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The Influence of Empowerment on Collaboration and Knowledge Sharing and their Influence on Project Success

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ABSTRACT

The purpose of this research is to evaluate the effects that empowerment has on the sharing of information and cooperation in an effective project management setting. The purpose of this study is to investigate the direct impacts of empowerment, which will be evaluated based on autonomy and responsibility, on efficiency of cooperation between members of a team, the sharing of information, and the accomplishment of the project. A total of 228 Pakistani project managers were surveyed via the use of questionnaires, and the results were analyzed through the use of SPSS 25.0 and SMART software PLS 4. The findings demonstrated that empowerment has a beneficial impact on the cooperation and information sharing that occurs between team member exchanges and other project teams, which in turn has a favorable influence on the success of the project. While the responsibility of collaborators reflects positively in cooperation and information sharing, the autonomy that is assigned to the exchanges that take place between members of the project team encourages the sharing of knowledge and facilitates the success of the project. Not only do these findings help to the enhancement of theoretical understanding about project management, but they also enhance the practice of project team management. There is an increase in the likelihood of the project being successful as a result of their guidance to project managers on the delegation of autonomy and responsibility to team member exchanges. The research makes a contribution to the cultivation of improved project management techniques and highlights the significance of leadership abilities in the accomplishment of successful project outcomes.

Keywords: project management; project success; knowledge sharing; collaboration; empowerment; autonomy; team accountability; team members exchanges

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ОРИГИНАЛЬНАЯ СТАТЬЯ

Влияние расширения прав и возможностей на сотрудничество и обмен знаниями, и их роль в успехе проекта

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АННОТАЦИЯ

Целью исследования явилась оценка влияния расширения полномочий на обмен информацией и сотрудничество в условиях эффективного управления проектами. Работа была направлена на изучение прямого воздействия расширения полномочий (которое оценивалось на основе автономии и ответственности) на взаимодействие между членами команды, обмен информацией и достижение целей проекта. В общей сложности с помощью анкет было опрошено 228 пакистанских руководителей проектов, а результаты анализировались с использованием программного обеспечения SPSS 25.0 и SMART PLS 4. Полученные данные показали, что расширение полномочий положительно влияет на сотрудничество, способствует обмену информацией между членами команды и другими проектными группами, что, в свою очередь, благоприятно сказывается на успешности проекта. Эти выводы способствуют не только разви-

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тию теоретического понимания управления проектами, но и улучшают практику координации деятельности занятых в них рабочих команд. Рекомендации, предлагаемые авторами исследования, помогают руководителям в вопросах делегирования автономии и ответственности участникам команд, что увеличивает вероятность успешного завершения проектов. Результаты проделанной работы могут служить вкладом в развитие эффективных методов управления проектами и подчеркивают важность лидерских качеств для достижения успешных результатов.

Ключевые слова: управление проектами; успешность проектов; обмен знаниями; сотрудничество; расширение полномочий; автономия; ответственность команды; взаимодействие членов команды

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1. INTRODUCTION

The interest in project management has grown significantly in recent years, with both academics and professionals recognizing its potential to enhance efficiency, effectiveness, and competitiveness in complex and unpredictable environments. This has led to the establishment of professional organizations like the International Project Management Association (IPMA) and Project Management Institute (PMI). However, project results often disappoint stakeholders, and skilled project managers face cases when the projects are considered failed. Projects are essential tools for organizations to organize activities and achieve desired objectives, and success of these projects determines the success of the enterprise. They are the main component used to implement strategies, and an organization gains value when they are in line with strategic objectives. Promising initiatives have a beneficial impact on the organization, impacting its short- and medium-term development as well as its long-term expansion.

