

## **Developing Lecturers' Research Performance Monitoring and Evaluation System: A Study from Politeknik Negeri Bandung**

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### **ABSTRACT**

Currently, research performance becomes one of the criteria to determine a university's rank. This performance is highly dependent on the individual lecturer's research performance. Hence, continuous evaluation of individual lecturer's research performance becomes very important. Lecturer's performance evaluation is generally done through Lecturer Performance Planning (LPP) and Lecturer Performance Achievement (LAP). However, LPP/LAP does not reflect the actual achievement and overall performance of individual lecturer. Thus, a monitoring and evaluation system on the research performance of individual lecturer is necessary to address the issue. The findings presented in this research paper were developed using mixed methods. The qualitative approach was done through observation and interview to gather information on individual research performance. A valid and reliable questions form was also developed based on the data obtained from 128 lecturers in Politeknik Negeri Bandung who were selected based on systematic random sampling. The collected data were tabulated and described descriptively. Accordingly, a Performance Monitoring Framework of Individual Researcher has also been developed. The final output of this research is an individual research performance mapping. This mapping will be useful for designing research policy to improve the capacity and quality of individual lecturer's performance, which in turn will contribute to improving research performance of the related institution.

## INTRODUCTION

In the scope of Tri Dharma (education, research and community services), implementing research is one of the obligations of lecturers in higher education. Implementing *Tridharma* was regulated in the Law of the Republic of Indonesia number 12 the year 2012 which stated that the *Tridharma* of Higher Education is an obligation of Universities to organize education, research and community service. Lecturer as academics and as scientists have the task of developing their branch of science and/or technology through reasoning and scientific research and disseminating it. Therefore, implementing research is one of the obligations of every lecturer in the university. The Introduction should provide relevant historical context and bring in any theory considered relevant to the issue being raised in the study. To this end, the author should summarize and reference a number of past studies and/or opinions to lead the reader to the study being reported on in the article. The Introduction should not exceed 15% of the total length of the entire article.

Research has a very important role in supporting national competitiveness, as well as in determining the reputation of a university (Phillips.M, 2012). This is reflected in the ranking indicators for universities worldwide which has been annually conducted by the Times Higher Education (THE). THE research in 2018 used thirteen (13) criteria to measure the performance of a university. Among the 13 criteria, there are four (4) research-related criteria: research reputation, paper per member staff, citation, and research income per staff. Bearing in mind that 4 out of 13 criteria used by THE are closely related to the performance of the university research, it is necessary to have an optimal contribution from the lecturers' research performance. This shows that the research performance of individual lecturer at higher education is a large contributor in determining the institution's research performance and the reputation of the university. In accordance with the expectation of the Ministry of Research, Technology, and Higher Education (MRTHE) which stated that "the results of high-quality research and service to the community can contribute significantly to the improvement of the nation's competitiveness. It has been empirically acknowledged that one of the main factors supporting the nation's competitiveness is innovation based on quality research." Quality research will produce good quality outputs. One of the efforts to do so is through the implementation of monitoring and evaluation of research which must be conducted by every university.

In general, monitoring and evaluation of individual research performance have been carried out since 2005, integrated into the scope of Tri Dharma through the implementation of Lecturer Performance Planning (LPP) and Lecturer Performance Achievement (LAP) Report. LPP and LAP reports are regulated and required under Republic of Indonesia Law number 44 the year 2005. The aim of the planning is more focused on fulfilling the Tri Dharma performance of each lecturer, ranging from 12-14 number of credits per semester. Nowadays, the measurement of individual lecturer's research performance has become increasingly important. It also was paid more attention from various stakeholders, especially research funders. In 2018, the Ministry of Research, Technology, and Higher Education explicitly encouraged higher education institutions to carry out monitoring and evaluation of research performance and achievement at two levels: 1) at individual researcher's level; and 2) at the university's level (Kemenristekdikti, 2018, p.16-17). Furthermore, every three years the Ministry evaluates and analyze the university's research performance. One of the objectives of measuring research performance is to obtain an overview

on the research capacity of each university and determine relevant groups within the university among the four (4) groups, namely: Independent, Primary, Secondary, or Guided. This grouping is used as the basis for granting authority and research fund allocation (Kemenristekdikti, 2018, p.8).

