Innovation based Management Knowledge and Information Technology (Case Study on Indonesia Government)

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Abstract
The digital era is now a demand for innovation for R & D institutions based on knowledge management and information technology. The purpose of this study is to investigate and analyze: 1). Innovation based on knowledge management processes on the development of activities to share and absorb knowledge, 2). Innovation based on Information Technology’s role in accommodating the process of knowledge management. The object of this research is at Research and Development Institution of GovernmentThis study used a qualitative analysis approach with the single case study. There are 4 (four) key informants defined by certain criteria. From the collection and analysis of data and information can be seen that: 1). The process innovation base on knowledge management in development activity to share and absorb knowledge R & D institutions of government have been run and produced several innovations through various recommendations of research results are submitted to the technical unit, 2). Utilization innovation base on information technology advances in the development of activities to share and absorb knowledge is a requirement for a functional official researcher, but there are still limited availability of computer equipment.

Keywords--- Innovation, Knowledge Management and Information Technology.
1. Introduction

Innovation is introducing new ideas, new things, new services and more useful new ways. Amabile et al. (1996) defines innovations that relate to creativity are: "Innovation or innovation comes from the word to innovate which means making changes or introducing something new." We are among the ocean of innovation. There are innovations: knowledge, technology, economics, education, social, etc. Innovation can be grouped also for great innovation and little innovation, but very much. Innovation is not necessarily expensive, innovation can be done by anyone, anytime, anywhere. If our ancestors were not innovative, we would all remain in caves, in the dark, naked.

In the Act 23 of 2014 in the Regional Innovation Chapter which has been derived in Government Regulation 38 Year 2017 on Regional Innovation mentioned in article 1 that the Regional Innovation is all forms of renewal in the implementation of Regional Government. Article 3 states that the Regional Innovation is based on the principle of: efficiency improvement; improvement of effectiveness; improvement of service quality; does not create a conflict of interest; oriented to the public interest; done openly; fulfill the value of decency; and can be accounted for the results are not for self-interest. Information technology has changed the whole joint of human life in the world not only related to the ways people communicate with each other but also penetrated the governance, economic governance and so forth. With information technology such as internet, government, business and communication can be done in real time, digital, cross border and cheap. According Barney in Azhar Affandi (2009: 4) the most important and must-have organization is the success of creating innovation. Organizations that are able to compete are learning and creative organizations, this is only possible if the interaction of various knowledge activities within the institution is well executed. As an organization, in the R & D institutions there is a good interaction between the functional officials of researchers (PFP), among staff of R & D agencies, among structural officials, among structural officials and functional officials of researchers with other users or stakeholders. The interaction that occurs can be a means to produce a very useful performance for an R & D institution to compete.

Research Purposes

The main objectives of this research are:

1. To know and analyze knowledge-based innovation processes of knowledge on the development of absorbing and sharing activities, in enhancing the functional abilities of researchers at government research and development institutions.

2. To know and analyze the support or role of Information Technology Innovation in accommodating knowledge management process on developing sharing activity and absorbing knowledge in research and development in improving performance and providing added value and competitive advantage.
2. Theoretical Framework

Understanding Innovation

The word innovation can be defined as a "process" or "outcome" of the development and / or utilization or mobilization of knowledge, skills (including technological skills) and experience to create or improve products, processes that can deliver meaningful value. According to Rosenfeld in Sutarno (2012: 132), innovation is the transformation of knowledge to new products, processes and services, the act of using something new. Meanwhile, according to Partners in the book and on the same page, that innovation is a successful exploitation of a new idea or in other words is the mobilization of knowledge, technological skills and experience to create new products, processes and services. However, according to Aryanto, Fontana, & Afiff (2015) innovation is an economic and social success thanks to the introduction of new ways or new combinations of old ways of transforming inputs into outputs that create major changes in the relationship between usage value and the prices offered to consumers and / or users, communities, societies and the environment.

Almost the same as organizational innovation according to Sutarno (2012: 134-135) defined as new ways of working arrangement, and conducted within an organization to encourage and promote competitive advantage. The essence of organizational innovation is the need to improve or change a product, process or service. Organizational innovation encourages individuals to think independently and creatively in applying personal knowledge to organizational challenges. All organizations can innovate including for corporate organizations, hospitals, universities, and government organizations. The importance of value, knowledge and learning in organizational innovation is essential.

Innovation of R & D institutions Government

The advancement of a nation is determined by the innovation of the nation. Therefore, it is necessary to protect the innovative activities carried out by civil state apparatus in government in advancing civilization. It needs an effort to spur the government's creativity to improve the nation's competitiveness. Therefore, there needs to be an objective criterion that can be used as a guidance for local officials to conduct innovative activities. In this way innovation will be spurred and developed without any worries of being the object of violation of law (Elucidation of Law No. 23 of 2014 on Regional Government, 2014).

