



Measuring Organizational Culture Influence On Effectiveness Information System Using SEM-PLS

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ABSTRACT

Information System (IS) has become essential for organizations to compete in services that focuses on current technology. The resources invested in IS to provide services and generate better value products and as an enabler in implementing good governance. With the model of DeLone McLean, there is an attempt to measure effectiveness of information systems in higher education. Culture of an organization should also be considered as an enabler in the organization's efforts to achieve the desired performance. With the CVF model an IS Success Model, effectiveness could be modeled. The combined model proposed a model of cultural influence on the effectiveness of IS consisting of 6 and 5 constructs effectiveness of the cultural constructs of Information Quality, System Quality, Service Quality, Usage, and Benefits. Cultural self-constructs consisting of clan, adhocracy, market, and hierarchy. Model evaluation is done by using SEM-PLS. The survey was conducted at university by distributing questionnaires to academic staff, faculty, and students. The model has been evaluated with 6 constructs as forming element model. The result model of the influence of culture on the effectiveness of information systems consisting of 6 constructs the effectiveness of Information Quality, System Quality, Service Quality, Usage, Satisfaction and Effectiveness and the 3 constructs of cultural influences namely Clan, Adhocracy and Hierarchy.

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1. Introduction

Information Systems (IS) has become essential for organizations to be able to compete in an environment that focuses on current technology. Increase the resources invested in infrastructures IS on organization to provide services and generate better value products and as an enabler in implementing good governance[1], [2]. IS measurement of success is a long evaluation step because it consists of a range of measures and dimensions used. One model commonly used in assessing the success of an information system is a success model developed by DeLone information and McLean. The model was named after the model of success they DeLone and McLean information systems[3]. In addition to using the information systems success model of DeLone and McLean, this research uses one dimension provided by the Servqual problem in this research is as follows how to assess the relationship between organizational culture on the effectiveness of information systems [4], in particular, the use of academic information system in higher education. This study is necessary because it is not a bit higher education institutions that allocate funds for the implementation of academic information system so as to provide a comprehensive overview of the culture that is currently running using instruments OCAI (Organizational Culture Assessment Instrument)[5] based on the model CVF (Competing Value Framework)[6]. The research methodology used in this research is an inspired frame of IS Research methodology suggested by Hevner, A study of information systems must have two sides that are relevant to the environment (relevance) and adherence to the existing knowledge base (rigor) as Figure 1[7]. In addition to adapting the way of thinking 'two-sided' framework of Hevner study, the method of Structural Equation Modeling (SEM) was also used as a statistical method for evaluating hypotheses and research model proposed [8].



