

The Effect of Organizational Learning, IT Capability, and Employee Adaptability on Job Performance: A Moderation Model

SUHARNOMO SUHARNOMO, EDY RAHARDJA, SRI HANDAYANI, UDIN UDIN

Diponegoro University, Semarang, INDONESIA

Abstract: This study aims to investigate the effect of organizational learning, IT capability, and employee adaptability on job performance. Drawing on the organizational support literature, this study proposes a model wherein IT capability moderates the relationship between organizational learning and job performance. Data collection (N = 99) is from the employees of the radio frequency spectrum monitoring in Semarang – Indonesia. Using partial least square (PLS) 3.0 software, the findings support all hypotheses relationships proposed. The results further show that the direct effects of organizational learning on job performance exist when IT capability is high.

Key-Words: organizational learning, IT capability, employee adaptability, job performance

1. Introduction

Most organizations are fully aware of the importance of employee performance. Achieving high-level performance is one of the determinants of organizational success. Therefore, organizations try to encourage employees to achieve organizational goals and objectives together by using existing resources effectively.

Organizational changes often occur and accompany business growth, innovation, globalization, complex regulation, and competition. Uncertainty related to change can have a negative impact on employee work experiences, such as their attitudes and performance. Most change management focuses on structural and managerial interventions (for example, using persuasive messages to influence confidence in existing changes) [1]. Although organizational actions (such as persuasive communication related to change) affect the success of change in the workplace, the individual's perception of the work environment becomes very important to understand how employees perceive organizational actions that affect their behavior and performance. Employees are responsible for making changes in the workplace and different perceptions in individuals tend to play an important role in the process of change.

A very complex organizational environment requires adaptation and acceptance of rapid changes. To achieve this, organizational learning is needed [2]. Organizational learning becomes very important in the process of gaining a competitive advantage. Organizational learning has

been recognized as a key process that contributes to successful innovation, which determines organizational success [3].

Research conducted by Wang & Ellinger [4] found that organizational learning has a positive effect on increasing innovation at both the individual and organizational level. Organizational learning plays an important role in creating organizational capabilities, which leads to superior performance [5]. Pradhan, Jena, & Singh [6] in their research prove that organizational learning encourages adaptive performance. In contrast, the results of Tafvelin et al. [7] found that organizational learning reduces employee performance. This is due to differences in perspectives regarding organizational learning between managers and employees. When employees and managers have different views to translate and realize organizational learning, it will lead to a wrong interactive process, resulting in a decrease performance.

Employees are also required to adapt to technological changes by mastering IT skills so that they are able to support work effectively. Adaptive employees allow organizations to meet the demand of performance that change, adapt and respond to innovation. Organizations highly value employees who have the ability to adapt to changing expectations and take advantage of opportunities to improve their skills [8].

The organization's ability to learn faster than competitors can be one of the sustainable competitive advantages. At the same time, information technology (IT) has developed and is

very possible to encourage better performance and improve the quality of organizational learning. IT capability is one of the main organizational capabilities that can contribute to innovation and superior performance [9].

Based on the results of the contradictory research, it is very interesting and encourages researchers to conduct further studies to confirm and describe the relationship between organizational learning, IT capability, and employee adaptability on job performance.

2. Literature Review

2.1 Job Performance

Performance is the result of work achieved by employees in carrying out their roles in accordance with the demands of the organization. Performance according to Campbell [10] is defined as a set of individual actions that are consistent with organizational goals. Achieving a high level of performance is very important for organization because employee performance is directly related to sustainable organizational growth [11].

2.2 Adaptability

Pulakos et al. [12] define adaptability as the behavior change to meet the demands of a new environment, event, or situation. Employee adaptability is an ability that helps individuals to modify and adjust their behavior to response organizational encouragement. Savickas and Porpheli [13] assert that adaptability refers to a series of individual resources to overcome the development of tasks, to participate in work life and to adapt to unexpected needs associated with changing work conditions.