Innovation of government R & D institutions in this study are all forms of renewal in the administration of government initiated by institutions of government research and development agencies. Forms of renewal can be made with the application of the results of science and technology and new findings in the administration of government. This arrangement reinforces the synergetic between local government and various stakeholders in order to improve the
implementation of local government and regional competitiveness. These renewal views keep the type of managerial governance autocratic and paternalistic.

In Act No. 23 of 2014 there is a chapter that specifically regulates innovation in the unit. Mentioned that in the framework of improving the performance of governance can innovate in unit. Di in one of the articles mentioned also that in formulating innovation policy there are 8 principles: efficiency improvement; improvement of effectiveness; improvement of service quality; does not create a conflict of interest; oriented to the public interest; done openly; fulfill propriety values; and can be accounted for the results are not for self-interest.

**Knowledge Management**

Knowledge management is the overall management of the process of creation or development of knowledge, the process of knowledge storage and knowledge sharing process and the process of knowledge implementation in order to exploit the tacit and explicit assets possessed by the organization in order to achieve competitive advantage. Nonaka & Takecuchi (1995), Timo Kucza (2001), Regina Yu (2002), Zhou & Fink (2003). Knowledge management is a systematic process of finding, selecting, organizing, filtering and presenting information in a particular way that enhances the mastery of knowledge in a specific field of study, or is generally a technique for managing knowledge within an organization to create value and enhance competitive advantage.

**Sharing Knowledge**

Hooff and Weenen (2004: 13-24) describes knowledge sharing as a process of personal intellectual capital exchange between individuals. This definition implies that knowledge sharing behavior consists of bringing (donating knowledge) and getting (collecting knowledge). Donating knowledge is the behavior of communicating intellectual capital owned by someone to others and collecting knowledge that is individual behavior to consult with other individual about intellectual capital owned. These two behaviors are distinguished as active processes, either communicating with others actively for what one knows or consulting others actively to learn what is known. These two behaviors have different properties and can have different effects. Furthermore Carl Davidson and Philip Voss in Setiarso B (2008: 22) say that managing knowledge is actually a way how organizations manage their employees rather than how long they spend to apply information technology. Actually according to their "knowledge management" is how people from different places start talking to each other.

**Information Technology (IT)**

Progress in the field of Information Communication Technology (ICT) has provided many benefits for the economic progress of a nation. As a form of convergence of information technology, telecommunication, and multimedia, ICT has created various opportunities in economic development as well as challenges. Wescott said that e-Government uses information and
communication technology (ICT) to promote more efficient governance and cost effective suppression, ease of government service facilities and provide access to information to the general public, and make governments more accountable to society (in Mana et al., 2015). UNDP defines e-Government more simply: "e-Government is the application of Information and Communication Technology (ICT) by government agencies". In addition, according to Rusli (in Holle, 2011) conceptually the basic concept of e-Government is actually how to provide services via electronic (e-service), such as through the internet, mobile phone and computer networks, and multimedia. Through the development of this e-Government, then in line with it also carried out the arrangement of information management systems and public service processes and optimize the utilization of information and communication technology.

3. Research Methodology

In this study only do single case study, is a critical test for knowledge management theory based on information technology. Focus Group Discussion as a form of qualitative research, but the authors do not use group interview methods that emphasize the interactions and behaviors that appear in the group, when the group was presented a topic or a particular issue in accordance with the interests of research.

Study Propositions

Study propositions in this study are:

1. Knowledge-based innovation processes on developing sharing and absorbing activities in government R & D institutions
2. The Role of Information Technology Innovation in supporting knowledge management process in developing sharing and absorbing knowledge activity.

A scientific study is required to meet two criteria: logical and empirical, in other words a study is required for quality. To find out that a study meets both criteria, then performed a test in the proof, not exception when doing research case study

Data Analysis Technique Research

Case study refers to the explanatory study, then the analytical technique is also more directed to the explanatory, which will be much done analysis and explanation and data obtained during the study conducted. Differences in perspective from every point of view concerning the application of knowledge management based on information technology can be known from the perspective of structural officials and staff and functional officers as consumers and ultimately the best solution can be obtained; and the last to do chain of evidence, by analyzing the interrelationship between the data collected in the study.
4. Result Analysis and Discussion

In 2017, the global economy is expected to grow better, at a rate of 3.5 percent. The drivers of global economic growth are mainly from developing countries that are estimated to grow by 4.6 percent, better than 2016 which only reached 4.3 percent. Economic recovery is also expected in developed countries, driven by expectations of a more pro-economic policy in the US and the relatively small impact of Brexit on the economy of the European region. The improvement in global economic activity is expected to boost world trade volume, so that world trade volume is expected to grow higher than global economic growth, which is around 4.0 percent in 2017, (WEO IMF, 2017) Funding / budget for research and development activities can be indicated by the percentage of research and development spending on GDP.

From that graph Indonesia is the lowest rank in the research budget of 0.25 from APBN, and second order of Vietnam is 0.20, and third order is Thailand that is 0.63, and 4th order is Thailand that is Malaysia, and 5th order of China that is 2.07, and the order of 6 Singapore is 2.20, and the 7th place of the United States is 2.79, and the sequence to 8 Japan is 3.28, and the order of 9th South Korea is 4.23 from APBN respectively country.


