# Measuring Agile Project Management Effectiveness with the Application of Customer Characteristics, Organizational Influence and Project Management Methodologies in Indonesia

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*Abstract:* - This paper focuses on quantitative research with constructs such as customer characteristics, organizational influence, and project management methodologies, and how the constructs affect their relationship with the dependent variable of agile project management effectiveness. Additionally, partial least squares structural equation modeling or PLS-SEM is employed for this study as the tool to analyze data. Furthermore, 156 data samples were gathered for this study which mainly aims for APM practitioners in Indonesia. The findings of this study indicate that customer characteristics do not support APM effectiveness and the moderating variable of PM methodology between the relationship of customer characteristics and APM effectiveness is not supported. However, the results of this study can conclude that customer characteristics positively affect organizational influence. While organizational influence does positively support APM effectiveness. To improve research on APM effectiveness in Indonesia, this study contributes to laying the preliminary work for future research.

*Key-Words:* - Agile Project Management, Customer Characteristics, Organizational Influence, PM methodology, Effectiveness, PLS-SEM.

Received: April 29, 2024. Revised: November 2, 2024. Accepted: December 3, 2024. Published: December 31, 2024.

## 1 Introduction

Within the 21st century, an approach known as agile project management (APM) has been created to further advance the frameworks of traditional project management. Although APM is a newer version of the traditional PM and was developed only 20 years ago [1], it has also spread versatility to other industries such as construction and food [2] and the healthcare industry, [3]. In a KPMG report, not a single respondent from Brazil has not applied agile methodologies, and over 40% wish to be agile within a venture level. Respondents from the Netherlands indicate that organizations are not contemplating whether APM should be implemented, instead, they are figuring out how would they implement it. On the contrary, respondents from Germany specify that although APM is already known, waterfall methodologies are used more frequently, [4]. The results of the 2021 KPMG and AIPM project management survey mention that 71% of individual respondents and 68% of organizations within Australia have successfully implemented APM either fully adopting APM or a mix between APM and traditional PM. Furthermore, the survey informs its

readers that 52% of individual respondents believe that APM improves success rates among projects, while only 37% of organizational respondents think that APM boosts their success rates, thus creating mixed responses for APM practitioners in Australia, [5].

Evidence of APM and its benefits have been researched thoroughly on a global scale. However, to understand the effectiveness as well as challenges to its implementation would have to be further discussed and explored. APM has been researched globally, however, the presence of research studies regarding APM in Indonesia is limited, therefore more reasons to create empirical evidence of APM in Indonesia. Research conducted by PWC Indonesia found that the adoption of APM within Indonesian banking firms is still in the early stages, as only 24% of Indonesian banks have adopted APM on more than 50% of their projects but not all. However, 76% of the respondents from Indonesian banking firms believed that APM would be implemented in Indonesia in the coming years, [6]. From the two articles of KPMG Australia and PWC Indonesia, it is arguable that APM from both countries have been incorporated into their structure but the benefits from APM itself have not been thoroughly analyzed. A few studies on the implementation of APM within Indonesia imply that the biggest challenge of APM in Indonesia would be communication variables, [7]. Teamwork quality is also a major component within APM, especially within startups in Indonesia, [8].

Despite the study [9] that considers factors including PM methodology, organizational challenges, and customer-related challenges as challenges in implementing APM within Indonesian companies, while waterfall methodology is the biggest challenge. There is still a lack of evidence on the significance of the study within Indonesia. This study provides theoretical frameworks to develop the hypotheses. The analysis, results, implication of results, and limitations are also discussed. What differentiates this paper from other related technical literature papers is that the effectiveness of APM is researched within the areas of customers, organizations, and PM methodology. The current literature mainly focuses on the implementation of APM and not the effectiveness of it.

Additionally, this paper aims to measure the effectiveness of APM in correlation to variables such as Customer Characteristics, Organizational Influence, and Project Management methodologies within Indonesia.

