The Role of Management Control Systems to Dimensions of Managerial Entrepreneurship

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Abstract
This study examines the role of management control system consisting of social networking, organizational innovative culture, and formal control to dimensions of managerial entrepreneurship at local water company (also called Perusahaan Daerah Air Minum, PDAM) in South Kalimantan. The research used direct data collection method and mail survey with purposive sampling method at the local water company which represented by unit manager. A total of 123 respondents participated in this study which came from 12 local water companies in South Kalimantan Regional Government. Research data to test the hypotheses were analyzed by using Multiple Regression Analysis. The results showed that social networking, organizational innovative culture, and formal control simultaneously positively influence the managerial entrepreneurship. For innovative culture organization and formal control have a positive effect on managerial entrepreneurship respectively.

Keywords
formal control
managerial entrepreneurship
organizational innovative culture
social networking

1. Introduction

Managerial aspect is one of the problems for the Regional Water Supply Company (also called Perusahaan Daerah Air Minum) in Indonesia. In order to improve performance for PDAMs, the need for managerial entrepreneurship is to create and innovate the capacity of public managers (Leite & Moraes, 2015; Nambisan et al., 2018). To create an order in managerial entrepreneurship activity, a management control system is needed so that managers are more directed and controlled in carrying out renewal or innovation (Duréndez et al., 2016; Gschwantner & Hiebl, 2016; Frezatti et al., 2017; Lövstål & Jontoft, 2017).

Based on data from the Drinking Water Provider System Management Improvement Agency (BPPSPAM) of the Ministry of Public Works and Public Housing, 

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where the performance appraisal in 2015 and 2016 the number of diseased/unhealthy PDAMs reached 47%, while in 2017 it reached 45%. This shows that PDAM performance is still not optimal in the last three years. Based on the assessment from BPPSPAM Ministry of PUPR, of the four components that are an element of assessment are elements of human resources (managerial) or competency being one of the reasons for the many categories of sick/unhealthy from PDAM.

The phenomenon that occurs in the PDAM in Indonesia from the above data and the preliminary survey is very visible that the values of the entrepreneurship dimension have not yet been seen, this is based on the centralistic still very inherent, where the regional head (Mayor and Regent) is still determine the rules both in technical and operational matters. Concretely the low values of entrepreneurship can be seen from the aspect of behavior, the low ability in risk taking is a barrier to public companies in improving performance (Syahdan & Santoso, 2004).

Moon (1999) study defines one dimension of managerial entrepreneurship that is based on behavior (behavior based entrepreneurship), which emphasizes the tendency for risk taking. Risk taking here is a managerial form that addresses trends in organizational change and innovative decision making. Organizational development in such a way for entrepreneurship is inseparable from the management of information obtained, both accounting and non-accounting information, so that the decision-making process produced is the basis for improving performance. Increased attention to the role that accounting and control in corporate entrepreneurs and innovative arrangements might relate to enhancing two phenomena. Davila et al. (2009) conclude that a new paradigm has emerged over the past decade, which highlights the relevance of formal accounting and control for innovation and entrepreneurship.

Management control system has evolved in recent years, where it focuses on formal and quantitative information to assist managerial decision making with a broader range of information. This includes external information relating to the market, customers, competitors, non-financial information related to the production process, predictive information and various decision mechanisms, and informal personal and social controls. Conventionally, management control systems are considered as a passive tool that provides information to help managers (Chenhall, 2003). While still according to Chenhall et al. (2011) management control system is a set of controls consisting of social networks, innovative culture of organization, and formal control. Furthermore, the management control system is a tool used by managers in different control processes, such as planning and decision making. However, the character of the usage varies according to organizational settings, between the control process between unit managers. Therefore, to understand the relationship between management and entrepreneurship control systems must be understood in its context and its implementation must be understood (Fried, 2017; Lövstål & Jontoft, 2017).