The process of knowledge-based innovation in R & D institutions begins with a state of knowledge owned by government R & D institutions shown by how the functional function of the researcher is reviewed from the aspect of education level, and the level of his research position and his experience in conducting the research. From the interviews with key informants, it can be seen that the functional function of the researcher in the government R & D institution is relatively less able to compete with the foreign researcher, where the research functional position of Research Professor is very rare, although there is already the main researcher.

The results of research used as a mapping that can be said as a pre-case study with informants revealed that in general, the majority answered agree that the process of knowledge management in research and development institutions can improve innovation, through the process of various capabilities in exploring the ability to innovate. The result of description of condition about knowledge management have same opinion with key informant opinion. This condition indicates a conformity to the perception of the knowledge management process in improving the innovation of the functional officers of the researcher. The attitude of knowledge sharing is very good, where functional functionalists of researchers are now doing a lot of knowledge-sharing activities by providing their knowledge includes ideas, expertise and conceptual information to other researchers and has many role as resource persons and experts in R & D
institutions as well as outside R & D institutions. This condition affects the functional level of functional position but does not affect the career of structural positions (for double positions).

The results of the informant's answer set can be known to support the perception of the knowledge management process in improving the innovation. With the increasing frequency of meeting forums in R & D institutions or outside R & D institutions or other parties, R & D institutions are increasingly able to provide ideas or ideas in the form of recommendations provided based on the results of research. Of the several statements answered indicate the high category, but the researcher has a tendency to distribute ideas and ideas outside the research team shown by low criteria, except in formal meetings, the reluctance to distribute ideas or ideas into small ones indicated by high category.

Proposition 2: Information Technology Innovation has a big role in supporting knowledge management processes.

The condition of the availability of information technology facilities and infrastructures in R & D institutions is the availability of internet channels and some who have not built the intranet. With the availability of this facility functional functional researchers can obtain online knowledge that is needed by the researcher, so that although the available computers are still limited, many functional officials of researchers who have their own lap top. Conditions are shown with high category values to obtain various sources of data and information on line. Different use of technological advances in storing data and information has not been widely utilized by functional officers of researchers who are shown with the value of the category is.

The utilization of technological progress in communicating among or among functional researcher's officials in R & D institutions indicates medium category, it can be proved that the amount of direct communication utilized by functional functional officers, with regular meeting meetings, such as regular meetings in research teams, regular meetings FKK and FKPPD, regular meetings among functional officials of researchers and other meetings. Informant answers about Information Technology infrastructure that has a big role in the process of knowledge management is also shown with answers to questionnaires from key informants that have been established.

The condition of the information system available is still limited to the internet and intranet networks, this information system is used to obtain explicit knowledge and to store various materials related to research activities have not been widely utilized, to better utilize this information system to think about the existence of containers that handle the storage of explicit knowledge. In improving the utilization of information technology more effectively and efficiently still needed the existence of instructional facilities based on online education, although in conducting communication some functional officer of researcher already have e-mail address. This condition shows the progress of
information technology is currently relying on knowledge sharing that indicated many functional officials of researchers who at any time use the advances in information technology.

Researchers have felt the need in the application of information technology to improve performance and provide added value or competitive advantage, and for that still needed the online learning-based training tool. Although the utilization of information technology has been used but still needed forums regular meeting periodically.

5. Conclusion

Based on the results of research on Innovation Analysis Based on Knowledge Management and Information Technology at Government Research and Development Institute, it can be drawn conclusions and suggestions as follows:

1. Description of the perception of innovation process based on knowledge management in R & D institutions can improve the ability to innovate.
   a. The process of knowledge-based innovation has occurred in R & D institutions. This process has already begun from the policy innovation of R & D institutions in the formation of research teams, the composition of research teams set can support sharing and absorbing knowledge. The process of sharing and absorbing knowledge can take place from the activity of proposal preparation, design research and survey instrument, data collection, processing and data analysis to the dissemination of research results.
   b. Government R & D institutions have implemented knowledge-based innovation in improving the functional competence of researchers in generating recommendations, but recommendations have not been utilized as a basis for policy conformity and improvement. This unfavorable condition is used as a basis by the user (technical unit or technical directorate general) to conduct self-study activities (actually research and development tupoksi). It is also used to avoid spicy criticism (research and development of value-free institutions so as to provide its recommendations in accordance with reality). This condition is indicated to be in the high category of research results and studies always delivered along with its recommendations.

2. Description of Information Technology Innovation that has a big role in supporting knowledge management process.
   a. Utilization of technological innovation advances Information can not be utilized maximally, this is because the lack of availability of computers that meet the specified specifications, although current technological advances have been relied upon by functional officials in knowledge-sharing researchers (already a requirement). To obtain explicit knowledge always use internet facilities and infrastructure are in high category.
   b. Technological innovation facility in the form of internet network is
available but not yet followed by the provision of supporting facilities and infrastructure.

Bibliography