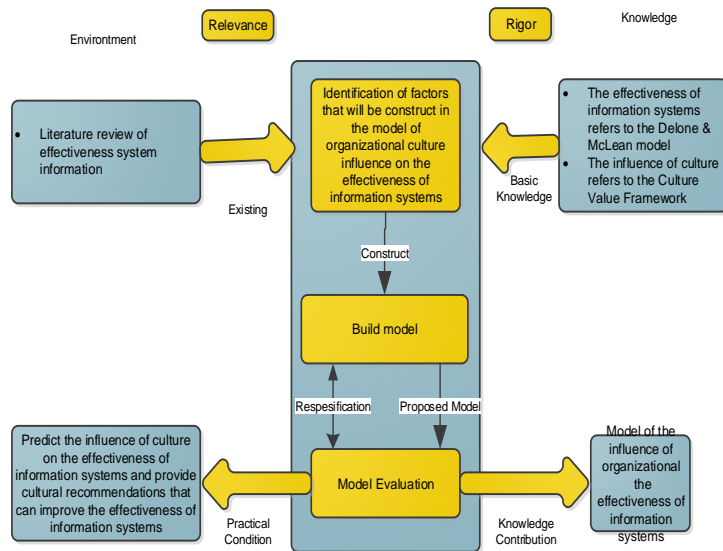


Fig 1. Research Methodology

Referring to the framework of the above study, it can be explained that this study produced a model. The model is built based on the study of the knowledge base and its relevance to the environment. Of the knowledge base, the knowledge or the main concepts that will be the basis of the construction of the model is the concept of the effectiveness of information systems that include performance information system effectiveness from the aspects of quality, usage, and user satisfaction that the object in this study [9]. The reference models such as the DeLone and Mclean Model and CVF with OCAI instruments, as well as the concept of SEM-PLS is needed to evaluate the proposed model[8]. In terms of the environment, it will be identified as the factors that influence the model of cultural influences on information systems are based on survey results and existing research. Of the two sides, it is expected that the model will be made in accordance with the existing knowledge base and relevant to the actual environmental conditions. Model development begins with an analysis to identify the factors that influence the effectiveness of cultural information and then into IT enablers, either both the dominant culture and that is not dominant, and from research on the effectiveness of information system[10]. These factors will then be constructed to build the model. Furthermore, the proposed research model will be evaluated in accordance with the SEM-PLS procedure. SEM-PLS is an alternative that is used to study the model in which the conditions of more than one dependent variable, the data are not multivariate normal[11].The study results are expected from this research is research conducted in this research produces a model. Model of the influence of organizational culture on the effectiveness of the information system will provide benefits that contribute to the benefits of scientific study of the effectiveness of information systems in providing models of organizational culture perspective. Propose a model developed from the IS Success Model DeLone and McLean and Competing Value Framework to be able to provide a more complete understanding of the culture and effectiveness of information systems. Besides providing practical benefits to predict the influence of culture on information systems and the impact of perceived stakeholder based on the factors that influence it. Advise on the factors that significantly affect the use, satisfaction, and effectiveness [12]

2. Literature Review

Information System Success Model DeLone and McLean (1992) is one of the most widely used models for measuring the utilization of information systems success. DeLone and McLean models are created based on the theoretical and empirical study of the information system created by researchers in the 1970s and 1980s. The main purpose of this model is to collect success factors of information systems and establish a comprehensive taxonomy to evaluate the factors that influence the success of information systems.

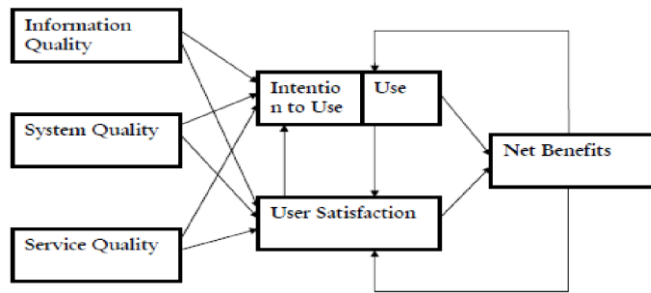


Fig 1. DeLone and McLean Update Model IS Success, 2003

CVF Model is one comprehensive model that can explain the relation of culture on various aspects of the organization. This model shows in detail that each culture has a different trend in the number of organizational variables that influence[6]. CVF model divides organizational culture values in a two-dimensional differentiator. Fourth CVF culture types can be found at:

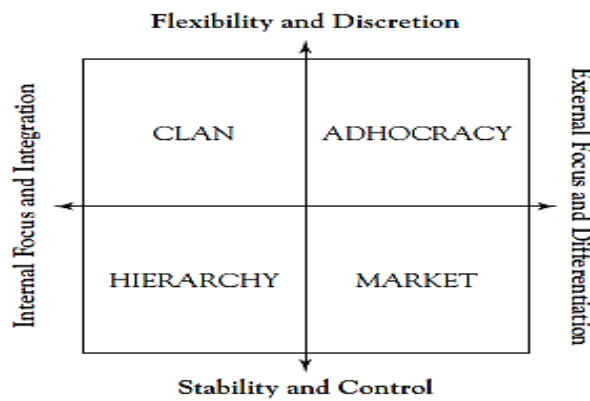


Fig 2. Competing Value Framework

- 1) Adhocracy Culture
Adhocracy culture is a dynamic culture, imbued with the spirit of entrepreneurship (entrepreneurship) and creativity. Overrides the value of innovation and taking risk.
- 2) Market Culture
The cultural market refers to a type of organization that enables itself as the market itself. Market culture operates primarily with the market economy mechanism, to conduct transactions intended to create a competitive advantage
- 3) Hierarchy Culture
Hierarchical culture is a kind of culture that is very formal and structured, where everything is done according to specified procedures.
- 4) Clan Culture
Clan culture is a culture that strongly emphasizes the intimacy and emotional bonding to share so that the organization is more like a family than an economic entity.

