

# PERFORMANCE EVALUATION FACTORS ON PROJECT-BASED ORGANIZATION: A CAUSAL STUDY IN INDONESIA

Pawenary, Universitas Negeri Jakarta  
Billy Tunas, Universitas Negeri Jakarta  
Ari Saptono, Universitas Negeri Jakarta  
Elkana Timotius, Universitas Kristen Krida Wacana

## ABSTRACT

*Organizations with superior human resources need to form companies to implement tasks and responsibilities effectively. In project-based organizations, employees are expected to control costs, quality, and time depending on the development of the project. The research is definitely different with previous researches because it focuses on organization which is run base on the project, not in regular work. Project-based organization must be more organized because it has time limit, meet the budget, and achieve the quality of work as planned.*

*The purpose of this study therefore is to evaluate the relationship between variables affecting employee performance in a project-based organization, including organizational culture, knowledge management, and teamwork. Data were collected from 150 respondents at various levels in a project-based organization in Indonesia. The analysis using Structural Equation Modeling showed these variables significantly influence employee performance, except knowledge management.*

**Keywords:** Project-based Organization, Organizational Culture, Teamwork, Knowledge Management, Employee Performance.

## INTRODUCTION

Employee performance determines the success and failure of a company. According to Al-Musadiq et al. (2018), performance is the result of the work of employees cooperating, setting goals, evaluating results, and giving rewards. In project-based organizations, performance is assessed at each stage based on the project development. These organizations are bound by cost, quality, and time during project implementation. Employees need to work under a predetermined budget, fulfill specifications or minimum quality limits, and complete tasks on time as scheduled.

Organizational culture forms all activities from employees formally. It manages employee to do their activities inline with the organization objectives. Employees in project-based organizations commonly share knowledge from one project to another informally. In point of fact, their advice is vital for developing a new project and improving the one that is currently under implementation (Vilasini & Neitzert, 2012). This can be achieved through organizational culture which impacts morale, motivation, willpower, the level of productivity and effectiveness; work quality, innovation and creativity, and employee attitudes towards work. In general, organizational culture is widely used to achieve the goals set (Oyewobi et al., 2016).

In the project-based organization, employees with different skills and jobs have to be integrated into the project. Teamwork is actually needed in the organization because every employee is responsible to produce the best result that will be continued by other employees. Organization consists of several employees in different sections and levels. Conducting organizational activities requires collaboration between all workers in line with their respective goals and responsibilities. The success of a project depends on collaboration by each part and levels of the organization (Assaf et al., 2014).

Knowledge management is needed in project-based organizations, and it is shared from one project to another. It includes the management of all the activities concerning adoption, creation, storage, transfer, sharing and application of knowledge (Centobelli et al., 2019). Chouikha Zouari & Dhaou Dakhli (2018) stated that knowledge management is a concept of organizational practice with a significant effect, not only on gaining competitive advantage but also in contributing to the success and sustainability of the organization in a highly competitive business environment. According to Dahou et al. (2019), knowledge management creates a learning process at several levels in the organization. Well-Designed knowledge management perfects the project and therefore helps companies gain long-term benefits (Chao, 2017).

Nevertheless, most studies on employee performance context focused on organization which run the regular activities but limited studies have been explored on the project-based organization. This study examined the potential influence of organizational culture and knowledge management on employee performance and how teamwork can foster it that will facilitate them to the organization in a competitive position for finishing the projects well, survive and sustain. The importance of this study emanates from its aims which are to:

1. Review the antecedents of employee performance
2. Assess factors that influence the employee performance on project-based organization
3. Explore the relationship of each factor to the employee performance
4. Examine the findings to some theoretical underpinnings to facilitate strategic managerial approach to fostering it in the organization.

In this context, the study is structured as: section one is introduction. Section two presents the review of related latest literatures as the main references of each variable. While section three explains the research model for hypotheses and data collection process. Section four analyses data and discusses the research findings to examine hypotheses. Conclusion, limitations and suggestions for future researches are taken place in last section.

## **LITERATURE REVIEW**

### **Employee Performance**

Performance measurement can be used in rewarding employees and it is perceived as an imperative component of strategic human resource management (Stojadinovic et al., 2014). Employee performance is built on the “*Iron Triangle*” consisting of cost, time, and quality. Generally, cost and time are measured based on the percentage deviations of work from the initial plan, while quality is determined through suitability of work results with regards to contractual agreements and technical standards. According to Unterhitzenberger & Bryde (2018), lack of focus on time, cost, and quality limits employee performance by influencing actions and decisions.

