Impact of Using Project Management Software towards Project Success in Sri Lankan IT Project-Based Organizations

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***Abstract*—This paper examines the impact of project management software usage on the success of projects in Sri Lankan IT organizations. Using project management software is critical for ensuring project success in the dynamic environment of IT project-based organizations. This study focuses on key performance challenges such as scope creep, missed deadlines, and budget overruns, which means not driving projects within the triple constraints, and examines how a specific range of software features and ease of use contribute to overcoming these challenges. This study used quantitative data consisting of 139 respondents including project managers and project team members working in the Sri Lankan IT organizations. Correlation and regression analysis were conducted to examine the relationship between the Range of features and Ease of use in project management software toward project success. The findings prove that feature-rich means the range of features in PMS, user friendly software significantly enhances project success or project performance, with 77% of projects succeeding when PMS is used effectively. This study contributes to understanding the effectiveness of using project management software in project management practices and offers insights to organizations that are seeking to optimize their project performance.**

Keywords*—Project management software, IT projects, project success, software usability, Sri Lankan IT organizations, project management tools.

I. INTRODUCTION

The Sri Lankan IT industry had a rapid boom in recent years by focusing on new technologies. Sri Lankan economy by grabbing foreign investments, foreign companies, foreign clients and foreign projects which simply means the IT industry attracts more dollars to the Sri Lankan economy. This growth has driven the successful execution of IT project-based organizations in Sri Lanka. At the same time, Sri Lankan IT project-based organizations have faced many challenges in managing their projects which can be affected by scope creep, missed deadlines, and budget overruns. According to the PMI records 30% of projects only get success which means only 30% of projects are within the planned scope, time, and budget. That percentage also can apply to the IT sector projects in Sri Lanka due to many reasons. The main reason that can be clearly identified is not accepting and using proper project management software, methodologies, tools, and techniques. Using proper project management software can minimize the effect which means that project management software emerged with powerful tools and techniques involving planning, resource allocations, monitoring, and controlling to ensure successful project delivery on time. Complex IT projects require methodologies to keep projects on track within budget while achieving the desired outcome. Project management software should offer essential features such as task tracking, collaboration, cost tracking, time scheduling, reporting, and analysing to get success the project on time. With all above factors using project management software in Sri Lankan IT project-based organizations may vary due to organization culture, management support, technical support, and team skills. Understanding the above factors and their impact on project success is essential to guide project management software. This paper addresses the question: How does the use of project management software affect the success of IT projects in Sri Lankan organizations? Study examines the impact of using project management software towards project success or how PMS impacted to enhance the project performance in Sri Lankan IT project base organizations. Moreover, the study reveals that project management software helps optimize the use of limited resources. By using the insights from this research, managers can better allocate resources to ensure that teams are working efficiently, thereby maximizing productivity and minimizing waste. This has significant implications for organizations looking to increase their return on investment in projects.

II. LITERATURE REVIEW

This literature review outlines the impact of project management software usage towards project success and what factors affect it. Also, this study was not conducted during the Sri Lankan contest and all literature reviews are based on other countries and generalized for the world. In the past 30 years, project