Ployhart and Bliese [14] propose a theory of individual differences in adaptability, by defining adaptability as a person's ability, willingness, and motivation to change to different functions, social features, and environments. Adaptive employees have a proactive attitude towards the work environment challenges. Adaptive employees are responsible for adjusting to existing situations, such as increasing the acquisition of new skills, using new technology, and learning the skills needed to operate equipments effectively. Adaptive employees tend to see situations that occur in a way that is positive and more sensitive to environmental cues, which increases their ability to pay attention to and appreciate organizational actions and drives [14].

Sony and Mekoth [15] reported that employee adaptability has a positive effect on employee performance. Previous research conducted by Prentice and King [16] also proved that employee adaptability positively significantly affected employee performance. Likewise, the results of Cullen et al. [17] concluded that employee adaptability not only affect job satisfaction, but also improve employee performance.

2.3 Organizational Learning

The concept of organizational learning is widely studied in various disciplines, such as economics, management, psychology, and anthropology [18]. Since the 1990s, several organizations have experimented with restructuring and reengineering organizations to learn new ways to operate more effectively. Organizational learning is a vital process for organizations to manage growth by developing better core competencies.

Organizational learning is defined as the process of obtaining, distributing, integrating, and creating information and knowledge among members of an organization [19]. The process of organizational learning involves key components that support the knowledge production process, such as seeking information, assimilating, developing and creating new knowledge about products, processes, and services. Organizational learning has been recognized as one of the best ways in which organizations can increase the creation and continuous use of knowledge [20].

Organizational learning encourages a sense of empowerment in the workforce that motivates employees to learn continuously [21]. Marsick and Watkins [18] suggest that a learning organization has the capacity to integrate people and organizational structures to move the organization towards continuous learning and change. A learning organization intentionally designs and builds the organizational structure, culture, and strategies to enhance and maximize the potential for continuity of learning so as to increase competitive advantage, innovation, and organizational effectiveness [22].

Organizational learning leads to increase employee innovation throughout the organization and also builds the ability to develop employee innovation processes. Organizational learning brings together the intuitive team, which can function effectively in a turbulent technological environment, to enhance sustainable innovation [23]. Brockmand and Morgan [24] emphasize that

organizational learning is one source of competitive advantage.

The results of Aragon et al. [25]; Camps and Luna-Aroca [26] prove that organizational learning has a significant effect on the capability of improving organizational performance. Likewise, the results of Hooi and Ngui [27] in 286 service and manufacturing companies in Sarawak found that organizational learning capability had a positive effect on organizational performance. Furthermore, the result of Jain and Moreno [28] of 205 executives in India also found that organizational learning had a significant effect on organizational performance.

Wang and Ellinger [4] conducted a study of 268 senior team members and 83 R & D managers in Taiwan found that organizational learning had a positive effect on innovation at both the individual and organizational level. Organizational learning plays an important role to create organizational capability, which leads to superior performance [5]. Pradhan et al. [6] in their study of 228 executives in the Indian manufacturing industry proved that organizational learning drives adaptive performance. Thus,

H1: *Organizational learning is positively related to job performance*

H2: *Organizational learning is positively related to employee adaptability*

Adaptive employees expose themselves to be easier to change because they welcome to change and know how to use of the changes [29]. They also proactively prepare for changes in future to achieve the best work and career. Taber and Blankemeyer [30] found that employee adaptability is positively related to skills development and proactive networks. Adaptive employees use the best ways to deal with stress and to maintain well-being at work.

Bodla and Ningyu [31] found that adaptability has a significant effect on employee performance. The ability of employees to adjust and synchronize their behavior with organizations can make them able to perform better in responding to change. Sony and Mekoth [15] report that employee adaptability has a positive effect on employee performance. Previous research of Prentice and King [16] proved that employee adaptability significantly affected employee performance. Likewise, the results of Cullen et al. [17] concluded that employee adaptability not only affect on job satisfaction but also improve employee performance. Thus,

H3: *Employee adaptability is positively related to job performance*

2.4 IT Capability

In the past decades, the development of information technology (IT) in creating competitive advantage has become one of the main concerns for managers and scientists. An increasingly changing environment makes the emergence of capabilities supported by IT become a core competency for organizations to improve performance, organizational innovation, and competitive advantage at the individual employee level and organizational level [32].