Performance in project-based organizations is shown by the quantity and quality of employees with reference to time management, which is determined by job responsibilities. It can be measured through selected indicators that focus on coordinating and communicating with members of the project organization, planning and execution process, and understanding the responsibilities involved project implementation.

## **Organizational Culture**

Hofstede & Hofstede (2005) define culture as a joint program of thought patterns that distinguish or categorize members of a group and one person from another. It is expressed in different forms in an organization, starting from attitude to shared values (Yazici, 2011). Project-based organizations have a pattern of reciprocal relationships, authority, and responsibility between contributors, including clients, supervision, and contractors, to achieve project goals. However, a project-based organization is carried out by individuals from diverse backgrounds. Therefore there are different human behaviors and expectations on the projects implemented.

In project management practices, culture needs to be treated as an essential aspect of controlling conflict, increasing quality results, and driving innovation. It needs to align the goals and objectives of the organization with the individuals involved. This is believed to reduce conflict, improve communication and coordination, and increase the ease of achieving project objectives (Nguyen & Watanabe, 2017). Organizational culture helps organizations to be more stable, advanced, and anticipatory to environmental changes (Maith, 2015). It plays a crucial role in the organization by helping to achieve success and creating job satisfaction (Goyal & Goyal, 2014). It is measured by a climate of caring, flexibility, and sensitivity to customers.

## **Teamwork**

According to Hanaysha (2016), teamwork positively and significantly influences company decisions. It makes the environment conducive and motivates employees to work as desired and certainly increases performance, autonomy, and job satisfaction.

Collaboration in an organization is characterized by mutual help, coordination, a joint approach, open communication, and friendliness (Busseri & Palmer, 2000). Aveling et al. (2018) established that poor team behavior has a sensitive effect on performance, leading to poor events and results. Similarly, Symons et al. (2012) established that good teamwork reduces the poor events in the division of tasks, even though it is not only limited to it.

Teamwork is needed in project-based organizations since successful projects depend on interactions between individuals. Stapley (2018) stated that teamwork in project-based organizations improves communication, share knowledge, team ties, and make project members enthusiastic about implementing the projects. It consists of factors that form a psychosocial environment, providing a sense of inclusion and emotional support to project members.

According to Wu et al. (2019), the diversity of organizational members, consisting of knowledge, experience, and values, positively supports the success of a project. However, teamwork is needed to create a synergy from the start of the project to the completion. Teamwork can be measured through communication, member diversity, leadership, roles, and responsibilities.

## Knowledge Management

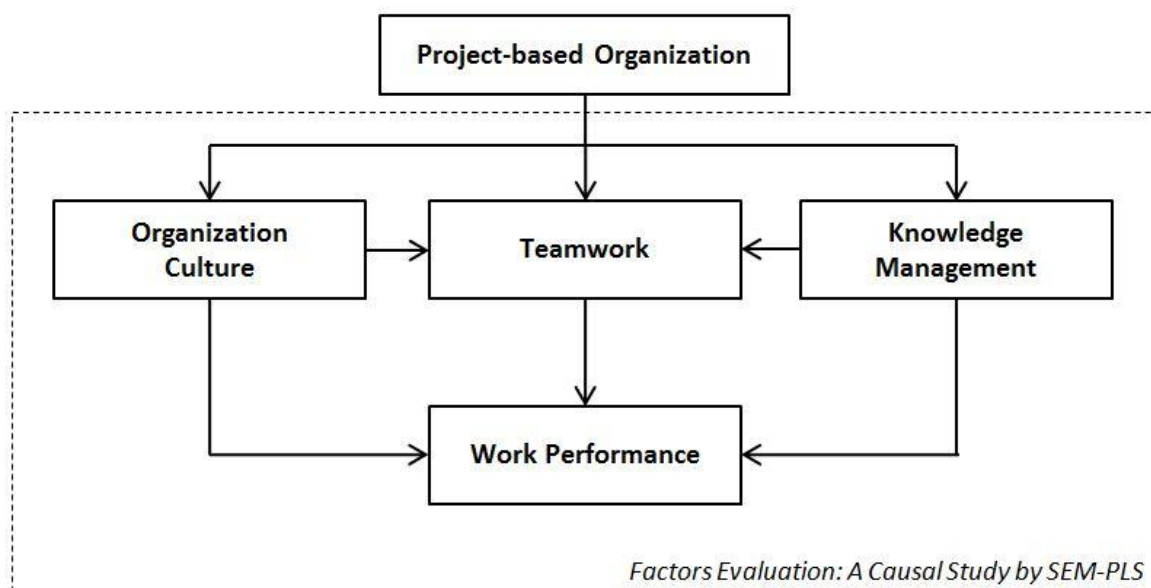
Knowledge management is a systematic approach of capturing, organizing, managing, and disseminating knowledge within an organization to work faster, reuse best practices, and reduce expensive rework from one project to another (Nonaka & Takeuchi, 1995; Paternack & Viscio, 1998; Pfeffer & Sutton, 1999; Ruggles & Holtshouse, 1999). However, according to Ajay & Moreno (2015), knowledge management needs to be supported by appropriate strategies, structures, systems, culture, and human resource management to codify and explicitly increase organizational effectiveness.