Matching the level of expertise of an individual researcher with the institution's vision and mission presents some challenges. An institution's research performance is the collective results of individual research performances, usually driven by lecturers with the set of knowledge to determine the topic and type of research.

These two interrelated, but possibly contrasting interests, are like two sides of the same coin. It requires good synergy and integration in order for both parties to optimize their goals. In this condition, monitoring and evaluation become the connecting "bridge". This paper shares the results of a study about "Monitoring and Evaluation System on Research Performance of Lecturer ". The purpose of the study is to find a proper Monitoring and Evaluation (M&E) Model to measure the research performance of individual lecturer. Through the implementation of M&E, it is expected that a university can produce a blueprint for its research performance which will aid its management in decision and policy making. In the long term, it will also help the university to increase the quantity and quality of lecturers capable of conducting researches that improve research management capacity within the institution.

Based on the literature review, it is understood that monitoring and evaluation are two integrated activities devised to control the performance of a particular program. (Unmugwaneza. A and Julius, 2016; Phillips. M, 2012; Tovey and Uren, 2006). Further, Wijaya (2018) who conducted research on the monitoring and evaluation system of the study program's management in higher education institutions in Indonesia explained that monitoring is not complete without evaluation, because monitoring and evaluation have equally important roles and complement each other in controlling existing transactions. Even evaluation (in a government institution) can increase transparency, strengthen accountability, and improve performance.

In general, monitoring and evaluation activities are aimed at optimizing a program. The difference between the two are as follows: monitoring is carried out when the program is still running while evaluation can be carried out both when the program is still running, or when the program has been completed. In regards to the subject of each activity, monitoring is usually carried out by internal parties while evaluation is usually carried out by both the internal and external parties (Wheelen and Hunger, 2012; PSC, 2008; Tovey and Uren, 2006). Moreover, UNDP (2006) urge that information from monitoring needs to be used to encourage improvements or reinforce plans. Information from systematic monitoring also provides critical input to evaluation. It is very difficult to evaluate a program that is not well designed and that does not systematically monitor its progress.

Although it is an integrated activity, Monitoring and Evaluation have their own focuses. Tovey and Uren (2006, p. 126) explained that monitoring provides basic information needed to analyze (evaluate) performance. Monitoring is a continuous assessment on the functions of activities in a program, particularly in terms of program schedule and how inputs from the program are being used by the targeted groups set in the objectives of the program (Unmugwaneza. A and Julius,

2016; Gumz and Parth, 2007; Tovey and Uren, 2006). From monitoring, program managers obtain important information that can be used to make decisions. Without sufficient information, the implementation of the program will be prone to failure. Therefore, information obtained through monitoring can support program managers to respond quickly to new situations and to changes in the implementation of the program. On the other side, evaluation is the process of identifying problems, collecting and analyzing data, deducing results that have been achieved, interpreting results into policy formulations, and presenting information (recommendations) for decision-making (Gumz and Parth, 2007; Tovey and Uren, 2006; Wholey, 2004).

On individual research activities, monitoring and evaluation are focused on ensuring that the implementation and outcomes are in accordance with the research proposal that has been approved by the funder. Similarly, evaluation of research activities is more focused on the efforts in digging up information about the process and results of research in order to assess the outputs' quality (LPUNJ, 2006). It is directed to assess the consistency between research outcomes and research objective, as well as the problems outlined in the research proposal. Holistically, research evaluation needs to be done on the overall performance of lecturers' research outputs to identify the achievement of the lecturers' research performance at a certain period of time, for example within a period of 3-5 years. This is done with the intention of knowing the impact of the research output (Phillips. M, 2012). Information related to this matter is very necessary because lecturer's performance will impact and contribute to the research performed in the Faculty/Department which ultimately contributes to determining the institution's overall research performance. This kind of impact is assessed annually by the Ministry of Research, Technology, and Higher Education, which published the ranking results to the public every three years.