The emergence of the use of adequate IT, especially communication networks and internet, has resulted in large methods of change related to the collection, sharing and storage of information and knowledge quickly, safely, and comfortably by increasing collaboration between organizations and reducing costs [33]. The rapid development of IT is increasingly driving the development of organizations and the global economy at a higher level [34-36].

A number of studies show that IT capability has a significant effect on performance at the process level to organizational level [37]. This shows that the capability of IT in the performance process is very important to understand how IT capability relates to organizational performance. Chen et al. [38] show that IT capability affects the process of business performance. Furthermore, Queiroz et al. [39] prove that IT capability improve process agility, which in turn affects organizational performance. Likewise, the results of Chae et al. [40] found that IT capability significantly affects organizational performance. Thus,

H4: *IT capability moderates the relationship between organizational learning and job performance*

3. Research Methods

3.1 Population and Sample

Population is the total of all individuals who have certain characteristics and attract attention to researchers, while samples are part of the population [41]. The population in this study was 99 employees of the second class of radio frequency spectrum monitoring in Semarang – Indonesia. The sampling method in this study is saturated sampling, which is the entire population used as the sample.

3.2 Measurement

Organizational learning is measured by using 5 indicators (i.e., dynamics of learning, organizational transformation, information sharing, continuous learning, and developing opportunities) which adapted from Yang et al. [42]. *IT capability* is measured by using 4 indicators (i.e., adequate data and information management services, connectivity, reliability, and availability of good communication networks, quality information technology applications and services, and information technology management services connected to other business units) which adapted from Mao et al. [43]. *Employee adaptability* is measured by using 3 indicators (i.e., creating interesting ideas, willingness to change, and appreciating changes) which adapted from Ployhart and Bliese [14]. *Job performance* is measured by using 3 indicators (i.e., quality of work, quantity of work, and time accuracy) which adapted from Noe et al. in Zulistiawati [44].

3.3 Data Analysis

For the sake of hypothesis testing, data analysis in this study uses partial least square (PLS). PLS is a powerful analytical method because it does not assume data must be measured by certain scale measurements, can be applied to all data scales, does not require many assumptions, and sample size does not have to be large. According to Ghazali [45], the number of samples needed for the PLS model is below 100 and above 200. In principle, the purpose of PLS is to help researchers

obtain latent variables for prediction purposes. The latent variable in the model is the linear aggregate of the indicators. The weight estimate to produce the value of the latent variable is obtained from the results of the inner and outer model specifications, namely the structure model that connects the indicator to the construct.

4. Results

4.1 Overview of Respondents

Out of 99 respondents involved in the study, men were 68 (68.69%) and women were 31 (31.31%); high school graduates were 69 (69.7%), D-3 graduates were 24 (24.24%), and undergraduate graduates were 6 (6.06%); employees who have a working period of 9-11 years were 59 (59.6%), 6-8 years were 17 (17.17%), 3 - 5 years were 12 (12.12%), and those who have work experience over 12 years was 11 people (11.11%).

4.2 Validity Testing

Validity testing is used to measure the validity of the questionnaire. A questionnaire is said to be valid if it is able to reveal what will be measured [45]. Validity testing with the SmartPLS 3 is done using convergent and discriminant validity. Based on the results of the test using SmartPLS 3 in Table 1, it is known that all indicators of organizational learning, IT Capability, employee adaptability, and employee performance have a loading factor above 0.5. It means that all indicators in this study are valid to use.