Knowledge management is needed in an organization since knowledge is an asset and a resource for creating value for the company. It is dynamic and needs to be built by internal organizations. Nonaka et al. (2000) stated that knowledge is an asset of direct experience by members of the organization, conceptual assets derived from explicit, systemic assets in the form of systematized technology, and routine assets that arise naturally in organizational actions and practices.

In project-based organizations, knowledge management aims to increase organizational effectiveness through the controlling and sharing of knowledge. In general, knowledge is shared from an individual to the organizational level and can be measured through four indicators, including socialization, externalization, combination, and internalization.

## RESEARCH MODEL

This research was carried out in Bakrie Construction, an industry in Indonesia with a project-based organization. It evaluates three variables, including organizational culture, teamwork, and knowledge management, and explains the relationship between variables and employee performance (Figure 1).



**FIGURE 1**  
**RESEARCH MODEL**

From the research model, a theoretical framework (Figure 2) that shows the relationship between indicators that support variables (X) between variables and employee performance (Y) was formed.

$H_1$       *Organizational culture has a significant effect on performance*

$H_2$       *Teamwork has a significant effect on performance*

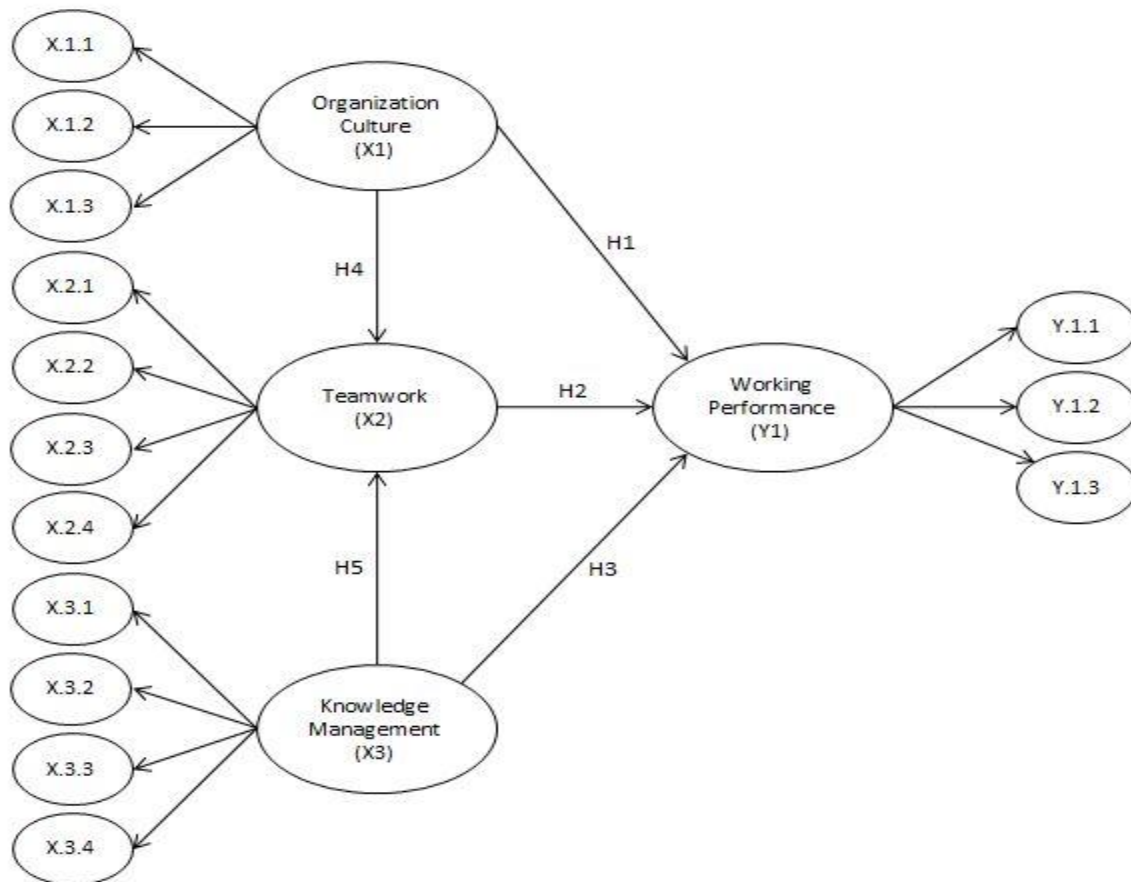
$H_3$       *Knowledge management has a significant effect on performance*