It is interesting to study further when the management control system is considered to inhibit managers in carrying out renewal or innovation or known as managerial entrepreneurship which is formed to create and innovate the capacity of public managers and also make more responsible for decisions taken (Rajapathirana & Hui, 2018). The management control system can be interpreted as a contradictory force
towards managerial entrepreneurship. Management control systems have a purpose to create order, and make the process more efficient. On the other hand, entrepreneurship is an innovation and innovation creation. Many management control systems are based on ideas about stability and predictability, while entrepreneurship is more in the area of uncertainty, ambiguity and ambiguity (Lövstål & Jontoft, 2017).

Various opinions and suggestions about the relationship between management and managerial control systems for entrepreneurship have been raised, some researchers show that the management control system has a negative impact on entrepreneurship. While Simons (1994) claims that the management control system encourages managerial entrepreneurship and can facilitate innovation and renewal. Furthermore, some researchers point out that it depends on the management control system, whether the management control system has a positive or negative effect on entrepreneurship. In other words the emphasis is on how this system is interpreted, discussed and used, which determines good or bad from the perspective of entrepreneurship (Lövstål & Jontoft, 2017).

This research is expected to provide contributions to the PDAM, that and make the process more efficient so that it can improve the performance of the PDAM in building the competencies of its human resources which have so far impressed efficiency and bureaucratic practices that hinder innovation.

Furthermore, the weakness of managerial entrepreneurship aspects in PDAM and the main problems that will be examined in this study can be formulated in the following questions: Is the management control system that includes social networking, innovative culture of organization, and formal control positively influence managerial entrepreneurship which includes taking risks to the Perusahaan Daerah Air Minum (PDAM)?

2. Methods

The population and sample used in this study is the Manager at the Regional Water Supply Company in South Kalimantan, which consists of 12 PDAMs in the District and City. The reason for choosing the sample is based on the manager in the organizational structure being the decision maker. The unit of analysis in this study is the middle to upper manager individuals in the PDAM. The selection of samples in addition to the above considerations, also follows the reference of Moon (1999) research based on the job description in the field.

Data retrieval is done using a questionnaire method. The questionnaire is more effectively distributed directly or via email to 200 respondents. The data needed is expected to achieve a response rate of 60% of the distributed questionnaires. The type of data used in this study is primary data. Primary data comes from respondents' answers to the questionnaire sent to respondents, namely middle managers.

The dependent variable used in this study is managerial entrepreneurship dimensions of risk reduction. While the variables in this study are social networks, organizational culture and formal control. To measure the variables in this study is an
instrument which is the development and modification of the instrument by Moon (1999) as measured by a five-point Likert scale.

Managerial entrepreneurship reflection here is risk taking is the tendency of organizations to change and update decision making. Decision making as a key part of the manager’s activities, is a process in which a series of activities are chosen (Moon, 1999). The questionnaire instrument for managerial entrepreneurship variables is from the research of (Moon, 1999). This instrument uses 4 questions. The measurement scale used is a 5-point Likert scale, namely (1) states that strongly disagree up to scale (5) strongly agree.

Social networks take place in the way of exchanges between organizations that manage by examining personal and social relationships based on the length of relationships and trust (Chenhall et al., 2011). Questionnaire instruments for social networking variables developed from research by Chenhall & Morris (1995). This instrument uses 8 questions. The measurement scale used is a 5-point Likert scale, namely (1) the signal is not very suitable to scale (5) strongly agree.

An innovation culture is an informal process that provides open, flexible and structured communication. While innovation is defined as the application of new ideas. Questionnaire instrument for Organizational Innovation Culture variables developed from the research of Chenhall & Morris (1995). This instrument uses 8 questions. The measurement scale used is a 5-point Likert scale, namely (1) the signal is not very suitable to scale (5) strongly agree.

Defining formal controls that are relevant to innovation as management audits, additional analysis, costs based on costs, budgeting, calculation, and control, control, internal audit, and performance (Chenhall & Morris, 1995; Davila et al., 2009). Questionnaire instrument for Organizational Innovation Culture variables developed from the research of (R. H. Chenhall & Morris, 1995). This instrument uses 8 questions. The measurement scale used is a 5-point Likert scale, namely (1) the signal is not very suitable to scale (5) strongly agree.