## **METHODS**

This study uses a mixed approach that begins with a qualitative approach and continues with a quantitative approach. In the qualitative approach, the researcher conducts a literature review and studies the research implementation report documents managed by the university, particularly by Research and Community Service Unit of Politeknik Negeri Bandung. The main focus is to know the progress of research development in each Department in Politeknik Negeri Bandung. A literature study was conducted to identify aspects related to researchers' performance, various regulations, secondary data sources from literature studies, and related documents.

All identified information and materials are used by researchers to develop questions form to collect quantitative data. The item statements on the questions form tend to be in the form of normative research performance outcomes that are obtained from government regulations. Therefore, the researchers did not perform statistical validation and reliability tests on the question form, but rather validated the content of the question form by the research Monev expertise and practitioners. The questions form were distributed to be filled out by lecturers from 10 Departments and 1 service unit for general courses (UP.MKU) as the research's population. 128 questions form has been filled out and returned on time for this research purpose.

Data and information obtained from secondary sources and questions form are presented in the form of tabulations and graphs to map the performance of individual lecturer and lecturer groups

from several departments and UP.MKU in Politeknik Negeri Bandung. These data were analyzed to describe performances, existing gaps, and the application of strategies to improve research performance of individual lecturer. To complete, confirm and clarify the obtained information, further exploration (qualitative) was carried out by interviewing a number of respondents representing Polban's management. The representatives were selected based on systematic random sampling. The criteria of respondents were lecturers representing 11 departments at Politeknik Negeri Bandung, actively carrying out research and obtaining grants from the Indonesian government. Based on information gathered from the exploratory studies, several aspects were identified. These aspects were used as references in developing the draft of individual lecturer's research monitoring and evaluation systems. Descriptive method was used to analyze the data.

## RESULTS AND DISCUSSION

### Results

Currently, Polban has 497 (four hundred and ninety- seven) lecturers. These lecturers are potential assets to support the institution's high-quality research performance, including supporting Politeknik Negeri Bandung to be included in the group of Indonesia' Main Universities.

#### 1. Indicators of individual lecturer's research performance.

Normatively, the indicators that must be fulfilled by each lecturer as evidence of conducting research at Politeknik Negeri Bandung are as shown in Table 1 below.

Indicators	Year
a. Number of Research	
b. Implemented Research Schemes	
c. The number of Scientific Works Publications	
d. The number of Intellectual Property Rights (IPR)	
e. Number as Paper Presenter	
f. Number as Resource Person	

Table 1: Components of Assessment of Lecturer Research Performance

#### 2. Development of research

The development of research in Polban is described in 3 parts, namely development of the number of research activities, development of researcher participation, and development of the of publications.

##### a. Development of Research Activities at Polban

The development of the research activities of lecturers in Polban based on the implementation of the research scheme from 2011-2017 is shown in Chart 1. While Chart 2 shows the development of research based on research schemes from 2015 - 2018.