management (PM) has developed substantially as a discipline and significantly increased its visibility and importance [1]. Over this period, many tools and techniques have been developed, covering all aspects of PM from conception to completion [2]. But Project Management remains a problematic endeavor. Despite the advance in PM processes, project success rates have not significantly improved, and projects still fail to live up to the expectations of stakeholders who continue to be disappointed by their results [3]. From these factors we can highlight important of having project management practices in a organizations. The value of project management is a function of what is implemented and how well it fits into the organizational context [4], Project management value is created (or destroyed) depending on the extent to which an organization's strategic drivers "fit," or not, with the characteristics of its PM system. [5]. They criticize the reckless use of PM standards, and a "misfit" between specific project characteristics and the chosen management approach is seen as a significant cause of project failure [4]. PM is highly contingent on the organizational context, such as the business's structure, size and environment, as well as on the project type, it is essential to study the PM tools and techniques applied in particular areas of activity or business sectors [4]. Project management software is fundamental and primary thing in this study. From this study finding facts to prove that using project management software is impacted to the project success rate in the organization. The proper implementation of PM best practices should improve PM performance, thus resulting in enhancing the speed and quality of project delivery, fewer mistakes, lower costs because of less need for reworking, fewer delays and snags, more efficient use of time and increased customer satisfaction [6]. According to all above findings, in the world IT field evaluating day by day in parallel project management software is also evolving but until now there having percentage of projects going to fail or can't complete within the triple constraints. Through this study proven in Sri Lankan contest High rate of projects going to be success because of using project management software in the IT project base organizations in Sri Lanka.

III. METHODOLOGY

This study adopts a positivist research philosophy, which is appropriate for understanding the impact of project management software on project success in a quantifiable manner. Positivism is based on the belief that knowledge should be derived from objective observations and measurements, free from subjective interpretation. By applying this philosophy, the research aimed to produce unbiased, reliable findings through the collection and analysis of empirical data. This approach aligns with the goal of the study, which was to determine the relationship between project management software features and ease of use, and their impact on this study, as it seeks to test existing theories related to the use of project management software and its influence on project success. The deductive method is well-suited for this research because it starts with hypotheses derived from established models of project management and software usage. The study then gathered data to test these hypotheses in the context of Sri Lankan IT organizations. This approach allowed the researcher to either confirm or challenge existing theories by applying them to a specific setting, ultimately contributing to the broader body of knowledge. A survey-based strategy was selected as the primary method of data collection. Surveys are an effective tool for gathering large amounts of data quickly and efficiently, which was necessary given the focus on IT project managers and team members across multiple organizations. The survey was designed with structured questions to explore variables such as software features, ease of use, and project success. This strategy was particularly appropriate for obtaining quantifiable data that could be statistically analyzed to explore the relationships between key variables. Google Forms was used to distribute the survey, ensuring broad reach and ease of participation. As the unit of analysis in this study was focused on both the individual and organizational levels. At the individual level, data were collected from project managers and team members working in Sri Lankan IT project-based organizations to examine how they utilize project management software in their day-to-day tasks. At the organizational level, the research sought to understand how the overall use of such software within teams influences broader project success, including the ability to meet deadlines, stay within budget, and manage project scope effectively. By analyzing both individual and organizational perspectives, the study provided a comprehensive view of the role of project management software in enhancing project outcomes. This structured research design ensured that the study systematically addressed its objectives while providing a robust framework for examining the influence of project management software on project success in Sri Lanka's IT sector.

A. Conceptual Diagram

Fig. 1 presents the model or conceptual framework that is going to be examined in the study. The research model assesses the extent of project management software usage by project professionals and the impact of its use on their perceived performance. The model posits that project management software acceptance is a function of perceived information quality, software functionality, ease of use, project complexity, project size, organization size, user training level, education level, and experience. The model also proposes that the use of the project management software has a direct and positive impact on the user's perceived performance. (Impact of Organizational and Project Factors on Project Management Software, n.d.)

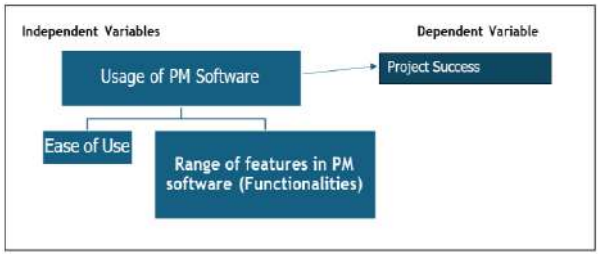


Fig. 2- Conceptual Framework

Hence, the following hypotheses are proposed:

H1 - There is a positive relationship between ease of usage of PM Software and project success [7] [8].

