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Abstract

Telkom Divisi Digital Service (DDS) is a unit responsible for product innovations for Telkom. An internal survey conducted in June 2016 showed the lack of good understanding about the innovation process among employees. Entropy measurement showed that the organization culture categorized as “less than healthy”. Moreover, the implementation of virtual organization resulted in a lot of confusion among the employees. This research aimed to investigate the influence of Organization Culture variable and Organization Structure variable to the Innovation Process variable. Data were collected by distributing online questionnaires to 308 DDS employees and got 202 valid responses. Path analysis with SPSS showed that both Organization Culture and Organization Structure, either simultaneously or partially, had a positive influence toward Innovation Process. The Organizational Culture variable has a 37.27% influence on Innovation Process variable, whereas the Organizational Structure variable has an 8.94% influence on Innovation Process variable. In accordance with the research result, it is suggested that Telkom DDS focuses on the improvement of the organization culture to increase the innovation process. And for further research, it is recommended to explore other variables uncovered yet in this research, such as leadership within an organization, work environment, etc.

Key words: Organization culture, organization structure, innovation process.

Pengaruh Budaya Organisasi dan Struktur Organisasi Terhadap Implementasi Proses Inovasi di Telkom Divisi Digital Service (DDS)

Abstrak


Kata kunci: budaya organisasi, struktur organisasi, proses inovasi
INTRODUCTION

Globalization and digitalization have given rise to the competition in many industries. In order to survive in the competition, the existing companies should always strive to increase their competitive advantage by always innovating. The impact of globalization and digitalization is also felt by Telkom which initially was a telecommunication company. Nowadays the competitive landscape faced by Telkom’s business has changed. Apart from having to face increasing competition from other telecommunication companies, Telkom also has to face competition from digital players or also known as over-the-top (OTT) digital companies.

To deal with the threat of the digital players, Telkom formed one unit, Divisi Digital Service (DDS), which is responsible for product innovations. However, there has been no clear and complete innovation process implemented in the organization. This leads to a lack of understanding of the employees on how one should innovate. This lack of understanding could hamper the smooth implementation of the innovation process in DDS.

There are many factors that can affect the implementation of the innovation process in an organization. Some literature and research indicate a relationship between organizational culture and organization structure with the innovation process. Related to organizational culture, Naranjo-Valencia, Sanz-Valle & Jiménez-Jiménez (2010) stated that firms that want to improve product innovation should pay attention to organizational culture because culture can increase or hinder product innovation. Related to the organizational structure, Daft (2008) states that to innovate the organization desperately needs a particular design that supports the innovation process.

Currently, DDS organization culture is considered below Telkom’s standard. Based on the measurement performed in November 2016, the entropy value of DDS organization culture is 12%. This value categorized as “less than healthy” because it shows a lot of energy used for less productive activities. Factor causes high entropy values are: bureaucracy, confusion, silos, cost reduction, internal competition, and hierarchy.

Related to the organizational structure, DDS has special authority to establish a virtual organizational structure that can be changed from time to time without having to go through the approval of the Director. With the implementation of this virtual structure, it is expected that the organization can be agiler in adapting to environmental changes. However, in reality, the implementation of the virtual structure has had a negative effect too. Some administrative processes become complicated because of the difference between the official structure and the virtual structure. Thus, the application of this virtual structure leads to confusion among DDS employees.

In accordance with the above-mentioned phenomenon, this research was conducted to investigate the influence of organizational culture and organization structure to the innovation process in Telkom Divisi Digital Service (DDS), either simultaneously or partially.

LITERATURE REVIEW

Innovation Process

Previous studies and researches show various models of the innovation process. Bessant (2009) stated that innovation always starts from the arising of an idea to produce something and then apply these ideas so as to bring benefits to the organization. Therefore, Bessant (2009) stated that the innovation process basically consists of two phases: ideas and implementation. Meanwhile, Tidd & Bessant (2009) describes the innovation process as a series of four main processes: searching, selecting, implementing, and capturing. Schermerhorn, Hunt, Osborn & Uhl-Bien (2010) describes the innovation process in four main processes: idea creation, initial experimentation, feasibility determination, the final application.

