Organization Culture Correlation on Information Technology Investment by Level Management

Galih Khairulfalah Sayono[(✉)] and Apol Pribadi Subriadi

Sepuluh Nopember Institute of Technology, Surabaya, Indonesia
galihkfs@gmail.com

Abstract. One form of implementing the information systems strategy is to invest in information technology (IT). One of the consideration that is often overlooked by top management in making decisions regarding IT investment is the aspect of organizational culture. This study aims to explore the characteristics and role of organizational culture in the perspective of each level of management on IT investment in the company. The initial data collection was carried out using the Organizational Culture Assessment Instrument (OCAI) framework given to 27 respondents to obtain an alternative organizational culture that was running, then a qualitative approach was carried out to determine organizational culture and its role in IT investment. The informants in this study were the General Manager, Procurement Manager, Network Operation Center (NOC) Manager, and Invoice Manager at PT Proxis Sahabat Indonesia. After analyzing using the Nvivo 12 application, it was found that the organizational culture perspective that emerged at each management level had a clan culture type. So that in making IT investments the decisions taken can accommodate every need from each level of management. Further research can use multinational companies to get more cultural diversity. Further research can also use a quantitative or mix-method approach to obtain a more diverse conceptual model.

Keywords: Organizational Culture · OCAI · Information Technology Investment

1 Introduction

It will be very profitable for companies in the digital era and current global conditions if they can take advantage of technological developments properly. For this reason, the essential thing a company can do to compete is to develop an appropriate and efficient strategy based on the company's needs and capabilities. Strategic planning is defined as the process by which the organization determines and sets long-term goals and is a strategy to achieve them while considering internal and external environmental variables [1]. Effective strategic planning must clearly define the organization's mission and goals as the basis of reference in the company's broad strategic plan. In preparing the company's strategic plan, the company must be able to identify the characteristics, including

the culture or organizational climate that runs at every level of management, so that the strategic plan can be adapted, implemented efficiently, and achieve company goals efficiently.

Corporate culture is a pattern that refers to a shared system that is used as a guide in behavior [2]. Culture becomes a person's impetus to behave and respond to certain conditions in the company. Organizational culture is vital in determining the organization's direction and goals and can improve company performance [3]. Organizational culture is one of the determining factors for the success of a performance in the organization [4]. A strategic plan that is prepared, it does not always require a change in culture within the company even though it has human resources who master technology and high capabilities. However, it is possible that a strategic plan in an organization is also needed that requires a change in organizational culture to improve company performance [5].

Culture plays a role as a guideline or basic reference for everyone in a company, so everyone can have similarities and differences in interpreting the organizational culture they experience. Each level of company management has its plan for achieving company goals, so there may be differences in perceptions of the acceptance of organizational culture at each level of management. In some cases, the role of top management and organizational culture influence the company's performance [6, 7].

In improving company performance, many considerations and perspectives are needed, one of which is information technology (IT) investment. With the development of information technology which is quite fast today, modern company operations and management activities already depend on information technology [8, 9], so companies need to invest in IT to gain a competitive advantage [9]. Decision-making related to information technology investment is the authority and responsibility of Top level management. All employees in the company will carry out this decision. In every process that is passed so that every employee is able to survive in the company environment, the role of corporate culture is crucial [10].

Problems that arise in the process of drafting, screening aspirations and making final decisions on strategic plans often forget the important factor, namely the human aspect. The human aspect is related to the culture adopted by the company. The culture adopted determines the solutions that are built to solve the various problems encountered. Therefore, the cultural aspect is needed as input and consideration in building strategic plans to improve company performance. Based on the description above, the researcher tries to present qualitative empirical data and answer how the relationship between organizational culture is at each level of perception of company management, with information technology investments made and their influence on organizational performance.

