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# Analysis of Supporting Factors for the Successful Performance of Project Management Office (PMO) at PT XYZ

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**Abstract.** The environment in which an organization operates can be shown to be increasingly complex and competitive, thus encouraging companies to develop strategies to get a fast, flexible, and innovative response. A project-oriented work will have great support in the organization. Thus, having project management within a company will be able to help deliver planned and controlled results. PT XYZ is a one of telecommunications company in Indonesia which has taken proactive steps to improve digitalization based project management using the PMO and open opportunities at the MBKM program through Kemendikbudristek platforms. This study aims to determine the factors supporting the success of PMO performance at PT XYZ using the Structural Equation Modelling (SEM) method. The result on this study are the factors that support the successful performance of PMO at the PT XYZ on the MBKM project, there are three factors that must be considered, namely strategy, operations, and project performance.

**Keywords.** SEM, project management office, PMO, performance.

## 1. Introduction

In the last few years, there has been a digital transformation that has spread throughout so as to allow progress in connectivity on various lines leading to the new industrial revolution era known as the industrial revolution era. Currently the development of technology is very rapid, especially in the field of communication and information technology. One of the impacts of the industrial revolution 4.0 is increasing business competitiveness. Companies are encouraged to keep abreast of technological developments. Market competition can encourage organizations to look for ways to overcome sifficulties and to ensure the survival of an organization. A project-oriented work will have great support in the organization. Thus, having project management within a company, will be able to help deliver planned and controlled results at the organizational level because projects are a powerful tool for creating economic value and competitive advantage [11].

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Project Management Office (PMO) is an element that has helped organizations manage their business better, through the implementation of a formal structure by helping to minimize risk, reduce conflicts between projects and operations, and provide the right methodology [11]. Therefore, the PMO has the responsibility to provide support in the implementation of a project [13]. Some of the success factors of PMO in an organization, among others, are teams that have knowledge and skills, support from top management and stakeholders, quality of PMO competencies in organizational leadership, and have a vision, mission, roadmap, process standards, roles and responsibilities, and a clear organizational structure [13].

When running the internship project, some problems that were felt based on the complaint information obtained by several interns were rapid project changes due to failed projects. This is because the superior has the authority to cancel a project that is not in accordance with the standards, projects that cannot be implemented in the future, and the lack of opportunities for the success of the project. In addition, another problem is the project that takes a lot of time and costs. This can happen when interns have not taken into account the time and budget required in detail when creating a project. So that this has an impact on the lack of understanding of the interns on the basic knowledge of the success of a project. Therefore, this study has the potential to develop a model based on previous research and based on the MBKM project with a PMO study at PT XYZ.

## 2. Literature Review

### *2.1. Project Management Office*

The Project Management Office (PMO) is a form form of an organization that is assigned to have responsibilities related to responsibility for all projects in its scope [14]. PMO exists as an entity to support management within the organization on a large and complex project, which must be skilled in manufacturing, accounting, human resources, information technology, and other areas within the company [2]. The focus of PMO is on planning, prioritizing, and implementing projects in an organization [14].

PMO is a way to adapt and maintain practices, methods, techniques, and tools in organizations [5] as well as organizations that provide projects managers, project teams, and functional managers efficiently and effectively [4]. The PMO concept basically makes project priorities very influential by changing organizational mindsets such as combining several project-related tasks and providing project selection, project manager training, overseeing projects, and developing project manager careers [7]. In addition, PMO ensures professionalism and supports individual projects by applying broad principles and selected project management practices to each project [6].

### *2.2. Project Performance*

Project performance is the perception of time, cost, team satisfaction, specification changes, and project data control by linking functions or success factors with project performance [3]. The results of the PMO are not only evaluated in terms of time, cost, scope, and quality, but also include team morality and strategy within the [3]. Research from [9] identified the effect of PMO in influencing project performance with low to high complexity [3]. Monitoring and controlling project performance is of paramount

importance, as important as maintaining communication between project stakeholders [2].

There is an impact of having PMO on project performance, where PMO has a positive impact in terms of knowledge and quality of the project portfolio [2]. Research [1] states that changing the PMO leadership can improve project performance [2]. Large projects are measured in terms of strategy, especially income which is influenced by project performance [12].

### *2.3. Partial Least Square – Structural Equation Modelling (PLS – SEM)*

Structural Equation Modelling (SEM) is a statistical modeling technique that is highly cross sectional, linear, and general [8]. In addition, SEM includes factor analysis, path analysis, and regression. For now, the SEM method is estimated to be the most important multivariate method. In estimating SEM, there are two approaches, namely a covariance-based approach known as Covariance Based SEM (CB-SEM) and a variance-based approach known as Partial Least Square SEM (PLS-SEM). CB-SEM is used for research that aims to prove the truth of the theory, while PLS-SEM is used to develop theory in explanatory research. The main purpose of PLS-SEM in structural equations is to predict and explain latent variables [16]. PLS-SEM is used because of the method's ability to obtain meaningful solutions in all situations, especially when the sample size is small and when the research focuses on complex theoretical models with a number indicators and many endogenous, exogenous, or abnormally distributed data construct.