However, estimating the costs of failed projects remains a challenge, as significant resources are spent annually on projects with high failure rates. Both professionals and academic demonstrate a strong interest in the factors contributing to project success since every organization strive to increase the likelihood of successful project outcomes and minimize losses from project failures. Project success factors are key elements that enhance the probability of success and represent distinct solutions aimed at improving project outcomes. Effective project execution involves delivering or improving goods or services to align with an organization's strategic objectives. Achieving project success is of crucial importance and often requires a substantial organizational commitment. Project success cannot be measured in a single way since it depends on a variety of elements and may be assessed in a number of ways.

This study seeks to address the research question: What management factors determine project success?

It aims to investigate the influence of empowerment on knowledge sharing and collaboration among project team members and evaluate how these factors collectively contribute to project success. By addressing existing gaps in the literature and the lack of consensus regarding determinants of project success, this research seeks to advance both theoretical understanding and practical application in the field. It uses a deductive, quantitative, transversal, conclusive, and causal research methodology to conduct an empirical study. Primary source data will be collected from project team member and analyzed using SPSS 25.0 and Smart PLS 4 software. Project success criteria are subjective and can be influenced by factors like usability or acceptance of new processes. Project success factors are defined as elements that enhance the likelihood of successful outcomes and represent independent interventions that increase the probability of success. However, there is no universal method for measuring project success, as it depends on many factors and can be assessed through various frameworks. Effective project execution includes activities related to project control, including review processes, monitoring progress, and ensuring stakeholder satisfaction. This study will evaluate the role of empowerment, knowledge sharing, and collaboration in facilitating efficient project execution and achieving project success. Through this comprehensive analysis, the research aims to provide valuable insights into the management factors that influence project success and offer practical guidance for enhancing project management practices.

1.1. Problem Formulation

Empowerment is widely regarded as a critical factor that can enhance collaboration and knowledge sharing among project team members. However, there is little clarity on how these factors individually and collectively influence the critical success of a project. Precisely, the relationship between empowerment and team dynamics affecting project outcomes

remains underexplored, and a lack of consensus persists in the existing literature regarding critical success factors in project management. The present study seeks to investigate how empowerment influences collaboration and knowledge sharing, and examines their combined impact on project success. The research paper deals with the complicated relationship of empowerment, collaboration, and knowledge sharing regarding project success. The authors propose a comprehensive set of objectives to capture the multi-dimensional aspects of their study, which are outlined as follows:

1.2. Objectives of the Study

Empowerment Effects: The research investigates the impact of empowerment on information sharing and cooperation within a project management context. Specifically, it explores how autonomy and responsibility contribute to enhancing team performance and facilitating project success.

Direct Effects on Team Performance: The direct influences that empowerment has on team cooperation, information sharing, and the overall accomplishment of projects are considered here. This section addresses how empowered team members effectively collaborate and coordinate to achieve project goals.

Management Factors of Project Success: An essential objective is to identify management factors that determine project success. The study delves into various aspects that help in the successful execution of a project.

Influence of Empowerment on Knowledge Sharing: The authors seek to assess how empowerment affects knowledge sharing and collaboration among project team members and its combined impact on project success.

Literature Gaps: The study attempts to fill the gaps in the existing literature on project success determinants and hopefully will resolve the lack of consensus regarding the factors that define and drive project success.

Critical Analysis of Influential Factors: Finally, this research aims to provide a critical analysis of the factors influencing project success, contributing both to theoretical advancements and practical applications in project management.

2. LITERATURE REVIEW

Project management is a crucial aspect of organizational success, driven by technological and cultural

changes. It involves teams from various corporate functions working together to achieve defined objectives. A clear understanding of the human dimension is essential for effectively engaging and motivating stakeholders. Projects are temporary endeavors with long-lasting social, economic, and environmental impacts. Project managers possess leadership and collaboration skills to boost project management. According to the Project Management Institute, a project is defined as a brief endeavor that produces a special product, service, or outcome.