H2- Range of Features/Functionalities in PM Software has a positive relationship with Project Success [7] [8].

H3- Types of PM Software used has a positive relationship with Project Success [7] [8].

IV. RESULTS AND DISCUSSION

A. Sample & Collection Data

The sample size for this study was determined based on Morgen's table, which is widely used to estimate sample sizes for a given population with a specific confidence level. For a population of approximately 150,000 IT professionals in Sri Lanka, the table suggests a sample size of 139 respondents to achieve a 95% confidence level and a 10% margin of error. This sample size was selected to ensure that the study's findings could be generalized to the broader population of Sri Lankan IT project-based organizations while maintaining statistical reliability. The selection of the sample was done using a non-probability sampling method, specifically convenience sampling. Convenience sampling was chosen due to the practical constraints of reaching a large, dispersed population in a limited timeframe. This method allowed the researcher to target individuals who were readily accessible and willing to participate in the study. The survey was distributed to project managers and project team members within Colombo-based IT organizations, as Colombo is home to a significant concentration of IT companies, making it an ideal location for data collection. The data collection process for this study was conducted using a quantitative survey method to gather relevant data from project managers and project team members working in Sri Lankan IT project-based organizations. The survey was the most appropriate tool for this research as it allowed for the efficient collection of large amounts of data from a broad audience, enabling statistical analysis of the relationship between project management software usage and project success.

The survey was administered online using Google Forms, a platform chosen for its accessibility and ease of use. The online format allowed respondents to participate at their convenience, thereby increasing the likelihood of a higher response rate. The survey was distributed primarily to employees in IT project-based organizations located in Colombo, a region recognized as the center of Sri Lanka's IT
industry. The target respondents were reached through professional networks, industry associations, and direct contact with companies, ensuring a diverse range of participants from various roles within the IT sector. The questionnaire was designed with closed-ended questions, allowing respondents to provide quantifiable data that could be analyzed statistically. The survey was divided into several sections, each addressing different aspects of the research objectives. These sections included questions on demographic information, project management software usage, software features, ease of use, and the perceived impact of these tools on project success. Specific questions were included to assess how often the respondents used project management software, the types of software they used, and their perceptions of how the software impacted project outcomes in terms of time, budget, and scope.

To ensure the validity and reliability of the data collection process, a pilot test was conducted prior to full-scale distribution of the survey. This pilot involved a small group of respondents, and feedback from the pilot was used to refine the questionnaire to ensure clarity and relevance of the questions. After adjustments, the final survey was distributed, and responses were collected over a period of several weeks to ensure that an adequate number of participants had time to complete the survey. The data collected was automatically compiled into a dataset via Google Forms, which was then exported to SPSS for analysis. Using this dataset, statistical techniques such as correlation and regression analysis were applied to test the hypotheses and explore the relationships between project management software usage and project success.

B. *Sample Analysis*

1) *Descriptive Analysis*

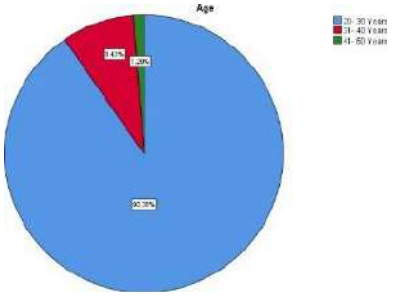


Fig. 2- Age

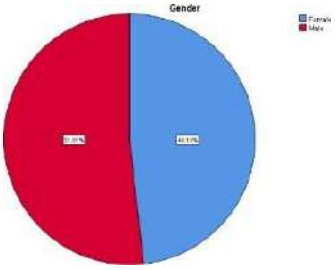


Fig. 3- Gender

Around 90% of those who participated in the study are in between 20-30 years old also very few participants are in 31- 40 years old. Around 51% are male participants and around 48% are female participants which means data have been gathered in equal proportions among male and female participants.

