



**University of Dundee**

## **When and How Servant Leadership Leads to Megaproject Success**

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## **When and How Servant Leadership leads to Megaproject Success: Roles of Project Governance and Interpersonal Trust**

### **Abstract**

*Employing social exchange theory, we examined when and how servant leadership leads to megaproject success. Based on the data of 273 responses from project team members and project managers, our findings indicated that servant leadership improves project success in megaprojects by enhancing interpersonal trust. Additionally, when project governance is high, the effect of servant leadership on interpersonal trust is weaker. The study puts forth theoretical and practical implications for professional working in mega construction projects.*

**Keywords:** *Servant leadership, interpersonal trust, project governance, project success*

## Introduction

Large-scale undertakings like airports, power plants, and dams are intricate projects that endure for extended periods, exceed a value of USD 1 billion, and produce continuing impacts on the economy, environment, and society (Brookes & Locatelli, 2015; Flyvbjerg & Turner, 2017). Undertaking such projects is challenging as a large sums of money coming from taxpayers or lending agencies are invested in them and several organizations with diverse expertise collaborate to complete them in complex and stressful environments (Kardes et al., 2013). Shenhar and Dvir (2007) introduced five dimensions while incorporating the concept of project success into large-scale projects. These dimensions include efficiency, the effect on customers and team effect on business and direct success, and readiness for what lies ahead. Leading megaprojects with success is thus critical for project managers as projects of such large scales have multifaceted challenges and due to which they commonly fail to accomplish their desired targets on time and within the allocated budgets and over estimation of benefits (Flyvbjerg, 2017).

Researchers are interested in learning about how leadership affects the success of megaprojects because of the significance of leadership in managing megaprojects. Certain indications suggest that conventional leadership approaches, such as transactional and transformational leadership, may have a positive correlation with the success of megaprojects (Asree et al., 2019; Pretorius et al., 2018) but the evidence is still not conclusive (Müller & Turner, 2010; Randeree & Ninan, 2011). There is thus a need to utilize the latest developments in the field of leadership to better understand the phenomenon of megaprojects success (Takanashi & Lee, 2019), such as servant leadership (Krog & Govender, 2015; Oyawa et al., 2014). Servant leadership encompasses a range of components, including supporting emotional well-being, creating value for the community, demonstrating conceptual abilities, empowering and cultivating subordinates for their advancement and accomplishments, giving precedence

to the needs of subordinates, and displaying ethical conduct (Liden et al., 2015). Such leadership helps to address major project challenges related to maintaining team commitment, autonomy to adapt, reducing intra team conflict, and preserving project integrity by building trust-based relationships and fostering a serving culture (Müller et al., 2018; Nauman et al., 2022b; Tyssen et al., 2014). This leadership style is also beneficial for organizational governance of megaprojects that require enhanced transparency and stronger processes, as well as increased attention to ethical considerations and effective communication strategies (Merrow, 2011; Müller & Lecoivre, 2014). The approach of servant leadership can prove advantageous in managing complex and extensive undertakings involving various organizational levels, where there exists a significant difference in the amount of information available to managers and other team members (Nauman et al., 2022b). Recent evidence also shows that among all the traditional forms of leadership, servant leadership is most effective in terms of, project team members' work engagement, project team building, project team skills development, overcoming project triple constraints, prioritization of stakeholder success and project success (Ika & Pinto, 2022; Nauman et al., 2022a; Nauman et al., 2022b).

Servant leadership is rarely discussed in project management literature specifically in mega projects and how it can be developed (Ruijter et al., 2021) although it bears positive results on the development of followers and success of megaprojects (Cerić et al., 2021; Oyawa et al., 2014). Thus, the objective of this research is to probe the servant leadership - megaproject success relationship introducing interpersonal trust as a mediating mechanism and project governance as a first stage moderating condition. We have utilized social exchange theory Blau (1964b) to explain the proposed relationships as our antecedent variables are characterized by the social context of megaprojects. This study is warranted owing to the fact that project management scholars have emphasized the need to study the role of social environment of megaprojects characterized by interpersonal trust and governance mechanisms, for example,

see the research call on trust and governance in megaprojects by the “*International Journal of Project Management*” (Vukomanović et al., 2019).

This study will add to the existing literature by investigating (a) servant leadership and megaproject success relationship and thereby extend the megaproject success model by introducing servant leadership as a less-explored antecedent; (b) will extend the project management literature by introducing social exchange theory (Blau, 1968) to illustrate how servant leadership impacts megaproject success; (c) and will present a model that will examine the mediating and moderating conditions of the servant leadership - megaproject success relationship.

## **Theory and Hypotheses**

### ***Servant Leadership and Megaproject Success***

The notion of servant leadership arose within the domain of leadership studies as a reaction to conventional leadership approaches that emphasize the supremacy and control of leaders over their subordinates (Fischer & Sitkin, 2023). In 1970, Greenleaf introduced the notion of servant leadership. This leadership philosophy prioritizes serving followers and helping them achieve their maximum potential as the leader's primary goal. The leader becomes a servant to their followers, empowering them to make decisions, and develop their skills, which in turn enhances the performance of the organization (Eva et al., 2019; Eva et al., 2018). When compared to other major leadership concepts, servant leadership is unique in its ethical emphasis on serving followers rather than just achieving organizational goals (Fischer & Sitkin, 2023). Transformational leadership also focuses on empowering and developing followers, but it aims to achieve a shared vision or common goal, often driven by the leader's vision (Bass & Riggio, 2006). On the other hand, authentic leadership prioritizes the leader's self-awareness, ethical behavior, and transparency, which can positively impact follower development, but does not necessarily prioritize serving their needs (Walumbwa et al., 2008). Therefore, servant

leadership offers a unique approach to leadership that prioritizes the well-being and growth of followers, resulting in positive organizational outcomes (Van Dierendonck & Nuijten, 2011).

In the project management domain, servant leaders are project managers who always consider themselves responsible for fulfilling the highest priority needs of their staff before attending to their own specific needs (Greenleaf, 1998; Nauman et al., 2022a). Such servant leaders focus on needs that are important for the healthy functioning of their subordinates to achieve project goals. For instance, servant leaders show sensitivity to the personal concerns of their subordinates and thus act as emotional healers, they empower their subordinates by encouraging and facilitate them in accomplishing their project targets, they put interests of their subordinates above their own interests, and they behave ethically with the subordinates (Liden et al., 2008). When the subordinates observe that their leaders demonstrate care towards fulfilling their personal and project-related needs, the subordinates tend to emulate this service leadership behavior in their own actions while working with their colleagues that ultimately promotes a service culture in organizations and leads to various positive outcomes including increased employee and firm performance (Liden et al., 2014).