$H_4$       *Organizational culture has a significant effect on teamwork*

$H_5$       *Knowledge management has a significant effect on teamwork*

$H_6$       *Organizational culture has a significant effect on performance through teamwork*

$H_7$       *Knowledge management has a significant effect on performance through teamwork*



**FIGURE 2**  
**THEORETICAL FRAMEWORK**

This was a quantitative research which collected primary data through interviews and questionnaires from 150 employees. Secondary data were obtained from the literature on theories relevant to the study. Respondents were selected using proportionate stratified random sampling techniques considering the heterogeneity of the population. There was one endogenous variable in the formulation of the problem, which is employee performance ( $Y_1$ ), and three exogenous variables including organizational culture ( $X_1$ ), teamwork ( $X_2$ ), and knowledge management ( $X_3$ ). The relationship between variables was determined using the Structural Equation Modeling (SEM) analysis model with the Partial Least Square (PLS) approach.

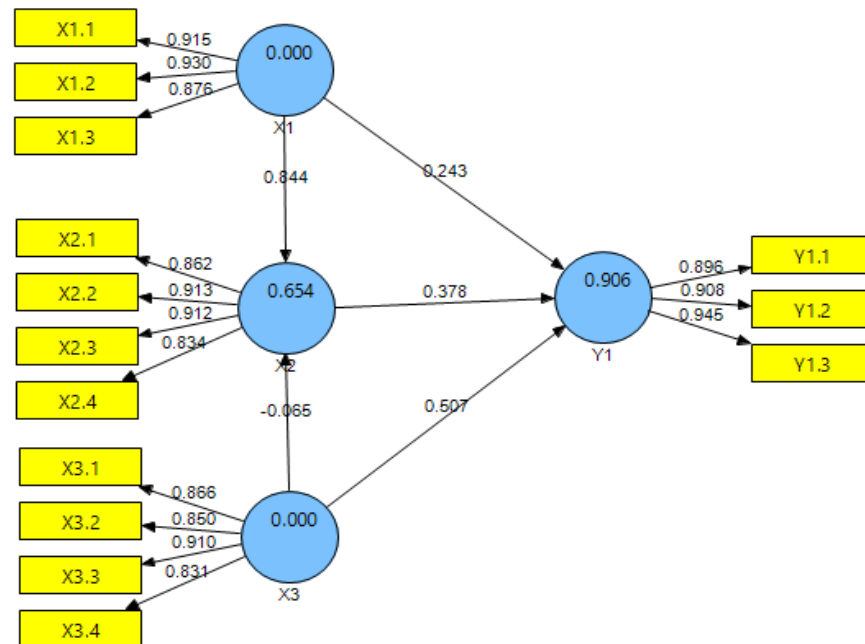
Each research variable was formed from several indicators (Table 1). Each indicator was formulated into questions in the questionnaires tested for validity and reliability. There are 27 questions from 3 indicators to collect data of employee performance, 23 questions from 3 indicators of organizational culture, and data for teamwork and knowledge management are collected from 20 questions each from their 4 indicators. A validity test using the Pearson Product Moment correlation technique was conducted to ensure each question on the questionnaire would be able to reveal the condition of a variable to be measured. The reliability test using the Cronbach Alpha coefficient was carried out to measure the consistency of each question on the questionnaire repeatedly.