Agbim (2013) defines the innovation process as a series of four stages: idea generation, proposal, adoption, and implementation. Du Preez, Louw & Essmann (2006) describes the process of innovation in the Fugle Innovation Model. The term “Fugle” is an amalgamation of the terms Funnel and Bugle. The funnel is a set of processes to identify opportunities and the creation of a prospect’s portfolio. Funnel consists of stages: idea generation, concept definition, concept feasibility and refinement, portfolio. Bugle is
a series of commercialization process that consists of developing, refinement and formalization, and exploiting.

In this research, the innovation process is defined as a series of processes comprising the steps of idea generation, development, and implementation.

First, Idea Generation show stages starting from the search of ideas on new products until the approval of the idea by the party who has the authority, so it can be developed formally in the organization.

Second, The development shows the stage where the idea of innovation that has been through the filtering process will begin to be developed. At this stage, the investment is made in terms of effort, time and budget on innovation.

Third, Implementation shows the stage where innovation is ready to proceed to the commercialization stage.

**Organization Culture**

On their research about the impact of organizational values on process innovation, Khazanchi, Lewis, & Boyer (2007) states that flexibility values in an organization will foster a culture of experimentation and empowerment. Naranjo-Valencia et al. (2010) state that firms that want to improve product innovation must pay attention to organizational culture because culture can increase or hinder product innovation. Based on the results of the research, Naranjo-Valencia et al. (2010) suggested that organizations should try to develop adhocracy culture, i.e. a culture that supports creativity, entrepreneurship, openness, risk-taking, and so forth. Organizations should avoid a hierarchical culture that emphasizes internal control, compliance with rules and regulations, and is internally oriented.

In subsequent research, Naranjo-Valencia, Sanz-Valle & Jiménez-Jiménez (2011) have proven that adhocracy culture supports innovation strategy, while hierarchical culture supports imitation strategy. The culture of adhocracy emphasizes flexibility and change and is also external-oriented. The main values of an ad-hoc culture are creativity, entrepreneurship, and risk-taking. This is in line with the research of Yeşil & Kaya (2012) which also shows that the culture of adhocracy is positively related to the capabilities of innovation. Moreover, Büschgens, Bausch & Balkin (2013) argue that flexibility, desire to cannibalize, and a supportive culture to provide a sense of psychological security as well as organizational support are required.

In this research, the definition of organizational culture is adapted from the definition conveyed by Herbig & Dunphy (1998) as a way of life, which is a pattern of values, characters, or behaviors shared by the employees in the organization. Furthermore, the dimensions are as follows:

First, Shared purpose: a dimension that indicates whether there is a shared purpose between the organization and the employees.

Second, Creative climate: a dimension that shows how the climate exists within the organization in relation to creativity for or using new things, new ways, or new ideas.

Third, Agility: a dimension that shows how the organization is always experimenting and adapt to the environment changes.

Fourth, Learning: a dimension that shows how the organization is always learning continuously by utilizing existing information/knowledge in the organization.

**Organization Structure**

Daft (2008) stated that organization can choose either a traditional organization that is oriented toward efficiency and gives emphasize on vertical communication and control or opts for a contemporary-oriented learning organization that emphasizes horizontal communication and coordination. Daft (2008) also stated that organizations with differentiation strategy will depend on innovation and would require the design of an organization that: learning oriented, flexible, has a very strong horizontal coordination, has a strong research capability, give an importance to customer intimacy, reward employees for their creativity, risk-taking, and innovation. Robbins & Judge (2013) stated that the organizational structure determines how work is divided, grouped
and coordinated. Generally, there are two models of organizational structure, mechanistic and organic. The mechanistic organization is characterized by high specialization, rigid departmentalization, a clear chain of command, narrow span of control, centralization and high formalization. Robbins & Judge (2013) also stated that the organic organization is characterized by cross-functional teams, cross-hierarchical teams, free flow of information, wide span of control, decentralization, and low formalization.