# 2 Literature Review

## 2.1 Project Management

Companies that do not transition from traditional project management (PM) into agile are due to organizational influence, these companies do not find fault within traditional PM from previous experiences, therefore it would be rational for them to continue implementing waterfall methodologies. [10], based on empirical research, a company culture that leans towards hierarchy tends to utilize more of a waterfall methodology instead of APM, [11]. However, practitioners of traditional PM tend to experience more challenges when facing projects with high uncertainty, [12]. Additionally, practitioners of project management have acknowledged that traditional project management methods might not be ideal for planning and execution as they look for other alternatives such as APM, [13].

## 2.2 Agile Project Management

One of the differences between APM and traditional PM is that APM is capable of adapting to uncertainties and changes throughout the process of the project, [14].

Moreover, APM encourages uncertainties and change to make the most out of the competitive advantage of the customer, [15]. Another factor within APM is that there is a high emphasis on communication and collaboration between customers or clients and the project team, [16], [17].

To explain the phenomena of APM, three agile theories can be employed to describe them. The complex adaptive system theory which emphasizes interactions and feedback can be defined as a system that undergoes constant change from uncertainties within its environment and adapts its rules as learning experiences progress, [18]. The control theory can be defined as the attempt by management to ensure that all parties working on projects would have to follow a strategic strategy before achieving their goals, [19], [20]. Moreover, the control theory monitors and evaluates the behaviors and outcomes of participants which is an important factor in analyzing team performance in efficiency and effectiveness, [21], [22]. The coordination theory refers to the

information that coordination is important in identifying dependencies within an information system. Moreover, coordination is an important factor within agile software development as teams working on projects within an organization require coordination from one another, [23], [24]. However, a study also suggests that coordination theory only focuses on identifying dependencies and is not suitable for prediction. Furthermore, coordination research within information systems has found that coordination is necessary but does not determine project success, [23].

## 2.3 PM Methodology

APM has transitioned into various types within the software development field such as Scrum [25], XP also known as extreme programming [26] and Kanban [27], [28].

### 2.3.1 Scrum

Scrum is an agile software method that prioritizes working in sprints, which are iterations that break down complex projects into smaller parts, [29]. Scrum consists of three factors: product backlog, sprint backlog, and sprint burnout chart, [30].

### 2.3.2 Extreme Programming (XP)

Extreme Programming also known as XP is another type of APM method that employs the principles of Agile within the manifesto. The differences between XP with other types of agile methodologies mainly revolve around its incremental planning approach which changes accordingly as the project moves on to the later stages, [31].

### 2.3.3 Kanban

Kanban is yet another type of APM methodology that is incorporated within the manufacturing industry. The main system of Kanban revolves around delivering raw materials to the next stage of production only when there is a presence of customer demand, this means that there would be less waste as over-production is eliminated thus creating a sustainable approach, [32].

PM methodology can be defined as a manual or guide for PM practitioners to manage their projects effectively and lead to project completion, [33]. PM methodologies vary from a wide range of types such as Scrum, Extreme Programming, and Kanban. Furthermore, the choice of PM methodology itself might affect the organizational influence as well as the effectiveness of APM. A study regarding project management methodology usage explains that 35.3% of their respondents tend to use Scrum while 29.8% of respondents frequently use waterfall methodology. It is also stated that PM methodology should be tailored according to the sector in which the organisation operates, [34]. The correlation between PM methodology and organizational influence would have to be researched further.

From an effectiveness standpoint, choosing a random PM methodology and following it would not lead to success and its benefits such as ease of project control and effectiveness would not be achieved, [33], [35]. For example, a study conducted on repetitive construction companies concluded that the PRINCE2 project methodology is the most suitable for the organization as its guidelines allow the company to provide as much information as possible to team members, [36]. Ultimately, the effectiveness of PM methodology comes from the choice of methodology. However, the study of PM methodology in correlation to APM effectiveness has not been done within Indonesia.