## 3. Methods

Based on the literature study that has been carried out, combining variables from the two previous studies and adapted to the Telkom MBKM project to become a more comprehensive study. The following is the conceptual model of the research shown in Figure 1.

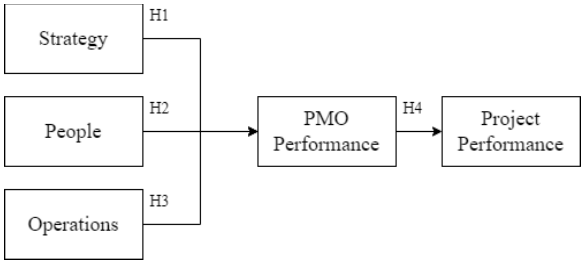


**Figure 1.** The Conceptual Model.

### *3.1. H1 : Strategy has a significant positive effect on PMO Performance*

The role of PMO at the strategic level refers to organizational results which are an appropriate assessment of business performance and company results [11]. The study also shows that strategy has a positive effect on PMO performance. Based on this study, the hypotheses that can be formulated as H1.

### *3.2. H2 : People have a significant positive effect on PMO performance*

The role of PMO at the people level refers to the process and methodology for evaluating the implementation of the methodology and service quality in projects [11]. The study also shows that people have a significant positive effect on PMO performance. Based on this study, the hypotheses that can be formulated as H2

### *3.3. H3 : Operations has a significant positive effect on PMO performance*

The role of the PMO at the operations level refers to the results of a project, so the steps to implement the project must be controlled [11]. The study also shows that operations have a significant positive effect on PMO performance. Based on this study, the hypotheses that can be formulated as H3.

### *3.4. H4 : PMO performance has a significant positive effect on project performance.*

PMO performance is a qualitative and quantitative characteristic that shows the existence of different dimensions in PMO, which affect the success of PMO and to determine the effect of PMO on a project [11], [3]. Research [3] shows that PMO performance is important dan has a significant effect on managing project teams (project performance). Based on this study, the hypotheses that can be formulated as H4.

## 4. Data Collection

After the model framework is formed, then the making of the questionnaire begins compiling each variable and indicator after the operationalization process. The following are the results of the variables and indicators in this study shown in Table 1.

In this study a questionnaire was used to obtain data which would later be processed to determine the factors supporting the success of PMO performance. Distributed questionnaires contain questions created from the previously defined attributes of the questionnaire. The questionnaire scale used in this study is a likert scale with 1 to 5 points [3]. The selection of the 5 points scales based on which states that the 5 points scales produce data of better quality, which is consistent with previous findings. So, in this study using a 5 points scales.

Questionnaires were distributed online to staff and interns at the PT XYZ when conducting internships at MBKM intern through the Google Form media. The questionnaire can be filled out using a device or other device. This research used purposive random sampling method. This method target individuals with certain characteristics [15]. Respondents from this study were staff and interns in the PMO division at PT XYZ. The minimum sample size used by PLS-SEM is 30 sample sizes [10]. Based on limitations of the study and the practical rules that have been explained, the sample in this study used was 35 respondents.

**Table 1.** Variables and Indicators

| Variables | Indicator | Source | Code |
|---|---|---|---|
| Strategy (S) [11] | Deployment and structure of PMO | [11] | S1 |
| | Business case | | S2 |
| | Project feasibility analysis | | S3 |
| | Project management methodology | | S4 |
| | | | S5 |
| | | | S6 |
| People (P) [11] | Project management frameworks training | [11] | P1 |
| | Project management methodologies training | | P2 |
| | | | P3 |
| | Professional certification | | P4 |
| | | | P5 |
| Operations (O) [11] | Performance metrics | [11] | O1 |
| | Change control | | O2 |
| | Attenuation/leverage risk | | O3 |
| | Level of satisfaction | | O4 |
| PMO Performance (PO) [11] [3] | Stakeholder satisfaction | [3] | PO1 |
| | PMO leadership and competencies | | PO2 |
| | Project management maturity | | PO3 |
| | PMO result | | PO4 |
| Project Performance (PE) [3] | The perception of performance in time | [3] | PE1 |
| | The perception of cost performance | | PE2 |
| | The perception of performance in team satisfaction | | PE3 |
| | The perception of performance in the volume of changes in specifications | | PE4 |
| | The perception of performance in terms of project data control | | PE5 |

## 5. Result and Discussion

### *5.1. Statistical Descriptive*

This summary of the questionnaire can be seen in Table 2. This section will discuss the result of survey data processing with descriptive statistics consisting of age, gender, position, and length of service in the last position.