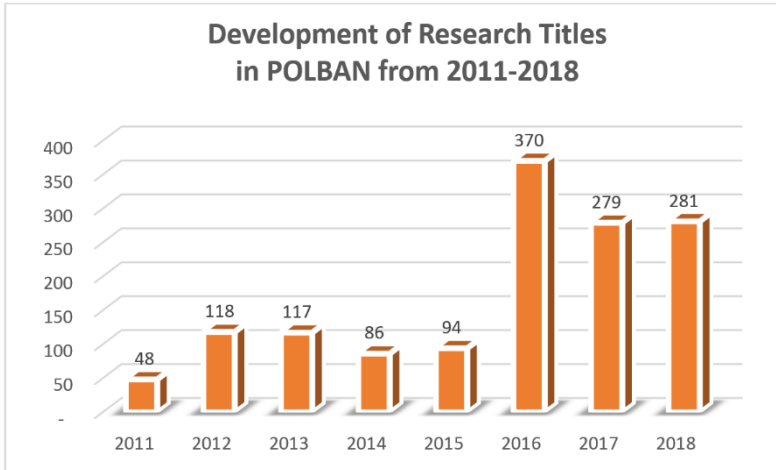


Chart 1: Development of Research Title in POLBAN from 2011-2018  
 Source : Processed primary data, 2018.

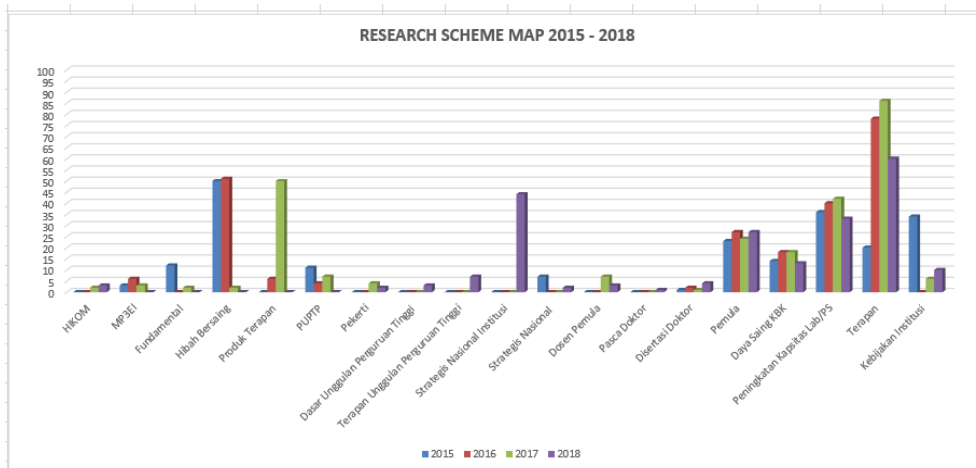


Chart 2: Lecturer Research Scheme from 2015-2018

The number of research conducted by lecturers in all departments in Polban from 2011 to 2017 is very dynamic. The Chemical Engineering Department recorded the most research activities with 18% out of the total, followed by the Electro Engineering Department with 15.29%. The implication of the data is that the development of research activities is more common in the engineering group compare to the administration and commerce group. This also means that monitoring and evaluation need to explore aspects that can act as a driver for lecturers to improve research activities and performance.

Based on Chart 1 and 2, it can be seen that the most widely carried out research scheme are: Competitive Grant Scheme and Applied Research Scheme. This means that the type of research carried out is more focused on technology that is applied, not to the development of science. Therefore, the results of those studies will be very useful as a solution to problem-solving in the community. For example, research on the use of oil condensation results in asphalt material with sulfonation method, the development of a home energy management system in a PV-Grid configuration to reduce energy cost.

b. Development of Lecturer Researchers

The development of the number of researchers can be seen in Chart 3 below:

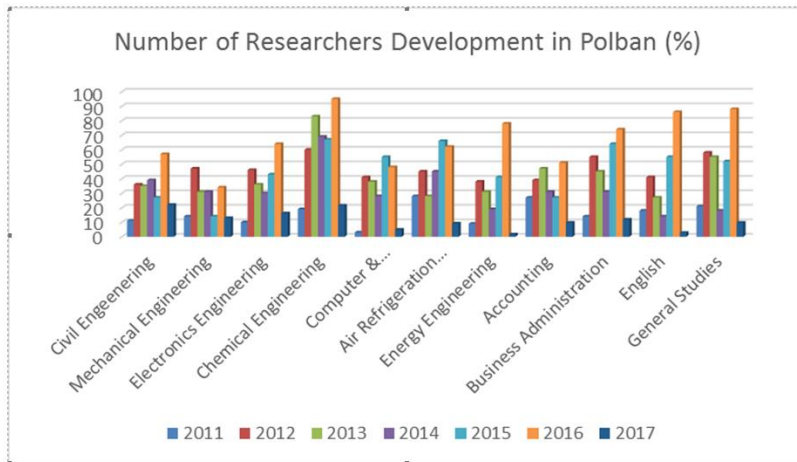


Chart 3: Researchers Development at Polban in 2011-2017

Source : Primary data processed, 2018.