Table 1 Outer Loadings

	IT Capability	Employee Adaptability	Job Performance	Organizational Learning
IT1	0,710181			
IT2	0,761983			
IT3	0,705641			
IT4	0,693673			
EA1		0,596773		
EA2		0,831466		
EA3		0,850273		
JP1			0,704549	
JP2			0,705672	
JP3			0,734509	
OL1				0,642532
OL2				0,685128
OL3				0,709625
OL4				0,788107
OL5				0,747565

Source: Own calculations

Table 1 shows the correlation of organizational learning, IT capability, adaptability, and employee performance with each indicator is higher than 0.5 so that the construct in the model is estimated to meet the criteria of discriminant validity.

4.3 Reliability Testing

Reliability testing is done by looking at the composite reliability value of the indicator block that measures the construct. The composite reliability result will show a satisfactory value if above 0.7. The following is the composite reliability value.

Table 2 Composite Reliability

	Composite Reliability
Organizational Learning	0,839857
Employee Adaptability	0,808515
Job Performance	0,758303

Source: Own calculations

Table 2 shows that the composite reliability value for all constructs is above 0.7 which indicates reliable criteria.

Table 4 Path Coefficients

	Sample Mean	Standard Deviation	T Statistics	Results
Organizational Learning → Job Performance	0,515831	0,083915	5,976873	Accepted
Organizational Learning → Employee Adaptability	0,423854	0,077790	5,210314	Accepted
Employee Adaptability → Job Performance	0,431311	0,090432	4,941628	Accepted
Organizational Learning * IT Capability → Job Performance	1,560374	0,682254	2,802256	Accepted

Source: Own calculations

Table 4 shows that the relationship between organizational learning and employee performance is a significant positive effect because the statistical value is $5.976 > 1.66$ at the 5% significance level; organizational learning and employee adaptability is a significant positive effect because the statistical value is $5.21 > 1.66$; employee adaptability and employee performance is a significant positive effect because the statistical value is $4.94 > 1.66$; and the relationship of interaction between information technology capability and organizational learning on employee adaptability is significant because the statistical value of $3.55 > 1.66$. Thus, the first, second, third, and fourth hypotheses are accepted.

Table 3 R-Square

	R Square
Organizational Learning	
Employee Adaptability	0,164275
Job Performance	0,632939

Source: Own calculations

Table 3 shows the R-square value of the construct of employee adaptability of 0.164, which means that organizational learning is able to explain employee adaptability variance by 16.4% and the rest (83.6%) influenced by other factors not examined in this study. R-square value is also found in the construct of employee performance which is equal to 0.632 which means that organizational learning and employee adaptability are able to explain the variance of employee performance by 63.2% and the rest (36.8%) influenced by other factors not examined in this study.

To determine the hypothesis that is accepted or rejected, it can be seen in Table 4.

5. Discussion

5.1 Organizational Learning and Job Performance

Organizational learning is a process that involves the continuous change in employee cognition and behavior [46]. Organizational learning occurs through a social process where employees interact with each other, which involves creating, maintaining, and transferring knowledge. Employees collectively continue to learn to increase the overall capacity of the organization, and organizations always accept the efforts of employees and implement appropriate mechanisms

to activate, support and appreciate the learning done in the organization.

The organization's ability to continue learning, acquiring, implementing, and disseminating new knowledge and information to employees has been seen as the most fundamental strategic capability for the organization. In fact, organizational learning has been shown to be closely related to the achievement of positive performance such as financial improvement, innovation capacity, and organizational development [47]. Organizational learning allows organizations to remain productive and competitive in a turbulent business environment. Organizations that practice "continuous learning as an important element for survival and growth" will always exist along with the times. Pradhan et al. [6] prove that organizational learning has a positive effect on adaptive performance carried out by employees.

Improved organizational learning leads to the promotion of employee adaptability in changing business situations. An unpredictable work environment forces organizations to focus on appropriate learning mechanisms to increase employee trust. This finding has confirmed that organizational learning is an extraordinary mechanism for improving employee work attitudes.