Some of the previous studies below are related and become the main reference in this research. Ningsi and Subriadi (11) research entitled Mapping Portfolio IT Investment by Perception Level Management and IT Investment toward Organizational Performance. In their research, they mapped information technology investments made in the people's credit business by looking at the differences in perceptions at each level of management [11]. Asfari and Subriadi (12) entitled The Influence of Bapakism Culture and Maturity of Information Technology Portfolio Management on Company Performance. This study discusses Indonesia's local culture, which influences the company's performance. Bapakism is a culture of a culture that describes a complex system of a group that is

relatively very personal and reciprocal among each other, and this culture is the majority of Javanese people's life (Jackson, 1978 in Asfari, 12) [12]. Amar and Romdhane (13) in Organizational Culture and Information Systems Strategic Alignment: Exploring the Influence Through Empirical Study from Tunisia. This study aims to explore in depth the influence of organizational culture on the alignment of information system strategies, where the types of organizational culture used in this study use the type of organizational culture developed by Cameron et al. (2006). This study found that the type of organizational culture and clan positively influence the adjustment of information systems strategy [13].

2   Research Methods

This research uses a qualitative approach to conduct preliminary collecting of data using the OCAI framework. To determine the characteristic of the organizational culture that runs in the organizations. This research method aims to understand how organizational culture can affect any decisions about IT investments.

2.1   Data Collection

The researcher will collect the data by interviewing the organizational culture that works in the organization and the role of organizational culture in every decision about IT investment. The characteristic of the informant that the researcher used in this research was:

a. Informants must have a role and responsibility in IT investment that is applied to the company or organization.
b. Informants must have a role in making the decision on IT investment in the company or organizations.
c. Informants know the company's capabilities and need to remain competitive with other competitors.
d. Informants know the culture that runs the company.

Regarding those qualifications, the informants interviewed in this research were the General Manager, Procurement Manager, Manager Network Operation Center, and Manager Invoice.

To gather the preliminary data, researchers ran a questionnaire based on the OCAI framework and gathered some respondents representing every management level. There are no qualifications needed in terms of filling out the questionnaire.

2.2   Data Analysis

After collecting all the needed data, the researchers run data analysis. In qualitative research, the collected data can be described using spiral analysis. The process starts with organizing and managing data, recording data, classifying and encoding data into codes and nodes, and representing data and research findings.
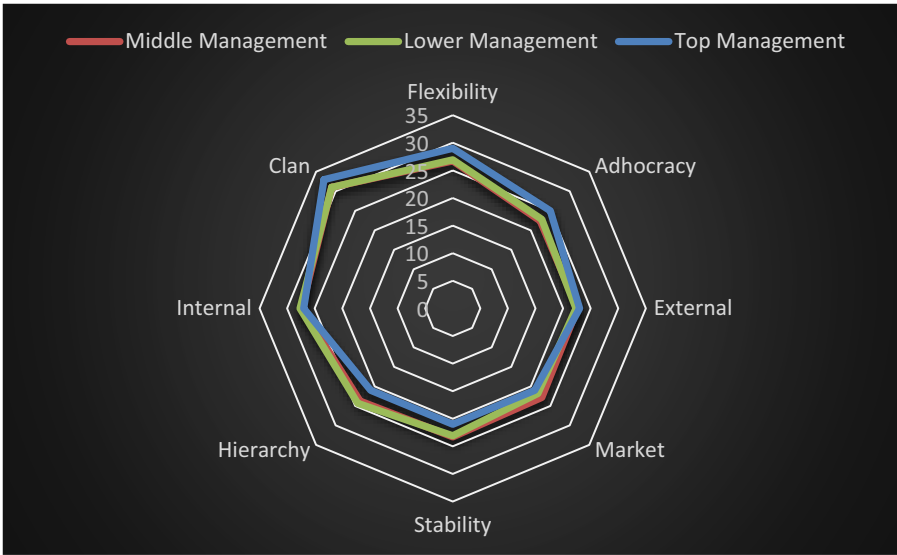
Fig. 1. Organizational Culture in PT Proxis Sahabat Indonesia

Regarding the data collected from interviews in audio form, the researchers will convert the audio data into interview data transcripts. Then making, interview quotes by sorting the statement from every answer by the informants. The encode or coding process is the key in qualitative research analysis. In this step of the proses, the researchers will create codes and nodes by identifying the data and information collected in the previous step. The whole process of data analysis conducted by the researchers is being run in Nvivo 12 Pro.

