



ANALYSIS THE SUCCESS OF USING A PROJECT MANAGEMENT TOOL IN MANAGING PROJECTS

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Abstract

Using Jira is considered an application with an easy-to-understand interface and customization features for each project. However, in the daily use of Jira, there are still obstacles faced by employees, namely, project status information is still inaccurate, lack of employee knowledge on how to configure Jira so that it takes a long time to meet the needs of each project and features that are still found do not function optimally. Hence, it hinders the process of using Jira in project management.

This study aims to determine the success factors of using Jira in managing projects in the Cloud solution provider industry. This study uses a quantitative method to assess the constraints and factors that influence the success of project management tools by distributing questionnaires to employees.

The findings in this study are that the socio-cultural variables and technical knowledge do not significantly affect the success of project management tools. However, the variables of personal characteristics and team capabilities are proven to significantly influence the success of project management tools, and the variables of training and learning are proven to have a moderating effect on the variable of team capabilities on the success of project management tools. Personal characteristics and social culture variables have a significant influence on team capability variables.

Keywords

Personal Characteristics, Team Capabilities, Social Culture, Training and Learning, Technical Knowledge, The success of project management tools, Project Management Tool, Jira.

1. Introduction

In the digital transformation era, technological developments are increasingly sophisticated, especially in the Information Technology Service, Information Technology Consultant, and non-Information Technology industries. Technological advances affect an organization's ability to increase its productivity, such as in the information technology industry [1]. Now, technological developments spur an organization to continue to build new projects, especially in the technology field in the digital era. The rapid growth of technology has had an impact on various areas of life including Industry 4.0. Revolution 4.0 is a new technological advancement that integrates the physical, digital, and biological worlds, with fundamental changes to how human life works [2]. One of the technologies currently developing rapidly is Cloud Computing, which provides flexible information technology services to users with virtual servers, significant scalability, and service management [3].

Project management is now more accessible, especially in the information technology industry, because several companies have used project management tools to assist in project management. Project management tools make it easier for companies to retrieve much data and information on a project [4]—widely used tools such as smart sheet, Jira, and Trello. The use of project management tools will make a project effective and efficient [5]. The use of tools in project management requires companies to incur substantial costs. A cloud solution provider industry uses Jira as a project management tool in its project management. Its chooses Jira as a tool in project management because it is considered an application that has an easy-to-understand interface, has customization features for each project space. These various boards can be used, such as Kanban and scrum boards, and can be

connected to other applications such as Outlook and Microsoft Teams, and Jira can make it easier for employees to make monthly reports. However, with the use of Jira, employees encountered problems in the process of using it:

1. Employees have difficulty using the Jira application. There are new features that still have errors.
2. The time setting for the work's duration was incorrect, causing the SLA to continue running on holidays.
3. Employees still don't understand how to adjust Jira's settings accordingly.

This study aims to analyse the success factor of using Jira on the managing project. In measuring the level of effectiveness, it is necessary to know the factors that can affect the effectiveness of using project management tools in an organization by knowing the factors that can affect the level of effectiveness of using Jira to provide ideas for methods that must carry out so that Jira can be used optimally as a project management tool to support the success of the vision for using Jira set by management to make Jira a single source of truth or a container that holds all information regarding the status of each project.

2. Literature Review

2.1 Project Management

Project management is the most significant aspect of the success of any project, and one of the most important considerations for managing this project is that the methodology used must suit the project so that we can have a successful outcome. It is essential that the aim is to provide a hybrid digital management conference that will attract participants from various industry backgrounds to meet in a Digital management conference project [6].

2.2 Project Management Tools

Project management tools are programs that help individuals or teams organize work effectively and manage projects and tasks. Some project management tools often used in several enterprises are as follows.