There are three factors to be considered when measuring the PM methodology effectiveness. The first is Development Practice, which addresses best practices within the Agile technique, specifically pertaining to the Scrum Framework. Second, product ownership is a crucial scrum project stakeholder that influences the project's overall performance by establishing priorities, setting direction, and ensuring quality. Thirdly, for long-term success, Teams as Scrum stresses a self-organizing, cross-functional team with a committed Product Owner, Scrum Master, and Development Team all collaborating in one place, [37]. Additionally, flexibility is also another important part of PM methodology as it allows project managers to adapt accordingly to emergencies within a dynamic environment, [38].

## 2.3 Customer Characteristics

Customer Characteristics can be defined as the users' participation in the creation process with lead-user attributes that increase the possibility of creating offerings with higher value, [39].

Customer involvement is a dimension within customer characteristics, this dimension can be defined as the perception among customers that they are involved in the business, [40]. On the contrary, another study indicates that customer involvement

refers to the active participation of customers in the creation of a product, [41].

To obtain positive relationships with customers and to understand further their concerns, customer communication is an important factor. According to a study, in order to achieve customer satisfaction, understanding what customers require is essential, [42]. Customer knowledge also helps in creating an innovation of a product. A study mentions that acquiring, interpreting, sharing, and applying customer insights would potentially improve the total outcome of a product, [43].

## 2.4 Organizational Influence

Organizational influence can be defined as a set of beliefs, norms, values, attitudes, and assumptions within employees that controls the organization. Moreover, achieving company tasks and the behaviour of the workforce are greatly affected by these elements, [44]. Conclusions from a study point out that organizational influence heavily determines the types of PM methodology used by organizations. According to a study that measures the impact of organizational culture, this indicator can be described as the mindset that differentiates one particular group project from another including personal cultural differences, [45]. Another study defines organizational culture as learning feedback from senior staff which increases performance for an agile team, [46]. Additionally, a study conducted with a sample of mobile app companies in Saudi Arabia suggests that organizational culture directly affects the effectiveness of APM within the company. Furthermore, it is also stated that when the environment does not allow employees to have the freedom to express opinions and ideas, there is a chance that APM will not be able to adapt successfully, [47].

Organizational structure that follows hierarchical cultures tends to be formal and following a structure is necessary which promotes stability. Furthermore, planning and low costs define success within a hierarchical culture, [11]. Within a hierarchical culture, top management will implement written rules and responsibilities over the lower-level management. Moreover, it is also known that organizational members will be informed of the process for group activities, [48]. On the contrary, another type of organizational structure is known as organic organization structure. Furthermore, this type of structure emphasizes flatness within the whole structure. Additionally, communication and sharing of ideas regarding the process and other product-related ideas between lower-level and top management are deeply encouraged, [48], [49].

Monitoring and controlling within the organizational dimension is regarded as the ability to monitor and control individuals within teams to create project success, [50]. Moreover, the span of control is also synonymous with this indicator, and the latter is defined as the amount of junior staff that can be successfully guided by a supervisor, [51]. The findings within a study between monitoring and control with project management report that monitoring and control do have a positive impact on the project performance within the scope of time, cost, quality, and customer satisfaction by approximately 22%. In addition, this is also vice versa as when the value of monitoring and controlling is lower, so does the project performance, [52]. However, it should be noted that the findings were based on one Indonesian company, and thus the results could not be accurately true for other companies.

## 2.5 APM Effectiveness

Metrics can be used to measure the effectiveness of APM within a particular project. Burn-down rate is a metric that measures the remaining work within a sprint, which enables the predictability and progress monitoring for the project. Furthermore, when the burn-down rate decreases, this means that management has successfully reduced workload and this leads to APM effectiveness, [53]. Additionally, team velocity is also a type of metric used to measure APM effectiveness. Team velocity can be defined as the speed at which work is done by the project team and most practitioners of Scrum tend to use this metric to understand APM effectiveness. However, a study argued that using team velocity might lead to negative effects as it would make different teams uncomfortable as starting points are different than one another in Scrum, [54]. Although it is also important to note that the study was measured within the PM methodology of Scrum, other types of PM methodology might benefit from executing team velocity.