Servant leadership is an evolving concept in leadership and scholars are giving increasing attention to investigate its consequences in organizations (Eva et al., 2019; Hoch et al., 2018; Sendjaya & Pekerti, 2010). The project success literature has burgeoned in the last two decades and has accumulated a rich body of knowledge, however, unexpectedly less focus has been placed on leadership, particularly servant leadership in megaproject success (Turner & Müller, 2005). In the project management literature, researchers have revealed clear evidence that leaders exhibiting more consideration to the needs of their subordinates are effective in completing projects (Lee-Kelley & Kin Leong, 2003; Mäkilouko, 2004). We hypothesize that servant leadership is a highly relevant style of leadership particularly for the success of megaprojects that are not only resource-intensive but are complex, large-scale, long-term, and

involve a huge workforce and many stakeholders. A commonly used yardstick to determine the size of a megaproject is that its minimum cost should be equal to the 0.01% of a country's GDP (Hu et al., 2015).<sup>1</sup> The size of megaprojects makes them complex, and this complexity commonly becomes a major reason of their failure (Damayanti et al., 2021). Damayanti et al. (2021), define complexity of megaprojects as challenges that project managers find hard to comprehend upfront while dealing with various aspects of megaprojects. They further note that complexity is associated with various structural and social elements in megaprojects where diverse entities interact with each other (interrelatedness), where entities lack synchronization (nonlinearity), and where entities go through continuous change and uncertainty (emergence), particularly, due to an unstable economic, political, and regulatory context of developing countries. Thus, the success of megaprojects largely depends on how well different structural (e.g., activities, expenditures, regulations) and social (e.g., leadership, teams, and shareholders) entities perform toward success (Siddiquei et al., 2022). Thus, our perspective is that servant leadership plays a crucial role as a social factor that can impact the achievement of megaprojects.

At the theoretical level, social exchange theory can be used to comprehend how servant leadership and megaproject success are related (Cook et al., 2013). This theory is rooted in the norm of reciprocity (Blau, 1968). Drawing on anthropology, social psychology, and sociology, the social exchange theory states that a social exchange between two parties involves a series of interdependent interactions that generate obligations and develop high-quality relationships (Basit, 2017; Cropanzano & Mitchell, 2005). When one party supplies benefits to the other party, in the form of servant leadership for instance, the receivers feel obligated to respond in

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<sup>1</sup> GDP of Pakistan in 2021 = \$347.74 billion (Source: <https://www.worldeconomics.com/Country-Size/pakistan.aspx>)

kind through better interpersonal relationships and performance of project tasks (Colquitt et al., 2007; Dirks & Ferrin, 2002). Using the social exchange perspective, Wu et al. (2012), argued that engaged employees repay supportive leaders by demonstrating increased effort, high energy, and mental resilience in performing tasks, which lead to the success of megaprojects.

At the empirical level, as noted above, leaders who are more people-oriented are effective in completing projects (Lee-Kelley & Kin Leong, 2003). Similarly, transformational leadership that gives importance to the development of followers is associated with project success (Anantamula, 2010). Some recent studies show that servant leadership tends to improve the employee's performance (Gardner et al., 2009; Harwika, 2013), and makes organizations more productive and profitable (Choudhary et al., 2013; Joseph & Winston, 2005; Melrose & Millett, 1998; Nieto et al., 2016). Furthermore, a helping culture is encouraged by servant leadership (Ehrhart & Naumann, 2004; Garber et al., 2009; Hu & Liden, 2011) as the followers who receive care from their leaders feel indebted and thus work with motivation to meet organizational goals (Brown & Mitchell, 2010; Chan & Mak, 2014). The above rationale thus leads us to propose that:

*Hypothesis 1: Servant leadership is positively related to megaproject success.*

### ***Mediating Role of Interpersonal Trust***

Servant leadership and megaprojects success do not necessarily go hand in hand. Interpersonal trust in leaders and colleagues is frequently used as an example of social exchange in relationships in studies that have utilized the social exchange approach to explain the social phenomenon in businesses (Costa et al., 2018; de Oliveira & Rabechini Jr, 2019). Interpersonal trust refers to the degree to which individuals are comfortable relying on the words and deeds of others and believe that others have their best interests at heart (Cook & Wall, 1980; Dirks, 2000). We anticipate that the trust between individuals plays a role as a



mediator between servant leadership and the success of megaprojects. Mediation happens when a third variable, known as the mediator, partially or completely explains the relationship between the independent and dependent variables. The mediator offers insight into the mechanism through which the independent variable influences the dependent variable (Baron & Kenny, 1986).

We can argue that the development of interpersonal trust in subordinates is a strong reason that can explain why servant leadership might lead to megaproject success. Blau (1964a) social exchange theory posits that individuals engage in social relationships based on the benefits they can receive and the costs they must pay to obtain these benefits. Social exchange theory argues that individuals make rational choices in determining whether to engage in a relationship based on a cost-benefit analysis. According to the theory, the development of interpersonal trust is a key component of social exchange in relationships. Thus, we can argue that the development of interpersonal trust is a key reason why servant leadership can lead to megaproject success. Servant leaders exhibit people-oriented behaviour, showing empathy, care, and support to their subordinates. By doing so, they develop a sense of benevolence, which is an important characteristic of interpersonal trust. As a result, the followers start to believe that their leaders are authentic and fair, which ultimately has a positive impact on their work attitudes and behaviour (Basit, 2017; Dirks, 2000; Goodwin, 2011).

Greenleaf (2002) argues that trust is an outcome of servant leadership as such people-oriented leaders accept, empathize, support, and grow their subordinates. In a similar vein, interpersonal trust can be a natural outcome of servant leadership as the aspects of competence, integrity, and benevolence that shape trust are salient characteristics of servant leaders (Basit, 2017; Dirks, 2000; McAllister, 1995). Furthermore, servant leaders demonstrate concern and care for the followers that in turn makes the followers show concerns and care for the fulfilment

of their leader's expectations, including a successful completion of megaprojects (Farling et al., 1999).

Some recent evidence shows that interpersonal trust is associated with megaproject success (Castro et al., 2023; Mastio et al., 2019) but no direct evidence is available to confirm whether interpersonal trust mediates the relationship between servant leadership and megaproject success. However, some studies have found this role with the outcome variables that are common correlates of project success (Chan & Mak, 2014). For instance, scholars have found that servant leadership impacted job satisfaction of Chinese employees in service-oriented firms through enhancing their trust in leader. In a team-level study, they found that servant leadership enhanced interpersonal trust among colleagues that in turn improved their creativity (Jaiswal & Dhar, 2017). Metwally et al. (2021) found that a mediational role of trust explained why servant leadership was associated with job crafting. In an academic setting, Grandhi et al. (2020) found that the mediation of trust in department heads revealed the reason why servant leadership of department heads positively influenced task performance and citizenship behavior of the faculty. Thus, the above discussion leads us to propose that:

*Hypothesis 2: Interpersonal trust mediates the relationship between servant leadership and megaproject success.*

### ***Moderating Role of Project Governance***

No one can question the importance of good governance in project management. Irrespective of the size of a project, bad governance can easily complicate, delay, or fail any project. We define "good" project governance as a governance structure that ensures the achievement of project goals while ensuring accountability, transparency, and compliance with regulations and standards. A governance structure that effectively manages risks and stakeholders' expectations while ensuring the effective allocation of resources and timely decision-making can also be considered as "good" governance (Crawford et al., 2006; Thiry,

2010). Good governance is even more critical in megaprojects where the complexity of tasks and diversity of networks are high and where malfunctioning of one sub-system can disturb interrelated systems.