1. Jira is a project management tool that supports any agile methodology, whether scrum or Kanban, from dashboards, backlogs, roadmaps, and reports to integrations and add-ons. Users can quickly plan, track, and manage all their software development projects from a single tool [7].
2. Trello is a visual tool that empowers teams in organizations to manage any project, workflow, or task tracking [8].
3. Smartsheet is the only platform to scale from a single project to end-to-end work management. It connects businesses on a codeless, cloud-based platform where anyone can build the necessary solutions backed by the required control and secure information technology [9].

2.3 Tam et al.

Research conducted by Carlos Tam, Eduardo Joia da Costa Moura, Tiago Oliveira, and Joao Varajao stated that personal characteristics, social culture, training and learning, team capability), and customer involvement (customer involvement) are factors that influence the success of project development using agile software as measured in terms of cost, time, and customer satisfaction (Tam, Moura, Oliveira, & Varajao, 2020).

Tam et al.'s success model focuses on human resources to measure agile software development success factors. In this research model, the success of agile software development is influenced by talented, committed, and professional organizational resources. Based on the five variables in this success model, it has been shown that personal characteristics, training and learning, or the culture of the community are not essential factors in this context.

2.4 Lase et al.

The research conducted by Lase focuses on optimizing the effectiveness of Scrum software development during the pandemic era. This research offers strategies to increase the effectiveness of Scrum implementation during the pandemic era. Lase used the systematic literature review method or abbreviated as SLR, to identify and assess relevant surveys given in survey questions. In Lase's research, five categories are used to determine the success of implementing agile methods: organization, people, process, technical, and project.

Research conducted by Lase found that implementing the Scrum method always has challenges, so organisational changes are crucial for successful results. Organizational culture is one of the causes of resistance to change, as well as other factors in making agile methodologies like humans, which are the biggest obstacles to the application of the scrum method.

Lase found five critical success factors for Scrum in distributed software development. Three of the factors that have been described affect the perceived success of project management. These three factors are organization, process, and project factors, while people and technical factors did not significantly influence project management's success [11].

3. Proposed Model and Research Questions

The conceptual framework is designed to simplify the analysis process in this study. The framework of this research is an extension of the success model of Tam et al. and Lase et al. The selection of success model from Tam et al.'s research because previous research refers to the measurement of the human resource dimension to measure the success of agile software development. The personal characteristics variable in this study adjusts personal characteristics for the project type expected to increase expected outcomes substantially. Personal characteristics consider the impact of personal characteristics when developing organizational project management standards that affect the greater ability of the team, thereby increasing customer engagement, which will lead to the successful completion of the project. Personal characteristics include collaborative behaviour and working in teams. Personal characteristics include communication in leading a project. Effective leadership depends not only on individuals or groups but also on the tasks, work or functions that must be completed [12].

In addition, Training and Learning qualitatively support that this variable is a factor in the success of developing agile software projects. Training and development are a function in human resource management that is used to fill gaps between current and expected performance, and training provides added value to employee performance [13].

Organizational culture helps direct human resources to achieve the organization's vision, mission, and goals. Companies, in improving employee performance need to create a good organizational culture so that companies can achieve the desired goals [14]. A cloud solution provider industry hopes that employees will use Jira as a single source of truth in managing projects, so the cultural variable is adopted in this study to analyse the influence of employee culture on the success of project management tools to achieve the single source of truth mission.

Based on the previous success model of Tam et al. which is used as a reference, namely as follows:

1. Personal Characteristics
2. Team Capability
3. Social Culture
4. Training and Learning

This research also adopts the Technical Knowledge variable from the success model of Lase et al., which aims to test the validity of the effectiveness of Jira implementation as a project management tool. Knowledge can stimulate innovation, assist problem-solving, and support decision-making through knowledge productivity [15].

Determination of the frame of mind refers to research done by previous research.