SEM-PLS is a powerful method of analysis because it can be applied at all scales of the data, does not require a lot of assumptions and sample size should not be big[8]. PLS is also used as a confirmation of the theory can also build a relationship that does not exist or preposition. PLS foundation is also used as a structural modeling with indicator reflective or formative[13]. PLS compared 2 different methods:

- 1) Solutions are not acceptable (inadmissible admission) this happens because the PLS-based variant and not the covariance matrix singularity problem solutions are not acceptable (inadmissible solution), this happens because the PLS-based variance and covariance instead, so that the matrix singularity problem will never occur.
- 2) Factors that can not be determined (factor indeterminacy), which is more than a factor contained in a set of indicator variables.

3. Metode

To understand the measurement and analysis of organizational culture, conducting exploration and mapping corporate culture by developing a model called the Competing Values Framework (CVF)[6]. CVF models used in this study for a reason that the model of CVF is able to provide an overview of the role of values that exist in the organizational culture that reflects the character of the organization.

Table 1.
Construct List

Construct	Definition
Information Quality (IQ)	Influence the perception of the quality of information on the use and satisfaction with the information system indicators, understandability, reliability, usefulness
System Quality (SQ)	Influence perceptions of quality systems to use information systems with indicators, access, usability, navigation, interactivity
Service Quality (SEQ)	Perceptions of service quality influence the use of information systems with indicators responsiveness, empathy, assurance.
Use	Influence perceptions of quality systems, services and information on the benefits of information systems with indicators frequency and intensity of use
User Satisfaction	Influence perceptions of quality systems, services and information e benefits system with indicator information content, accuracy, format, ease of use and timeliness.
Effectiveness (EFFECT)	Influence perceptions of the use and satisfaction of the performance indicator information system with task performance, efficiency, and productivity.
Clan Culture	Perception of the dominant clan culture influences the effectiveness of the use, satisfaction, and benefits of information systems
Adhocracy Culture	Perception influence culture adhocracy yang dominant in effectiveness use, user satisfaction dan benefit information system
Market Culture	Perception of the dominant cultural influences adhocracy ineffective use, satisfaction, and benefits of information systems
Hierarchy	Perception of the dominant cultural influence in the hierarchy of effectiveness of use, satisfaction, and benefits of information systems

Table 2.
Hypothesis List

No	Hypothesis	Hypothesis Statement
1	H1	Constructs use (Use) positively influenced the quality of information in the information system effectiveness
2	H2	Satisfaction construct (User Satisfaction) positively influenced the quality of information in the information system effectiveness
3	H3	Constructs use (Use) positively influenced the effectiveness of the quality system in the information system
4	H4	Satisfaction construct (User Satisfaction) positively influenced the effectiveness of the quality system in the information system
5	H5	Constructs use (Use) positively influenced the quality of services in information systems effectiveness
6	H6	Satisfaction construct (User Satisfaction) positively influenced the quality of services in information systems effectiveness
7	H7	Construct Effectiveness (effect) positively influenced the construct of Use
8	H8	Construct Effectiveness (effect) positively influenced satisfaction constructs
9	H9	Construct Effectiveness (EFFECT) is positively influenced by the dominant culture in the organization of information systems effectiveness.

4. Result and Discussion

The effectiveness model of an information system designed in this research is a model that can describe the correlation between the constructs identified were obtained from the analysis. Correlations between constructs are expressed in the form of hypotheses. Hypothesis 1 through 9 if the hypothesis is described in the flowchart, it would look like in figure 3. The figure shows a model of cultural influence in full form, i.e. a model that shows the combination of the measurement model and the structural model.