**Table 2.** Variables and Indicators

| Age | Precentage (%) | Gender | Precentage (%) |
|---|---|---|---|
| < 21 years old | 9% | Male | 31% |
| 21 – 25 years old | 88% | Female | 69% |
| 26 – 30 years old | 3% | | |
| >30 years old | 0% | | |

| Position | Precentage (%) | Length of Work | Precentage (%) |
|---|---|---|---|
| Staff | 20% | <1 years | 89% |
| Interns | 88% | 1 – 3 years | 11% |
| | | >3 years | 0% |

### *5.2. Outer and Inner Model Evaluation*

The outer model test is carried out based on three tests, namely convergent validity, discriminant validity, and composite reliability. Convergent validity is determined through the value of outer loading and Average Variance Extracted (AVE). The indicator

can be said to be valid if the outer loading value is greater than 0,7 or the AVE value is greater than 0,5 that can bee seen on Table 3 and Table 4.

**Table 3.** Outer Loading Value

| Indicator | Outer Loading | Indicator | Outer Loading |
|---|---|---|---|
| O1 | 0,882 | P1 | 0,826 |
| O2 | 0,862 | P2 | 0,783 |
| O3 | 0,712 | P3 | 0,786 |
| O4 | 0,757 | P4 | 0,844 |
| | | P5 | 0,715 |
| PE1 | 0,929 | PO1 | 0,814 |
| PE2 | 0,787 | PO2 | 0,756 |
| PE3 | 0,812 | PO3 | 0,870 |
| PE4 | 0,867 | PO4 | 0,837 |
| PE5 | 0,865 | | |
| S1 | 0,888 | | |
| S2 | 0,765 | | |
| S3 | 0,772 | | |
| S4 | 0,890 | | |
| S5 | 0,731 | | |
| S6 | 0,747 | | |

**Table 4.** Average Variance Extracted (AVE) Value

| Variable | AVE | CR |
|---|---|---|
| Operations | 0,650 | 0,881 |
| People | 0,627 | 0,894 |
| Project Performance | 0,728 | 0,930 |
| PMO Performance | 0,673 | 0,892 |
| Strategy | 0,642 | 0,915 |

Based on the results of the outer loading value, it can be seen that all indicators both in the strategy variables (S), people (P), operations (O), PMO performance (PO) and project performance (PE) have values greater than 0,7 so that all indicators can be gauges for variables in the measurement model. Next step is review the AVE value. The reliability is tested using composite reliability (CR) value and that all variables have a composite reliability value of more than 0,7. This shows that all variables are reliable.

The next step is inner model evaluation. Inner model testing is by looking at the value of R-square (R2) and the value of Predictive Relevance (Q2). The project performance variable has the value of R-square (R2) can be influenced by the PMO performance variable by 87,5% and the PMO performance variable can be influenced by the strategy, people, and operations variables by 90,1%, while the rest is formed by other variables not included in this study.

The project performance variable has a Predictive Relevance (Q2) that can be concluded that this research model has a relevant predictive value where the proposed research model can explain the information contained in the research data by 62,4% and 57,2% that can be seen on Table 5.

**Table 5.** R-Square and $Q^2$ Predictive Relevance Value

| Variable | $R^2$ | $Q^2$ |
|---|---|---|
| Project Performance | 0,875 | 0,624 |
| PMO Performance | 0,901 | 0,572 |

### *5.3. Hypothesis Testing*

Hypothesis testing can be done by looking at the significance value or p-value. If the p-value is less than 0,05 then the relationship between the variables is significant that can be seen on Table 6.

**Table 6.** Hypothesis Testing

| Hypothesis | Variable | P-Value | Decision |
|---|---|---|---|
| H1 | Strategy -> PMO Performance | 0,011 | Supported |
| H2 | People -> PMO Performance | 0,497 | Not Supported |
| H3 | Operations -> PMO Performance | 0,000 | Supported |
| H4 | PMO Performance -> Project Performance | 0,000 | Supported |

In this study, there were 4 variables that were tested for their influence on the success of PMO Performance, namely strategy, people, operations, and project performance. The results of data processing show that the strategy, operations, and project performance variables have a significant positive effect on PMO performance. So, in this study, three hypotheses were accepted and one hypothesis was rejected.

In this study, although people have a positive effect on PMO performance, it will not have a significant effect on PMO performance. This is related to the results of questionnaire collection which stated that most of the staff and interns in the PMO division at Telkom Corporate University Center has experience of less than 1 year and between 1 to 3 years. In addition, in the Telkom MBKM program, training on PMO is given when the interns are outside the project, thus assuming that knowledge and training about PMO does not significantly affect the success rate of PMO performance.

## 6. Conclusion

The conclusion that can be obtained based on the results of the analysis of this study are the factors that support the successful performance of PMO at PT XYZ on the MBKM project, there are three factors that must be considered, namely strategy, operations, and project performance. In addition, factors that need to be improved to achieve successful PMO performance at the PT XYZ on the MBKM project are related to PMO training and certification.

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