Bessant (2009) states that innovative organizations use a variety of structures, tools, and techniques to balance between formal structure and organic structure. Flexible structures are needed to encourage the realization of innovative ideas because rigid hierarchies make it difficult for employees to convey their ideas and suggestions to management. Cooperation between teams is also very important because inputs from various skills will be needed to implement an idea. Communication within the organization is also very important, be it upward communication, downward or horizontal communication so that ideas can be disseminated and everyone feels involved in the innovation process. Effective teamwork is needed, each individual within the team is encouraged to actively contribute to team success. Reward & recognition that support the

Presented below is the summary of the previous studies conducted on the subject of organization culture, organization structure, or innovation process.

<table>
<thead>
<tr>
<th>No.</th>
<th>Researchers (Year)</th>
<th>Research Title</th>
<th>Variables</th>
<th>Research Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.</td>
<td>Naranjo Valencia, J. C., Sanz Valle, R., &amp; Jiménez Jiménez, D. (2010)</td>
<td>Organizational culture as determinant of product innovation.</td>
<td>Dependent variable: product innovation. Independent variable: organization culture (age, size, uncertainty, ad-hocracy, hierarchy).</td>
<td>Organizational culture is one of the key elements in supporting or inhibiting innovation. The ad-hocratric culture supports the development of new products or services, while the hierarchical culture inhibits product innovation.</td>
</tr>
<tr>
<td>7.</td>
<td>Agbim, K. C. (2013)</td>
<td>The impact of organizational structure and leadership styles on innovation.</td>
<td>Dependent variable: idea generation, idea implementation. Independent variable: organization structure (organic structure, mechanistic structure); leadership type (transformational leadership, transactional leadership); Moderate variable: relationship style</td>
<td>The organic structure affects the idea generation; mechanical structure affects the idea implementation; transformational leadership affects the idea generation; transactional leadership affects the idea implementation; relationship styles moderate the effect of transformational leadership on idea generation; relationship styles moderate the effect of transactional leadership on the idea implementation.</td>
</tr>
</tbody>
</table>
growth of innovation is also something that should not be ignored in an innovative organization. Rapid decision making within the organization will also streamline the innovation process.

Schermerhorn et al. (2010) stated that organic organization or also known as professional bureaucracy emphasizes the horizontal specialization, the use of personal coordination, and loose rules, policies, and procedures. This type of organization is very reliable in detecting external changes and also in adapting to new technologies. In this kind of organization, product quality, rapid response to customer and innovation is very easy to adopt as an organizational strategy.

Holagh, Noubar, & Bahador (2014) stated that the organization is an intelligence system in which a group of people works together to achieve a common goal. A dynamic structure is required to minimize the formalities so that the organization can adjust to the surrounding environment and facilitate creativity and innovation in the organization.

Based on the literature and research above, in this study, the definition of the organizational structure adopted from the definition conveyed by Robbins & Judge (2013), which is the pattern of division, grouping, and coordinating the jobs. Furthermore, in this study the dimensions are as follows:

First, Loose Control shows the organizing aspects of the vertical governing the ladder, the command and control mechanisms within the organization.

Second, Coordination shows the horizontal organizing aspect that governs horizontal coordination within the organization.

From the table of summary of the previous studies conducted on the subject of organization culture, organization structure, or innovation process. However, those studies have not assessed and quantified the simultaneous effect of organizational culture and organizational structure on the innovation process. Thus, this study was conducted to fill in the gap of those previous studies.

Based on the observed phenomena on DDS, the literature review, and the results of previous studies, the framework for this study is as follows.

Hypothesis

In accordance with the purpose of this research, the variables analyzed consist of two independent variables, namely Organizational Culture (Shared Purpose, Creative Climate, Agility, Learning) as variable X1 and Organization Structure (Control, Coordination) as variable X2. There is only one dependent variable: Innovation Process (Idea Generation, Development, Implementation) as variable Y. And since the research aimed to test the influence of organization culture variable (X1) and the organization structure variable (X2) to the innovation process variable (Y), then the hypothesis of this research is as follows:

Simultaneous hypotheses

H1. Organization culture and organization structure simultaneously and significantly influence the implementation of the innovation process in DDS

Partial hypothesis

H2a. Organization culture significantly influences the implementation of innovation processes in DDS

H2b. Organization structure significantly influences the implementation of the innovation process in DDS

METHODS

Sekaran (2003) stated that studies that engage in hypothesis testing usually explain the nature of certain relationships, or establish the differences among groups or the independence of two or more factors in a situation. Therefore, a hypothesis testing method is suitable for this research.