<b>Table 1</b> <b>INDICATOR OF RESEARCH VARIABLES</b>			
No.	Variable	Indicator	Code
1.	Employee Performance	Coordination and communication between project participants	Y.1.1
		Planning and execution process	Y.1.2
		Understanding of responsibilities	Y.1.3
2.	Organizational Culture	Climate of care	X.1.1
		Flexibility	X.1.2
		Sensitivity to customers	X.1.3
3.	Teamwork	Communication	X.2.1
		Diversity of team members	X.2.2
		Project team leadership	X.2.3
		Team roles and responsibilities	X.2.4
4.	Knowledge Management	Socialization	X.3.1
		Externalization	X.3.2
		Combination	X.3.3
		Internalization	X.3.4

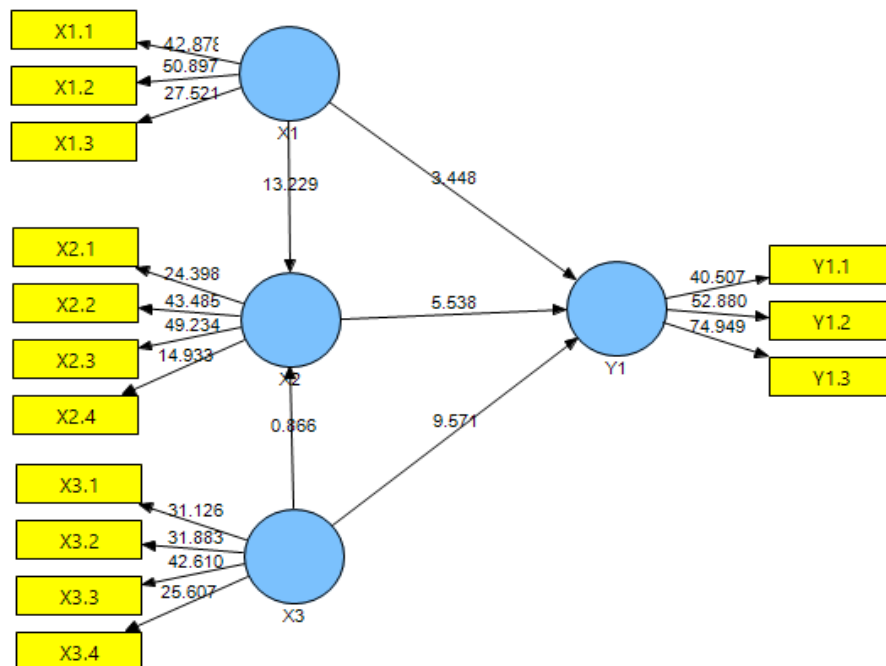
There were three stages in the Partial Least Square (PLS) analysis, including inner model analysis, outer model analysis, and hypothesis testing. The inner model analysis was carried out to ensure the research model is accurate, shown through the coefficient of determination ( $R^2$ ), predictive relevance ( $Q^2$ ), and goodness of fit index (GoF). Outer model analysis ensured the research model was feasible and reliable for use as a measurement tool, through the validity of convergent, discriminant, and unidimensionality. Hypothesis testing was conducted to assess and examine the significance of each hypothesis in the structural path of the research model.

## DATA ANALYSIS AND FINDINGS

The collected data is processed to test the model and hypothesis, as shown in Figures 3 and 4. Table 2 compares the value of each correlation in the expected model.