This study focuses on proving that using project management software impacts project success and project performance in the organization. To prove that has been gathering data at least the respondent should have 1-year experience as a project manager or project team member in Sri Lankan IT industry, therefore from the respondent around 54% have 1 year- 3-year experience as a project manager or project team member-related to the IT project-based organizations within Sri Lanka also 38% of respondents having less than 1-year working experience as a project manager or project team member within the IT organizations in Sri Lanka.

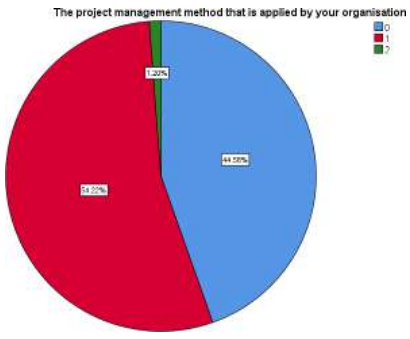


Fig. 6- PM method applied by the Org.

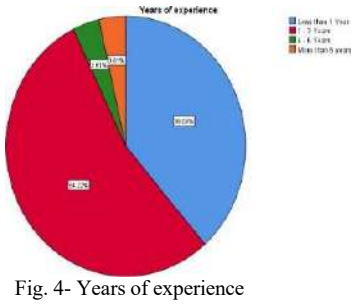


Fig. 4- Years of experience

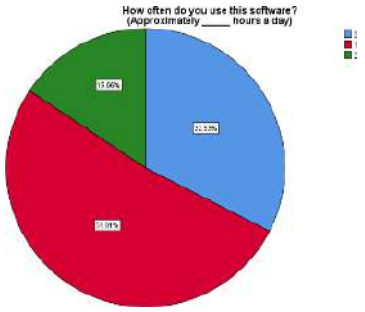


Fig. 5- Usage of PM Software (Hours)

The study focuses on proving the impact of using project management software toward project success within Sri Lanka, therefore to prove that the selected sample must use Project Managementsoftware, and also to prove that should need to identify whether project management software helps to improve team collaboration and communication. Around 96% of respondents are already using project management software for their day-to-day work and also around 98% of participants mentioned that using project management software helps to improve their team collaboration and communication within the team. Therefore we can accurately prove the results by using these respondents. In IT project management what project management method respondents are using is the impact to get an understanding of their interaction within the project management software, therefore around 54% of respondents are using the Agile project management method and around 45% of respondents are using Project Management Standards (initiation, planning, execution, control, closeout) which means traditional method. Through this data is equally proportionate within agile and waterfall methods. To prove the impact coming from using project management software towards project success crucial to identify project team members' typical interaction with the project management software and what time there integrated with the projectmanagement software.

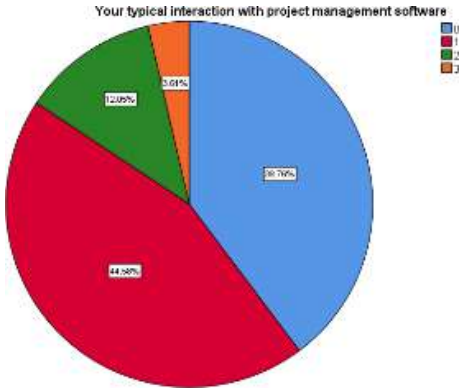


Fig. 7- Typical interaction with PM Software

According to theanalysis around 45% of team members interacted with the computer as an intermediary to provide information to others, and around 40% of team members' subordinates interacted with the computer systems and provided them with the information and 12% of team members interact with the computer primarily to obtain informationfor their own purposes.