2.3 Checking the Data Validity

Checking the validity of research data is a must in a study. Likewise, quantitative research, checking the validity of the qualitative research, must also be performed. Several techniques need to be done in qualitative research based on some criteria. These techniques are credibility, transferability, dependability, and confirmability.

a. Credibility Test

In qualitative research, a credibility test can be done by triangulation data. Researchers triangulated using the Nvivo 12 Pro software at the source triangulation stage.

Source triangulation was carried out in interview 1 and interview 2. Based on the results of source triangulation carried out with Nvivo software, it was obtained as shown in Fig. 2. In source triangulation, the Pearson correlation coefficient value is 0.6174

The triangulation stage of the technique is carried out by re-interviewing the interviewees with different questions to ensure that the answers given by the informants are valid. Researchers also took data at different times ad places.

Table 1. Triangulation test using NVivo Pro 12

File A	File B	Pearson correlation coefficient
Files\\Interview 2 (2)	Files\\interview 1	0.823064

b. Transferability Test
   A transferability test is conducted to gain an understanding that the research can be understood and re-applied in other cases. In the research that the researcher did, the research results were in the form of this report with the hope that the results could be transferred and implemented in other companies or organizations with comparable characteristics. The characteristics possessed by the company or object in this research have characteristics in the form of the application of clan organizational culture that has been able to be felt and implemented well in the company.

c. Dependability Test
   The test of dependability or dependence in qualitative research is carried out by conducting an audit of the entire research process that has been carried out. In preparing the research results, the researchers conducted consultations and discussed with the supervisors of the researchers in stages. Evidence from notes during interviews can be used as a tool for analyzing research results

d. Confirmability Test
   The confirmability test in qualitative research can be said to be a test of research objectivity. In qualitative research, it is said to be objective if many people have agreed upon the results of the research. The findings related to culture running at PT Proxis Sahabat Indonesia were confirmed by several company managers, and the results of writing related to the role of culture in information technology investment were confirmed by the company's general manager. While in the research process, it is confirmed through the supervisor. One of the processes in obtaining research results is by analyzing data using Nvivo 12 Pro.

3   Results and Discussion

After collecting and analyzing the data by coding the data and information, the researcher will elaborate on the finding in this section.

In Fig. 1, clan-type organizational culture has a higher tendency than other organizational cultures. Clan-type organizational culture creates a collaborative work environment and is actively involved in every activity, conveying ideas and providing opinions for the better progress of the company.

Organizational culture creates a frame of reference in designing a company's organizational structure. Organizational culture is structured to influence and play a role in every level of management. In a company, it must show that at a certain level, there are different perspectives in seeing the work pattern in the company. The research conducted by Keeton and Mengistu resulted in the role of culture in influencing perspectives at the management level. The results of data collection conducted by researchers on the
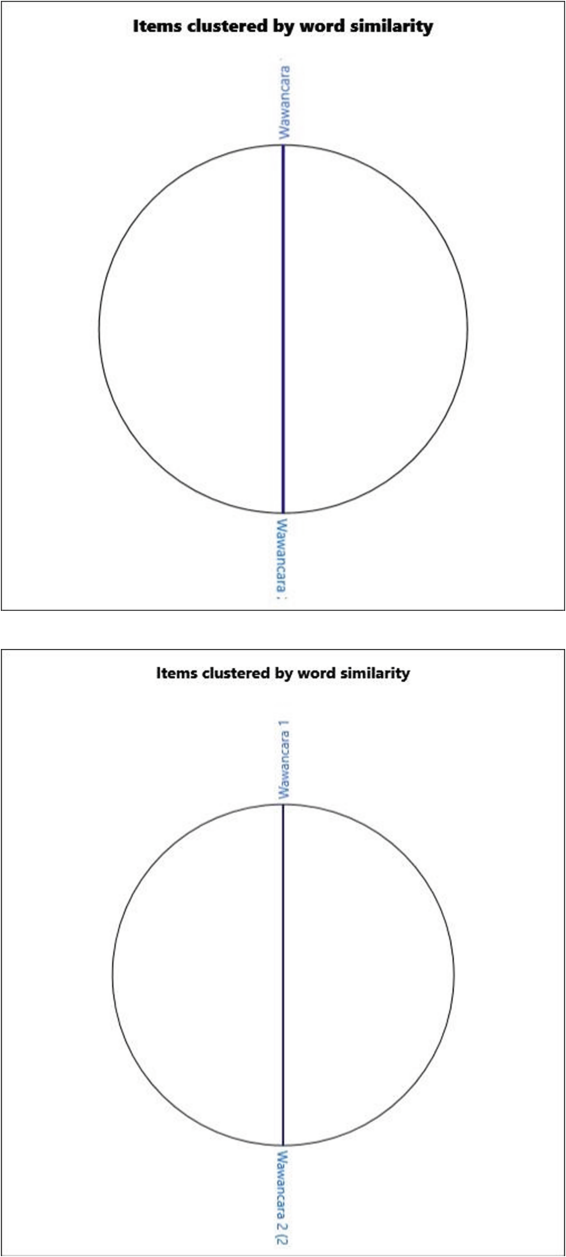
Fig. 2. Source Triangulation

