ORIGINAL RESEARCH



Impact of team knowledge management, problem solving competence, interpersonal conflicts, organizational trust on project performance, a mediating role of psychological capital

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Abstract

There has been substantial research on megaprojects in project management literature. However, there is dearth of studies empirically investigating performance of new launched megaproject of Thailand that named as "Phuket sandbox". The core purpose of this project is to normalize covid-19 situation and resuming tourism in Thailand. Therefore, the evaluation of project performance is essential to achieve the targeted goal for success. The purpose of this study is to investigate the factors that affect project performance (Phuket sandbox) in Thailand. This study used quantitative approach based on structured questionnaire and the data was collected from Phuket, Thailand. The survey conducted from team members which are tourism stake holders' team, immigration team and public service teams including hospitals and hotels who were supposed for the management of Phuket tourism sandbox operations. The study got 222 valid responses only as the members were so busy and partial lockdowns

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in Thailand hindered the data collection process. The proposed hypothetical model tested by partial least square structural equation modelling. The results of the study found mix findings. The independent variables are team knowledge management, interpersonal conflict, organizational trust, and as significant and dependent variable as project performance through the mediation of psychological capital. The all relationships found to be significant except problem solving competence which have insignificant relationship with project performance as well as problem solving competence and organizational trust have insignificant relation with psychological capital.

Keywords Project performance · Team knowledge management · Problem solving competence · Interpersonal conflicts · Organizational trust · Psychological capital · Phuket sandbox

1 Introduction

The spread of COVID-19 effected almost every business, projects, and industries. Although, this pandemic effected every country, but it hit more harder to developing Asian countries and Thailand is no exception from it (PTI, 2020). More than 90% of countries closed their boarders as travel restrictions imposed to curb the virus (Arnot, 2020). The tourism industry is most affected industry with lockdowns, travel restrictions, grounded planes, banned transportation and closing of hotels, bars, restaurants and night clubs (UNWTO, 2020). This crisis is not first for tourism industry which paralyzed it, before that tourism industry have faced terrorism, EBOLA, SARS, and earthquakes. However, situations are different now and no one is sure when things will be normalized (Hong, 2020). The Thailand is one of the 10th most visited country globally (Marukatat, 2018) and it was the most visited country with 22.9 million international visitors (Talty, 2019). On out of six jobs in Thailand is related to tourism with contribution of 13% to 14% in country's economy (Pinchuck, 2020). Thailand has witnessed of many crises before even tsunami, local cleaned up and reopened business. However, locals are not sure when situation is going to be normal. The tourism industry is on its knees and called for government support as COVID-19 effects prolonged (Praprutitum, 2021).

Responding to the call of locals, government took initiative to revive tourism industry. In this regard, government launched a mega project named as "Phuket Sandbox" (Vejpongsa & Rising, 2021). Under Phuket sandbox scheme, vaccinated tourist allowed to visit on of the top tourism destination "Phuket" from 1st July 2021 as 80% of its economy based on tourism and 300,000 related jobs. Thailand's officials recommended the Phuket Sandbox model to restore the nation to foreign visitors without requirement for quarantined upon entry. The tourists were asked to follow specified rules and being vaccinated, and they won't have to be quarantined.

The sandbox project is involving some risks and people are afraid of another spike of COVID-19 but government is carefully launching this project (Bangprapa & Chuenniran, 2021). "This decision comes with some risk. But, when we take the economic needs of people into consideration, the time has now come for us to take that calculated risk" Says Prime Minister Prayuth Chan-ocha (Yuda, 2021). "It's a totally new situation. You are trying to reopen the country to tourism to help the economy but at the same time you need to be cautious" Says governor of tourism authority of Thailand (Wongcha-um, 2021). Furthermore, PM Prayut is leading this project and they asked their teams to be vigilant and ready to respond to any call of emergency (Kasemsuk, 2021). This project is launched by connecting



tourism stake holders team, immigration team and public service teams including hospitals and hotels ("Thai PM General," 2021). Furthermore, a department is formed named as EOC Phuket tourism sandbox operation center" Headed by Mr. Narong Woonchiew, Governor of Phuket Province to trace, control and track the performance of this project.

Based on provided discussion, this study proposed some measures to monitor the performance of project. Such as teams should have problem solving competence to cop any uneven situation(Lin et al., 2015), team knowledge management for better implications (Usmanova et al., 2021), trust between team members (Wu et al., 2020) and lowering of interpersonal conflicts (Losada-Otálora et al., 2020) and the psychological capital which is crucial for well performance of project (Taştan et al., 2020). Any sort of conflict involving two or more people is referred to as interpersonal conflict. Conflict, whether minor or serious, is an inevitable result of human encounter. Individuals have a wide variety of experiences, beliefs, aspirations, and problem-solving approaches (Khan Et Al., 2020). Therefore, Psychological capital is introduced as a mediating variable to investigate the effect of strong predictors on project performance (Rezaei et al., 2021). Psychological capital is a collection of assets that can be used to help the person improve their job performance and achievement. Self-efficacy, positivity, optimism, and perseverance are among the four assets included. We'll explain every one of these sources or why they're important all at once (Lopez et al., 2016). The prior literature has investigated the effect of mechanism of strong ties on psychological capital and project performance especially in megaprojects. However, this study aims to investigate the impact of team knowledge management, problem solving competence, interpersonal conflict, organizational trust, psychological capital on project performance. Further, this study also to investigate the mediating role of psychological capital between team knowledge management, problem solving competence, interpersonal conflict, organizational trust, and project performance. Additionally, this study enhances the literature theoretically and practically by effectively controlling the strength and weakness of above-mentioned elements, as well as by efficiently applying the role of relationship domination and team management work in megaprojects.