In literature, project governance refers to a framework of directing, controlling, and holding people to account in alignment with the best interests of stakeholders (Bell & Garland, 2009; Müller-Stewens & Brauer, 2009; ul Musawir et al., 2020) and in compliance with the principles of fairness (Unterhitzenberger & Moeller, 2021). Researchers have viewed project governance from various theoretical perspectives, but the contingency theory has received the most attention (Müller & Martinsuo, 2015; ul Musawir et al., 2020). The contingency theory posits that decision-making and its consequences related to project management vary according to the internal and external environment of the project.

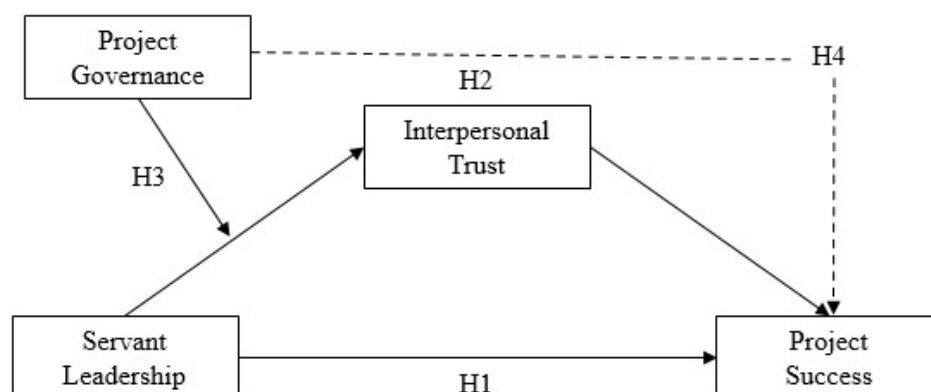
In the servant leadership context, we propose that project governance is an important moderator that determines how well project managers as servant leaders can spark interpersonal trust among the subordinates to make the megaproject successful. Understanding the moderating effect is important in research as it can help to explain why a relationship between two variables exists or does not exist under different conditions (Baron & Kenny, 1986). This argument views servant leadership and interpersonal trust relationship as dependent on the level of project governance. We believe that servant leadership can be more impactful when the governance activities such as direction, control, accountability, and fairness are ensured at all stages of megaprojects. Effective direction and control help servant leaders to clarify concerns of project teams regarding achieving their performance goals without hurdles. By giving more value to the personal concerns of subordinates, servant leaders can make their subordinates accountable for their roles and thus inculcate a sense of responsibility. Similarly, when project governance values fairness at all stages of planning and execution, it

helps servant leaders to demonstrate fairness in dealing with their team members that ultimately develop and strengthen their trust in their leaders (Unterhitzberger & Moeller, 2021).

At the empirical level, numerous studies in project management have explored the role of project governance as a moderating condition. For instance, Müller and Martinsuo (2015) found that lower levels of managerial flexibility in project governance strengthened the effects of high relational norms on project success. Ghafoor et al. (2019) found that project governance played a key role in amplifying the impact of benefits management on project success. Furthermore, Zwikael and Smyrk (2015) have suggested that the most effective governance technique in a stable project environment is for the project owner to have control over the project management process. We thus propose that:

*Hypothesis 3: Project governance moderates the relationship between servant leadership and interpersonal trust such that the relationship will be stronger when project governance is high than when it is low.*

*Hypothesis 4: Project governance moderates the indirect effect of servant leadership on project success through interpersonal trust at the first stage, such that a high level of project governance strengthens the positive indirect effect.*



Note. Solid lines represent primary hypotheses.

Figure 1. Conceptual Model

## Methods and Materials

### *Sample and Procedures*

First, this paper aims to empirically examine the role of servant leadership and megaproject success relationship and the mediating and moderating conditions of the servant leadership - megaproject success relationships by examining and collecting the data specifically from the practitioners working in construction industry in Pakistan. Pakistan being a developing country and having significant contribution in gross domestic product (GDP) from its construction industry was chosen. Pakistan's construction industry is one of the significant sectors that contributes 2.7% to its GDP<sup>2</sup>. The contribution of this industry to employment has been increasing tremendously in recent years and consequently exhibiting high economic activity in the country.

Second, we gathered data via online questionnaires from construction firms operating in three big cities of Pakistan (Lahore, Islamabad, and Peshawar) with a track record of at least five completed megaprojects. These companies fall in C-A, C-B and C-1 categories, as explained by Pakistan Engineering Council (PEC), which can execute project with budget more than one billion USD and are considered as megaprojects<sup>3</sup>. We used the purposive sampling -a non-probability sampling technique in this paper, due to non-availability of the sampling frame for the construction industry in Pakistan and that is also consistent with the with previous studies (Afraz et al., 2021; Aziz et al., 2019).

Furthermore, the reason to choose the non-probability sampling is due to easy access to target respondents and projects. The use of such sampling is deemed relevant where respondents were

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<sup>2</sup> Ministry of Finance (2019). Pakistan Economic Survey 2018-2019. Islamabad: Government of Pakistan.

<sup>3</sup> [Home Pakistan Engineering Council - PEC](#)

chosen based on their inclination to participate in the survey rather than selected randomly from the given population (Wu et al., 2018). In addition to this, the justification for opting purposive sampling explains its relevance to collect data from concerned respondents from construction industry only, as this type of data is sensitive considering megaprojects and intended to add superior knowledge in the theoretical model (Bernard, 2017).

Third, the sample primarily considered the firms including contractors, project managers, consultants, project team-members, and engineers as the target respondents and contacted them via an invitation letter highlighting the study's purpose as well as assuring them the confidentiality of the data provided. The period for data collection was from May 2021 to September 2021. A sample of 350 questionnaires using the rule of 5 provided by VanVoorhis and Morgan (2007) was disseminated among practitioners mostly in construction industry, who have accepted the invitation letter and showed willingness to take part in the survey. A total of 300 questionnaires were received. After cleaning the data, we included 273 valid responses for analysis, representing 78% response rate. Moreover, to accomplish the research questions of the study, we developed the questionnaire based on the robust and valid measures adapted from the literature. The online questionnaire consisted of three sections. The first section of the survey was targeted to ask the demographics profile of the participants. Moreover, the next section consisted of the questions related to the project success—the dependent variable of the study and the last section of the questionnaire was targeted to gather data related to the independent (i.e., servant leadership), mediating (i.e., interpersonal trust) and moderating (i.e., project governance) variables of the study. The demographics of the study's participants and project are presented in Table 1.

