Employee-management trust and M & A activity. *Journal of Corporate Finance*, 35, 389–406. doi:10.1016/j.jcorpfin.2015.07.012
- Battilana, J., Dimitriadis, S., & Gargiulo, M. (2012). Change Agents, Networks, and Institutions: A Contingency Theory of Organizational Change. *Academy of Management Journal*, 55(2), 381–398. doi:10.5465/amj.2009.0891
- Benschop, Y., Leenders, J., Doorewaard, J. A. C. M., & Brink, M. C. L. V. D. (2013). Discourses of Ambition, Gender, and Part-time Work. *Human Relations*, 66(5), 699–723. doi:10.1177/0018726712466574
- Bouckennooghe, D., & Devos, G. (2008). Psychological Climate Change as a Crucial Catalyst of Readiness for Change. *Academy of Management Proceedings*, 2008(1). 10.5465/ambpp.2008.33661178
- Chang, Y. C., Yang, P. Y., Martin, B. R., Chi, H. R., & Tsai-Lin, T. F. (2016). Enterpreneurial universities and research ambidexterity: A multilevel analysis. *Technovation*, 54, 7–21. doi:10.1016/j.technovation.2016.02.006
- Chao, R. O., Kadivas, S., & Gaimon, C. (2009). Revenue driven resource allocation: Funding authority, incentives, and product development portfolio management. *Management Science*, 55(9), 1556–1569. doi:10.1287/mnsc.1090.1046
- Chin, W. W. (1998). The partial least squares approach to structural equation modeling. In G. A. Marcoulides (Ed.), *Modern methods for business research* (pp. 295–336). Lawrence Erlbaum Associates Publishers.
- Chin, W. W., Marcolin, B. L., & Newsted, P. R. (2003). A partial least squares latent variable modeling approach for measuring interaction effects: Results from a Monte Carlo simulation study and an electronic mail emotion/adoption study. *Information Systems Research*, 14(2), 189–217. doi:10.1287/isre.14.2.189.16018
- Choi, M. (2011). Employees' attitudes toward organizational change: A literature review. *Human Resource Management*, 50(4), 479–500. doi:10.1002/hrm.20434
- Colbert, A., Yee, N., & George, G. (2016). The digital workforce and the workplace of the future. *Academy of Management Journal*, 59(3), 731–739. doi:10.5465/amj.2016.4003
- Diamantopoulos, A., & Siguaw, J. A. (2000). *Introducing LISREL*. SAGE Publications. doi:10.4135/9781849209359
- Firth, B. M., Chen, G., Kirkman, B. L., & Kim, K. (2014). Newcomers aboard: expatriate adaptation during early phases of International Assignments. *Academy of Management Journal*, 57(1), 280–300. doi:10.5465/amj.2011.0574
- Frabley, C., & Vazire, S. (2014). The Impact factor: Evaluating the quality of empirical journals with respect to the sample size and statistical power. *PLS One*, 9(10).
- Gibson, C., & Brikshaw, J. (2004). The antecedents, consequences, and mediating role of organizational ambidexterity. *Academy of Management Journal*, 47(2), 209–226.
- Gupta, A. K., Smith, K. G., & Shalley, C. E. (2006). The interplay between exploration and exploitation. *Academy of Management Journal*, 49(4), 693–706. doi:10.5465/amj.2006.22083026
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. SAGE Publication.
- Ho, V. T., Kong, D. T., Lee, C. H., Dubreuil, P., & Forest, J. (2018). Promoting Harmonious passion among unmotivated employees work: A two-nation investigation of The Compensatory Function of Cooperative Psychological Climate. *Journal of Vocational Behavior*, 106, 112–125. doi:10.1016/j.jvb.2018.01.005