2 Literature review

2.1 Team knowledge management and project performance

The studies on knowledge management consist of two streams including the content and process approach. Based on the content approach studies paid attention on characteristics and sorts of knowledge, such as expertise in specific field (Hoegl & Parboteeah, 2007), explicit versus implicit knowledge (Griffith & Sawyer, 2010), as well as declarative against procedural knowledge (Akgün et al., 2008). On the other hand, the studies based on process approach emphasis on the means to share and handle the knowledge as well as use of knowledge by employees (Gino et al., 2009; Tiwana & McLean, 2005). The literature highlighted that the content approach in knowledge offer the rooted knowledge to produce new and innovative knowledge (Cruz et al., 2007; Mathieu & Schulze, 2006). In case of process approach, it is used to apply relevant knowledge by teams and triggers the significance of knowledge as it influence on the team performance (Liang et al., 1995; Moreland & Myaskovsky, 2000). Shared mental models (SMM) indicate the content approach and recommend that share mental demonstration of team task, responsibility and attitude fosters team usefulness by refining harmonization and the construction of normative values for shared efforts (Klimoski



& Mohammed, 1994; Mohammed et al., 2000). Shared mental models in the setting of collaboration concentrate upon team members' responsibilities and functions, communication processes, and also how they engage with one another depending on each participant's abilities and interests. Transactive term relates to a team's ability to get a memory subsystem that is superior to that of its current people. A transactive memory system is the system that allows groups of people to cooperatively record, save, and retrieve data. Utilizing the both process and content approach in knowledge management, Wegner (1987) implied a theory of transactive memory systems (TMS). Therefore, these systems contain the knowledge controlled by the individual and a collective understanding of those individual who recognize what. However, in following TMS researches, scholars have engrossed mainly on the later element and investigated the methods that assists teams to recognize and competently application of the knowledge circulated among associates (Liang et al., 1995; Moreland & Myaskovsky, 2000). Relatedly, team learning includes the cross-fertilization procedure among individuals in team thereby rousing the stream of concepts within the team (Wilson et al., 2007). As a result, cross-fertilization in company is integrating and combining ideas from various areas, industries, or individuals in order to create best goods and services. Importing technologies from some other sector or employing employees from some other firm are instances of all this (Quintero et al, 2015). Because of the emphases of existing literature on the procedure of obtaining and sharing the knowledge in team, the literature has stipulated the lack of the information about the purpose of knowledge management in teams (DeChurch & Mesmer-Magnus, 2010). Therefore, the present study has following proposition:

H1 Team knowledge management has a significant impact on project performance.

2.2 Problem solving and project performance

To achieve the outcomes is the eventually objective of operational activities in organization, therefore analyzing the organizational consequences is a main role in management. Number of research based on diverse views have been investigated to explore probable causes of project performance. Consequently, some researches embraced a problem-solving view and understanding of information system development as problem solving procedures (Aladwani, 2002; Cerveny et al., 1990; Khatri et al., 2006). This context suggests that team performance is determined by a team can faces the problems in an effectively and efficiently, a problem is well-defined as a gap desire and existing state (MacCrimmon & Taylor, 1976; Newell & Simon, 1972). Along with, Problem solving is expressed as process for eliminate the gap between desired and existing state of mind (Cerveny et al., 1990). There are few features included in problem solving such as, finding problems, describing problems, creating some alternate solutions, evaluating the alternate solutions and select the best option. For instance, firstly, team must find out the problem to aware of it because of the progress reduced according to expectations. Immediately, if problem is recognized by the team and must described the problem critically with its potential reasons. After that solution can be generated with the understanding of actual problem. Reviewing the all-alternative procedures, to select the best one for implemented to solve the problem (Lin et al., 2015). Problem solving is a forerunner of the project performance (Li et al., 2011). Therefore, a team have more problem-solving skills and ability can make a attentive effort within accessible resources, in addition, engage effectively to facilitate the satisfactory outcome. These beneficial outcomes entail faster completion of project, reducing cost as well as efficient operational role. The results suggests that problem-solving ability is highly linked with project performance in the organization, therefore, the study hypothesize that:



H2 Problem solving competence has a significant impact on project performance.