The research was initiated by operationalizing the variables to be studied. Referring to the literature and previous studies, the dimensions and indicators to be measured in the field were then defined. In this study,
the organizational culture variable (X1) consists of dimensions: shared purpose, creative climate, agility, and learning. The organizational structure variable (X2) consists of dimensions: loose control and coordination. And the innovation process variable (Y) consist of dimensions: idea generation, development, and implementation.

Based on the aforementioned dimensions, a questionnaire with a set of statements then prepared for the respondents. To ensure the validity of the statements in the questionnaire, a content validity was conducted by consulting three experts; one is an expert in the field of human resource management studies who is also an expert in research methods and two experts who are innovators of DDS. Based on the result of the content validity, some revision and refinement to the questionnaire were then applied. As a result of the process, there were fifteen statements on the organization culture dimension, eight statements on the organization structure dimension, and twelve statements on the innovation process dimension that as a whole form the questionnaire. A 5-point Likert scale ranging from strongly disagree to strongly agree was used to measure the respondent’s opinion or perception toward the statements in the questionnaire.

The population in this research is all employees of Telkom Divisi Digital Service (DDS). The number of DDS employees at the time of this study was 308 people. Considering time and resource constraints, this research used nonprobability sampling method with incidental sampling technique. By using Isaac and Michael table, if a confidence level of 95% or an error rate of 5% is required then the number of samples required for a population of 308 is 163.4 or rounded up to 164 people. The questionnaire was distributed in early October 2017 to 308 DDS employees and 202 responses were obtained.

To test the validity for \( n = 202 \) and \( \alpha = 0.05 \); then \( r_{table} = 0.138 \). Based on the calculation of SPSS it is concluded that all the items on the questionnaire are valid. Cronbach’s alpha was used to test the reliability. In general, the reliability of less than 0.60 is considered to be less, a value of about 0.70 is sufficient, and above 0.80 is good (Sekaran, 2003). Based on calculations with SPSS, then the entire variable has a value of Cronbach’s alpha greater than 0.70 so it can be concluded to be reliable. Therefore, all statements used in this study’s questionnaire has proven to be valid and reliable, thus can be used as a measuring tool for the research.

RESULTS AND DISCUSSION

The Correlation Test

The correlation test was performed to determine the correlation between organizational culture (X1) and organizational structure (X2), between organizational culture (X1) and innovation process (Y), and between organizational structure (X2) and innovation process (Y).

The following table shows the correlation test result using the calculation by the SPSS application.

<table>
<thead>
<tr>
<th></th>
<th>Org._ Culture</th>
<th>Org._ Structure</th>
<th>Innovation_ Process</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pearson Correlation</strong></td>
<td>1,684**</td>
<td>0,669**</td>
<td></td>
</tr>
<tr>
<td><strong>Sig. (2-tailed)</strong></td>
<td>0,000</td>
<td>0,000</td>
<td></td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>202</td>
<td>202</td>
<td>202</td>
</tr>
<tr>
<td><strong>Pearson Correlation</strong></td>
<td>0,684**</td>
<td>1,545**</td>
<td></td>
</tr>
<tr>
<td><strong>Sig. (2-tailed)</strong></td>
<td>0,000</td>
<td>0,000</td>
<td></td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>202</td>
<td>202</td>
<td>202</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level (2-tailed)**

As we can see from the table, there is a significant correlation between Organizational Culture (X1) and Organizational Structure (X2) with a correlation value of 0.684. In addition, there is also a significant correlation between Organizational Culture (X1) and Process Innovation (Y) with a correlation value of 0.669, as well as a significant correlation between Organizational Structure (X2) and Innovation Process (Y) with a correlation value of 0.545.