2.1. Project success

Project success is a complex and multidimensional concept that depends on the perception and perspective of stakeholders. There is no universally accepted definition of “absolute success” in project management, and the measure of success is likely to change over time. Over one third of projects fail to meet their objectives, making understanding and obtaining information about the surrounding environment essential for identifying promising opportunities. Success means different things to different people, encompassing aspects such as aesthetic appearance, technical proficiency, adherence to budgetary constraints, and employee satisfaction. The concept of success is ambiguous, inclusive, and multidimensional, with definitions linked to specific contexts. For instance, [1] proposed a model categorizing success factors into five dimensions, including the “iron triangle” criteria (time, cost, and scope) alongside stakeholder satisfaction, project impact, organizational benefits, project efficiency, and future potential. Furthermore, [2] distinguished project factors into internal and external categories, highlighting the critical role of project managers in integrating external influences to enhance project success.

2.1.1. Financial success of the project

Project financial performance is the overall cost performance of production and transactions, minimizing planned costs. It can be measured using various criteria and can be obtained from existing projects or budgets. Cost control involves determining if an accounting code structure was developed during the planning phase, which facilitates the systematic recording and organizing of cost-supporting documents. Once established, this framework provides a basis for allocating costs to specific activities, enabling the calculation of actual costs and their com-

parison with budgeted figures. Deviations can be positive or negative, indicating good cost control or weak control.¹ Deviations are calculated from accounting records but do not provide information about the causes of deviations, making it necessary to include this information in progress reports. Financial performance measures indicate whether the implementation and execution of a company's strategy are contributing to improving results [3]. However, measuring financial performance poses unique challenges, as there is little consensus on which measurement variable to apply. Market measures report historical performance data, whereas accounting-based measures focus on future-oriented information. Market measures are less susceptible to different accounting procedures and represent the assessment of a company's ability to manage and control resources effectively.

2.1.2. Critical project success factors

Critical success factors (CSFs) play a vital role in ensuring project success by enabling the effective allocation of scarce resources to controllable aspects of a project. However, there is significant debate and inconsistency regarding the definition, terminology, and prioritization of these factors. The challenge of identifying CSFs persists due to the complexities of executing projects in a global, dynamic, and continuously evolving market environment. Early research concentrated more on factors that led to project failures, such as poor project manager selection, inadequate planning, and a lack of top-level management support. It has been proposed that the best way to enhance project performance is to replicate important project success elements in new projects. The idea of CSFs has changed throughout time. According to [4], these are the goals or aspects of business management that require heightened attention to ensure the success of projects and organizations. The following factors were identified by [5] as critical to project success: political stability; prior experience with methodology and tools; environmental influences; knowledge gained from previous experiences; project size, duration, complexity; and diverse team perspectives. Additionally, success is influenced by the availability of sufficient resources; effective leadership;

advanced technology; realistic schedules; controlled risks; sponsor requirements; organizational adaptation; supplier performance; acceptance of failure; provisions for testing; and political stability.

2.2. Factors influencing project success

The success criteria for a project should not be defined from the beginning but include factors that influence its success. These factors must be identified and incorporated in a timely manner throughout the project life cycle. The [6] recommends selecting appropriate processes within process management groups to meet project objectives, adapt product specifications and plans, comply with requirements, and balance competitive demands related to scope, deadline, cost, quality, resources, and risk. Success and failures factors in management projects can be classified into five groups: project, manager, team, organization, and environment. A project is considered a failure if the final results do not meet expectations, even if the original expectations were reasonable. Stakeholders' perspectives on success criteria also play a role in project success. Project managers measure success by meeting deadlines, budgets, and objectives, while the project team considers personal satisfaction and career development as important factors. Consumers focus on primary deliverables, viewing internal organizational benefits as secondary. Meeting approximately 85% of a project's requirements is often sufficient to consider it successful. Identifying the key and secondary success elements aids in risk decision-making and helps project managers create plans for risk management [7]. These factors provide project managers with opportunities to adjust success variables to increase the likelihood of achieving desired outcomes [8]. Team-member exchanges (TMX), encompassing team cooperation, knowledge sharing, and empowerment, are integral to effective project management. These three components collectively contribute to the successful execution of projects and enhance overall organizational performance.