**FIGURE 3**  
**MODEL TESTING RESULTS**



**FIGURE 4**  
**HYPOTHESIS TESTING RESULTS**

Table 2 COMPARISON OF TEST RESULTS FROM MODELS AND HYPOTHESES				
Hypothesis	Correlation	Original Sample (O)	Standard Error (STERR)	T Statistics (O/STERR)
H <sub>1</sub>	X <sub>1</sub> → Y <sub>1</sub>	0.2430	0.0429	3.4480
H <sub>2</sub>	X <sub>2</sub> → Y <sub>1</sub>	0.3779	0.0682	5.5375
H <sub>3</sub>	X <sub>3</sub> → Y <sub>1</sub>	0.5070	0.0497	9.5710
H <sub>4</sub>	X <sub>1</sub> → X <sub>2</sub>	0.8441	0.0638	13.2289
H <sub>5</sub>	X <sub>3</sub> → X <sub>2</sub>	-0.0652	0.0753	-0.8657
H <sub>6</sub>	X <sub>1</sub> → X <sub>2</sub> → Y <sub>1</sub>	0.3190	0.0660	4.8330
H <sub>7</sub>	X <sub>3</sub> → X <sub>2</sub> → Y <sub>1</sub>	0.0246	0.0720	-0.4340

### The Effect of Teamwork on Performance

The test results show that X<sub>2</sub> has an original sample estimate score of 0.3779 with a t-statistic value of 5.5375, which is greater than 1.960 for a significance of less than 5%. This means the second hypothesis (H<sub>2</sub>) is accepted, which is the teamwork variable (X<sub>2</sub>) has an effect of 0.3779 on performance (Y<sub>1</sub>) is accepted. This is in line with Larsson et al. (2018) assertion that project organizations need to be conducted by groups for excellent performance, which result from strict planning and control. Likewise, Assaf et al. (2014) established that the success of a project was strongly associated with effective teamwork. High-performing organizations have clearly defined roles and can be understood by every employee.

### The Effect of Knowledge Management on Performance

The test results show that X<sub>3</sub> has an original sample estimate score of 0.5070 with a t-statistic value of 9.571, which is greater than 1.960 for a significance of less than 5%. This means the third hypothesis (H<sub>3</sub>) is accepted, which is knowledge management (X<sub>3</sub>) has an effect of 0.5070 on performance (Y<sub>1</sub>). These results are in line with Kianto et al. (2019), which stated that knowledge management influences workers' knowledge productivity significantly but does not depend on gender, managerial position, and level of education. Ajay & Moreno (2015) also stated that knowledge management is part of strategic planning since employees needs direction, feeling more aligned, and connected with organizational goals.

### The Effect of Organizational Culture on Teamwork

The test results show that X<sub>1</sub> has an original sample estimate score of 0.8441 with a t-statistic value of 13.2289, which is greater than 1.960 for a significance of less than 5%. This means the fourth hypothesis (H<sub>4</sub>) is accepted, which is organizational culture (X<sub>1</sub>) has an effect of 0.8441 on teamwork (X<sub>2</sub>). These results confirm Yazici's (2011) assertion that teamwork strengthens organizations and produce sustainable competitive advantages by completing projects on time, following the budget, and with satisfactory results. According to Supriyatin et al. (2019), organizational culture determines the way a person behaves, including the leadership style that influences teamwork.

### The Effect of Knowledge Management on Teamwork

The test results show that X<sub>3</sub> has an original sample estimate score of -0.0652 with a t-statistic value of -0.8657, which is lower than 1.960 for a significance of less than 5%. This



means the fifth hypothesis ( $H_5$ ) is rejected, which is knowledge management ( $X_3$ ) does not affect teamwork ( $X_2$ ). Unlike research in non-project-based organizations, knowledge management does not affect teamwork in project-based organizations (Khanghahi, 2014; Babnik et al., 2014; de Assis Bastos & de Mello Cordeiro, 2016).

### **The Effect of Organizational Culture on Performance through Teamwork**

The test results show that  $X_1$  has an original sample estimate score of 0.3190 with a t-statistic value of 4.8330, which is greater than 1.960 for a significance of less than 5%. This means that the sixth hypothesis ( $H_6$ ) is accepted, which is organizational culture ( $X_1$ ) has an effect of 0.3190 on performance ( $Y_1$ ) through teamwork ( $X_2$ ). This is in line with findings from Ghorbanhosseini (2013), which stated that human resources could mediate organizational culture with teamwork, organizational development, and commitment. Teamwork improves individual and collective learning that affects performance (Saad & Abbas, 2018).