Lastly, we applied both pre and post measures to diminish the effect of common method biasness (CMB). The CMB influences results when self-reported measures are used and data are gathered from one source (Podsakoff et al., 2003). To reduce CMB, we gathered data from

various respondents such as contractors, consultants, project managers, project team members and engineers. We then tested the CMB using a post-hoc analysis approach—Harman’s single-factor test (Podsakoff et al., 2003). The findings of the test indicated that the maximum variance caused by the single-factor was below the threshold value of 50%, hence demonstrating CMB did not influence the results of this study (Podsakoff et al., 2012).

### ***Measures***

A 14-item scale used by Neubert et al. (2008) first developed by Ehrhart and Naumann (2004) was used for analyzing servant leadership behavior. To assess project governance a 9-item scale was adopted from a study by Ul Musawir et al. (2017). For measuring interpersonal trust between colleagues and leader, a 7 items scale of Cook and Wall (1980) was used. For measuring project success, a 9-item scale was adapted from previous studies by Aga et al. (2016) and Wang et al. (2019). We used five-point Likert type scale which ranges from 1=strongly disagree to 5=strongly agree to assess all the variables. We included respondents’ demographic such as age, gender and educational qualifications as control variables. The details regarding constructs and their underlying indicators are listed in Table 2.

### **Results**

First, we ran a series of confirmatory factor analysis (CFA) to confirm the goodness-of-fit of the measurement model using AMOS version 24. The findings of all CFAs are presented in Table 2. The goodness of fit of all CFAs confirms the discriminant validity of the given variables. We used the Cronbach alpha ( $\alpha$ ) values to examine the internal consistency of the given constructs. The results presented in Table 3 show that all  $\alpha$  values were above the 0.70 threshold value, thus establishing the internal consistency of the constructs (Nunnally, 1978).

We considered the values of standardized factor loadings, composite reliability (CR) and average variance extracted (AVE) to establish the convergent validity for the instrument. Table

3 presents the values of standardized factor loadings of all items are above 0.50, except the loadings of items PS1, SL1, SL2, SL3, SL14, T6. Following the recommendations of Hair et al. (2010), we deleted these indicators having factor loadings below the threshold value. The CR values for servant leadership, project success, interpersonal trust and project governance range from 0.93 to 0.95 and AVE values for servant leadership, project success, interpersonal trust and project governance range from 0.75 to 0.79. All values are above 0.70 as suggested by experts (Hair et al., 2010), confirming the constructs' convergent validity.

Lastly, we examined the discriminant validity of the constructs by verifying whether the square root of the AVE was higher than the underlying correlations of the given variables with all other variables (Fornell & Larcker, 1981). The values in Table 4 show that the discriminant validity criteria have been established as the values of the square root of AVE are greater the correlations of each respective constructs.

### ***Hypotheses Testing***

Results of linear regression analysis are presented in Table 5. The results show that servant leadership is positively influencing project success ( $b=.230, p < 0.001$ ) thus confirming support for Hypothesis 1. Servant leadership is positively influencing interpersonal trust ( $b=.548, p < 0.001$ ) and interpersonal trust is positively influencing project success ( $b=.348, p < 0.001$ ).

Scholars recommended bootstrapping methods for mediation analysis over other approaches such as Sobel test and Baron and Kenny's approach (Preacher & Hayes, 2008). Thus, in order to analyze the mediation effect of interpersonal trust in the relationship between servant leadership and project success, we used bootstrapping technique and Model 4 of Hayes' PROCESS macros for SPSS (Hayes, 2018b). The 5,000 subsamples with 95% bootstrap confidence intervals for direct and indirect effects were used following the recommendation of the Preacher and Hayes (2008). For confirmation of mediation effect, the 95% confidence intervals for the indirect effect should not include zero (Hayes, 2018a). The mediation analysis



results in Table 6 show that the total and direct effects of servant leadership on project success ( $b = .4481, p < .001$ ) and ( $b = .2315, p < .001$ ) respectively, is positive and significant. Moreover, the indirect effect of servant leadership via interpersonal trust on project success is positive and significant ( $b = .217$ ). Lastly, the indirect effect's 95% confidence limits (LLCI = .1194, ULCI = .3232) also suggest that upper and lower confidence interval limits do not straddle a zero. Thus, the results confirm the presence of partial mediation effect of interpersonal trust in the servant leadership and project success relationship, lending support to Hypothesis 2.

We used Model 1 of Hayes' PROCESS macro to test the proposed moderating effect of project governance. To confirm the moderation effect, both interaction and conditional effects are recommended (Hayes, 2018b). Table 7 shows that the interaction effect of servant leadership and project governance on interpersonal trust (SL x PG) is negative and significant ( $b = -.173, p < .05, LLCI = -.317, ULCI = -.028$ ). Furthermore, the results of overall moderation regression model were insignificant ( $R^2 = .422, \Delta R^2 = .0118, F = 65.502, p > .10$ ). Consequently, the results of conditional effect were analyzed. However, the conditional effects values show that at high, medium and low levels of project governance, the positive relationship between servant leadership and interpersonal trust is weakened (see Table 8). The graph in Figure 2 also shows that a significant positive relationship between servant leadership and interpersonal trust is decreasing in the presence of project governance, thus rejecting Hypothesis 3.

To examine whether the indirect effect of servant leadership on project success through interpersonal trust is moderated by project governance, we run a moderated mediation analysis using Model 7 of Hayes PROCESS macros (Hayes, 2018b). The results of the conditional indirect effects of servant leadership on project success via interpersonal trust at various levels of the project governance (i.e., -1 SD, Mean, and +1 SD) are shown in Table 9. The results

show that the conditional indirect effects are significant at low (LLCI = .121; ULCI = .249), medium (LLCI = 0.113; ULCI = 0.306), and high values (LLCI = 0.083; ULCI = 0.276), as the upper and lower confidence interval limits do not show zero. However, the indirect relationship between servant leadership and project success via interpersonal trust is stronger at lower values of project governance as compared to high values of project governance, thereby confirming the presence of moderated mediation, however in reverse direction, thus rejecting Hypothesis 4.

Lastly, to highlight the significance of our results, we performed a post hoc power analysis using G\*Power version 3.1.97, which reinforce that the power value for the structural model of the study was above the threshold value of 0.80.