2.3 Interpersonal conflicts and project performance

Employees must have well coordination to facilitate the organization with high quality services (Bowen, 2016). Coordination is a requirement for organizational development and success, it increases the interaction level of employees among diverse unit of work by social practices. Social development may be decline in the case of interpersonal conflict among workers of the organization (Behfar et al., 2008). However, the literature recommends that conflict is the common element among employees when they have interaction with numerous people to offer their services according to customers (De Dreu, 2010). Conflict can be occurred at workplace in case of social-personal relationships and task-oriented matters. Poor relations at working environment can be appear among that individual who have interaction with each other for functional intentions and among that individual who have interaction for socially. The focus of conflict related to social and functional relations is important at workplace, and literature displays that knowledgeable discussion related to task happens by interaction as formal and informal at workplace (Fullwood et al., 2013). However, the interpersonal conflict is described by sporadic instances of adverse incidents that are not necessarily remain over the time period and do not hurt to someone intentionally (Baillien et al., 2017). Along with, interpersonal conflict could be bidirectional occurrence, as the groups concerned with conflict on the same ability and same level (De Wit et al., 2012). Interpersonal conflict is a hostile experience which creates the negative association among employees (Dijkstra et al., 2011). As employees required to make positive harmony in relationship to attain the organizational goals linked with specific project in team, while individual need to participate emotional, cognitive and physical struggles to control conflicts with members in the organization (Baillien et al., 2017; Kattenbach et al., 2010). As the concept of interpersonal conflict have effect on team project performance at workplace, this study assumes as follows:

H3 Interpersonal conflicts has a significant impact on project performance.

2.4 Organizational trust

Trust has been studied in the literature related to organization. Particularly, the concept gotten more interested with the study found by Mayer et al. (1995). Therefore, the trust is commonly described with willingness of reliable behavior one to another person. Trusting to others contains taking the risk, as trustors could act according to interest of others (Schoorman et al., 2007). However, organizational trust characterized with sincerity, loyalty, truthfulness and it also sustain with different level of the organization. For instance, trust between team members, trust between leaders and followers, trust between organization and employees, trust between individual members of the organization (Burke et al., 2006; Six, 2007). Along with, the relationship building in particular intangible assets including specialized human capital in different departments, involves the concentrated interaction among individuals for contributing to the organizations. Similarly, the intangible asset in specific domain is the consequence of procedures of mutual formation of competences (Aarikka-Stenroos & Jaakkola, 2012). Hereby, Sjödin et al., (2016) and Lin et al., (2017) recommended that process of mutual formation between employees and employers managing the ambiguity role and uncertain



prospects, and support as protectors for any risky decision for the organization. This kind of processes build the co-interdependencies and interaction which strengthen the common interest between employees and organization as wells limit the probable cunning behaviors. As resulted, organizational trust behavior increases the chances to create motivation for individuals with collaboration of mutual interest to get better performance of projects. Hence, the study posit:

H4 Organizational trust has a significant impact on project performance.

The psychological capital is significant factor to achieve the organizational goals, hereby, the employees must to develop the psychological capital for self-growth (Luthans & Avolio, 2014), while the four factors include in psychological capital such as hope, resilience, optimism and self-efficacy (Avey et al., 2009). Hope is the determining approach in employees to achieve the goal. Resilience is the willpower to bear the difficulties for get the organizational success. Optimism is the positive approach in every uncertain situation for the achievement. While, self-efficacy is the term used for self-confidence which developed to attain the desired consequences for the benefits of organization (Luthans et al., 2007a). The outcomes revealed that project performance is highly correlated with employee's psychological capital in the organization and its also have positive effect on employee's behavior (Newman et al., 2014). Therefore, anyone can understand their perception, as a outcome of consciously or unconsciously behavior that caused for the misunderstanding of human actions (Kim & Ishikawa, 2021). Psychological capital would rise the positive transformation of in the workplace. Therefore, this paper assumed that:

H5 Psychological capital has a positive impact on project performance.

2.5 Mediating role of psychological capital

The study is expected to examine the relationship of team knowledge management with project performance and knowledge is valued when the right frame is provided for its creation within right way. According to literature knowledge management should be measure in organizational performance. Acquirement, maintenance, reparation, search, and recovery are the main factors which influence the knowledge management. Therefore, these elements grounded on keeping the new knowledge to incorporate it within the organization with old knowledge and maintain it consistency, as well as keep search and regaining abilities in the organization. It is claimed that to concentrate on the path to achieving high quality, members of the organization required to be joined and opposing to each other (Iyengar & Montealegre, 2021). Psychological capital is the ability to create own value and understand the perception of their actions and feelings regarding to work. Employees could be more involved in the work effectively in order to achieve the organizational goals in the involvement of the psychological capital (Assaker et al., 2020). How the team member to use their psychological capital to manage the knowledge is important element to improve the performance of project, Therefore, the study hypothesized following:

H6 Team knowledge management has a significant impact on Psychological Capital.

H7 The relationship between team knowledge management and project performance will be mediated by psychological capital.