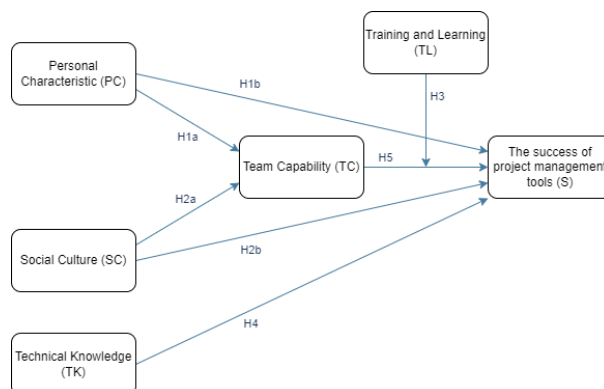


Fig. 1. Proposed Model of the Study

This study will strive to answer the following research questions:

1. Do Personal Characteristics, social culture, team capability, and technical knowledge affect the success of using project management tools?
2. Do Personal Characteristics and social culture affect Team Capability?
3. How do Training and Learning influence the success of project management tools moderated by team capability?

On basis of above questions, below are the following hypotheses:

1. H1a: There is a significant influence of Personal Characteristics (PC) on Team Capability (TC).
2. H1b: Personal Characteristic (PC) influences the success of project management tools (S).
3. H2a: There is an influence of Social Culture (SC) on Team Capability (TC).
4. H2b: Social Culture (SC) influences the success of project management tools (S).
5. H3: Training and Learning (TL) can moderate the team's capability for the success of project

- management tools(S).
- 6. H4: Technical Knowledge (TK) influences the success of project management tools (S)
- 7. H5: Team Capability (TC) influences the success of the project management tool (S).

4. Methodology

This study used quantitative research methods. A quantitative approach is a form of research that relies on natural science methods by producing numerical data and facts to establish a cause-and-effect relationship between two variables using mathematics, computational and statistical methods [16]. The object of this research is the project management division in a cloud solution provider industry.

This study uses a quantitative method by distributing questionnaires online to employees in a cloud solution provider industry as a sample uses nonprobability sampling and then performs descriptive analysis to analyse the data that has been collected from the results of distributing the questionnaires. Non-probability sampling is a sampling technique that does not provide equal opportunities for each element or member of the population to be selected as a sample. The type of non-probability sampling used in this study is saturation sampling. This study will use the population was taken, namely all employees in the project management division, which has 70 employees.

Analysed data used Multivariate Analysis of Variance to model responses from more than one response variable on one factor or set of interest factors [17]. Multivariate Analysis of Variance involves applying statistical methods that simultaneously analyse several variables representing measurements related to individuals, companies, events, activities, situations, and so on [18]. This study applies Structural Equation Modelling analysis, or abbreviated SEM, using the Smart PLS version 4.0 software application, which aims to simplify the process of analysing the data that has been obtained. There are four elements when conducting PLS-SEM analysis: Constructs, Measured variables, Relationships, and Error terms [19].

5. Result and Analysis

5.1 Heterotrait-Monotrait Ratio of Correlations

In Table 1, all Heterotrait-Monotrait Ratio of Correlations (HTMT) values are less than 0.9 so that all constructs can be declared valid with discriminant validity based on calculations.

| | | | | | | | |
|---------|-------|-------|-------|-------|-------|-------|---------|
| | S | PC | SC | TC | TK | TL | TL x TC |
| S | | | | | | | |
| PC | 0.869 | | | | | | |
| SC | 0.579 | 0.722 | | | | | |
| TC | 0.733 | 0.74 | 0.702 | | | | |
| TK | 0.394 | 0.409 | 0.565 | 0.756 | | | |
| TL | 0.689 | 0.753 | 0.687 | 0.741 | 0.663 | | |
| TL x TC | 0.613 | 0.559 | 0.284 | 0.228 | 0.199 | 0.492 | |

Table 1. Heterotrait-Monotrait Ratio Result

5.2 Bootstrapping Result

The significance of the prediction model in structural model testing can be seen from the t-statistic value between the independent and dependent variables in the direct effect table (path coefficient) on the SmartPLS output in Table 2.