While lead time refers to the amount of time spent in each stage for each requirement or user story, defect state overtime refers to the rate at which defects are introduced, the rate at which defects are analyzed, designed, and implemented, and the rate at

which corrections packages solutions are implemented for deployment at customer sites, [55]. A metric called customer satisfaction assesses how happy customers are with the final product, [56]. Whereas "quality of the result" is the difference between the quality of the request and the final goods, "delivered business results" refers to the promptness and accuracy of the sought result, [57]. Figure 1 explains the Research Model which includes the 4 hypotheses of this particular study, [57].

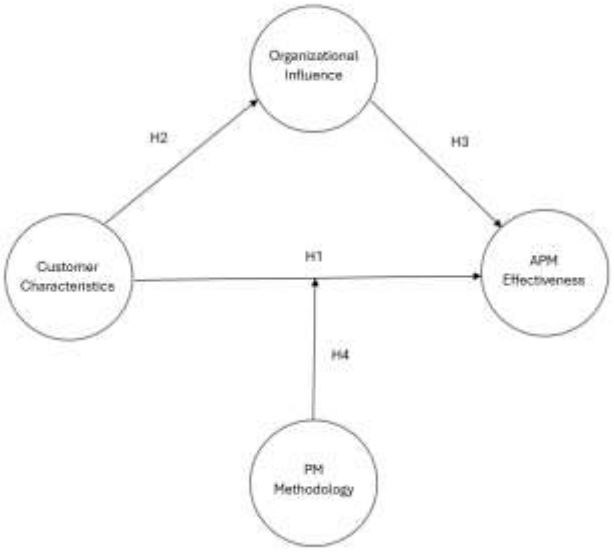


Fig. 1: Research Model

**H1**: Customer Characteristics positively affects APM effectiveness significantly.
**H2**: Customer Characteristics positively affects Organizational Influence significantly.
**H3**: Organizational Influence positively affects APM effectiveness significantly.
**H4**: PM methodology significantly moderates positively the relationship between Customer Characteristics and APM effectiveness.

# 3 Research Methodology

## 3.1 Sample and Procedure

This study will be categorized as quantitative research which plans to identify the impact of PM methodology, organizational influences, and team challenges in relation to APM effectiveness. In this paper, a mixed-methods approach is utilized through questionnaires, surveys, statistical analysis, and a quantitative framework. Moreover, the collection of data will be conducted by a reputable and trusted third party and the data analysis will consist of Indonesian APM practitioners. A cross-sectional time horizon is also employed which obtains data at a longer period. In addition, this quantitative research will use convenience sampling, as the trusted third party provider will be choosing the participants that have met the criteria and are available. Finally, Structural Equation Modelling with Partial Least Squares (SEM-PLS) with a chosen software of Smart PLS 4.0 will be implemented. The Smart PLS 4.0 is known to identify complex correlations and sampling biases.

## 3.2 Data Measurement

A 6-point Likert Scale (1=strongly disagree, 6=strongly agree) would be used to measure data obtained from Indonesian APM practitioners as recommended by a study when compared to alternative scales, [58]. This increases the integrity, validity as well as the quality of data collected from participants.

## 3.3 Data Analysis

Data will be analyzed using Smart PLS 4.0 software, as this allows the evaluation of measurement and structural models. Additionally, convergent and discriminant validation was used in the measurement model assessment to validate the applicability and reliability of the indicators. Average variance extracted (AVE) more than 0.5 and outer loadings greater than 0.7 were used to establish convergent validity. Heterotrait-Monotrait (HTMT) ratios were used to assess discriminant validity; for each indicator, the cross-loadings should be smaller than the outer loading for the target construct. The average inter-construct correlation divided by the average intra-construct correlation is known as the HTMT criterion, and it should range between 0.85 to 0.90.