Data analysis method used in this study is multiple linear regression analysis. In general, the multiple regression analysis equation can be formulated as follows:

\[ ME = b_0 + b_1 SN + b_2 ICO + b_3 FC + \varepsilon \]

Information:
- ME = Managerial Entrepreneurship
- SN = Social Network
- ICO = Innovative Culture Organization
- FC = Formal Control
- \( b_0 \) = Constants
- \( b_1 \ldots b_3 \) = Regression Coefficient SN, ICO, FC
- \( \varepsilon \) = Error
3. Results and Discussion

Test of internal consistency (reliability) is intended to test the consistency of questionnaires in measuring the same construct (Sekaran & Bougie, 2016), and if measurements are taken from time to time by others (Ghozali, 2014). This test is done by calculating the Cronbach alpha coefficient of each instrument in one variable. The instrument can be said to be reliable if it has a cronbach alpha coefficient that is getting closer to 1, the higher the internal coefficient of reliability (Sekaran & Bougie, 2016). Based on validity testing, in table 1 shows that the correlation between each indicator against the total construct score shows a correlation > 0.6. So it can be concluded that each question indicator is valid because it is correlated and significant.

Based on the output, if the R square summary data model is quite low, only 0.118 (11.8% of the above models do not indicate the occurrence of multicollinearity. The second method is seen from the VIF and Tolerance numbers for the three independent variables of social networking, innovative culture of the organization, and formal control has VIF numbers around 1 (social network 1.034), (innovative culture organization 1.048) and (formal control 1.015) and tolerance values close to 1, such as (social networking 0.967), (organizational innovation culture 0.954) and (formal control 0.985) This means that the three independent variables do not have multicollinearity symptoms with other variables.

Testing of the presence or absence of heteroscedasticity in this study by looking at the graph of the plot of the dependent variable predictive value (ZPRED) with the residual (SRESID). Basic analysis 1) if there are certain patterns, such as the existing dots form a certain pattern that is regular (wavy, widened and then narrowed), then there is heteroscedasticity. 2) if there is no pattern, and the points spread above and below the number 0 on the Y axis, then there is no heteroscedasticity.

Based on the scatterplot graph between SRED and ZPRED where the Y axis is Y which has been predicted and the X axis is the residual (Y predictions with true Y) that have been stundentized show the points spread randomly, not form a clear pattern, and spread well above or below the number 0 on the Y axis. It can be concluded that there is no heteroscedasticity in the regression model, so that the appropriate regression model is used to predict managerial entrepreneurship and based on the input of the three independent variables (social networking, innovative culture of organization, and formal control).

The normality test was conducted to find out whether in the regression model, the dependent variable and the independent variables both had normal distribution or not through graph analysis and One Sample Kolmogorov-Smirnov Test. Through chart analysis to test the normality of the data is to see a histogram that compares it between the observation data with a distribution that approaches the normal distribution or a better method by looking at the normal probability plot that compares the normal distribution. The basis of decision making through this analysis, if the data spread around the diagonal line and follow the direction of the diagonal line or the histogram line shows a normal distribution pattern, it means that the regression model meets the assumption of normality. In addition, if the data spreads far from the diagonal line and
or does not follow the direction of the diagonal line, the regression model does not meet the assumption of normality.

Graph analysis shows the graph display of histogram and normal graph plot can be concluded that the histogram graph provides a distribution pattern that is close to normal. Whereas in the normal graph the plot shows the spread points around the diagonal line, this means that the regression model is suitable to be used to predict the interest of students to become entrepreneurs based on input from independent variables because it has fulfilled the assumption of normality. The Kolmogorov-Smirnov Test One Sample Test also produces the same node that the data distribution is normal.