**Table 1.** Demographic profile of the respondents

| <b>Demographics</b>    | <b>Frequency</b> | <b>Percentage</b> |
|------------------------|------------------|-------------------|
| <b>Gender</b>          |                  |                   |
| Male                   | 259              | 94.9              |
| Female                 | 14               | 5.1               |
| <b>Age</b>             |                  |                   |
| 20-30                  | 159              | 58.2              |
| 31-40                  | 89               | 32.6              |
| 41-50                  | 18               | 6.6               |
| Above 50               | 7                | 2.6               |
| <b>Qualification</b>   |                  |                   |
| Bachelors              | 23               | 8.4               |
| Masters (16-years)     | 199              | 72.9              |
| Masters (18 years)     | 48               | 17.6              |
| PhD                    | 3                | 1.10              |
| <b>Project Type</b>    |                  |                   |
| Construction           | 265              | 97.1              |
| Education              | 3                | 1.1               |
| Information Technology | 5                | 1.8               |
| <b>Organization</b>    |                  |                   |
| Private                | 262              | 96.0              |
| Government             | 11               | 4.0               |

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| <b>Budget of the Project</b> |     |      |
|------------------------------|-----|------|
| 1-5 Billion USD              | 132 | 48.4 |
| 6-10 Billion USD             | 50  | 18.3 |
| 11-15 Billion USD            | 29  | 10.6 |
| 16-20 Billion USD            | 21  | 7.7  |
| Above 20 Billion USD         | 41  | 15.0 |

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**Table 2.** Measurement model results

| Variable                       | Indicators   | Standardized Loadings | Factor |
|--------------------------------|--|-----------------------|--------|
| <b>Project Success (PS)</b>    | $\alpha = 0.879$ , AVE=0.79, CR=0.95   |                       |        |
|                                | PS1: The project was completed within budget.  | Deleted               |        |
|                                | PS2: The project was completed within the allocated time.  | 0.541                 |        |
|                                | PS3: The project results are in line with participant's satisfaction.  | 0.534                 |        |
|                                | PS4: The outcomes of the project are likely to be sustained.   | 0.709                 |        |
|                                | PS5: I was satisfied with the process in which the project was implemented.  | 0.741                 |        |
|                                | PS6: Project team members were satisfied with the process in which project was implemented.  | 0.830                 |        |
|                                | PS7: The project had made visible positive impact on the target beneficiaries.   | 0.811                 |        |
|                                | PS8: Project specifications were met by time of handover to target beneficiaries.  | 0.776                 |        |
|                                | PS9: The outcomes of the project have directly benefited the intended end users, either through increasing efficiency and effectiveness. | 0.750                 |        |
| <b>Servant Leadership (SL)</b> | $\alpha = 0.892$ , AVE= 0.75, CR= 0.94   |                       |        |
|                                | SL1: My leader spends the time to form quality relationship with department employees.   | Deleted               |        |

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|   |                  |
|---|------------------|
| SL2: My leader creates a sense of community among department employees.   | Deleted          |
| SL3: My leader's decisions are influenced by department employee's input.   | Deleted          |
| SL4: My leader tries to reach consensus among department employees on important decisions.                                    | 0.610            |
| SL5: My leader is sensitive to department employee's responsibilities outside the work place.                                 | 0.618            |
| SL6: My leader makes the personal development of department employees a priority.   | 0.676            |
| SL7: My leader holds department employees to high ethical standards.  | 0.682            |
| SL8: My leader does what he/she promises to do.   | 0.685            |
| SL9: My leader balances concern for day-to-day details with projections for the future.                                       | 0.574            |
| SL10: My leader displays a wide-ranging knowledge and interests in finding solutions to work problems.                        | 0.685            |
| SL11: My leader makes me feel like I work with him/her, not for him/her.  | 0.613            |
| SL12: My leader works hard at finding ways to help others be the best they can be.  | 0.698            |
| SL13: My leader encourages department employees to be involved in community service and volunteer activities outside of work. | 0.615<br>Deleted |
| SL14: My leader emphasizes the importance of giving back to the community.  |                  |

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**Interpersonal Trust (T)**
 $\alpha = 0.727, AVE = 0.78, CR = 0.93$ 


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|   |   |         |
|---|---|---------|
|   | T1: Management at my firm is sincere in its attempts to meet the workers' point of view.  | 0.632   |
|   | T2: I can trust the people I work with to lend me a hand if I needed it.  | 0.753   |
|   | T3: If I got into difficulties at work I know my workmates would try and help me out.   | 0.800   |
|   | T4: I can rely on other workers not to make my job more difficult by careless work.   | 0.783   |
|   | T5: Most of my fellow workers would get on with their work even if supervisor were not around.  | 0.595   |
|   | T6: Our management would be quite prepared to gain advantage by deceiving the workers.  | Deleted |
|   | T7: Mostly my supervisor and workmates can be relied upon to do so as they say they will do.  | 0.621   |
| <b>Effective project Governance (EPG)</b> | $\alpha = 0.892$ , AVE=0.78, CR=0.95  |         |
|   | PG1: The management board had overall responsibility for project governance.  | 0.747   |
|   | PG2: Disciplined governance arrangements were applied throughout the project life cycle.  | 0.653   |
|   | PG3: Roles and responsibilities for project governance were defined clearly.  | 0.721   |
|   | PG4: The project's business case was supported by relevant and realistic information that provided a reliable basis for making authorization decisions. | 0.571   |
|   | PG5: There were clearly defined criteria for reporting project status and for the escalation of risks and   | 0.793   |

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issues to the relevant organizational levels.

PG6: Decisions made at authorization points were recorded and communicated to the relevant stakeholders. 0.605

PG7: The project had a project owner who was the single point of accountability in and to the organization for realizing project outcomes and benefits. 0.739 0.781 0.583

PG8: The project had a project manager who was accountable to the project owner for achieving project objectives and deliverables.

PG9: The organization fostered a culture of frank internal disclosure of project management information.

**Table 3.** Confirmatory factor analysis results

| Model                                | Chi 2    | Df  | Chi2/df | CFI   | GFI   | TLI   | RMR   | RMSEA |
|--------------------------------------|----------|-----|---------|-------|-------|-------|-------|-------|
| <b>2 Factor (SL+PS)</b>              | 724.418  | 169 | 4.286   | 0.795 | 0.790 | 0.770 | 0.053 | 0.110 |
| <b>3 Factor (SL + PS+ Trust)</b>     | 954.430  | 296 | 3.224   | 0.813 | 0.789 | 0.795 | 0.045 | 0.090 |
| <b>4 Factor (SL + PS+ Trust+ PG)</b> | 1033.303 | 542 | 1.906   | 0.900 | 0.824 | 0.891 | 0.046 | 0.058 |

**Table 4.** Descriptives, correlation and discriminant validity results

| Construct                    | Mean | SD   | 1             | 2             | 3 | 4 |
|------------------------------|------|------|---------------|---------------|---|---|
| <b>1. Project Success</b>    | 3.41 | 0.43 | <b>(0.89)</b> |               |   |   |
| <b>2. Servant Leadership</b> | 4.04 | 0.43 | 0.452**       | <b>(0.87)</b> |   |   |

|                               |      |      |         |         |               |               |
|-------------------------------|------|------|---------|---------|---------------|---------------|
| <b>3. Interpersonal Trust</b> | 3.38 | 0.42 | 0.500** | 0.610** | <b>(0.88)</b> |               |
| <b>4. Project Governance</b>  | 3.08 | 0.50 | 0.135*  | 0.142*  | 0.279**       | <b>(0.88)</b> |

Note(s): N = 273. \*p<0.05, \*\*p<0.01, Diagonal values are square root of AVE.