Team members performance is described the level in which team members work mutually and make the changes in products with innovative ideas to utilize the maximum knowledge



(Benitez et al., 2018; Kleis et al., 2012). Observant ability researchers agree that one element is knowledge which can be considered circulated assets in order to get maximum performance on projects (Dahlander & Frederiksen, 2012). Hereby, the team members face the problem in the organization, problem solving competency is the only significant factor which could be helpful to find out the actual problem in existing system. Problem solving ability help to improve the team performance in project. In this situation, members of the team can discover the problem, integrate the knowledge with innovative ideas of team members and get the solution of problem, it contributes to improve team performance (Jeppesen & Lakhani, 2010). Along with, past studies shows that psychological capital is also the positive influence on performance of the organization (Ali & Park, 2016; Flor et al., 2018; Leal-Rodríguez et al., 2014). Team members can use their psychological capital in order to explore the problem and attain the desired performance. Based on above mentioned arguments the study presents the following assumption:

H8 Problem solving has a significant impact on Psychological Capital.

H9 The relationship between problem solving and project performance will be mediated by psychological capital.

To achieve the project performance, the team members work with coordination. It is increasing the interaction level of the employees with social practices for the organizational success. unfortunately, this coordination failed in case of inter-personal conflict among workers (Behfar et al., 2008). Therefore, the literature suggests that conflict is the usual factor when employees have interacted with each other to serve their different services according to mutual project (De Dreu, 2010). Inter-personal conflict can be happened among team members due to task-oriented issues, focus on social and functional relation is important at workplace (Baillien et al., 2017). However, employees must to control their negative thoughts about work and make the balance in relationship with members to participate through psychological capital in order to eliminate the inter-personal conflicts (Baillien et al., 2017; Kattenbach et al., 2010). Therefore, aforementioned the argues the study is propose following hypotheses:

H10 Interpersonal conflicts has a significant impact on Psychological Capital.

H11 The relationship between interpersonal conflicts and project performance will be mediated by psychological capital.

Organizational trust is important factor employees to provide them a flexible working environmental. Therefore, the present study discusses that in context of team members, knowledge management and coordination are important elements as well as trust couldn't ignored. Trust can influence the project performance of team members. Given the contribution of psychological capital to team performance in projects, examining how psychological capital assist the team members to assure and trust on the employers for work to attain the organizational goals (Cantu & Mondragon, 2016; Koohang et al., 2017). Acquisition of the joined advantages of distributed information resources linked with the communication of knowledge among expert members of team which demonstrates how members coordinate and keep trust on each other (Corfield & Paton, 2016). Psychological capital increases the positive attitude in workers to build the trust on organization for desired performance in project. Team members can trust on each other with use of their psychological capital in contribution of organizational success. Therefore, the study posits the following:

H12 Organizational trust has a significant impact on Psychological Capital.



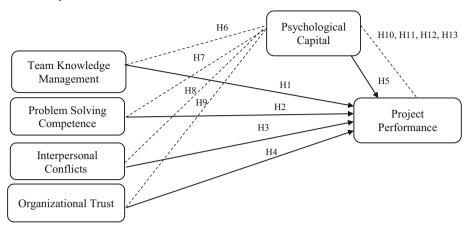
H13 The relationship between organizational trust and project performance will be mediated by psychological capital.

2.6 Strength of ties theory

Social capital is characterized by embedded the resources in social networks which can be accessible or transferred through the ties within networks (Lin et al., 1981). Therefore, the fundamental scope of social capital theory contains the form of relations between the members of network and can be examined by the view of ties in network, as well as configuration and stability of network. While, the network tie depends on specifically the way in which actors are related (Inkpen & Tsang, 2005). Along with all consideration, Ties are considered a basic feature of social capital and because a social tie of an actor's network makes opportunities for transactions of social capital (Adler & Kwon, 2002). Weak tie theory is the first approach in conceptualization of social capital which focuses on the boost the network ties. Strengthen of ties is a concept, Granovetter (1973) proposed this concept which is the type of bond relations shaped by interaction and communication among members of the organizations. Strengthen of tie can be measured with four aspects such as interaction, emotional intensity, intimacy, frequency and reciprocity level (Granovetter, 1973). Strengthen tie as a concept which has the strong and weak tie with intimacy and interaction level between organizations (Hansen, 1999). According to Bian (1997), difference between strong and weak ties depends on relationships and familiarity level between members of organizations. In strong tie, members are more familiar with each other, due to this familiarity members can exchange and understand easily their knowledge and complex communication (Badi et al., 2017; Shrestha, 2018; Shu-wen & Wen-an, 2013). In megaproject network, strong and weak ties exist between members of organizations. Strong ties can give the reliable and trustworthy resources to build the project performance and its beneficial for success of project. It contributes to involvement of members with full of determination for obtain the technological Knowledge and resources (Bazyar et al., 2013; Lee et al., 2018). While weak ties are described by the low prior ties and low dependence. However, weak ties can give the approach to original innovative and nonrepetitive knowledge by connecting otherwise unconnected nodes of network in project (Badir & O'Connor, 2015). Meanwhile, weak ties have a large number of operational gaps and these gaps can be reduced the performance of the organizations (Singh, 2000). Regarding to these two different aspects (strong ties and weak ties) researchers suggest that need to introduce some mediating variables for consideration. These variables consist cooperation, organizational observant ability and organizational behavioral factors (Kim et al., 2010; Liu et al., 2017). In this study assume that strong ties include team knowledge management, problem solving competence, organizational trust. While the weak ties include interpersonal conflicts. In case of mediating variable effect such as psychological capital, it could be providing the strong connection and positive effect on project performance.