selected object, namely PT Proxis Sahabat Indonesia, show that several things play a role in the management level perspective.

Organizational culture has an influence on the perspective of each level of management, shown by how communication runs in a company, how the communication flow is applied, and the time flexibility provided by each level of management to the levels below it to communicate with each other. This can also be shown when a problem arises in lower management and how the middle and top management solve the problem. This research shows that with the existence of a familial culture that runs in an organization, the communication that appears within the company will be more relaxed and flexible so that differences in perceptions between management levels are not too visible.

In IT, investments made by a company depend on the decisions made by certain individuals/individuals. In making decisions, each individual must have various considerations that need to be analyzed, and a mindset develops in every action that arises from the culture around him. The organizational culture that develops in a company has an influence on profit and non-profit companies (Asfari, 12) in the decision-making process. In this research, the data obtained from the object of PT Proxis Sahabat Indonesia shows several considerations in making investment decisions, including organizational culture, IT investment analysis, and IT investment objectives. Of the three things, organizational culture and analysis of IT investment information have the largest percentage submitted by informants. And the goal of IT investment is the last thing to be considered in making decisions related to IT investment.

IT investment decision-making always prioritizes information analysis that needs to be done. So PT Proxis Sahabat Indonesia always involves every level of management in decision making and prioritizes employee needs analysis without turning a blind eye to analyzing costs, risks, and benefits from IT investments before making the final IT investment decision. Another consideration that needs to be made in making IT investment decisions is the purpose of the IT investment itself. The purpose of IT investment is always an initial consideration and needs to be considered by every decision-making stakeholder. In this study, researchers found that the purpose of IT investment is one of the considerations in making IT investments in the object of research. The purpose of a company in making IT investment decisions is to consider that the IT investment made is able to increase the efficiency and effectiveness of the work of its employees.

This study found that there is some influence of an organizational culture that runs in the company that will affect in company. The effect that can be seen is how the employee can more easily throw the idea they have. Adapting to the organization's culture means that there is an opportunity for every employee to involve in every decision made by the company. From that opportunity, the company can get more insight about what they need to develop to help them achieve their goals.

3.1   Organization Culture Affects on the Perspective of Level Management

From the analysis of the initial data collection, a graph like the one above is obtained that runs in the company. These findings indicate that the culture that runs the company is a clan-type organizational culture that employees at every level of management have deeply felt. The findings also show that the values and characteristics brought by the company's leaders can be implemented for every individual in the company.

So that the cultural differences gap that appears is not too prominent and is able to foster a very good working atmosphere to support the achievement of company performance, this concludes that in the course of an organization that applies clan culture (family) and is able or successfully applied in a company, the perspectives that appear in every management level have the same tendency.