| | Original sample (O) | Sample mean (M) | Standard deviation (STDEV) | T statistics (O/STDEV) | P values |
|-------------|---------------------|-----------------|----------------------------|--------------------------|----------|
| PC → S | 0.384 | 0.397 | 0.127 | 3.021 | 0.003 |
| PC → TC | 0.464 | 0.471 | 0.104 | 4.448 | 0.000 |
| SC → S | -0.050 | -0.068 | 0.105 | 0.473 | 0.637 |
| SC → TC | 0.333 | 0.336 | 0.122 | 2.736 | 0.007 |
| TC → S | 0.468 | 0.487 | 0.151 | 3.102 | 0.002 |
| TK → S | -0.144 | -0.140 | 0.088 | 1.640 | 0.104 |
| TL x TC → S | -0.226 | -0.222 | 0.061 | 3.734 | 0.000 |

Table 2 Path Coefficients

5.3 Outer Model Testing Results

Figure 2 is the result of the outer model test, which aims to measure the level of validity and reliability of a variable.

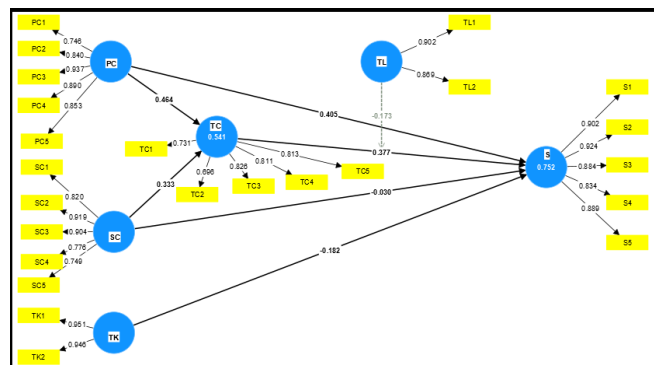


Fig. 2. Outer Model Testing Results

Based on the results of the variable test using the SmartPLS assistance application from the 7 hypotheses determined in the previous chapter regarding the relationship between the independent and supporting dependent variables.

1. Testing Hypothesis 1 states that the T-statistic value influences the relationship between the personal characteristic variable and the team capability variable, namely 4.448, which is greater than the 1.96 value limit with a significance level of 5% and has a P-Value of 0.000 less than 0.05. Testing hypothesis 1 is that H0 is rejected and H1 is accepted, which means that it is proven that personal characteristics have a significant positive effect on the team capability variable.
2. Hypothesis 2 testing states that the T-statistic value influences the relationship between the personal characteristic variable and the success of project management tools variable, namely 3.021, which is greater than the limit value of 1.96 with a significance level of 5% and has a P-Value of 0.003 less than 0.05. Testing hypothesis 1 is that H0 is rejected and H1 is accepted, which means that it is proven that personal characteristics have a significant positive effect on the success of project management tools.
3. Hypothesis 3 testing states that the T-statistic value influences the relationship between the social culture variable and the team capability variable, namely 2.736, which is greater than the limit value of 1.96 with a significance level of 5% and has a P-Value of 0.007 less than 0.05. Testing hypothesis 1 is that H0 is rejected and H1 is accepted, which means that it is proven that social culture has a positive and significant effect on team capability variables.
4. Hypothesis 4 testing states that the T-statistic value influences the relationship between the social culture variable and the success of project management tools variable, namely 0.473, which is smaller than the limit value of 1.96 with a significance level of 5% and has a P-Value of 0.637 more than 0.05. It can be concluded that testing hypothesis 1 is that H0 is accepted and H1 is rejected, which means that social culture has a negative effect and has no significant effect on the success of project management tools.
5. Testing Hypothesis 5 states that the training and learning variable can moderate the team capability variable on the success of project management tools variable with a P-Value of 0.000 less than 0.05 and a T-statistic value of 3.734 which is greater than the value of 1.96 but has a negative effect.
6. Hypothesis 6 testing states that the T-statistic value influences the relationship between the technical knowledge variable the success of project management tools variable, namely 1.640, which is smaller than the limit value of 1.96 with a significance level of 5% and has a P-Value of 0.104 less than 0.05. It can be concluded that testing hypothesis 1 is that H0 is accepted and H1 is rejected, which means that it is proven that technical knowledge has no significant effect on the success of project management tools and has a negative impact.
7. Hypothesis 7 testing states that the T-statistic value influences the relationship between the team capability variable and the success of project management tools variable, namely 3.102, which is greater than the limit value of 1.96 with a significance level of 5% and has a P-Value of 0.002 less than 0.05. It can be concluded that testing hypothesis 1 is that H0 is rejected and H1 is accepted, which means that it is proven that team capability has a positive and significant effect the success of project management tools variable.