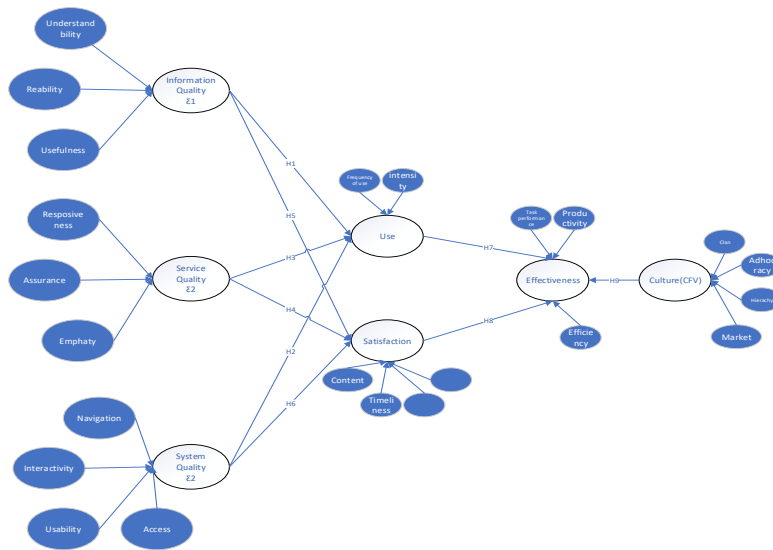


Fig 3. Cultural Influence Model

The dominant culture in high education which being studied of organization currently is cultural hierarchy, then second clan culture, cultural market ranks third, and fourth-ranked adhocracy culture. This suggests that the culture running is very formal and structured, where everything is done according to procedures specified.

Table 3.
OCAI Assessment

	Clan	Adhocracy	Market	Hierarchy
Organization Character	2,56	2,4	2,4	2,89
Organization Leadership	2,6	2,01	2,61	2,5
Management of Employee	2,6	2,5	2,6	2,5
Organization Glue	2,4	2,74	2,55	2,79
Focus Strategy	2,5	2,66	2,77	2,36
Criteria of Success	2,33	2,45	2,65	2,91
Average	2,488571	2,444286	2,591429	2,652143

Table 4.
Culture Characteristic Ranking

	Present Culture	Ranking	Future Culture	Ranking
Clan	2,37	3	2,35	3
Adhocracy	2,31	4	2,23	4
Market	2,61	2	2,66	2
Hierarchy	2,66	1	2,82	1

5. Conclusion

The measurement model is a model that describes the relationship between the measured variables with latent variables. A measured variable is said to be a good indicator to measure latent variables if the measured variable has good validity and reliability[14]. To determine the measurable variables have good validity or not can be seen from the standard solution (standardized solution) models[15]. Re-Specification aims to improve the model fit to the data to do some testing of the first models as has been done previously then made a return path diagram based on test results. Path diagram is described as follows :

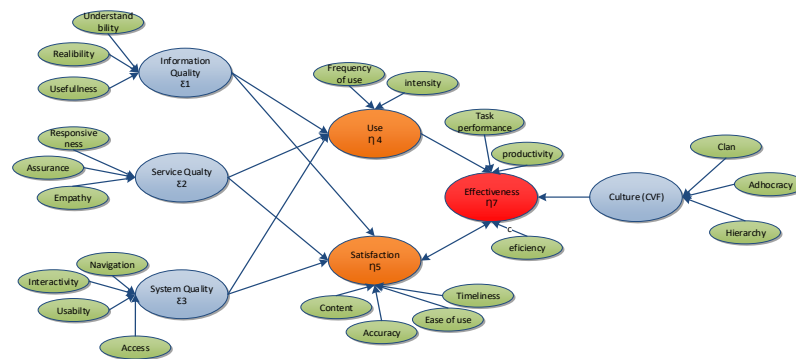


Fig 3. Re-Specification Model is the resulting model

Accordance with OCAI instrument, the dominant culture is Hierarchy, and by looking at the dominant cultural and also prove that the above analysis higher education organizations, cultural hierarchy that is what most support effective information systems. Then from the table and the above explanation, hypothesis H9 in this study states that "The dominant culture affects the effectiveness acceptable". (H9 proven) significantly with T-statistics worth 3,236 ($> 1,96$). influence is directly proportional to the effectiveness of the influence of culture on the effectiveness and performance of information systems, but from the test. The conclusion of this research is to create a model that can describe the linkages between cultural factors that influence the effectiveness of information systems, the conclusion that will answer the research questions stated in section formulation of the problem, namely:

- 1) The factors that significantly affect the effectiveness of information systems are information quality, system quality, service quality, usage, and satisfaction.
- 2) Based on the evaluation, the quality of information influence the effectiveness of the information system itself.
- 3) The model is constructed by applying the stages that exist in the research methodology.
- 4) Process analysis, design, and evaluation of measuring the effectiveness validated with the SEM-PLS method, the resulting model of cultural influences effectiveness of information systems consisting of 6 constructs the effectiveness of Information Quality, System Quality, Service Quality, Usage, Satisfaction, and Effectiveness. And 3 Constructs of cultural influences namely Clan, Adhocracy, and Hierarchy

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