2.7 Conceptual framework



2.8 Method and data presentation

This study follows quantitative approach and chosen self-administrative surveys for purpose of data collection. Quantitative approaches focus on objective standards and statistics, algebraic, or numerical assessment of information acquired through surveys, questions, and studies, as well as modifying pre-existing statistical information using specially designed software. The data was collected from different organization involved in Phuket sandbox scheme. The Phuket Sandbox plan, on either hand, permitted foreign guests to avoid this onerous requirement by spending 14 days just on island of Phuket just at beginning of a Thailand vacation in able to travel to other areas of the country. You can also move freely about Phuket's coastline and discover at your convenience. The purposive sampling was used for the collection of data. The data collection was basically divided for three teams that are (1) tourism stake holders' team, (2) immigration team and (3) public service teams including hospitals and hotels. The total of 300 questionnaires were distributed and out of that 222 questionnaire were received and considered useable for further analysis. The other 78 respondents not responded due to their busy schedule as it one of the mega projects and they had short time to implement.

Regarding the measurements used in study are adapted from previous studies. The construct team knowledge management was adapted from the study of (Faraj & Sproull, 2000; Lin & Chen, 2006; Tiwana & McLean, 2005) and the total number of items were nine. The construct problem solving competency was taken from the study of Aladwani (2002) and total number of items were three. The scale for the construct of Interpersonal conflict at work was adapted from the study of Spector and Jex, (1998) and its items were four. The scale organization trust was consist of four item and adapted from the study of Zaheer et al., (1998) and Zhou and Poppo, (2010)

The scale of psychological capital was consisting of 24 items and it taken from the study of Luthans et al., (2007a, 2007b). The scale for project performance was taken from the study of and its items were Henderson and Lee, (1992) with six items.

To assess the validity and reliability of questionnaire, a pre-test was conducted to ensure any ambiguities in questionnaire are revised. Furthermore, the respondents understand it well and response to it the way it was designed and intended. Moreover, seven point Likert scale was used to reduce the common method bias (Mackenzie & Podsakoff, 2012). When variances



in answers are produced by the instruments instead of the genuine behavioral patterns of a participants that the equipment is attempting to reveal, this is known as common method bias (CMB). In this study process, the likert scale is used to reduce it.

2.9 Demographics

The demographics of the study included gender, education and location. The survey revealed 59% females and 41% males, 16% were diploma holder, 74% were having bachelor degree and 10% were master's degree holders. In respond to answer to location 65% were from Phuket city, 24% from capital city Bangkok and 11% from other cities of Thailand.

2.10 Data analysis and research results

The structural equation modelling been used with Smart-partial least squares (PLS) version 3.3 (Henseler et al., 2009). The statistical approach of structural equation modelling is used to quantify and evaluate the connections between observable and predictor variable. It explores linear causal links between variables whilst allowing for sampling error, comparable to but much more robust than regression analysis. SmartPLS is the most common path model application. PLS is defined as an approach that is best suited for predictions or experimental modelling in research. A network of academics supports SmartPLS, a freeware, user-friendly modelling package for partial least research. All techniques are available; however, data is restricted to 100 samples per project, despite the fact that the number of works is unrestricted (Zheng et al, 2021). The model of this study is consist of first order constructs and smart PLS is suitable software to handle complication of such model (Hair et al., 2019). The study used three process to carried out the analysis that were PLS algorithms, bootstrapping and blindfolding. The PLS algorithm is a series of weighted vector-based regression models. Fixed point equations are satisfied by the weight matrix produced during resolution. Regression with partial least instead identifying hyperplanes of highest variance seen between answer and outcome variable, PLS regression is a statistical tool that resembles principal component analysis. Regression models can benefit from the bootstrap samples. When you bootstrapping a linear regression, you saw how unpredictable the parameter estimates are. Knowing how so much source of variation there would be in linear regression due to modest differences in data value is important. Blindfolding is a sampling reuse approach that serves as an evaluation function for the PLS path model's cross-validated simulation is the process. The technique of completing speed cubes while blindfolded is widespread. Most people just assume that completing the cube sightedly, let alone blindfoldedly, necessitates extraordinary recollection. By handcuffing smartPLS, you may table format of correlations. The logic behind choosing smart pls is to investigate the model retrieve its measurements without considering the assumption of data normality. Normally, the data of survey based research is not normally distributed and smart pls deals with small sample size without effecting data normality. The data of this study was collected from single source and it is necessary to investigate collinearity related issue to avoid from the common method bias. The variable of this study are regress towards a mutual variable and these variables are investigated that the value of variance inflation factor (VIF) should be less than 3.3. The variance inflation factor assesses how an independent variable's behavior is impacted by its own communication with the other independent factors. Variance inflation factors provide a fast estimate about how much a variable contributes to the regression's standard deviation. The analysis showed that the study meets this requirement and shows no issue of common method bias (Sarstedt et al.,



2019). When variances in answers are produced by the instruments instead of the genuine behavioral patterns of a participants that the equipment is attempting to reveal, this is known as common method bias (CMB). In this study process, the likert scale is used to reduce it.