Path coefficient significance, predictive relevance (Q2), and coefficient of determination (R2) were used to assess the structural model. Variance inflation factors (VIF) smaller than five were used to measure the degree of collinearity. It is also recommended to implement bootstrapping of 5000 subsamples in order to dictate the importance of path coefficients, [59]. Additionally, the effect size (f2) was employed to calculate how missing components affected endogenous variables, [60]. Model fit was evaluated using an RMSEA smaller than 0.08 and a

standardized root mean square residual (SRMR) because PLS-SEM does not imply normality.

# 4 Results and Discussion

A sum of 300 samples was requested under a reputable third-party data collection service provider. Additionally, a convenience sampling method was utilized in order to select the sample from the population. After careful consideration through filtering eligibility from respondents, 156 data samples were deemed to be valid for further research. Data was analyzed using the partial least squares structural equation model (PLS-SEM) with support from SmartPLS version 4.0. Furthermore, in order to determine that the data collected were reliable and valid, three measurement model analyses known as the Heterotrait-Monotrait Ratio of the correlations (HTMT), the average variance extracted (AVE), and Cronbrach's alpha/composite reliability (CR) were utilised for further study. A two-step analysis approach was also employed for effective research, [60].

The first step in the two-step analysis is to conduct a descriptive analysis which contains the demographics of the sample, this is shown in Table 1 (Appendix). The second step is to create a structural model analysis which consists of the measurement model analysis, structural model analysis, and explanatory model analysis to identify the Variance Inflation Factor (VIF) utilized for collinearity.

Based on the data presented, most samples were females and respondents mostly had a bachelor's degree. Most of the respondents tend to have 1-5 years of experience working within the fields of APM and most were Business Analysts. Furthermore, respondents mostly come from the industrial sector.

## 4.1 Measurement Model Assessment

To test the reliability of the data, the items of the construct are required to be greater than 0.7 in terms of Cronbach's Alpha and factor loadings. Moreover, loading values of less than 0.7 should be avoided for data to be reliable, [59]. Additionally, Composite Reliability measures the dependability of data, and values exceeding 0.7 indicate that the construct tends to have more dependability. When values of the Average Variance Extracted are more than 0.5, this means that the construct accounts for more than half of the difference between its indicators. Table 2 (Appendix) indicates the measurement model analysis result which indicates the Cronbach's Alpha, factor loadings, composite reliability, and average variance extracted for this study.

Values in Table 3 (Appendix) indicate the HTMT ratio of the study. Values below 0.9 would mean that indicators are not highly correlated to one another. Thus, proving that discriminant validity has been accomplished between two indicators. The standardized root mean square residual of this model was 0.069 which fits the suggested model criteria of 0.08, [59].

To further explain Table 4 (Appendix), the $R^2$ or value of the coefficient of determination for APM effectiveness is 0.663. This means that 66.3% of Customer Characteristics, Organizational Influence, and PM methodology are associated with APM effectiveness, whereas 33.7% of the variables are assigned to other factors outside the model. Additionally, the $R^2$ for Organizational Influence is 0.408 which means that 40.8% of Customer Characteristics accounts for the variables related to Organizational Influences. The $Q^2$ or predictive relevance for APM effectiveness is 0.381 and 0.373 for Organizational Influences, this means that lower levels of accuracy exist within the PLS predictive path model. However, the values of $Q^2$ are acceptable as they are more than zero.

The $F^2$ is used to indicate how much an independent variable influences the dependent variable, Table 5 (Appendix) shows the effect size between an independent variable towards the dependent variable which is APM effectiveness. In this case, it is safe to assume that out of all the independent variables of the model, Organizational Influence tends to have the highest effect size APM effectiveness with a value of 0.6.

The PLS predict function was utilized in order to identify whether the model contains predictive power. The results in Table 6 (Appendix) show that only two items contain a higher RMSE PLS than RMSE LM. This means that only 2 out of 14 items possess bigger predictive errors. The table shows that the model contains better prediction accuracy as stated by the PLS predict function.