### **The Effect of Knowledge Management on Performance through Teamwork**

The test results show that  $X_3$  has an original sample estimate score of -0.0246 with a t-statistic value of -0.4340, which is lower than 1.960 for the significance of less than 5%. This means the seventh hypothesis ( $H_7$ ) is rejected, which is knowledge management ( $X_3$ ) does not affect performance ( $Y_1$ ) through teamwork ( $X_2$ ). These results do not confirm Jamshed et al. (2018), which stated that to create performance, all members of the organization are encouraged to exchange knowledge, opinions, paradigms, and expertise. Teamwork is the solution of a system since it involves not only members of the organization at the team level, but also individuals, functional departments, organizations, a community of practice, and interactions (Sapsed et al., 2002).

## **DISCUSSION, CONCLUSIONS, AND IMPLICATIONS**

Organizational culture significantly influences performance in a project-based organization. Therefore, there is a need to create organizations concerned with management and employees, providing work flexibility, and instill employee care for customers.

Teamwork created in project-based organizations encourages employee performance. There is a need to establish clear communication among diverse members and provide measurable roles and responsibilities for each employee. Leadership in project-based organizations also determines teamwork.

Knowledge management needs to be managed properly, particularly when socializing a job, externalizing knowledge, combining, and internalizing it. Proper knowledge management drives employee performance in project-based organizations. Teamwork is not formed because of direct knowledge management but by organizational culture. Therefore regular meetings are needed to discuss the developments, constraints, and improvements.

The research has some limitations. Initially, there are only three variables to evaluate the employee performance. Its finding shows that only two variables, organizational culture and teamwork, that influence to employee performance. Nevertheless, knowledge management does not as an influence factor to employee performance. To have more accurate findings, future researches can develop with other variables. Another limitation of this research is the measurement of variables agility, which might involve subjectivity and different in other project-

based organizations. Therefore, in next research, data can be enlarged to some similar organizations.

## REFERENCES

- Ajay, K., & Moreno, J.A. (2015). Organizational learning, knowledge management practices and firms performance: an empirical study of a heavy engineering firm in India. *The Learning Organization*, 22(1), 1-25.
- Al-Musadieq, M., Nurjannah, N., Raharjo, K., Solimun, S., & Fernandes, A.A.R. (2018). The mediating effect of work motivation on the influence of job design and organizational culture against HR performance. *Journal of Management Development*.
- Assaf, S., Hassanain, M.A., & Mughal, H. (2014). Effectiveness of project teams and their impact on the performance of Saudi construction projects. *Research Journal of Applied Sciences, Engineering and Technology*, 7(24), 5148-5156.
- Aveling, E.L., Stone, J., Sundt, T., Wright, C., Gino, F., & Singer, S. (2018). Factors influencing team behaviors in surgery: A qualitative study to inform teamwork interventions. *The Annals of Thoracic Surgery*, 106(1), 115-120.
- Babnik, K., Širca, N.T., & Dermol, V. (2014). Individuals learning in work teams: Support to knowledge management initiatives and an important source of organizational learning. *Procedia-social and Behavioral Sciences*, 124(0), 178-185.
- Busseri, M.A., & Palmer, J.M. (2000). Improving teamwork: the effect of self-assessment on construction design teams. *Design Studies*, 21(3), 223-238.
- Centobelli, P., Cerchione, R., & Esposito, E. (2019). Efficiency and effectiveness of knowledge management systems in SMEs. *Production Planning & Control*, 30(9), 779-791.
- Chao, G. (2017). 78. Research on Modern Project Management under the Construction of Knowledge Management System. *Boletín Técnico, ISSN: 0376-723X*, 55(19).
- Chouikha Zouari, M.B., & Dhaou Dakhli, S.B. (2018). A multi-faceted analysis of knowledge management systems. *Procedia Computer Science*, 138(1), 646-654.
- Dahou, K., Hacini, I., & Burgoyne, J. (2019). Knowledge management as a critical success factor in developing international companies' organizational learning capability. *Journal of Workplace Learning*.
- de Assis Bastos, F.A.D., & de Mello Cordeiro, J.V.B. (2016). Individual values, teamworking and knowledge management—a systematic literature review. *Caderno PAIC*, 17(1), 281-305.
- Ghorbanhosseini, M. (2013). The effect of organizational culture, teamwork and organizational development on organizational commitment: The mediating role of human capital. *Tehnički Vjesnik*, 20(6), 1019-1025.
- Goyal, D., & Goyal, R. (2014). The impact of organizational culture and climate on employee job satisfaction: a case study of ATC. *International Journal of Business Quantitative Economics and Applied Management Research*, 1(5), 89-103.
- Hanaysha, J. (2016). Examining the effects of employee empowerment, teamwork, and employee training on organizational commitment. *Procedia-Social and Behavioral Sciences*, 229(298-306), 298-306.
- Hofstede, G., & Hofstede, G. (2005). *Jan 2005, Cultures and organizations: software of the mind* (Revised and expanded 2nd ed.).
- Jamshed, S., Nazri, M., Abu Bakar, R., & Majeed, N. (2018). The Effect of Knowledge Sharing on Team Performance through Lens of Team Culture. *Oman Chapter of Arabian Journal of Business and Management Review*, 34(6112), 1-17.
- Khanghahi, M.E. (2014). On the relationship between teamwork and supporting knowledge management. *Science Journal of Business and Management*, 123-130.
- Kianto, A., Shujahat, M., Hussain, S., Nawaz, F., & Ali, M. (2019). The impact of knowledge management on knowledge worker productivity. *Baltic Journal of Management*.
- Larsson, J., Eriksson, P.E., & Pesämaa, O. (2018). The importance of hard project management and team motivation for construction project performance. *International Journal of Managing Projects in Business*.
- Maith, V.M. (2015). Education, motivation and organizational culture analysis of employee performance in the gate of nusa perkasa manado. *Periodical Journal of Scientific Efficiency*, 15 (5).
- Nguyen, L.H., & Watanabe, T. (2017). The impact of project organizational culture on the performance of construction projects. *Sustainability*, 9(5), 781.
- Nonaka, I., & Takeuchi, H. (1995). *The Knowledge Creating*. New York, 304.