- Holt, D. T., Armenakis, A., Harris, S. G., & Field, H. (2007). Toward a comprehensive, definition of readiness for change: A review of research and instrumentation. *Research in Organizational Change and Development*, 16, 295–346. doi:10.1016/S0897-3016(06)16009-7
- Jansen, J. J. P., Simsek, Z., & Cao, Q. (2012). Ambidexterity and performance in multi-unit Contexts: Cross-level moderating effects of structural and resource attributes. *Strategic Management Journal*, 33(11), 1286–1303. doi:10.1002/smj.1977
- Junni, P., Sarala, R. M., Taras, V., & Tarba, S. Y. (2013). Organizational ambidexterity and performance: A meta-analysis. *The Academy of Management Perspectives*, 27(4), 299–312. doi:10.5465/amp.2012.0015
- Klein, H. J., Brinsfield, C. T., Cooper, J. T., Molloy, J. C., Stuart, K., & Hoppensteadt, K. (2017). Quondam Commitments: An xamination of commitments employees no longer have. *Academy of Management Discoveries*, 3(4), 331–357. doi:10.5465/amd.2015.0073
- Latan, H. (2013). *Structural Equation Modeling: Concepts and Applications Using lisrel Program 8.80*. Bandung: Alfabeta.
- Lesserre, J. B. (2015). An Introduction to polynomial and Semi-Algebraic Optimization [Review of the book *An Introduction to polynomial and Semi-Algebraic Optimization*, by E. de Klerk]. *European Journal of Operational Research*, 249(2016), 789–790. 10.1016/j.ejor.2015.10.010
- Malhotra, N., & Hinings, C. R. (2015). Unpacking continuity and change as a process of organizational transformation. *Long Range Planning*, 48, 1–22.
- March, J. G. (1991). Exploration and exploitation in organizational learning. *Organization Science*, 2(1), 71–87. doi:10.1287/orsc.2.1.71
- Margaryan, A., Littlejohn, A., & Vojt, G. (2011). Are digital natives a myth or reality? University students' use of digital technologies. *Computers & Education*, 56(2), 429–440. doi:10.1016/j.compedu.2010.09.004
- Mom, T. J., Van Den Bosch, F. A., & Volberda, H. (2009). Understanding variation in managers' ambidexterity: Investigating direct and interaction effects of formal structure and personal coordination mechanisms. *Organization Science*, 20(4), 812–828. doi:10.1287/orsc.1090.0427
- Morabito, M. (2010). Understanding community policing as an innovation: Patterns of adoption. *Crime and Delinquency*, 56(4), 564–587. doi:10.1177/0011128707311643
- Nitzl, C., Roldán, J. L., & Capeda, G. (2017). Mediation Abalysis in Partial Least Squares Path Modeling: Helping Researchers Discuss More Sophisticated Models. *Industrial Management & Data Systems*, 119(9), 1849–1864. doi:10.1108/IMDS-07-2015-0302
- O'Reilly, C. A. III, & Tushman, M. L. (2013). Organizational ambidexterity: Past, present, and future. *The Academy of Management Perspectives*, 27(4), 324–338. doi:10.5465/amp.2013.0025
- Oldham, G. R., & Fried, Y. (2016). Job Design Research and Theory: Past, Present, and Future. *Organizational Behavior and Human Decision Processes*, 136, 20–35. doi:10.1016/j.obhdp.2016.05.002
- Patel, P. C., Messersmith, J. G., & Lepak, D. P. (2013). Walking The Tightrope: An Assessment of the Relationship Between High-Performance Work Systems and Organizational ambidexterity. *Academy of Management Journal*, 56(5), 1420–1442. doi:10.5465/amj.2011.0255
- Prensky, M. (2001). Digital Natives, Digital Immigrant. *On the Horizon*, 9(5), 1–6. doi:10.1108/10748120110424816
- Revilla, E., & Rodríguez-Prado, B. (2018). Building ambidexterity through creativity mechanisms: Contextual drivers of innovation success. *Research Policy*, 47(9), 1611–1625. doi:10.1016/j.respol.2018.05.009
- Reyt, J.-N., & Wiesenfeld, B. M. (2015). Seeing The Forest For The Trees: Explanatory Learning, Mobile Technology, and Knowledge Worker's Role Integration Behaviors. *Academy of Management Journal*, 58(3), 739–762. doi:10.5465/amj.2013.0991
- Ringle, C. M., Sarstedt, M., Mitchell, R., & Siegfried, P. (2018). Partial least squares structural equation modeling in HRM research. *International Journal of Human Resource Management*, 5192, 1–27. doi:10.1080/09585192.2017.1416655