The results of the convergent validity test in this study showed that all indicators for each variable met the standard outer loading value, and each variable met the standard AVE value. In the discriminant test, by looking at the value on the cross loading, the result is that the correlation value between the constructed value and the index is greater than the other construct values so that all latent variables and the constructed value have good validity. The Heterotrait-Monotrait Ratio value shows that the TL variable value to TC is less than 0.9, so the construct can be

declared invalid. It is necessary to delete the question item on the training and learning variable by looking at the average correlation on the team capability variable. Based on the composite reliability and Cronbach's alpha values for all variables above the value of 0.70, it is concluded that all constructs have good reliability.

The results of the hypotheses that have been carried out state that hypotheses 3 and 6 have no significant effect on the success of project management tools which causes H1 to be rejected. This can happen by looking at the characteristics of respondents to working age in the cloud solution provider industry, namely 29% working under 1 year and 30% working with a span of 1-2 years. Most of the company in the project management division is new, affecting employee activity in using Jira to update project status. The differences in employee culture and race affect the success of project management tools in daily use of Jira in project management. Then, training and learning do not have a direct relationship to the success of project management tools but only serve as a moderator variable that strengthens the variable team's capability towards the success of project management tools. The training and learning variables have been proven to strengthen the relationship between the team capability variable and the success of project management tools.

The picture below shows the frame-of-mind results after the hypothesis testing was carried out. It presents that the Social Culture variable has no significant effect on the team capability variable, and Technical Knowledge has no significant effect on the success of project management tools.

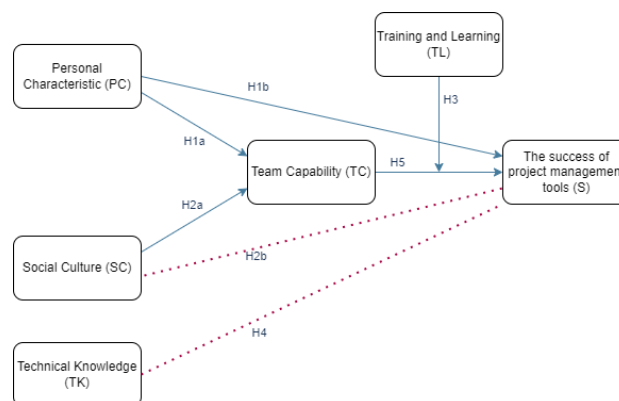


Fig. 3. Research Framework after Testing

6. Conclusion and Future Works

Based on the research objective, namely to determine the factors that influence the success of project management tools as a project management tool by adopting the research model of Tam et al. and Lase et al. from the results of data management and hypothesis testing that has been carried out according to a survey of 70 respondents in the project management division, it can be concluded based on the processed data in this study as follows.

1. The personal characteristic variable affects the success of project management tools.
2. The personal characteristic variable influences the team capability variable.
3. Social culture variables affect team capability.
4. The social culture variable does not affect the success of project management tools.
5. Training and learning variables can contribute to the success of project management tools.
6. The technical knowledge variable does not the success of project management tools.

The team capability variable affects the success of project management tools.