## 4.2 Measurement Model Assessment

The Variance Inflation Factor (VIF) is used to indicate the existence of collinearity between variables. If the value of VIF is between 3 to 5 this would mean that collinearity exists, [59]. Table 7 (Appendix) shows that all values were less than 3

which would mean that the constructs were not collinear to one another.

Bootstrapping of 5000 sub-samples was also performed in order to identify the relevance and significance of the path coefficient within the model. Figure 2 (Appendix) shows the results of the bootstrapping with 5000 sub-samples.

The hypotheses test result in Table 8 (Appendix) indicates that both H2 and H3 contain a p-value of less than 0.005 which means that these hypotheses are supported by the research. While H1 and H4 contain a p-value of more than 0.005, thus making it not supported by data. It is safe to conclude that customer characteristics positively affect organizational influences and organizational influence positively affects APM effectiveness as the P value of each of the hypotheses is 0.001.

# 5 Conclusions

The result of this study, which analysed the responses from 156 participants with prior experience with APM usage, determines that customer characteristics support positively the organizational influence as the P value of each of the hypotheses is 0.001. Additionally, organizational influence positively affects the APM effectiveness which is the dependent variable in this study as the P value of each of the hypotheses is 0.001. Additionally, dimensions within customer characteristics such as customer involvement, customer satisfaction, customer communication, and customer knowledge should be focused upon to increase the construct of organizational influence. Moreover, organizational influence which contains dimensions such as culture, monitoring & control, and organizational structure is important for APM practitioners in Indonesia to take into consideration to increase the effectiveness of APM. Besides, this study also found that customer characteristics do not have a correlation with the effectiveness of APM as the P value for this is shown to be 0.626 and therefore higher than 0.05. Furthermore, PM methodology as a moderating variable between customer characteristics towards APM effectiveness does not support positively as it contains a P value of 0.681, which is higher than 0.05. However, it is important to note that the dimensions within PM methodology only contain sub-variables such as flexibility, product ownership, development practice, and teams. It might be beneficial for future research to conduct more exploration on other dimensions within PM methodology such as project complexity and risk tolerance to name a few.

This study discusses the hypotheses regarding APM in Indonesia. Commercial businesses that utilize APM to increase APM efficiency. The findings of this research are encouraged to be used as recommendations for further studies in other commercial industries in Indonesia. More research is also encouraged on the dimensions of organizational influence and customer characteristics. However, this study does not include the specificities of each construct such as independent traits regarding customer characteristics, organizational influences, and PM methodology. Furthermore, this will provide additional room for research for future studies. In order to improve the studies on APM effectiveness, this research will purposely lay future groundwork for further studies on APM in Indonesia.

Future research on the effectiveness of APM could be done on other variables aside from customer characteristics, organizational influence, and PM methodologies. Additionally, variables such as the emerging trend of Artificial Intelligence as well as digital leadership might play a huge role in determining the effectiveness of APM.

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**Contribution of Individual Authors to the Creation of a Scientific Article (Ghostwriting Policy)**

The authors equally contributed in the present research, at all stages from the formulation of the problem to the final findings and solution.

**Sources of Funding for Research Presented in a Scientific Article or Scientific Article Itself**

No funding was received for conducting this study.

**Conflict of Interest**

The authors have no conflict of interest to declare.

# APPENDIX

Table 1. Demographic samples (n = 156).

| No | Demography | n | % |
|---|---|---|---|
| 1 | Gender | | |
| | Female | 102 | 65% |
| | Male | 54 | 35% |
| 2 | Educational Background | | |
| | Bachelor's degree (S1) | 94 | 60% |
| | Master's degree (S2) | 12 | 11% |
| | Diploma | 17 | 8% |
| | Others | 33 | 21% |
| 3 | APM Roles | | |
| | Developer | 37 | 24% |
| | Business Analyst | 61 | 39% |
| | Product Manager | 31 | 20% |
| | Solution Architect | 23 | 15% |
| | Scrum Master | 4 | 3% |
| 4 | APM Experience | | |
| | Below 1 year | 42 | 27% |
| | 1-5 years | 98 | 63% |
| | 6-10 years | 12 | 8% |
| | More than 10 years | 4 | 2% |
| 5 | Industry Sector | | |
| | Industrials | 36 | 23% |
| | Financials | 25 | 16% |
| | Communication Services | 17 | 11% |
| | Consumer Discretionary | 13 | 8% |
| | Energy | 12 | 8% |
| | Information Technology | 18 | 12% |
| | Others | 35 | 22% |