To assess the accuracy of the sample regression function in estimating the actual value can be measured from the goodness of fit. Statistically, at least this can be measured from the value of the test statistic of individual parameters, the statistic value of F and the determinant coefficient. The results of data analysis carried out in the Anova test or F-test obtained F-calculated at 5.317 with a probability level of 0.002. Because the probability is much smaller than 0.05, the regression model can be used to predict managerial entrepreneurship which states that social networking, an innovative culture of the organization, and formal control together influence managerial entrepreneurship.

While the adjusted $R^2$ value of 0.096 or 9.6% variations in managerial entrepreneurship can be explained by variations of the three independent variables of social networks, innovative culture of organization and formal control. Whereas the remaining 90.4% is explained by other factors outside the model. While the Standard Error of Estimate (SEE) is 1.47518.

The first hypothesis tested in this study is that social networks influence managerial entrepreneurship on the dimensions of risk taking. Regression results for the first hypothesis, can be seen that social networks have a significant negative effect on managerial entrepreneurship, where the significance level is 0.007 which means less than 0.05. Regression results on the hypothesis, said that social networking has a negative effect on managerial entrepreneurship on risk taking.

The results of this study are not in line with research conducted by Chenhall et al. (2011) which shows that there is no direct relationship between social networking and innovation. But further the results of this study are in line with Goes & Park (1997) about how social networking between organizations increases innovation, as well as the research of Pennings & Harianto (1992) which confirms that innovative abilities and application of innovation in organizations are greatly enhanced by interorganizational network links.

The second hypothesis tested in this study is an innovative culture of an organization influencing entrepreneurship. Regression results on the second hypothesis, it can be seen that the innovative culture of the organization influences entrepreneurship, where the significance level is 0.03 which means greater than 0.05. Regression results on the hypothesis, it is said that the innovative culture of the organization influences managerial entrepreneurship on the dimensions of risk taking.

The results of this study are in line with the research of Chenhall et al. (2011), which states that the organization's innovative culture is positively related to innovation. Similarly, the results of Moon (1999) research, which states that organizational culture
influences the dimensions of entrepreneurship for risk taking, meaning that risk-taking behavior tends to be influenced by the structural characteristics and organizational culture.

While organizational research has been widely stated that innovative culture of organizations will support innovation if they are more adaptive and responsive, have open communication, and free flow of information, and involve employees in developing new ideas. The idea of how organizations generate new ideas, notes the important roles that support creativity but sometimes the innovation process is not comfortable as a more open, informal process and supports the culture needed to support innovation.

The third hypothesis tested in this study is formal control influences entrepreneurship. Regression results for the third hypothesis, it can be seen that formal control has a significant effect on entrepreneurship, where the significance level is 0.04 which means it is smaller than 0.05. Regression results on the hypothesis, said that formal control affects managerial entrepreneurship on the dimensions of risk taking. The results of this study are in line with the research of Chenhall et al. (2011), which shows a positive relationship between formal control and risk-taking innovation. While it is different from the research of Moon (1999) which shows that formalization has no effect on managerial entrepreneurship on risk taking dimensions.

The results of the above study indicate that together social networking variables, innovative culture of the organization, and formal control affect the managerial entrepreneurship in risk taking. This shows that there is a relationship between the management control system and managerial entrepreneurship in the risk taking innovation model. The management control system is described as a set of controls consisting of social networking, innovative culture of organization, and formal control. The management control system has evolved in recent years, where it focuses on formal and quantitative information to assist managerial decision making with a broader range of information. This includes external information relating to the market, customers, competitors, non-financial information related to the production process, predictive information and various decision mechanisms, and informal personal and social controls. Conventionally, management control systems are considered as a passive tool that provides information to help managers Chenhall (2003).

Partially it turns out that social networking is a reflection of the creation of entrepreneurial behavior, this is reflected in the regression results with a significance value of 0.007 smaller than alpha 0.05. This shows that the wider social networks in regional companies, will increase managers in making innovations in risk taking, even though a negative relationship indicates that public sector organizations in expanding social networks collide with political relations with local governments as the largest shareholders. As we all know that social networking is a way of managing interorganizational exchanges with an emphasis on personal and social relationships based on the length of the relationship and trust. The theoretical support of the role of social networks to improve innovation can be found in the organizational study literature, then Nooteboom (1999) claims that social networking can help in improving
managerial entrepreneurship, especially in decision-making to innovate, because to be innovative companies need outside source cognition and competence to complete.