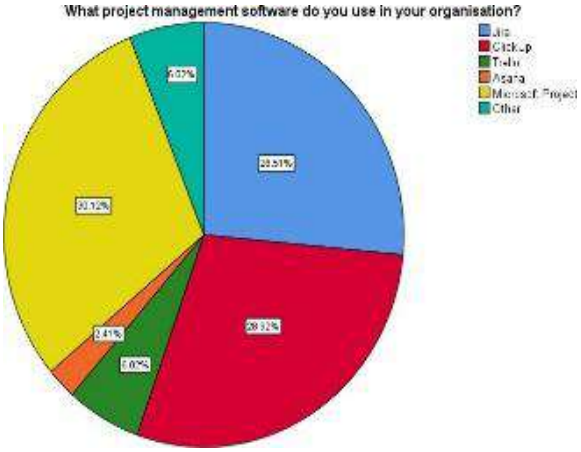


Fig. 8- Types of PM Software that Org. are used

Also, around 52% of team members interact for 3 - 6 hours within the project management software that they used, 33% of team members are integrated within less than3 hours, and 16% of team members interact with project management software more than 6 hours,with the previous data can assume those 16% respondents are project managers because they are the ones most needed project management software to manage their project team [7]. To getting understanding about the exact project management software that the respondent are used asking a question by giving five options as Clickup, Microsoft project, Trello, ASANA, Jiraand Other. From those five options Clickup is the most usable software among project team members because it provide range of features within the software also Microsoft project is the other most used software assume it's the basic user friendly software within the respondents.

2) Reliability Analysis

All items that measure the performance impact and project success of project management softwareloaded on independent variables have greater than 0.7 Cronbach's value and for dependent variable also have greater than 0.7 Cronbach's value as shown in below summery table. Factor loadings range from a low of 0.65 to a high of 0.89. Based on interpretation scale, the factor loadings within the research model are considered to be excellent factor loadings [7]. Cronbach's alpha test was performed to examine the reliability of the measurement scale. All the variables were found to have a high reliability measurement that exceeds 70% [7]. Therefore, all the Cronbach's alpha coefficients were greater than 0.70, indicating an adequate level of internal consistency and analysis proven all the used questions are reliable to the study.

Table 1- Reliability of pilot test (n- 60)

Reliability Statistics	
Cronbach's Alpha	No. of Items
0.927	15

Table 2- Result from the Pilot Test

Variable	No. of Items	Cronbach's Value
Range of features in PMS	5	0.866
Ease of use in PMS	5	0.956
Performance/Success of Project	5	0.958

3) Correlation Analysis

According to the correlation analysis can claim that there having a strong relationship between each independent variable towards dependent variable individually. Which means Range of features in the using project management software having 0.846 correlation value towards projectsuccess, therefore can claim Range of features in the project management software having strong relationship with the project success. Ease of use in the project management software having 0.756 correlation value towards project success, therefore can claim Ease of use in the project management software having strong relationship with project success. In conclusion can claim all independent variables have strong relationship with dependent variable individually which means there having impact of using project management software towards project success in Sri LankanIT project based organizations. In summary, A Pearson correlation analysis showed the following relationships:

- **Range of features and project success**: 0.846 (strong positive correlation)
- **Ease of use and project success**: 0.756 (strong positive correlation)

These results suggest that the more features a PMS offers, the more likely it is to contribute to project success. Similarly, ease of use plays a crucial role in ensuring the effectiveness of the software.

4) Regression Analysis

To identify the relationship between both independent variables to dependent variable used the supportive hypothesis as,

H0- There is no significant impact of Range of features and Ease of use in the project management software towards project success or project performance.

H1- There is a significant impact of Range of features and Ease of use in the project management software towards project success or project performance.

According to the P value approach,Alpha value- 0.05 and P value – 0.00

Therefore, according to the study conducted 95% confident to claim that model develop to ease ofuse and range of features in project management software towards project success or project performance is significant (P value < Alpha Value) which means according to sample data gathered within the Colombo district IT project base organizations employees can generalized there having a significant relationship between project management software that going to use which include range of features and easiness of use are impacted towards the project success in the particular IT organizations and performance of the projects in Sri Lanka. This result empirically confirms for the first time that project management software does make a difference in the perceived performance of project managers and projects, it appears over their projects, and achieve project success [7].