2.11 Measurement model assessment

In the smart PLS, the measurement model being evaluated through composite reliability (CR), average variance extracted (AVE), and loadings as mentioned by Hair et al. (2013). Similar to Cronbach's alpha, convergent validity is a measure of the internal consistency in measurement scales. This can be calculated as the whole quantity of actual sample covariance matrix divided by total scale indicator variables. Average variance extracted is indeed a measurement of the amount of variation collected by a concept in regards to the quantity of variance due to measurements inaccuracy in statistical traditional scientific hypothesis. It is suggested that the loadings of a model should be higher than 0.5, any item with lower value can be deleted based on context and researcher's choice. But it must should be taken into account that deleted items should not more than 20% of total items (Hair et al., 2017). Based on this assumption, a total of 12 items were deleted from the model. In case of CR the values should be higher than 0.7, Cronbach's Alpha is great if higher than 0.8 and, AVE should be higher than 0.5 (Cooper & Schindler, 2014). Cronbach's alpha is a metric for consistency reliability, and how tightly a collection of objects is connected. It is regarded as a scale dependability indicator. The presence of a "high" significance level doesn't really shows that the average value is one-dimensional. The values are indicated in following Table 1 that ensure the threshold level of the study.

The next step of analysis to check discriminant validity. Discriminant validity examines when or just not ideas or measures that aren't meant to be connected are, in fact, unconnected. A satisfactory latent variable study demonstrates that an idea exam also isn't associated significantly with the other tests measuring conceptually different thoughts. There are few ways to measure it such as Fornell and Larcker (1981), Cross loadings and heterotraitmonotrait ratio (HTMT) (Hair et al., 2016). Cross-loading occurs whenever a factor has more than a started filling dependent on the random sample, making it difficult to name all the components that share the same variable and hence difficult to make these components separate and reflect independent ideas. The heterotrait-monotrait ratio of correlation is indeed a new method for evaluating discriminating validity for partial least square structural equation modelling which was among the most important components of model assessment. However, Henseler et al. (2015) suggested that HTMT is more reliable than any other method and value of HTMT should be less than 1. The HTMT value of this study are presented in following Table 2 and values are below 1.

Furthermore, the study also evaluated effect size (f^2) which are given below in Table 3 Moreover, according to Hair et al. (2019), the coefficient of determination R^2 should be assessed while evaluating the model. It is further added by Hair et al. (2007), the acceptable value of R^2 is between 0.3 to 0.7 The value of R^2 in this study is 0.627 is for psychological capital and 0.77 which indicate substantial predictive validity of the model.

2.12 Structural model

The next step of the study is to assess the structural model of the study. In this section, this study intends to measure t values, p values, standard error, standard beta, LLCI and ULCI.



For this purpose, values were obtained through bootstrapping of smart pls at sample size of 5000.

Few of past studies used only P values to measure significance of hypotheses. However, Hahn and Ang, (2017) argued that only p values is not sufficient for this purpose and other criterion such as t values, standard error, standard beta should also be considered. Therefore, this study chosen the combination of mentioned criteria. Based on this table, H1, H3, H5, H6, H7, H10, H11, H12 and H13 found to be significant. However, H2, H4, H8, H9 found to be insignificant in study. It is must to mention there that internal conflict negatively influence the psychological capital and project performance. For ease of data interpretation, the data recording for internal conflict done inversely. The process of making understanding of a group of data input is known as data interpretation. This data may be presented in a variety of formats, including bar charts, line graphs, tabular representations, as well as other comparable formats, all of which require interpretation.

	Hypotheses	Std Beta	SDStd Dev	T vValues	P vValues	ULCI	LLCI
H1	Team knowledge—> Project performance	0.342	0.09	3.797	0	0.07	0.426
H2	Problem solving competence- > Project performance	0.031	0.038	0.805	0.421	- 0.064	0.084
Н3	internal conflicts—> Project performance	0.513	0.066	7.753	0	0.307	0.573
H4	Organizational trust—> Project performance	0.061	0.075	0.81	0.418	- 0.15	0.149
Н5	Psychological capital—> Project performance	0.26	0.066	3.962	0	0.134	0.392
Н6	Team knowledge—> Psychological capital	0.365	0.083	4.419	0	0.206	0.531
Н7	Team knowledge—> Psychological capital—> Project performance	0.095	0.032	2.955	0.003	0.041	0.168
Н8	Problem solving competence—> Psychological capital	0.079	0.048	1.631	0.103	- 0.011	0.177
Н9	Problem solving competence—> Psychological capital—> Project performance	0.021	0.014	1.499	0.134	- 0.003	0.05
H10	internal conflicts—> Psychological capital	0.259	0.071	3.646	0	0.117	0.393
H11	internal conflicts—> Psychological capital-> Project performance	0.067	0.029	2.314	0.021	0.022	0.135
H12	Organizational trust—> Psychological capital	0.22	0.083	2.642	0.008	0.057	0.381
H13	Organizational trust—> Psychological capital—> Project performance	0.057	0.026	2.237	0.025	0.013	0.114