**Table 5.** Linear regression results

|                               | Dependent variable (Interpersonal Trust) |           | Dependent variable (Project Success) |           |
|-------------------------------|--|-----------|--------------------------------------|-----------|
|                               | Model 1                                  | Model 2   | Model 3                              | Model 4   |
| <b>Control variables</b>      |  |           |                                      |           |
| <b>Gender</b>                 | -0.079                                   | 0.005     | -0.141                               | -0.078    |
| <b>Age</b>                    | 0.010*                                   | 0.007*    | 0.012**                              | 0.008**   |
| <b>Qualification</b>          | 0.044                                    | 0.038     | 0.007                                | -0.011    |
| <b>Predictor variables</b>    |  |           |                                      |           |
| <b>Servant Leadership</b>     |  | 0.548***  |                                      | 0.230***  |
| <b>Project Governance</b>     |  | 0.163***  |                                      | 0.012     |
| <b>Interpersonal Trust</b>    |  |           |                                      | 0.348***  |
| <b>Constant</b>               | 3.099***                                 | 0.380     | 3.176***                             | 1.132***  |
| <b>R<sup>2</sup></b>          | 0.030                                    | 0.427     | 0.040                                | 0.296     |
| <b>Adjusted R<sup>2</sup></b> | 0.019                                    | 0.416     | 0.029                                | 0.280     |
| <b>F Statistics</b>           | 2.774*                                   | 39.282*** | 3.723*                               | 18.446*** |

**Table 6.** Results for Direct and Indirect effect (Process Model 4)

| <b>Total Effects</b>                                |                    |               |                 |                 | <b>95% BCa CI</b> |           |
|---|--------------------|---------------|-----------------|-----------------|-------------------|-----------|
|   | <b>Effect</b>      | <b>SE</b>     | <b>T</b>        | <b>P</b>        | <b>LB</b>         | <b>UB</b> |
| <b>Servant Leadership → Project Success</b>         | .4481              | .0537         | 8.3421          | .0000           | .3423             | .5538     |
| <b>Direct Effect</b>                                |                    |               |                 |                 | 95%<br>BCa<br>CI  |           |
|   | <b>Coefficient</b> | <b>SE</b>     | <b>t-value</b>  | <b>P</b>        | <b>LB</b>         | <b>UB</b> |
| <b>Servant Leadership → Project Success</b>         | .2315              | .0644         | 3.5937          | 0.0004          | 0.1047            | .3583     |
| <b>Indirect effects</b>                             |                    |               |                 |                 | 95% BCa<br>CI     |           |
|   | <b>Effect</b>      | <b>BootSE</b> | <b>BootLLCI</b> | <b>BootULCI</b> |                   |           |
| <b>Servant Leadership → Trust → Project Success</b> | 0.2166             | 0.0517        | 0.1194          | 0.3232          |                   |           |

**Table 7.** Moderation analysis (Process Model 1)

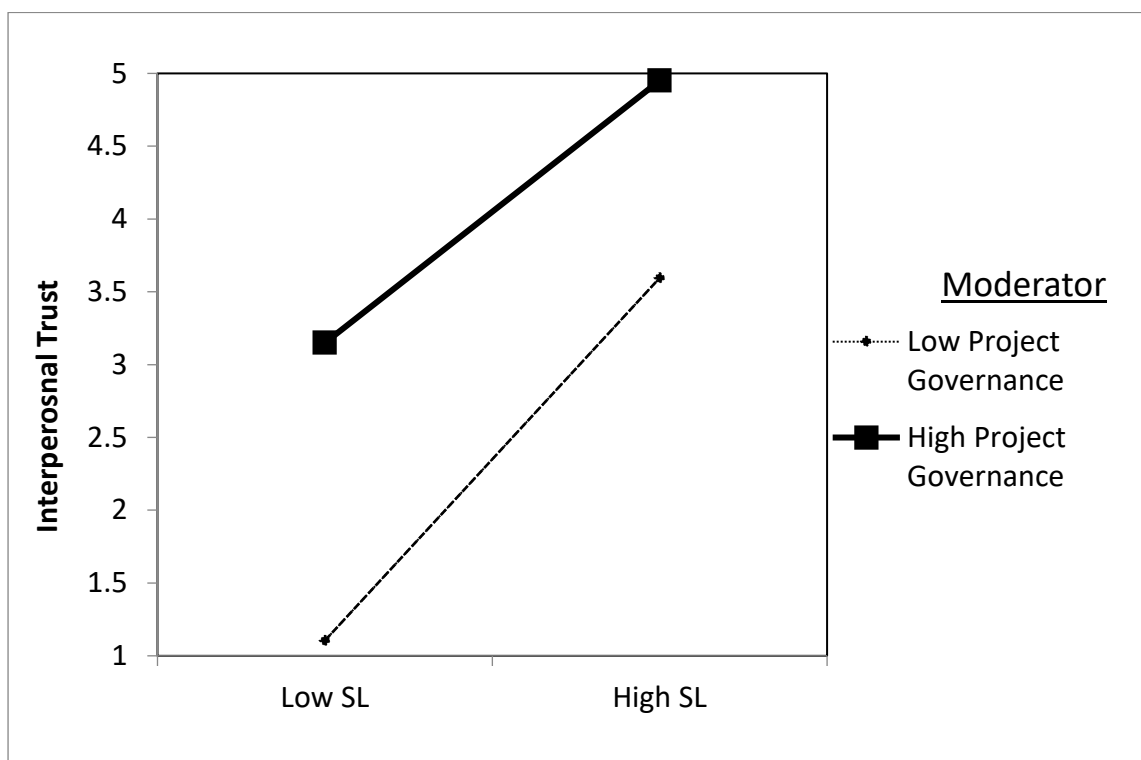
|                           | <b>Effect</b> | <b>SE</b> | <b>T</b> | <b>P</b> | <b>LLCI</b> | <b>ULCI</b> | <b>R<sup>2</sup></b> | <b>ΔR<sup>2</sup></b> | <b>F</b> |
|---------------------------|---------------|-----------|----------|----------|-------------|-------------|----------------------|-----------------------|----------|
| <b>Trust</b>              |               |           |          |          |             |             |                      |                       |          |
| <b>Constant</b>           | -1.4246       | .9072     | -1.5703  | .1175    | -3.2108     | .3615       | .4221                | .0118                 | 65.5022  |
| <b>Servant Leadership</b> | 1.0728        | .2264     | 4.7395   | .0000    | .6272       | 1.5185      |                      |                       |          |
| <b>Project Governance</b> | .8499         | .2968     | 2.8634   | .0045    | .2655       | 1.4342      |                      |                       |          |
| <b>SL x PG</b>            | -.1725        | .0736     | -2.3420  | .0199    | -.3174      | -.0275      |                      |                       |          |