The results of this study are in line with the findings of Aragon et al. [25]; Camps and Luna-Aroca [26]; Pradhan et al. [6] which proves that organizational learning has a significant effect on the capability of improving employee performance and organizational performance. Likewise, the results of Hooi and Ngui [27] found that organizational learning capabilities positively affect organizational performance. Furthermore, the results of Jain and Moreno [28] also found that organizational learning had a significant effect on organizational performance.

5.2 Organizational Learning and Employee Adaptability

Learning organization is seen as organizations that show the ability to adapt, learn from mistakes, explore new situations for organizational development, and optimize the contribution of their employees [48]. Modern organizations are always looking for employees who are able to learn and adapt to the demands of a changing business environment. Technology change and restructuring as a result of the organization require employees to learn new skills and improve their adaptability.

Organizational learning helps to develop an effective understanding of employees and their

perspectives, learning from collaborators and business partners, learning from observations, mistakes, past experiences and also learning from trends [49]. Organizational learning also helps to identify emerging and disruptive technological directions so that organizations can develop competencies quickly. Organizational learning leads to increase employee innovation throughout the organization and also builds the ability to develop innovation processes [50]. By modifying work attitudes to overcome organizational change through adjusting to new work requirements, employees who demonstrate and develop adaptation resources lead to the ability to adapt more effectively, so as to achieve positive results. The adaptive response shows beliefs to handle task development and changes in working conditions.

5.3 Employee Adaptability and Job Performance

Adaptability is a modifiable resource that accumulates over time and influences positive self-control strategies. Adaptability is a key driver in innovative performance. According to Anderson et al. [51], innovative performance requires employees who are able to monitor and change their cognition or behavior to improve standard procedures and apply new ideas at work. This is in line with the affirmation of Pulakos et al. [12] that adaptability is the tendency of individuals to solve problems creatively and deal with situations through innovative ways.

Employees who display innovative performance specifically they must be able to adapt first. Adaptability requires motivated actions, namely not only the ability to adapt but also the willingness to take risks [52]. This shows that differences in employees adaptation will have an impact on the ability to achieve their performance in the organization. Adaptability provides an opportunity for employees to combine cognitive self-evaluation and their attitude to achieve innovative performance. Employees who have a positive self-evaluation tend to take the necessary risks and seek opportunities to engage innovative behavior. In addition, adaptability is an important aspect of innovative work behavior because employees can adapt to various challenging jobs.

The results of this study are consistent with the finding of Sony and Mekoth [15] who report that employee adaptability has a positive effect on employee performance. Previous research of Prentice and King [16] proved that employee adaptability significantly affected employee

performance. Likewise, the results of Cullen et al. [17] concluded that employee adaptability not only affect job satisfaction but also improve employee performance.

5.4 IT Capability, Organizational Learning, and Job Performance

Technology-oriented organizations always try to carry out the process of developing new technologies so they can produce creative problem-solving abilities and versatile ways of thinking. IT capability is able to encourage organizational learning to increase the knowledge generated by individuals in an organized way and change existing knowledge into part of the organization's knowledge system. This process occurs in a community of interactions where organizations create knowledge, which is widespread in the constant dynamics between tacit and explicit knowledge. The development of these new capabilities and knowledge simultaneously can improve organizational learning, adaptability, and also employee work innovations [53].

In particular, IT capability for employees enables organizations to design and develop reliable applications that support business needs for effective and efficient knowledge flows [54]. The ability to integrate and maintain multiple information technology systems ensures the depth of knowledge flow, thus leading to efficient knowledge management. With a high level of managerial IT capability, organizations can gain a large business understanding of the functions of IT and coordinate activities related to knowledge processes effectively [32].

6. Conclusion

This study can generally be concluded that employee performance can be strengthened and improved through organizational learning, IT capability, and employee adaptability. The results of this study have implications for managerial policies, wherein organizations must encourage the ability to share information among employees so that knowledge can be widely distributed belong to the organization. This can be done through training, seminars, workshops, and discussion groups or out-groups. Organizations must also encourage employees to have willingness to change for mutual progress and better improvement. Organizations must encourage employees to be open-minded by stimulating creative ideas and giving them the

freedom to innovate for the sake of organizational development.