After critical evaluation of structural model, the next step is to assess predictive relevancy (Q^2) of the model through Stone–Geisser criterion by blindfolding. The value of Q^2 for psychological capital is 0.337 and for project performance is 0.490 which meets threshold level.

3 Discussion

Based on results, the study came up with worth discussion findings. The study has unveiled the significance of proposed hypothesis. The study contributes to project management literature by investigating the project performance, psychological capital, and other influencing factors. The study is unique in sense that it investigates a newly launched project of "Phuket sandbox". One of the reasons to choose this project is that it is mega project to normalize situations after COVID-19 and if it goes successful than government have plan to open nice more tourism places of the country (González-Torres et al., 2021). There, a careful analysis was needed in context of Thailand.

Furthermore, the study has come up with combination of significant and insignificant proposed hypothesis. The study has found significant relationship of team knowledge management to psychological capital and project performance. The findings of this study are in lined with previous literature (Usmanova et al., 2021). We may say that team knowledge management enhance the project performance as the knowledge is important for better performance.

There is an interesting finding of the study is related to internal conflicts. If teams may not have internal conflicts with peers, leaders, and stakeholders than it will increase psychological capital and boost the performance of Phuket sandbox scheme. The findings of this relationship also in lined with prior literature (Baillien et al., 2017).

In case of inter organizational trust study got mixed findings. The organizational trust is insignificant to project performance (Campbell & Im, 2015). However, it found to be significant with psychological capital and it also found significant to project performance with mediation of psychological capital. The plausible finding of the relation is that, only trust may not influence project performance unless employees have association with psychological capital. In other word, the trust triggers the hope, resilience, optimism, and self-efficacy of employees which lead them towards achievement of their goals (Iyengar & Montealegre, 2021).

There is an insignificant relationship found in this study which is in lined with prior literature (Aladwani, 2002). The problem-solving competence is having insignificant relationship with psychological capital and project performance. This insignificance can be results of contextual factors.

4 Conclusion

This study is endeavors to investigate what the strength of ties influence to project performance through psychological capital in megaprojects. Findings shows that direct and indirect effects of (team knowledge management, problem solving competence, Interpersonal conflict, organizational trust) exist on project performance. The results indicate that Team Knowledge management, problem solving competence and organizational trust have significant and positive impact on project performance, also through psychological capital in



megaprojects. While, that interpersonal conflict has significant but negative impact on project performance. Moreover, with indirect effect of interpersonal conflict is only in term of mediating role of psychological capital on project performance. Interestingly, the psychological capital plays the different role as mediating effect. The findings help deep understanding of the trustworthy mechanism to improve the performance of megaprojects. The practical and theoretical implications help the researchers to give more attention to the connection between members of projects governance, regarding to improve the belief, trust, and faith in project success.

4.1 Theoretical implications

Few studies explored the effect of team Knowledge management, problem solving competence, interpersonal conflict, and organizational trust on project performance in context of network connection, particularly with examination of psychological capital with mediating variable in megaprojects. Therefore, the findings of this study provide a great theoretical importance to the project management in megaprojects. Along with, firstly, this study investigates the certain significance of strong tie such as team knowledge management, problem solving competence, and organizational trust in megaprojects. By the rapid expansion of megaprojects all over the world, team knowledge management, problem-solving competence, organizational trust in networks are increasingly obvious and main essentials for the governance of megaprojects. As major feature of networks in megaprojects, strengthen ties is mostly ignored. This study emphasizes the significance of these features and examines their effects on stakeholders and project performance for mutual interest and coordination. The findings proved the significant consideration of these factors for implication in projects. Secondly, the psychological capital is considered a forerunner for the project performance of megaprojects, this study gives a noteworthy implication of psychological capital based on their individual characteristics. Therefore, with mediating effect of psychological capital possess distinctive influences on project performance. Further, it proves that mediating concept between team knowledge management, problem-solving competence, organizational trust and project performance should not be ignored, particularly for the improvement of performance in megaprojects. Finally, this study also answers those questions which aspects of strength of ties are strong influential on projects. Along with, strength of ties has direct and indirect influence on project performance. In case of weak ties such as interpersonal conflict is more influential on project performance. People have many differences based on values, personalities, attitudes toward working environment, which prompt to reduce the performance of project. This study also gives a significant implication of psychological capital between interpersonal conflict and performance. Members in the team can control their conflict with the use of psychological capital (hope, resilience, optimism and self-efficacy), which lead to the improvement of performance in project. Therefore, psychological capital can provide the theoretical reference for participants to positively increase their trust, self-believe, positivity, hope toward project management and encourages authorities as well as industries links to more prepare and improve strategies or values related to megaprojects.