**Table 8.** Moderation analysis: Conditional effect results

| <b>Level of moderator</b>   | <b>Effect</b> | <b>SE</b> | <b>T</b> | <b>P</b> | <b>LLCI</b> | <b>ULCI</b> |
|---|---------------|-----------|----------|----------|-------------|-------------|
| <b>Conditional effect of SL on IPT at levels of the moderator (GC):</b> |               |           |          |          |             |             |
| <b>-1SD</b>   | .6210         | .0531     | 11.6998  | .0000    | .5165       | .7254       |
| <b>Mean</b>   | .5531         | .0444     | 12.4460  | .0000    | .4656       | .6406       |
| <b>+1SD</b>   | .4461         | .0637     | 7.0005   | .0000    | .3206       | .5715       |

**Table 9.** Conditional indirect effect(s) on project success at values of project governance (moderator)

| Mediator            | Value of Moderator (PG) | Effect | Boot SE | Boot LLCI | Boot ULCI |
|---------------------|-------------------------|--------|---------|-----------|-----------|
| Interpersonal Trust | -1SD                    | 2.6201 | 0.2221  | 0.1212    | 0.2491    |
| Interpersonal Trust | MEAN                    | 3.0133 | 0.2067  | 0.1134    | 0.3064    |
| Interpersonal Trust | +1SD                    | 3.6342 | 0.1667  | 0.0827    | 0.2760    |



**Figure 2.** Slope Analysis

## Discussion

The study deepens our understanding as how interpersonal trust intervenes in the servant leadership-project success relationship and project governance as a first stage moderators weakens servant leadership and interpersonal trust on project colleagues and leader relationship. We found support for the hypotheses H1 and H2 whereas the hypotheses H3 and H4 were found significant, however, in the reverse direction, and were rejected.

We found support for H1 and this aligns with previous research indicating servant leadership is essential for successful project outcomes (Nauman et al., 2022a). Further, relationship-oriented leaders have a greater degree of effectiveness in enabling their followers to complete projects successfully (Harwardt, 2020; Lee-Kelley & Kin Leong, 2003; Mäkilouko, 2004). This implies that if a project manager's or supervisor's responsibility in the project is multifaceted, that is, ethically, emotionally, helping subordinates, putting subordinates first when making decisions, creating and prioritizing value to the community, there will be more likelihood for project success (Nauman et al., 2022b). Our findings employing the lens of SET (Blau, 1964) support the work of Wu et al. (2013) who argued that engaged employees repay servant leaders by demonstrating increased effort, high energy, and mental resilience in performing tasks, which lead to the success of megaprojects.

The findings illustrate that servant leadership is related to megaproject success through interpersonal trust, thus supporting H2. This finding confirms earlier findings that trust is a helping tool for building effective relationships between leader and follower (Sendjaya & Pekerti, 2010). Politis and Politis (2017), also suggested that there is a strong linkage between interpersonal trust and overall performance which in turn leads to project success. They posit that trust is associated with servant leadership style to get more efficient outcomes. Our result is supported by the study of Ji (2020), who suggest that servant leaders create more trust as compared to other leadership styles and he further states that employees' psychological

stability and trust in leader is more effective towards performance. Project managers, in this way, may engage in servant leadership behavior that help to build a collaborative work culture enhancing team performance (Nauman et al., 2022a). Such serving behavior would engage project employees in higher involvement and trust relationships with the team members, which would ultimately translate to improved project success. Thus, our findings provide evidence that servant leadership will enhance followers' interpersonal trust on project team members and leaders which in turn would enhance project success in mega projects.

Lastly, we analyzed how project governance moderated the servant leadership-interpersonal trust relationship and propose that in the presence of high project governance, the relationship will be stronger in mega project setting and vice versa. Our moderation result does not support H3 as the finding suggests that the effect of servant leadership on interpersonal trust is weaker when project governance is high. Our moderated mediation result does not provide support to H4 as the indirect relationship between servant leadership and project success via interpersonal trust is stronger at lower values of project governance than high values of project governance. Our result illustrates that increasing project governance decreases level of trust which is not in line with the past literature that suggest that servant leadership along with governance mechanism produces fair values in planning and execution stages of the project (Unterhitzberger & Moeller, 2021). Governance mechanism suggests controlling and handling of people management to produce long term success for the organization (ul Musawir et al., 2020). However, strong governance is often linked to strict control, and when an environment is characterized by excessive control, there is limited space for cultivating trust (Müller, 2017). The rationale behind our result may be as the studies from developing countries may not be the same as the developed ones in project context due to different cultural, societal, institutional norms and expectations (Lizarralde et al., 2013). Our findings provide evidence that the combined effect of servant leadership and project governance tends to decrease project

team members' trust. The rationale may be that in case of high governance, the trust of employees on the leader and team members decreases as strong governance is frequently linked with tight control, and in an environment that emphasizes control, the opportunity for cultivating trust is difficult (Dirks et al., 2002; Muller, 2017; Muller., etal, 2016). Therefore, it can be concluded that implementation of project governance is less functional and lacking in its true spirit in developing countries megaprojects. The true spirit of project governance involves ensuring that the project is being managed effectively, efficiently, and with accountability, transparency, effective communication, and stakeholder involvement. In the context of developing countries megaprojects, the lack of effective implementation of project governance may lead to cost overruns, delays, poor quality, and other inefficiencies. Thus, to effectively manage a project, it is crucial to have a thorough comprehension of its aims, potential hazards and rewards, as well as appropriate distribution of resources and prompt decision-making procedures. It is essential to have a good comprehension of the characteristics of project governance in developing contexts to ensure its effective implementation and improve project outcomes. Lizarralde et al. (2013) proposed that the lack of effective implementation of project governance in developing contexts indicates a need for a better understanding of its characteristics. As a response to this call, we introduced project governance as a moderator in the servant leadership and interpersonal trust relationship.

### ***Theoretical Implications***

Our study made the following theoretical contributions: Firstly, in previous studies the focus is how constructive and transformational leadership styles effect project performance in construction project success (Aga et al., 2016; Imam & Zaheer, 2021; Mariam et al., 2022), and the examination of servant leadership in the construction project management context is scant (Islam et al., 2022; Khan et al., 2022) specifically in mega project setting. Secondly, we

contributed to the literature on project management and leadership by explaining how servant leadership influences project success from a SET Blau (1964b) perspective.