Research on the effects of the socialization process that usually occurs in social networks shows a strong association between socialization and willingness to share information, engage in joint problem solving, adapt to unexpected changes, and avoid the use of power (Mahama, 2006), which all encourage increased managerial entrepreneurship, especially in innovation. Empirical evidence about how social networking between organizations (managerial entrepreneurship) will increase innovation is expressed by Goes & Park (1997); Pennings & Harianto (1992) which confirm that the manager's ability to innovate and implement innovation in organizations is greatly enhanced by interorganizational networking links. the existence of relationships and social contacts for managers is believed to be able to contribute to risk-taking innovation.

In an innovative culture of organization the results show that this variable has an influence on managerial entrepreneurship. The description of the regression results turns out to provide support where the significance value is 0.03 smaller than 0.05. This shows that the higher the innovative culture of the organization will improve managers in making innovations in decision making. Organizational culture is considered to have an important role in an organization. With a cultural characteristic is considered a key element that increases entrepreneurship in the organization (Covin & Slevin, 1991; Hornsby et al., 1993). In others Doney et al. (1998) argue that organizational culture at both the personal and organizational levels can provide a competitive advantage so that it needs to be considered in strengthening the relationship between subordinates and superiors. Therefore, the role of organizational culture gives important meaning to the development of an organization so that organizational culture needs to be considered in applying capability as an organizational strategy. On the other hand, Holmes & Marsden (1996) stated that corporate or organizational culture has an influence on the behavior, work methods and motivation of managers and subordinates to achieve organizational performance.

In formal control shows that this variable has an influence on managerial entrepreneurship, with a significance value of 0.0049 smaller than 0.05. It can be interpreted that the higher the level of formal control will improve management behavior in making more innovative decisions. Recently it has been argued that formal control has a role in a control package that aims to encourage innovation (Chenhall & Morris, 1995; Henri, 2006; Widener, 2007).

Caruana et al. (1998) research provides some results that formal control ensures that organizations are able to maintain individual creativity in solving organizational goals without being a problem in centralization policies that cripple entrepreneurship on the dimensions of innovation, risk taking, and proactivity. Formal control helps to ensure that individuals are both team and innovation, not to pursue random or excessive opportunities that are inconsistent with the company's mission and strategic direction. Organizations can achieve formal control in several ways.
4. Conclusion

Testing the first hypothesis states that social networking variables negatively affect managerial entrepreneurship. Testing the second hypothesis states that the organization's innovative cultural variables have a positive effect on managerial entrepreneurship. Testing the third hypothesis states that formal control variables have a positive effect on managerial entrepreneurship.

The researcher is aware of some limitations that might affect the results, even though overall these results provide support from previous research, including the object of research that is still limited, so that it cannot generalize the actual results and the coefficient of determinant $R^2$ is still low, so all three variables this cannot explain overall managerial entrepreneurship. In line with Chenhall et al. (2011), this limitation is possible that there are still other variables that will strengthen managerial entrepreneurship.

Some suggestions that are considered to be taken into consideration are as follows it is expected that further research can include other variables in order to increase the determination coefficient $R^2$ and use a more accurate survey method and the results of this study are expected to be used as a reference for further researchers, this support is in line with the research of Moon (1999) where there is extensive interdisciplinary research on managerial entrepreneurship and there seems to be an attempt to introduce entrepreneurship to the public sector but there is still a lack of research empirical about entrepreneurship.

This research is also expected to provide a contribution to developing how entrepreneurship that is decisioned by decision-making behavior or risk is influenced by three independent variables such as social networking, innovative culture of organization and formal control (management control system), especially in regional companies and Regional Public Service Bodies (BLUD) which is a regional asset that has not given much optimal contribution because it is still lagging behind by private companies in terms of human resources, technology and innovation.

References