Data shows that the Department of Electro and Civil Engineering have the highest level of development in the number of researcher's participation with 14.44% and 13.48%. It followed by Chemical Engineering (13.31%), Accounting (10.22), Business Administration (10.19), while other 6 Departments have less than 8%. While based on the educational background, the research activities were dominated by lecturers with S2 and S3 education background with the level of job rank IVA and IIIC.

The implication of the data is that there are still quite a number of lecturers who need to increase their capacity to participate in obtaining research grants from the government. This also means that monitoring and evaluation need to explore the skills needed by lecturers to be able to improve the performance of their research. Data from monitoring and evaluation will be very useful for designing training topic and types as well as the appropriate approaches.

c. Development of Publication / Outputs of Research Results

The publication of scientific articles as the results of research can be seen in Chart 4 below.

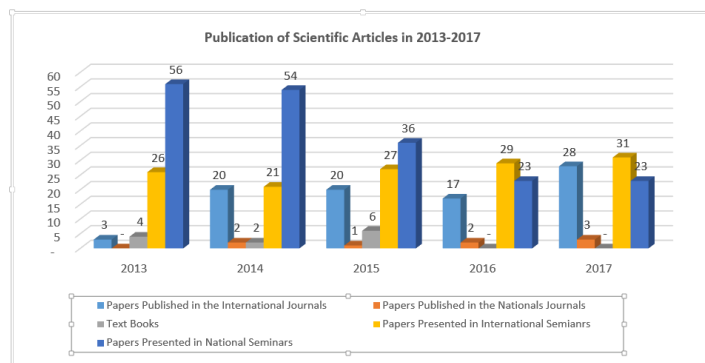


Chart 4: Development of Publication / Outputs of Research Results

Source : Primary data processed, 2018.

Chart 4 shows that scientific articles produced by lecturers at Polban from 2013-2017 tend to be published in international journals, with a total of 88 articles, and total numbers of articles published in accredited national journals are 8. It is followed by scientific articles published in the international proceedings (134 articles) and national proceedings (192 articles).

## Discussion

Monitoring and evaluation (M&E) activities carried out by the Research and Community Services Unit at Polban (RCSU) consist of 2 categories. First, the monitoring and evaluation to monitor the implementation of the research activity carried out by a lecturer who receives funding support, both from internal and external sources (decentralization of the Higher Education Ministry or other funders). The individual research M&E is more focused on ensuring the effectiveness and completion of the individual research outputs. The M&E research activities of lecturers at Polban are carried out in three stages partially, namely the stage of research preparation conducting research and preparing the final report on the research output as shown in Chart 5.



Chart 5: M & E System of Lecturer Research Performance

During the research preparation phase, monitoring and evaluation are carried out through a review of research proposals submitted by the researchers. This review is conducted to find out the research that can be accepted by RCSU in accordance with its guidelines. During the implementation phase, monitoring and evaluation are focused on monitoring the progress of research from funded research proposals. Each principal researcher reports the progress of his research implementation to RCSU. In addition to progress, M&E were also carried out on the results of the study, including the final report. In the last phase, M&E focuses on the results of the research, especially in the form of report and research products. The focus of monitoring and evaluation is directed at the results of research activities. They can be in the form of prototypes, models, patents, books and so on. M&E in the first category was conducted in part by lecturers who received research funding support.