Based on the results obtained in this study, it can be concluded that the use of Jira is influenced by personal characteristic variables with a minimum average index percentage of 90.22% and team capability with a minimum index percentage of 76.06%. Training and learning can strengthen team capability on the success of project management tools.

The modified research model of Tam et al. and Lase et al. shows that the team capability variable has an R-square value of 0.541, which means that Personal Characteristics and Social Culture can explain team capability and the effectiveness of using the Jira Tools variable has an R-square value of 0.760, which means that this variable can be presented by the Personal Characteristic, Social Culture, Team Capability, and Technical Knowledge variables.

Based on the descriptive analysis of the technical knowledge variable, it is necessary to increase knowledge about how to configure Jira to meet the needs of each project. It will make it easier for the company if there is a need for Jira configuration in the future so that it does not depend only on a few employees. A cloud solution Provider company needs to provide training and learning to employees to improve team capabilities to

increase the success of using Jira in managing projects. To increase the success of project management tools, it is necessary for all employees to commit to updating project status.

Adopting the success model (Tam et al., 2020) and (Lase et al., 2022) in this study resulted that the technical knowledge variable in the success model (Lase et al., 2022) did not have a significant effect on the successful use of project management tools in the project management division at PT. XYZ, but the success model (Tam et al., 2020) shows factors that have a significant influence on the successful use of project management tools, so by knowing the factors that influence the successful use of project management tools, it is hoped that PT. XYZ can strengthen human resources in working on projects as a team because, based on the results of this research, it is found that the successful use of project management tools is only supported by individuals, not as a team. In contrast, work must be carried out simultaneously or by a team instead of individually in a project.

Appendix

| Construct | Items | Code | Adapted from |
|---|---|------|---------------------|
| Personal Characteristics | I have strong interpersonal skills. | PC1 | (Tam et al., 2020) |
| | I have good communication skills. | PC2 | (Tam et al., 2020) |
| | I have an attitude collaborative. | PC3 | (Tam et al., 2020) |
| | I have a sense of responsibility answer in processing project. | PC4 | (Tam et al., 2020) |
| | I have my own readiness to learn | PC5 | (Tam et al., 2020) |
| Social Culture | Attitude and communication help me in processing the project | SC1 | (Tam et al., 2020) |
| | I constitute a dynamic individual | SC2 | (Tam et al., 2020) |
| | I constitute a progressive individual | SC3 | (Tam et al., 2020) |
| | Difference races help me to hurry to adapt the project | SC4 | (Tam et al., 2020) |
| | Difference culture help me to hurry to adapt to the project | SC5 | (Tam et al., 2020) |
| Team Capability | I have high competence in using Jira | TC1 | (Tam et al., 2020) |
| | I have skill high technical to using Jira | TC2 | (Tam et al., 2020) |
| | I have great motivation to know the whole Jira feature | TC3 | (Tam et al., 2020) |
| | I am committed to knowing the whole Jira feature | TC4 | (Tam et al., 2020) |
| | I always push member team to work in a manner creative | TC5 | (Tam et al., 2020) |
| Technical Knowledge | I have the desire to know more about the method of Jira configuration | TK1 | (Lase et al., 2022) |
| | There is a documentation method Jira configuration added knowledge | TK2 | (Lase et al., 2022) |
| Training and Learning | I'm committed to continuing my Study | TL1 | (Tam et al., 2020) |
| The success of project management tools | Jira helps me to coordinate in a team | S1 | (Lase et al., 2022) |
| | Easier to find the status of each issue project in Jira | S2 | (Lase et al., 2022) |
| | Jira upgrades effectiveness in managing project | S3 | (Lase et al., 2022) |
| | Jira helps me with fast for the manufacturing process report monthly | S4 | (Lase et al., 2022) |
| | Jira is the container used source main for all information projects or a single source of truth | S5 | (Lase et al., 2022) |

Table 2 Variable Operationalization

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