2.2.1. Empowerment

A leadership idea known as empowerment encourages people or teams to make decisions on their own and share knowledge with one another. This approach has gained increasing importance in today's complex work environment, where project managers face challenges such as resource limitations, globalization, and rapidly advancing technologies. Employee participation in empowerment programs increas-

¹ MWOTAJI: Making women's options for HIV prevention in Tanzania accessible, and joining implementation science capacity building. 2023. Health for a Prosperous Nation (HPON). URL: <https://hpon.or.tz/mwotaji-3/>

es their autonomy and commitment to the job. It is characterized by the distribution of authority among project managers and might be called formal leadership or staff leadership. Empowerment programs are more effective than typical hierarchical systems in terms of motivating workers since they improve their effectiveness, psychological health, and sense of their own competence, independence, and experience.

2.2.2. Autonomy

Employee autonomy refers to their ability to organize and decide how best to carry out their jobs. It is essential to project management because it enables managers to act quickly to address team requirements and make choices [9]. Autonomy plays a pivotal role in effective leadership, facilitating timely outcomes and fostering accountability within teams. Work autonomy within a project team allows members to share decision making power regarding techniques, goals, and work sequences. People's urge to feel in charge of their actions is linked to their demand for autonomy. Project autonomy may be classified into four categories: resource autonomy, social autonomy, goal definition, and structural autonomy [10]. While training is crucial for quick development, shared decision making fosters the autonomy necessary for cohesive teamwork. To sum up, project team autonomy improves project agility across all project kinds.

2.2.3. Team Accountability

Team accountability is the responsibility of a project team to meet performance criteria such as deadlines, costs, quality, customer needs, and information sharing. Resources are allocated to projects in exchange for expected results, with management mechanisms such as planning, support, and communication ensuring optimal use. Support from management fosters an innovative climate, strategic vision, and clear priorities, while customer collaboration is crucial for project quality.² Efficient practices lead to high-quality results, minimizing use of resources and time, resulting in project completion on time and within budget. Integration of project management processes includes unification, consolidation, communication, and interrelationship. Efficient project teams meet stakeholders'

² Implementing personalized cross-sector transitional care management to promote care continuity, reduce low value utilization, and reduce the burden of treatment for high-need, high-cost patients. Agency for Healthcare Research and Quality. 2021. URL: <https://digital.ahrq.gov/ahrq-funded-projects/implementing-personalized-cross-sector-transitional-care-management-promote>

expectations, achieving higher levels of efficiency and effectiveness in design [11]. This leads to better project success ratings, and satisfaction from customers, investors, and project teams.

2.2.4. Collaboration between team member exchanges (TMX- Team member exchange)

Team member exchange (TMX) is a method of measuring reciprocity between team member exchanges. It involves a member's perception of the quality of exchange, including ideas, feedback, and assistance [12]. This exchange can lead to better interaction, knowledge sharing, work performance, organizational commitment, and job satisfaction. By improving TMX, negative effects associated with low conscientiousness or interpersonal conflict can be mitigated, fostering creativity and positively influencing both individual tasks and overall team productivity [13]. Therefore, the quality of exchanges among team members plays a crucial role in enhancing overall organizational performance.

2.2.5. Knowledge management

Knowledge management involves activities focused on acquiring knowledge from experience and from others to fulfill an organization's mission. It involves systematic, explicit, and deliberate application of knowledge to maximize efficiency and knowledge creation. [14] identifies five key dimensions of knowledge management: identification, creation, storage, sharing, and validation. This work focuses on the "knowledge sharing" dimension.

2.2.5.1. Knowledge sharing

Knowledge sharing is crucial for environmental management, improving performance and fostering idea generation. However, obstacles exist, especially in large multinational companies and complex product development teams. Effective knowledge life cycle management can facilitate efficient knowledge sharing within organizations and project teams [15]. High knowledge quality can lead to better performance, innovative products, increased sales, and cost reduction. Knowledge quality can be categorized into intrinsic, contextual, and actionable dimensions. Intrinsic knowledge is precise, reliable, and timely, contextual knowledge is relevant and valuable, and actionable knowledge is adaptable, expandable, and easily applied to tasks, demonstrating its usefulness and profitability.