Table 2. Measurement Model Analysis Result.

| Construct | No. of items | Cronbach's Alpha (0.6-0.9) | Composite Reliability (0.6-0.9) | AVE (Average Variance Extracted) (>0.5) | Outer Loadings (>0.7) |
|---|---|---|---|---|---|
| Customer Characteristics (CC) | 7 | 0.890 | 0.897 | 0.601 | 0.709-0.838 |
| Organizational Influence (OI) | 8 | 0.890 | 0.892 | 0.567 | 0.708-0.804 |
| APM Effectiveness (AF) | 6 | 0.865 | 0.868 | 0.598 | 0.709-0.814 |
| PM Methodology (PM) | 6 | 0.856 | 0.893 | 0.581 | 0.725-0.810 |

Table 3. Correlation Matrix (HTMT Ratio).

| | APM Effectiveness | Customer Characteristics | Organizational Influence | PM Methodology | (PM) x (CC) |
|---|---|---|---|---|---|
| **APM Effectiveness** | | | | | |
| **Customer Characteristics** | 0.613 | | | | |
| **Organizational Influence** | 0.885 | 0.695 | | | |
| **PM Methodology** | 0.754 | 0.76 | 0.688 | | |
| **(PM) x (CC)** | 0.322 | 0.197 | 0.293 | 0.423 | |

Table 4. Coefficient of determination and predictive relevance.

| Construct | R-square | Q-square |
|---|---|---|
| APM Effectiveness | 0.663 | 0.381 |
| Organizational Influence | 0.408 | 0.373 |

Table 5. Effect Size ($F^2$).

| Relationship of Construct to APM Effectiveness | APM Effectiveness |
|---|---|
| Customer Characteristics | 0.002 |
| Organizational Influence | 0.600 |
| PM Methodology | 0.119 |
| PM Methodology x Customer Characteristics | 0.001 |

Table 6. PLS Predict

| Items | RMSE PLS | RMSE LM | Comparison |
|---|---|---|---|
| AF3 | 0.747 | 0.711 | Bigger |
| AF4 | 0.813 | 0.832 | Smaller |
| AF5 | 0.723 | 0.738 | Smaller |
| AF6 | 0.742 | 0.755 | Smaller |
| AF7 | 0.745 | 0.748 | Smaller |
| AF8 | 0.808 | 0.83 | Smaller |
| OI10 | 0.781 | 0.805 | Smaller |
| OI11 | 0.808 | 0.825 | Smaller |
| OI3 | 0.815 | 0.818 | Smaller |
| OI4 | 0.789 | 0.813 | Smaller |
| OI5 | 0.808 | 0.854 | Smaller |
| OI7 | 0.81 | 0.804 | Bigger |
| OI8 | 0.855 | 0.901 | Smaller |
| OI9 | 0.74 | 0.781 | Smaller |

Table 7. Variance Inflation Factor (VIF) results from the inner model

| Constructs | VIF |
|---|---|
| Customer Characteristics -> APM Effectiveness | 2.168 |
| Customer Characteristics -> Organizational Influence | 1.000 |
| Organizational Influence -> APM Effectiveness | 1.892 |
| PM Methdology -> APM Effectiveness | 2.215 |
| PM Methodology x Customer Characteristics -> APM Effectiveness | 1.209 |