3.2 Organization Culture Affects Information Technology Investment

The culture within a company or organization becomes an unwritten rule that can develop a mindset and work pattern within a company. Organizational culture also has a role in IT investment in a company. Companies that have an organizational culture with a very high Clan culture type and can be felt by all levels of IT investment management will prioritize it based on a needs analysis. This is in accordance with what has been conveyed by the informants, that when every level of management has felt the clan culture, investment decisions are based on an analysis of the needs and urgency of IT investment. When an employee is able to provide an overview and explanation of the proposed needs, investment decisions can be made quickly. And vice versa, when the IT investment proposed by an employee is not capable, and from the point of view of top management as the decision maker does not have the urgency of this need, the decision to reject the IT investment can also be quickly taken. Seeing this, the company with a high clan culture type has high flexibility when it comes to investing in IT. This study shows that the Clan-type organizational culture puts forward the common need to invest in IT.
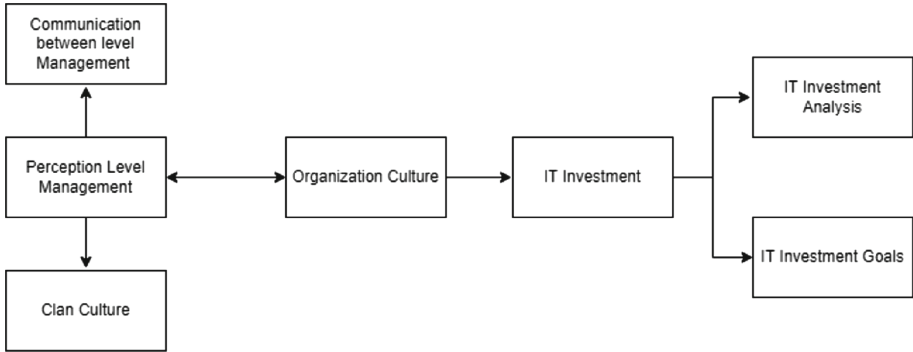
The fact found by researchers is that organizational culture plays a very important role in every aspect of activities in the company. It is undeniable that culture has a role in IT investment in the company. Organizational culture plays a role in IT investment decision-making in the company. Through the culture that runs in a company, the communication needed between management levels to design, analyze and decide on all forms of investment can reduce or even increase the efficiency and effectiveness of the time required. Based on these findings, the final research model can be seen in Fig. 4.

4   Conclusion

This research shows that the organizational culture that is carried out affects the company in the pattern of communication between levels of management. The type of organizational culture Clan prioritizes communication that exists kinship in its daily activities, including investing in IT. Every person in a company with an organizational culture type Clan has the same role in proposing IT investment and is involved in the IT investment decision-making process. Organizational culture is run differently in every company depending on many aspects like the goals of the company that the leader brought by the company leader, the size of the company, the leader's behavior, etc. Like IT investments, it has many different factors that can be influenced. Cost, time, value, and even culture can affect the decisions of IT investment in the company.

4.1   Theoretical Contribution

Research conducted by Daen & Sharfman (1996) shows that decision-making in a company and political behavior are two different variables and run in parallel. Both are variables that run simultaneously in the corporate environment. The research conducted by Asfari (12) was able to prove that culture is able to influence rationality in decision-making in profit companies. In this study, we measure culture using six factors that have been compared to Quinn & Cameron's (1983) grand theory of culture. In this research, it is shown that the role of clan-type organizational culture, according to CVF (Cameron et al., 2006), positively influences a company's IT investment decisions. Thus, this research contributes to the expansion o[88 f the existing literature in the IT investment field from a cultural theoretical perspective.

4.2 Practical Contribution

The practical contribution of this research is shown to top level management or decision makers at the PT Proxis Sahabat Indonesia company to develop the potentials that arise in making decisions related to information technology investment. In the analysis of research that has been carried out, it was found that the decisions made by top management at PT Proxis Sahabat Indonesia, especially related to information technology investment, always consider communication between management levels. The organizational culture within a company can be an opportunity for companies to develop insights in decision making at every level of management, accommodate every need, and involve every individual in achieving company goals.

4.3 Limitation and Future Research

In this research, several things become limitations. The case study in this study is a single object already well adapted in organizational culture and has influenced IT investment in the company. This research also uses a single object based on the company that uses IT as support. Further research can make improvements in several ways based on the research limitations. Further research can implement the method used in this research on many companies or organizations that have the same characteristics from the value of the company and using IT as a core. This research focuses on the influence of organizational culture at every level of management on IT investment decisions in the company. Future research can see the influence of organizational culture on IT investment performance.