Simultaneous Test (F)

Simultaneous Test (F) is used to assess the existence of the simultaneous influence of Organization Culture (X1) and Organization Structure (X2)
toward Innovation Process (Y). The existence of the simultaneous influence of variable X1 and variable X2 to variable Y is indicated by the value of $F_{count}$ which is bigger than $F_{table}$ value and significance value <0.05. $F_{table}$ is obtained from table F with $\alpha = 0.05$ where:

\[ v1 = \text{number of independent variables} = 2 \]
\[ v2 = n-k-1, \text{ with } n = \text{number of samples so } v2 = 202-2-1 = 199. \]

With $\alpha = 0.05$; $v1 = 2$, $v2 = 199$ then obtained $F_{table} = 3.0404$. $F_{count}$ is obtained from the calculation of multiple linear regression analysis with SPSS shown in the following table.

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>75,821</td>
<td>2</td>
<td>37,910</td>
<td>85,463</td>
<td>0.000</td>
</tr>
<tr>
<td>Residual</td>
<td>88,274</td>
<td>199</td>
<td>.444</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>164,095</td>
<td>201</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*a. Dependent Variable: Innovation Process
b. Predictors: (Constant), Org_Structure, Org_Culture

From the table we got $F_{count} = 85,463$, therefore $F_{count} (85,463) > F_{table} (3.0404)$. The simultaneous test also shows the significant value of 0.000 which is less than 0.05; so it can be concluded that X1 and X2 simultaneously have a significant effect on Y.

### Determination Test

Determination test is conducted to determine the influence of independent variables on the dependent variable. Determination test will be able to show how big the influence of Organizational Culture variable (X1) and Organizational Structure variable (X2) to Innovation Process (Y) variable is. This influence is shown by the value of $R^2$ obtained from the calculation by SPSS. The following table shows the results of the determination test.

As shown in the table 3, $R^2 = 0.462$ or 46.20%. This means that the influence of Organizational Culture variable (X1) and Organizational Structure variable (X2) to Innovation Process variable (Y) is 46.20%, while the rest of 53.80% is influenced by other variables not studied in this research.

### Partial Test (t)

Partial Test (t) is used to assess the influence of each independent variable Organization Culture (X1) and Organization Structure (X2) to dependent variable Innovation Process (Y). The partial influence of variable X1 to variable Y and partial influence of variable X2 to variable Y can be indicated by $t_{count}$ that is bigger than $t_{table}$ and significance value <0.05. $t_{table}$ obtained from table t with $\alpha = 0.05$ and $dk = n-k = 202 - 2 = 200$, hence obtained $t_{table} = 1.972$. $t_{count}$ is obtained by multiple linear regression analysis with SPSS as shown in the following table.
counter for Organizational Culture (X1) = 7,815; therefore $t_{\text{count}} (7,815) > t_{\text{table}} (1,972)$. The significance value is 0.000 which is less than 0.05; so it can be concluded that variable X1 has a significant influence on variable Y.

$t_{\text{count}}$ for Organizational Structure (X2) = 2,307; therefore $t_{\text{count}} (2,307) > t_{\text{table}} (1,972)$. The significance value is 0.022 which is less than 0.05; so it can be concluded that variable X2 has a significant influence on variable Y.

By comparing $t_{\text{count}}$ value with $t_{\text{table}}$ value we then can test the second hypothesis, that is:

H2a. Organizational culture (X1) has a significant effect on the implementation of innovation process (Y) in DDS

Ho. Organizational culture (X1) has no significant effect on the implementation of innovation process (Y) in DDS

and:

H2b. The organizational structure (X2) has a significant effect on the implementation of innovation process (Y) in DDS

Ho. The organizational structure (X2) has no significant effect on the implementation of innovation process (Y) in DDS

The criteria for hypothesis testing are as follows:

$t_{\text{count}} \leq t_{\text{table}}$: Ho accepted.

$t_{\text{count}} > t_{\text{table}}$: Ho rejected, H2 accepted.