There are a number of limitations in this study, including 1) this study only focuses on employees who are in the second class of radio frequency spectrum monitoring in Semarang – Indonesia. Because the distance is very far, it is not possible to conduct research in all districts in Indonesia; and 2) all construct variables used in this study are only measured based on responses from the same respondents, where the practice of measurement like this has the potential to cause bias. Therefore, future research needs to add other variables that are thought to be able to improve employee performance, such as passion for work, career satisfaction, performance appraisal fairness, and employee-friendly culture.

References

- [1] Armenakis, A.A. and S.G. Harris, *Reflections: Our journey in organizational change research and practice*. Journal of Change Management, 2009. 9: p. 127-142.
- [2] Dimovski, V. and M. Škerlavaj, *Organizational Learning and Information-Communication Technologies – A Promising Link*. Zbornik radova - Sveučilište u Rijeci. Ekonomski fakultet, 2004. 22(1): p. 7-19.
- [3] Voronov, M., *Toward a practice perspective on strategic organizational learning*. The Learning Organization, 2008. 15(2): p. 195-221.
- [4] Wang, Y. and A.D. Ellinger, *Organizational learning: Perception of external environment and innovation performance*. International Journal of Manpower, 2011. 32(5): p. 512-536.
- [5] Theriou, G.N. and P.D. Chatzoglou, *Enhancing performance through best HRM practices, organizational learning and knowledge management: A conceptual framework*. European Business Review, 2008. 20(3): p. 185-207.
- [6] Pradhan, R.K., L.K. Jena, and S.K. Singh, *Examining the role of emotional intelligence between organizational learning and adaptive performance in Indian manufacturing industries*. Journal of Workplace Learning, 2017. 29(3): p. 235-247.
- [7] Tafvelin, S., U.T. Schwarz, and H. Hasson, *In agreement? Leader-team perceptual distance in organizational learning affects*