Table 8. Hypotheses Test Result

| Hypotheses | Structural Paths | Standardized Coefficient | T-value | P-value | Hypotheses Result |
|---|---|---|---|---|---|
| H1 | Customer Characteristics -> APM effectiveness | -0.036 | 0.488 | 0.626 | Not supported |
| H2 | Customer Characteristics -> Organizational Influence | 0.639 | 13.056 | 0.001 | Supported |
| H3 | Organizational Influence -> APM effectiveness | 0.618 | 4.786 | 0.001 | Supported |
| H4 | PM Methodology x Customer Characteristics -> APM effectiveness | -0.017 | 0.411 | 0.681 | Not supported |

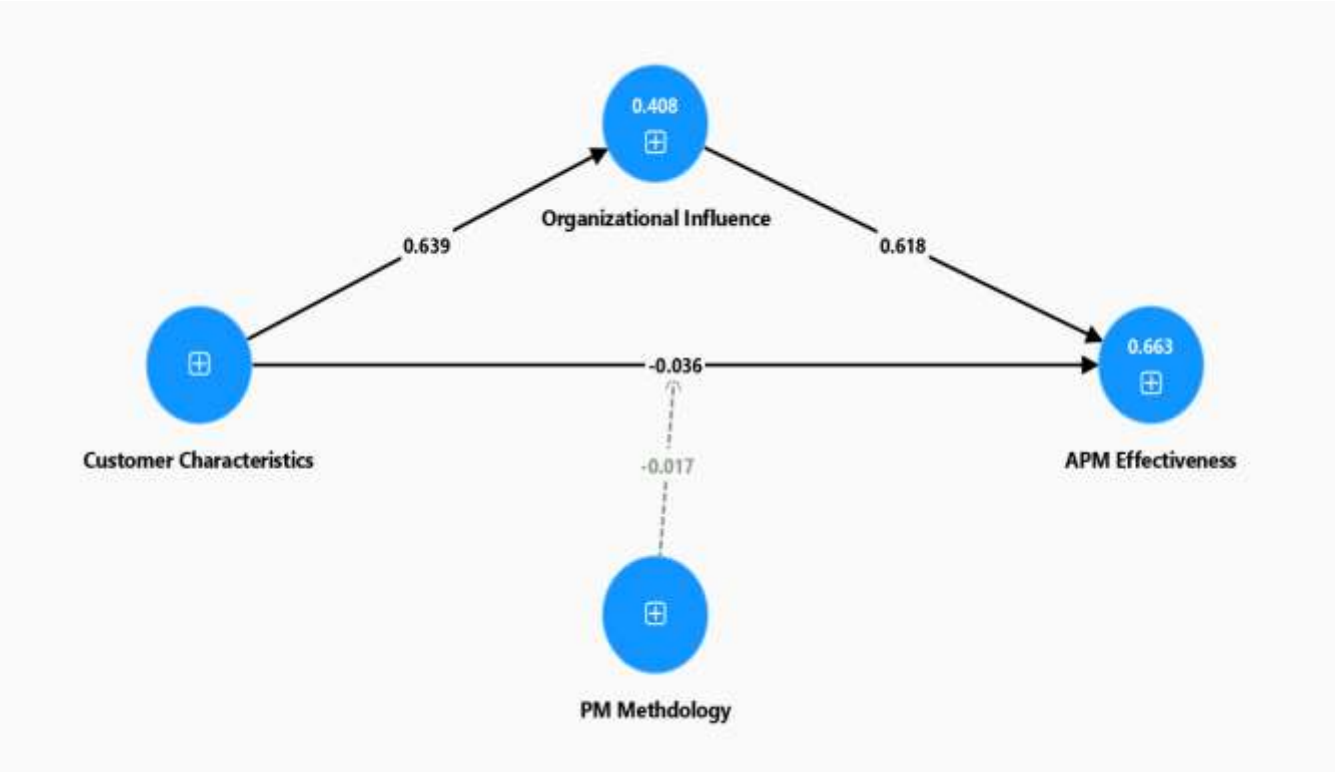


Fig. 2: Structural Model Analysis containing 5000 subsamples