Second, monitoring and evaluation at the institutional research management level which focused on monitoring of the overall performance of research in the current and previous years. M&E towards research performance at the institution level is focused on supporting strategic decision making. Through M&E, the overall strengths and weaknesses of research performance can be identified, including the implications and impacts. Furthermore, data and information obtained from M&E are used to make the strategic decision of institutional research performance. For example, this study found that the number of studies conducted by lecturers in all departments in Polban from 2011 to 2017 was very dynamic. The Chemical Engineering Department recorded



the highest research activities with 18% of the total number of research activities at Polban, followed by the Department of Electro Engineering with 15.29%. While other departments have conducted less than 12% of research activities at Polban. Therefore, the M&E officer needs to explore more information about aspects that can be used as a driver for lecturers to improve the performance of their research. Especially considering that most types of research activities carried out by lecturers are focused on applied technology which will be very useful as a solution to solving community problems.

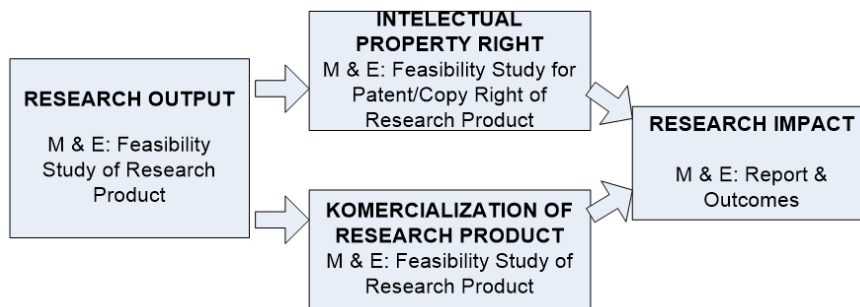


Chart 6: Integrated M&E Institutional Research Performance System

In addition, research manager at the RCSU level needs to monitor and evaluate the overall research performance of lecturers. The data generated from M&E is very useful for mapping the research performance of Polytechnic Lecturers and for categorizing lecturers based on their research capacity. These two results are ultimately utilized by institutions to make policies to improve the performance of institutional research. For example, in Polban, four new internal research schemes have been developed, including an increase in the type and amount of incentives as a reward for achieving research outcomes such as the publication of scientific articles in indexed international journals, the provision of grants to present papers at national and international seminars, and incentives for publications of research textbooks.

Monitoring and evaluation at the institutional level are very important to ensure that the policy and decision making by the Polytechnic management is aligned with its vision and mission. This M&E focused more on research output in the form of products and their functions, as well as the dissemination of research outcome, the impact of research (both direct and indirect impacts) and the commercialization of research results. However, the measurement on impacts of research outputs needs to be considered, especially since the period of application is calculated after the output is produced. To the knowledge of the author, there is currently no exact time period related to when the M&E of research impact should be conducted. However, according to the monitoring and evaluation to UNDP programs, 3-4 years after the dissemination of research results is an ideal time to conduct studies on the impact of research results so that the long-term effects and unexpected outcomes can be fully captured.

## CONCLUSION

Monitoring and evaluating the performance of individual lecturer's research has been carried out in an integrated system from the preparation stage of the research to the production of research outputs. However, integrating the monitoring and evaluation of research outcomes should be considered, especially that measurements made by external parties as the research funding

bodies beginning to be more focused on knowing the impact and commercialization of the research results. Moreover, the contribution of outputs and outcomes of individual lecturer's research results is very important in determining an institution's overall research performance which also affects its reputation. Nowadays, the provision of incentive funds as an appreciation of the achievement of individual lecturer's outputs and research outcomes at Polban is getting better. However, it can still be improved, both in terms of quantity and amount of funding. Furthermore, monitoring and evaluation of the impact of research dissemination need to be carried out as an integrated monitoring and evaluation system. The time period of Money on the research outcomes should also be considered, ideally between 3-4 years after the research output is produced.

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