- work performance*. Journal of Business Research, 2017. 57: p. 1-7.
- [8] Ngo, H. and R. Loi, *Human resource flexibility, organizational culture and firm performance: An investigation of multinational firms in Hong Kong*. The International Journal of Human Resource Management, 2008. 19: p. 1654-1666.
- [9] Kmiecik, R., A. Michna, and A. Meczynska, *Innovativeness, empowerment and IT capability: evidence from SMEs*. Industrial Management & Data Systems, 2012. 112(5): p. 707-728.
- [10] Campbell, J., *Modeling the performance prediction problem in industrial and organizational psychology*, in Dunnette, M. and Hough, L. (Eds), *Handbook of Organizational and Industrial Psychology* 1990, Palo Alto, CA: Consulting Psychologists Press.
- [11] Burney, L.L., C.A. Henle, and S.K. Widener, *A path model examining the relations among strategic performance measurement system characteristics, organizational justice, and extra- and in-role performance*. Accounting, Organizations and Society, 2009. 34(4): p. 305-321.
- [12] Pulakos, E.D. and R.S. O'leary, *Why is performance management broken?* Ind. Organ. Psychol, 2011. 4(2): p. 146-164.
- [13] Savickas, M.L. and E.J. Porfeli, *Career Adapt-Abilities Scale: Construction, reliability, and measurement equivalence across 13 countries*. Journal of Vocational Behavior, 2012. 80(3): p. 661-673.
- [14] Ployhart, R.E. and P.D. Bliese, *Individual ADAPTability (IADAPT) theory: Conceptualizing the antecedents, consequences, and measurement of individual differences in adaptability*. In S. Burke, L. Pierce, & E. Salas (Eds.), *Understanding adaptability: A prerequisite for effective performance within complex environments* (pp. 3–39). St. Louis, MO: Elsevier Science., 2006.
- [15] Sony, M. and M. Mekoth, *The relationship between emotional intelligence, frontline employee adaptability, job satisfaction and job performance*. Journal of Retailing and Consumer Services, 2016. 30: p. 20-32.
- [16] Prentice, C. and B.E.M. King, *Emotional intelligence and adaptability – Service encounters between casino hosts and premium players*. International Journal of Hospitality Management, 2013. 32: p. 287-294.
- [17] Cullen, K.L., et al., *Employees' Adaptability and Perceptions of Change-Related Uncertainty: Implications for Perceived Organizational Support, Job Satisfaction, and Performance*. Journal of Business and Psychology, 2013. 29(2): p. 269-280.
- [18] Marsick, V.J. and K.E. Watkins, *Demonstrating the value of an organization's learning culture: The dimensions of the learning organization questionnaire*. Advances in Developing Human Resources, 2003. 5(2): p. 132-151.
- [19] Hult, G.T.M., C.S. Snow, and D. Kandemir, *The role of entrepreneurship in building cultural competitiveness in different organizational type*. Journal of Management, 2003(29): p. 3.
- [20] Zhao, Y., Y. Lu, and X. Wang, *Organizational unlearning and organizational relearning: a dynamic process of knowledge management*. Journal of Knowledge Management, 2013. 17(6): p. 902-912.
- [21] Bryson, J., et al., *Learning at work: organisational affordances and individual engagement*. Journal of Workplace Learning, 2006. 18(5): p. 279-297.
- [22] Fang, C., J. Lee, and M.A. Schilling, *Balancing exploration and exploitation through structural design: The isolation of subgroups and organizational learning*. Organization Science, 2010. 21(3): p. 625-642.
- [23] Dayan, M. and C.A. DiBenedetto, *Team intuition as a continuum construct and new product creativity: the role of environmental turbulence, team experience, and stress*. Res. Policy, 2011. 40(2): p. 276-286.
- [24] Brockmand, B. and F. Morgan, *The role of existing knowledge in new product innovativeness and performance*. Decision Sciences, 2003. 32: p. 385-419.
- [25] Aragón, M.I.B., D.J. Jiménez, and R.Z. Valle, *Training and performance: The mediating role of organizational learning*. BRQ Business Research Quarterly, 2014. 17: p. 161-173.
- [26] Camps, J. and R. Luna-Aroca, *A matter of learning: how human resources affect organizational performance*. British Journal of Management, 2012. 23: p. 1-21.
- [27] Hooi, L.W. and K.S. Ngui, *Enhancing organizational performance of Malaysian*