Thirdly, we aimed in this study to explore the role of interpersonal trust in the relationship between servant leadership and project success, using the SET perspective. Our research contributes to the literature by bridging the gap between the concepts of servant leadership and project success, and by shedding light on how interpersonal trust affects team members and leaders. The philosophy of servant leadership is centered around the idea that effective leadership involves understanding individual team members' goals, needs, and potential through open communication (Liden et al., 2008). Our findings suggest that servant leaders who provide support and foster a culture of service among team members can enhance trust, psychological safety, and team potency (Basit, 2017; Hu & Liden, 2011; Liden et al., 2014; Schaubroeck et al., 2011), ultimately leading to higher project success. This study provides novel insights into the relationship between servant leadership, interpersonal trust, and project success.

Fourthly, we contribute to the existing literature by examining the role of project governance as a moderator in the relationship between servant leadership and interpersonal trust. Although project governance is a prevalent topic in project management literature, Müller et al. (2013) suggested that its dark side has yet to be explored in relation to trust and project success issues. Through our research, we found that the interactive effect of servant leadership and governance can reduce project team members' trust, which has not been previously tested. Our study thus extends the nomological network of servant leadership by introducing project governance as a boundary condition for the servant leadership-interpersonal trust relationship. Additionally, we discovered that the indirect relationship between servant leadership and project success via interpersonal trust is stronger when project governance is low, compared to when it is high, particularly in the context of mega projects in a developing country.



### ***Managerial Implications***

Our study provides several valuable managerial implications that can be used by project professionals for improving interpersonal trust and enhancing project success in mega projects setting. During the project, the project leaders should display positive behaviors like empowerment, support, and people centric as these behaviors are likely to foster the project team members' growth and development. In the workplace, promoting interpersonal trust can encourage and develop positive behaviors, such as commitment, engagement, and job satisfaction (Zhang & Guo, 2022). Project managers being serving in nature may enhance the interpersonal trust by instilling confidence in team members through competence, integrity, fairness, and benevolence (Chan & Mak, 2014; Colquitt et al., 2007; Hartman, 2002), which would enable them to work with determination and dedication to achieve team goals (Bilal et al., 2020). Project leaders should foster interpersonal trust by focusing more on effective communication, teamwork and building a trustworthy environment (Hartman, 2002).

In Pakistan's mega project setting, we found that project governance is less functional and lowers the trust on project team members and leader. This low functionality of governance may be due to a variety of factors, including corruption, lack of transparency, political interference, weak regulatory frameworks, and a lack of skilled personnel (Aryal, 2022; Faisal & Jafri, 2017; Siddiqui, 2019). Excessive governance or micromanagement can stifle team autonomy, creativity, slow decision-making processes and can create a toxic work environment that negatively impact team collaboration. This calls for developing project governance mechanism that helps to foster interpersonal trust and megaproject success and requires significant reforms and improvements in the overall governance framework and its implementation in Pakistan. In megaprojects, where the stakes are high and the potential for disruption is considerable, a well-established organizational project management approach may serve as the backbone of effective project governance. It ensures that decision-making processes are streamlined,

bottlenecks are identified and addressed promptly, and that the project maintains its trajectory. The success of large-scale construction projects heavily relies on effective project governance, which can be fostered through various mechanisms that encourage interpersonal trust among team members and leaders. To warrant project success, governance mechanisms should integrate transparency and accountability, ensuring that all decisions and actions are fair and openly communicated through regular information sharing and documentation. To promote accountability, clarity, and trust within a project team, it is essential to designate explicit roles and responsibilities for both team members and leaders. Moreover, implementing measures of accountability such as establishing performance metrics, conducting frequent evaluations, and enforcing consequences for non-compliance can guarantee that all stakeholders and project team members are held accountable for their conduct. Engaging stakeholders through regular communication, stakeholder feedback sessions, and involvement in decision-making processes throughout the project lifecycle can help build trust and promote collaboration. Providing training to project team members can help ensure that they understand the governance mechanisms and know how to implement them effectively. Overall, these governance mechanisms suggest that there should be a clear structure in place for managing mega construction projects, with accountability, communication, and transparency being key priorities. Thus customizing project governance based on project requirements, organizational context, complexity, and team dynamics is essential. Open communication, transparent decisions, and involving team members in shaping governance can build ownership, trust, and accountability, ensuring project success.

### ***Conclusion, Limitations and Future Research Directions***

Employing social exchange theory (SET), our study adds to project management literature by investigating how servant leadership improves project success in megaprojects through trust. Further, we also probe how project governance influences the servant leadership-interpersonal

trust relationship. Our findings suggest that servant leadership acts as a catalyst in project success, both directly and indirectly and helps in improving the followers trust on project colleagues and leader. Further, the findings indicate that the combined effect of servant leadership and effective governance decreases employee's interpersonal trust and, consequently, project success. In future research, a focused exploration of developing countries' contextual intricacies, encompassing factors like corruption, transparency gaps, political interference, weak regulatory frameworks, and talent shortages, should be a priority. This can be accomplished through a blend of quantitative analysis and qualitative investigations involving stakeholders from these settings. By doing so, a comprehensive comprehension of how these contextual challenges intersect with leadership and governance dynamics to influence employee trust and project outcomes can be attained. This nuanced understanding will lead to a more refined theoretical framework, accounting for the unique socio-economic and cultural context of developing countries, and offering insights for more effective leadership and governance strategies. Moreover, the determinants of team trust and project performance in megaprojects may go beyond the direct influence of the project managers. Organizational project management, team composition, shared vision, resource availability, learning, recognition, rewards, conflict resolution and relationship-building all play vital role (Costa et al., 2018). Different contextual features such as organizational structure, human resource management (HRM) practices, and organizational culture and climate are also important to understand team trust. Future research can also consider other factors that influence interpersonal trust within project environments such as project management offices (PMOs), the senior managers' profile, the team climate, task interdependence, and the engagement of diverse stakeholders and analyzing their role in nurturing or hindering trust.

Our study has some limitations. The first weakness is that it is cross-sectional and self-reported measures were used for project success. Thus, there may be a chance of common method bias. Longitudinal research design and use of objective measures can be employed in future studies to overcome this limitation. Second, other mediating mechanisms may be investigated through which the project managers' serving behavior affect project success as our study only examined interpersonal trust as a mediator. Third, apart from project governance, the future study may use other moderating variables such as ethical work climate in the servant leadership and interpersonal trust relationship. Furthermore, we recognize that our study's findings might have particular relevance within the framework of mega construction projects, potentially constraining their broader applicability to projects across various domains. To address the concern of generalizability, it is imperative to expand our exploration to sectors beyond construction, such as the IT and hospitality industries, thereby enriching our understanding of project management dynamics. By embracing a wider spectrum of contexts, we can uncover both commonalities and distinctions in the implications of our research.

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