According to the findings below *MODEL* were created,

Project Success = 0.592(Range of features in the project management software) + 0.349(Ease of use in project management software)+ 0.276

In summary, Regression test and Analysis of Variance (ANOVA) show that the Range of Features in the Project Management Software and the Easiness of use the Project Management software towards project success or the project performance in Sri Lankan IT project base organizations arehaving a strong relationship with each other and Range of features and the ease of use in the projectmanagement software significantly impacted to the project success or project performance.

From the *MODEL* table identified how independent variables are fit to the dependent variable which means the whether the changes in the dependent variable is that because of independent variables or not.Simply study about the changers in the project success or project performance are happen is that because of the use of project management software or not. According to R square, can identify created model are fit to the dependent variable (R square – 0.764). According to the study based on the sample can generalized in Sri Lankan IT Industry contest project success or project performance changers otherwise the project failures or low performance not just because of using project management software means the Range of features in the project management software and Ease of use in the project management software not impacted to the changers or the failures in the projects (R square value > 0.7). According to the result proven when using project management software around 77% of projects going to be success in Sri Lankan contest and remaining 23% of projects going to failure due to other factors affecting to the projects without considering to the study.

V. DISCUSSION & CONCLUSION

A. Discussion

The results of this study indicate that the features and ease of use of project management software are crucial determinants of project success. Tools that offer a wide range of features such as task tracking, collaboration, and reporting help project teams stay organized and meet their goals. Additionally, user-friendly software reduces the learning curve for project teams and improves overall efficiency, contributing to higher project success rates. This finding is consistent with previous research, which emphasizes the importance of both the functionality and usability of project management tools in complex environments like IT projects. Sri Lankan IT organizations can benefit significantly from investing in PMS that is tailored to their specific needs, enhancing their ability to manage resources, monitor project progress, and ensure timely delivery.

Furthermore, the study highlights the importance of continuous training and technical support for users to maximize the benefits of project management software. Teams that are better equipped to use these tools are more likely to experience successful project outcomes.

B. Conclution

In conclusion according to the Sri Lankan contest there is no prior research or study about to study the effectiveness of using project management software towards project success in Sri Lankan ITproject base organizations. According to the study using project management software consider within two independent variables as Range of Features in the project management software and Ease of Use in the project management software and consider project success or

project performance as dependent variable to the study. Through the study try to prove using project management software directly impacted to the project success or project performance in the organization. Consider IT employees in Sri Lanka as a population and based on the population selected 139 participants working in Colombo District IT Organizations as a sample to collect theresponses. Colombo is the district that having high number of IT project base organizations and also it is the easy accessible area for researcher. According to the demographic data all the respondents are equally proportionate with male and females also most of the respondents are in younger age and 96% percent of respondents used any kind on Project Management software within their work time. It proven this study are accurate just because of 96% of respondents are working within any kind of IT project base organization and around 33% of them are project managers. There having around 62% of respondents are project team members which they job role may be Business Analyst, Software Developer, UI/UX Designer or Quality Assurance Engineer. However when considering the project team members are in the IT project base organizations including all of them which means they also using the software that the particular IT organization used. Considering all the facts around 95% of respondents are working within any kind of projectmanagement software within their worktime. Also through other earlier mentioned demographic data proven the respondents are highly gathered with any kind of project management software within their worktime. According to the analysis proven that the considered independent variablessuch as Range of Features and Ease of use in the project management software are directly impacted to the project success in Sri Lankan IT project Base organizations.

ACKNOWLEDGMENT

I would like to acknowledge the lecturers of the Department of Operations & Logistics, Faculty of Business, NSBM Green University, for giving their utmost support and knowledge for making this research successful.

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