- SMEs: The role of HRM and organizational learning capability*. International Journal of Manpower, 2014. 35(7): p. 973-995.
- [28] Jain, A.K. and A. Moreno, *Organizational learning, knowledge management practices and firm's performance: An empirical study of a heavy engineering firm in India*. The Learning Organization, 2015. 22(1): p. 14-39.
- [29] Heijde, C.M.V.d. and B.I.V.d. Heijden, *A competence-based and multidimensional operationalization and measurement of employability*. Human Resource Management, 2006. 45: p. 449-476.
- [30] Taber, B.J. and M. Blankemeyer, *Future work self and career adaptability in the prediction of proactive career behaviors*. Journal of Vocational Behavior, 2015. 86: p. 20-27.
- [31] Bodla, A.B. and T. Ningyu, *Transformative HR practices and employee task performance in high-tech firms: The role of employee adaptivity*. Journal of Organizational Change Management, 2017. 30(5): p. 710-724.
- [32] Tseng, S., *The effects of information technology on knowledge management systems*. Expert Systems with Applications, 2008. 35: p. 150-160.
- [33] Mohamed, M., M. Stankosky, and A. Murray, *Knowledge management and information technology: can they work in perfect harmony?* Journal of Knowledge Management, 2006. 10: p. 103-116.
- [34] Liu, F., et al., *Traversing knowledge networks: an algorithmic historiography of extant literature on the internet of things (IoT)*. Journal of Management Analytics, 2017. 4(1): p. 3-34.
- [35] Wang, H., *Enterprise system and its application in aerospace industry*. J. Ind. Journal of Industrial Integration and Management, 2017. 2(2).
- [36] Lu, Y., *Industry 4.0: a survey on technologies, applications and open research issues*. Journal of Industrial Information Integration, 2017. 6: p. 1-10.
- [37] Mithas, S., N. Ramasubbu, and V. Sambamurthy, *How information management capability influences firm performance*. MIS Quart, 2011. 35(1): p. 237-256.
- [38] Chen, Y., et al., *IT capability and organizational performance: the roles of business process agility and environmental factors*. Eur. J. Inf. Syst, 2014. 23(3): p. 326-342.
- [39] Queiroz, M., et al., *The role of IT application orchestration capability in improving agility and performance*. The Journal of Strategic Information Systems, 2017. In Press, Corrected Proof, Available online 6 November 2017.
- [40] Chae, H., C.E. Koh, and K.O. Park, *Information Technology Capability and Firm Performance: Role of Industry*. Information & Management, 2017. In Press, Accepted Manuscript, Available online 13 October 2017.
- [41] Kumar, R., *Research Methodology: A Step-by-Step Guide for Beginners (2nd edition)*2005, Singapore: Pearson Education.
- [42] Yang, B., V. Marsick, and K.E. Watkins, *The Construct of the Learning Organization: Dimensions, Measurement, and Validation*. Human Resource Development Quarterly, 2004. 5(1): p. 31-55.
- [43] Mao, H., et al., *Information technology resource, knowledge management capability, and competitive advantage: The moderating role of resource commitment*. International Journal of Information Management, 2016. 36: p. 1062-1074.
- [44] Zullystiwati, *Performance Management System: The Practices in the Public Organization in the Developing Countries*. Information and Knowledge Management, 2014. 3(4): p. 127-135.
- [45] Ghozali, I., *Structural Equation Modeling Konsep dan Aplikasi dengan Program Amos 24 (Edisi 7)*2011, Semarang: Badan Penerbit Universitas Diponegoro.
- [46] Argote, L., *Organizational learning research: Past, present and future*. Management Learning, 2011. 42(4): p. 439-446.
- [47] Valencia, J.C., R.S. Valle, and D.J. Jiménez, *Organizational culture as determinant of product innovation*. European Journal of Innovation Management, 2010. 13(4): p. 466-480.
- [48] Wilkinson, J.E., R.K. Rushmer, and H.T.O. Davies, *Clinical governance and the learning organization*. Journal of Nursing Management, 2004. 12(2): p. 105-113.
- [49] Dibrell, C., J.B. Craig, and D.O. Neubaum, *Linking the formal strategic planning process, planning flexibility, and innovativeness to firm performance*. J. Bus. Res, 2014. 67: p. 2000-2007.

- [50] Husain, Z., M. Dayan, and C.A. DiBenedetto, *The impact of networking on competitiveness via organizational learning, employee innovativeness, and innovation process: A mediation model*. Journal of Engineering and Technology Management, 2016. 40: p. 15-28.
- [51] Anderson, N., K. Potočnik, and J. Zhou, *Innovation and creativity in organizations: A state-of-the-science review, prospective commentary, and guiding framework*. Journal of management, 2014. 40(5): p. 1297-1333.
- [52] Smith, M.B. and B.D. Webster, *Narcissus the innovator? The relationship between grandiose narcissism, innovation, and adaptability*. Personality and Individual Differences, 2018. 121: p. 67-73.
- [53] García-Morales, V.J., M.M. Jimenez-Barrionuevo, and L. Gutierrez-Gutierrez, *Transformational leadership influence on organizational performance through organizational learning and innovation*. Journal of Business Research, 2012. 65: p. 1040-1050.
- [54] Melville, N., K. Kraemer, and V. Gurbaxani, *Review: information technology and organizational performance: an integrative model of IT business value*. MIS Quarterly, 2004. 22: p. 283-322.