References

1. [1] I. O. Ugboro, K. Obeng, and O. Spann, "Strategic Planning As an Effective Tool of Strategic Management in Public Sector Organizations: Evidence From Public Transit Organizations," *Adm. Soc.*, vol. 43, no. 1, pp. 87–123, 2011, doi: https://doi.org/10.1177/0095399710386315.
2. [2] D. R. Denison, "Organizational culture: Can it be a key lever for driving organizational change?," in *International handbook of organizational culture and climate*, Chichester: Wiley, 2001, pp. 347–372.
3. C. A. Hartnell, A. Y. Ou, and A. Kinicki, "Organizational culture and organizational effectiveness: a meta-analytic investigation of the competing values framework's theoretical suppositions.," *J. Appl. Psychol.*, vol. 96, no. 4, pp. 677–694, Jul. 2011, doi: https://doi.org/10.1037/a0021987
4. N. Janićijević, "The mutual impact of organizational culture and structure," *Econ. Ann.*, vol. 58, no. 198, pp. 35–60, 2013, doi: https://doi.org/10.2298/EKA1398035J
5. E. ul Mujeeb, M. Masood, and M. S. Ahmad, "Relationship between Organizational Culture and Performance Management Practices: A Case of University in Pakistan," *J. Compet.*, vol. 2011, Dec. 2011.
6. [6] C. Zehir, Ö. G. Ertosun, S. Zehir, and B. Müceldili, "The effects of leadership styles and organizational culture over firm performance: Multi-national companies in istanbul," *Procedia - Soc. Behav. Sci.*, vol. 24, no. December, pp. 1460–1474, 2011, doi: https://doi.org/10.1016/j.sbspro.2011.09.032.
7. [7] H. J. Lee, J. Lee, K. A. Makara, B. J. Fishman, and S. D. Teasley, "A cross-cultural comparison of college students' learning strategies for academic achievement between South Korea and the USA," *Stud. High. Educ.*, vol. 42, no. 1, pp. 169–183, 2017, doi: https://doi.org/10.1080/03075079.2015.1045473.

8. A. Tansel Cetin, M. Aksu, and G. Ozer, "Technology investments, performance and the effects of size and region in Turkish hospitals," *Serv. Ind. J.*, vol. 32, no. 5, pp. 747–771, 2012, doi: https://doi.org/10.1080/02642069.2010.529433.

9. J. Dedrick, K. L. Kraemer, and E. Shih, "Information Technology and Productivity in Developed and Developing Countries," *J. Manag. Inf. Syst.*, vol. 30, no. 1, pp. 97–122, Jul. 2013, doi: https://doi.org/10.2753/MIS0742-1222300103

10. [10] P. S. Chen, D. C. Yen, S. C. Lin, and C. S. Chou, "Toward an IT investment decision support model for global enterprises," *Comput. Stand. Interfaces*, vol. 59, no. January, pp. 130–140, 2018, doi: https://doi.org/10.1016/j.csi.2018.04.001.

11. [11] C. Putthiwanit, "Exploring the impact of organizational culture on employees in multinational enterprise : A qualitative approach," *Procedia - Soc. Behav. Sci.*, vol. 207, pp. 483–491, 2015, doi: https://doi.org/10.1016/j.sbspro.2015.10.118.

12. N. Ningsi, "Pemetaan Portofolio Aplikasi Investasi IT Menurut Persepsi Level Management dan Investasi IT Terhadap Kinerja Organisasi (Studi Kasus : BPR Mustika Utama Kolaka Sulawesi Tenggara)," p. 249, 2017, [Online]. Available: http://repository.its.ac.id/2134/.

13. U. Asfari, *Impact of Culture and Maturity Portofolio Technology on Firm.* 2015.

14. N. Chtourou Ben Amar and R. Ben Romdhane, "Organizational culture and information systems strategic alignment: Exploring the influence through an empirical study from Tunisia," *J. Enterp. Inf. Manag.*, vol. 33, no. 1, pp. 95–119, 2019, doi: https://doi.org/10.1108/JEIM-03-2019-0072.