With error rate of 5% or 0.05, we got $t_{\text{count}} X1 (7,815) > t_{\text{table}} (1,972)$; then it is concluded that Ho is rejected, H2a accepted. And since $t_{\text{count}} X2 (2,307) > t_{\text{table}} (1,972)$ it can be concluded that Ho is rejected, H2b is accepted.

Thus from the Partial Test (t) it can be concluded that the Organizational Culture (X1) variable partially and significantly influence the Innovation Process (Y) variable. And the Organizational Structure variable (X2) partially and significantly influence the Innovation Process (Y) variable.

This research aimed to test the influence of organization culture variable (X1) and the organization structure variable (X2) to the innovation process variable (Y). Simultaneous Test (F Test) in Table 2. shows that $F_{\text{count}} (85.463) > F_{\text{table}} (3.0404)$. Determination Test shows that the value of R² is 0.462 or 46.2%. It can be concluded that the Organizational Culture (X1) and Organizational Structure (X2) simultaneously have a significant effect on the implementation of the Innovation Process (Y) in DDS by 46.2%. With further calculations, it is known that the Organizational Culture (X1) has an influence on Innovation Process (Y) by 37.27%, while the influence of the Organizational Structure (X2) on the Innovation Process (Y) is 8.94%. This is in line with the results of Naranjo-Valencia et al. (2010) research which states that organizational culture is one of the key elements in supporting or inhibiting innovation.

Based on the Partial Test results (t-test) in Table 4. OrganizationCulture (X1) has $t_{\text{count}} (7.815) > t_{\text{table}} (1.972)$, which means Organization Culture (X1) partially and significantly influence the implementation of the Innovation Process (Y) in DDS. The Organizational Culture (X1) variables have a direct influence by 31.02% and have an influence through Organizational Structure (X2) variable by 6.25%. Therefore, the total influence of Organizational Culture (X1) on the implementation of Innovation Process (Y) in DDS is 37.27%. This number means that by improving the Organizational Culture, DDS will get an increase of Innovation Process implementation by 37.27%. This is in accordance with the results of Naranjo-Valencia et al. (2011) research which stated that organizational culture is the determinant of innovation strategy.
which means Organization Structure (X2) partially and significantly influence the implementation of the Innovation Process (Y) in DDS. The Organizational Structure (X2) variable has a 2.69% direct influence and a 6.25% influence on the Organizational Culture (X1) variable. Therefore, the total effect of the Organizational Structure (X2) on the implementation of Innovation Process (Y) in DDS is 8.94%. This number implies that if DDS improve Organizational Structure, there will be an increase in the implementation of the Innovation Process by 8.94%. This is in accordance with the results of Holagh et al. (2014) studies which stated that organizational structure has a significant effect on creativity and organizational commitment.

This study found that both the organizational culture and organization structure have a significant effect on innovation process in DDS. Considering the greater level of influence coming from organizational culture rather than that of organization structure, it is suggested that DDS pays more attention toward strengthening the organizational culture if it wants to significantly improve the innovation process. Shared purpose, creative climate, agility, and learning are the dimensions of organizational culture that will significantly determine the success of the innovation process in DDS. However, as it has been revealed through this study, organization culture and organization structure simultaneously only have a 46.2% of influence toward the innovation process. This number implies that there are still other factors uncovered in this study that might have a significant effect on the innovation process. The authors of this study suspected that leadership and work environment might be some of those factors. A follow-up or an additional research can be conducted to test this idea.

CONCLUSION

This research aimed to assess the influence of organizational culture and organization structure to the implementation of the innovation process in Telkom Divisi Digital Service (DDS). The conclusions drawn from the research are as follows:
First Organization culture and organization structure simultaneously have a significant influence on the implementation of the innovation process in Telkom DDS.

Second Organization culture has a significant influence on the implementation of the innovation process in Telkom DDS.
Third Organization structure has a significant influence on the implementation of the innovation process in Telkom DDS.

In this study, the organization culture and organization structure variables only have an influence of 46.2% over the implementation of the innovation process. A further research is suggested to discover other variables which have not been examined in this study, such as leadership within an organization, work environment, etc.

REFERENCES