4.2 Practical implications

Strength of ties (team knowledge management, problem solving competence, organizational trust) and psychological capital are main key factors that influence the project performance



in megaprojects. However, strong and weak ties both have positive effect on the level of psychological capital between project members. In this way, the administrators ought to be wary while picking their collaborators, putting together their determination with respect to the genuine requirements of the development stage. In complex megaprojects, the development time frame is long. In that capacity, partners can consistently incorporate and impart during the task implementation procedure, therefore frequently improving their comprehension of one another's inclinations, propensities and work capacities. With respect to the administrative methodologies for partners, the key is to precisely assessment of their asset endowment, particularly their outside and inside network relationships. Moreover, the interpersonal conflict is also important to focus in projects, with the existence of psychological capital can also help to eliminate the interpersonal conflict in connections and carry out projects easily. For this situation, the proprietor can decide to take an interest in the determination and development of the associations with weak ties, in light of the expense, while as yet keeping a solid connections network with the other party. This doesn't imply that partners ought to intentionally pursue the weak ties. Practically, weak connections can be better with psychological capital in members at advancing the performance of projects. In the preliminary phase of megaprojects, most partners are connected by weak connections. Partners should to fortify correspondence and coordination and endeavor to fabricate the strong connections. As of now, one significant justification the low performance at megaprojects in quickly developing nations like Thailand is that the ratio of strong and weak connections between associations is strange, with an extreme level of weak ties. Thusly, while choosing the project's workers, providers and design components, the proprietor ought to pick a suitable level of associations with strong and weak connections. According to these controlled situations, both top to bottom and in-breath arrangement plans can be procured, consequently upgrading project performance. This will expand the probabilities of improvement in project performance. This investigation gives a network-based viewpoint to building trust. During the implementation of the megaproject, it is likewise important to constantly trade knowledge and information and to collaborate, develop understanding and create emotional associations. With respect to the successful outcomes, such a mechanism can also drive them to achieve contracts competently and be extremely liable for the megaprojects.

4.3 Limitation and future work

This study is not free from limitation. First this study is limited to a mega project schemes and further it can be applied towards other projects to see the effectiveness of model. The findings of study are contextual based it can be generalized in future. The study evaluated the pre-project performance, future studies can compare theses finding with the post project results. The study discussed influencing factors and project performance as overall. Future studies can focus on different levels of variables. The study collected the responses from employees, future research can take opinion of public and tourists who were part of this scheme. Moreover, the finding of this study can be used for different service settings and for different projects. Last but not least, this study measured the project performance under COVID-19 situations. A comprehensive study can be conducted in post COVID-19 era.



Table 1 Reliability Construct

	Items	Loadings	Cronbach's alpha	rho_A	CR	AVE
Internal conflicts	ICW1	0.793	0.848	0.851	0.898	0.687
	ICW2	0.84				
	ICW3	0.85				
	ICW4	0.831				
Inter organizational trust	IOT1	0.885	0.801	0.804	0.883	0.716
	IOT4	0.825				
	IOT5	0.826				
Problem solving	PSC1	0.874	0.819	0.831	0.892	0.734
	PSC2	0.811				
	PSC3	0.883				
Team knowledge management	TKM1	0.821	0.895	0.914	0.916	0.558
	TKM2	0.824				
	TKM3	0.861				
	TKM4	0.831				
	TKM5	0.73				
	TKM6	0.799				
	TKM7	0.721				
	TKM8	0.393				
	TKM9	0.623				
Psychological capital	PS1	0.072	0.918	0.944	0.933	0.518
	PS5	0.579				
	PS8	0.746				
	PS9	0.804				
	PS10	0.809				
	PS13	0.492				
	PS14	0.563				
	PS18	0.817				
	PS19	0.832				
	PS20	0.814				
	PS21	0.813				
	PS22	0.737				
	PS23	0.785				
	PS24	0.807				
Project performance	PP1	0.85	0.886	0.889	0.913	0.638
-	PP2	0.798				
	PP3	0.846				
	PP4	0.816				
	PP5	0.728				
	PP6	0.747				



Table 2 Discriminant Validity

	Organizational trust	Phycological capital	Problem solving competence	Project performance	Team knowledge	Internal conflicts
Organizational	trust					
Phycological capital	0.841					
Problem solving compe- tence	0.499	0.522				
Project per- formance	0.882	0.846	0.477			
Team knowledge	0.974	0.847	0.666	0.894		
Internal conflicts	0.907	0.801	0.404	0.961	0.871	

Table 3 Quality Criteria

	Phycological capital	Project performance
Organizational trust	0.042	0
Problem solving competence	0.014	0
Team knowledge	0.091	0.057
internal conflicts	0.075	0.307

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