- Rogiest, S., Segers, J., & Witteloostuijn, A. V. (2018). Matchmaking in Organizational change: Does Every Employee Value Participatory Leadership? An Empirical Study. *Scandinavian Journal of Management*, 34(1), 1–8. doi:10.1016/j.scaman.2017.05.003
- Rossing, K., & Zacher, H. (2017). Individual ambidexterity: The duality of exploration and exploitation and its relationship with innovative performance. *European Journal of Work and Organizational Psychology*, 26(5), 694–709. doi:10.1080/1359432X.2016.1238358
- Shin, J., Taylor, M. S., & Seo, M. G. (2010). Resources for Change: The Relationships of Organizational Inducements and Psychological Resilience To Employees' Attitudes and Behaviors Toward Organizational Change. *Academy of Management Journal*, 55(3), 727–748. doi:10.5465/amj.2010.0325
- Smith, W. K., & Tushman, M. L. (2005). Managing strategic contradictions, a top management model for managing innovation streams. *Organization Science*, 16(5), 522–536. doi:10.1287/orsc.1050.0134
- Solis-Molina, M., Hernández-Espallardo, M., & Rodríguez-Orejuela, A. (2018). Performance Implications of Organizational ambidexterity Versus Specialization in Exploration or Exploitation: The Role of Absorptive Capacity. *Journal of Business Research*, 91, 181–194. doi:10.1016/j.jbusres.2018.06.001
- Tenenhaus, M., Esposito, V., Chatelin, Y., & Lauro, C. (2008). PLS path modeling. *Computational Statistics & Data Analysis*, 48(1), 159–205. doi:10.1016/j.csda.2004.03.005
- Thomas, K. W., & Velthouse, B. A. (1990). Cognitive elements of empowerment: An “interpretative” model of intrinsic task motivation. *Academy of Management Review*, 15, 666–681.
- Zhang, X., & Bartol, K. M. (2010). Linking Empowering Leadership and Employee Creativity: The Influence of Psychological Empowerment, Intrinsic Motivation, and Creative Engagement Process. *Academy of Management Journal*, 53(1), 107–128. doi:10.5465/amj.2010.48037118

Ardian Adhiatma is a senior lecturer and researcher at Dept. of Management, Faculty of Economics and Business, UNISSULA, Semarang, Indonesia. He received his Doctoral degree from Airlangga University, Indonesia and Master's in Management from Gadjah Mada University, Indonesia. He has published several articles in international journal and proceedings. His teaching and research interest include Islamic Economics, Human Resource Management and Knowledge Management in Digital Business.

Olivia Fachrunnisa is a Professor in Management Science at Dept. of Management, Faculty of Economics and Business, UNISSULA, Semarang, Indonesia. She received her PhD from Curtin University, Australia and Master of Science (Human Resource Management) from Gadjah Mada University, Indonesia. She has published several articles and books in high reputation publication outlet. Her teaching and research interests include Business Intelligence, Human Resource Management, Organizational Behavior, and Knowledge Management.

Ken Sudarti is a senior lecturer and researcher at Department of Management, Faculty of Economics and Business, UNISSULA, Indonesia. She received her Doctoral degree in Management Science, UNISSULA Indonesia in 2020. Her teaching and research interest includes Marketing Management, Organizational Behavior and Leadership.