- Nonaka, I., Toyama, R., & Konno, N. (2000). SECI, Ba and leadership: a unified model of dynamic knowledge creation. *Long range planning*, 33(1), 5-34.
- Oyewobi, L.O., Abiola-Falemu, O., & Ibironke, O.T. (2016). The impact of rework and organisational culture on project delivery. *Journal of Engineering, Design and Technology*.
- Paternack, B.A., & Viscio, A.J. (1998). *The centerless corporation: A new model for transforming your organization for growth and prosperity*. Simon & Schuster.
- Pfeffer, J., & Sutton, R.I. (1999). Knowing what to do is not enough: Turning knowledge into action. *California Management Review*, 42(1).
- Ruggles, R., & Holtshouse, D. (1999). The Knowledge Advantage, Capstone.
- Saad, G.B., & Abbas, M. (2018). The impact of organizational culture on job performance: a study of Saudi Arabian public sector work culture. *Problems and Perspectives in Management*, 16(3), 207-218.
- Sapsed, J., Bessant, J., Partington, D., Tranfield, D., & Young, M. (2002). Teamworking and knowledge management: a review of converging themes. *International Journal of Management Reviews*, 4(1), 71-85.
- Stapley, L.F. (2018). *Individuals, groups and organizations beneath the surface: An introduction*. Routledge.
- Stojadinovic, Z., Marinkovic, D., & Ivkovic, B. (2014). Human resource performance measurement framework for construction projects and companies. *Technical Gazette*, 21 (1), 69-78.
- Supriyatin, I. Putrawan & Suryadi (2019). The role of leadership as mediated factor between teamwork and communication with employees' organization culture. *International Journal of Innovative Technology and Exploring Engineering*, 8(6), 131-136.
- Symons, N.R., Wong, H.W., Manser, T., Sevdalis, N., Vincent, C.A., & Moorthy, K. (2012). An observational study of teamwork skills in shift handover. *International Journal of Surgery*, 10(7), 355-359.
- Unterhitzenberger, C., & Bryde, D.J. (2019). Organizational justice, project performance, and the mediating effects of key success factors. *Project Management Journal*, 50(1), 57-70.
- Vilasini, N., & Neitzert, T.R. (2012). Improving project performance through worker participation in alliance projects. In *twenty-eighth annual conference 2012 September 3-5*.
- Wu, G., Zhao, X., Zuo, J., & Zillante, G. (2019). Effects of team diversity on project performance in construction projects. *Engineering, Construction and Architectural Management*.
- Yazici, H.J. (2011). Significance of organizational culture in perceived project and business performance. *Engineering Management Journal*, 23(2), 20-29.