2.3. Deduction of research hypotheses and conceptual model design

The literature review reveals that project success is directly influenced by empowerment, autonomy, and

team accountability. Knowledge sharing and collaboration among team members exchanges are key determinants of project success [16]. Autonomy permits business managers to create effective work strategies and reimburse for knowledge gaps, while knowledge sharing is essential for greater autonomy. Based on these insights, the study aims to analyze the following research hypothesis:

H1: Autonomy positively influences knowledge sharing.

Project teams with work autonomy have less accountability and motivation as they are able to choose their own work procedures, goals, and hierarchy [17]. In order to lead effectively and encourage timely outcomes, autonomy is crucial. In project teams, autonomy enables members to share authority regarding techniques, goals, and work sequences, thereby facilitating responsiveness to diverse tasks across various projects. This leads to the following research hypothesis:

H2: Autonomy positively influences project success.

Individuals respond to complexity and problems in their work in different ways. Assigning accountability to project team members encourages them to overcome obstacles. A fundamental idea in human resource management is social autonomy [18], which is described in project management as the project manager's flexibility to direct team conduct and promote communication. Therefore, this study intends to analyze the following research hypothesis:

H3: Autonomy positively influences collaboration between team members exchanges.

Feedback from member exchanges within the project team improves mutual support, team cohesion, and expertise [19]. Employees can complete activities more quickly and effectively in a knowledge-sharing environment [20]. Additionally, this setting encourages effective use of the information at hand, which raises productivity levels all around. Therefore, this study aims to analyze the following research hypothesis:

H4: Knowledge sharing positively influences project success.

Organizations are encouraged to prioritize cooperation and adapt their work arrangements to facilitate knowledge exchange and collaboration among team members [21]. High-quality knowledge can lead to better performance, innovative products, increased sales, and cost reduction [22]. Learning from one another's experiences and encouraging a sense of togetherness among team members, promotes an open culture. Based on this, the following research hypothesis is proposed:

H5: Collaboration between team members exchanges positively influences team sharing knowledge.

Collaboration between members of a project team that have high-quality relationships fosters individual work output and team productivity [23]. Given its impact on team performance and the success of the project as a whole, this collaborative dynamic can significantly improve organizational performance, particularly in project settings. Accordingly, the following research hypothesis is proposed:

H6: Collaboration between team member exchanges positively influences project success.

The quality of exchanges among team members can enhance overall organizational performance. This process involves establishing meaningful connections with colleagues, responding effectively to customer needs, and organizing project tasks for optimal delivery [24]. This approach is essential for good interaction with customers and meeting the project manager's goals. Therefore, this study intends to analyze the following research hypothesis:

H7: Team accountability positively influences knowledge sharing.

Team accountability is the responsibility of a project team to meet performance criteria such as deadlines, costs, quality, customer needs, and information sharing. Project management helps organizations implement principles, practices, methodologies, tools, and techniques that may or may not determine project success [25]. Good practices in meeting performance criteria promote project success, while poor project management often contributes to project failures. In light of this, the study proposes the following research hypothesis:

H8: Team accountability positively influences project success.

Team effectiveness is a result of input, process, structure production, and coordinated action among team member exchanges. One critical mechanism driving team effectiveness is collaboration among team members with high-quality exchanges characterized by reciprocity and open communication [26]. Such collaboration is fundamental for enhancing team performance, meeting planned objectives, and improving individual contributions. Accordingly, the study seeks to examine the following research hypothesis:

H9: Team accountability positively influences collaboration between team member exchanges.

Based on the hypotheses derived from the literature review, a conceptual research model has been designed, as illustrated in *fig. 1*.

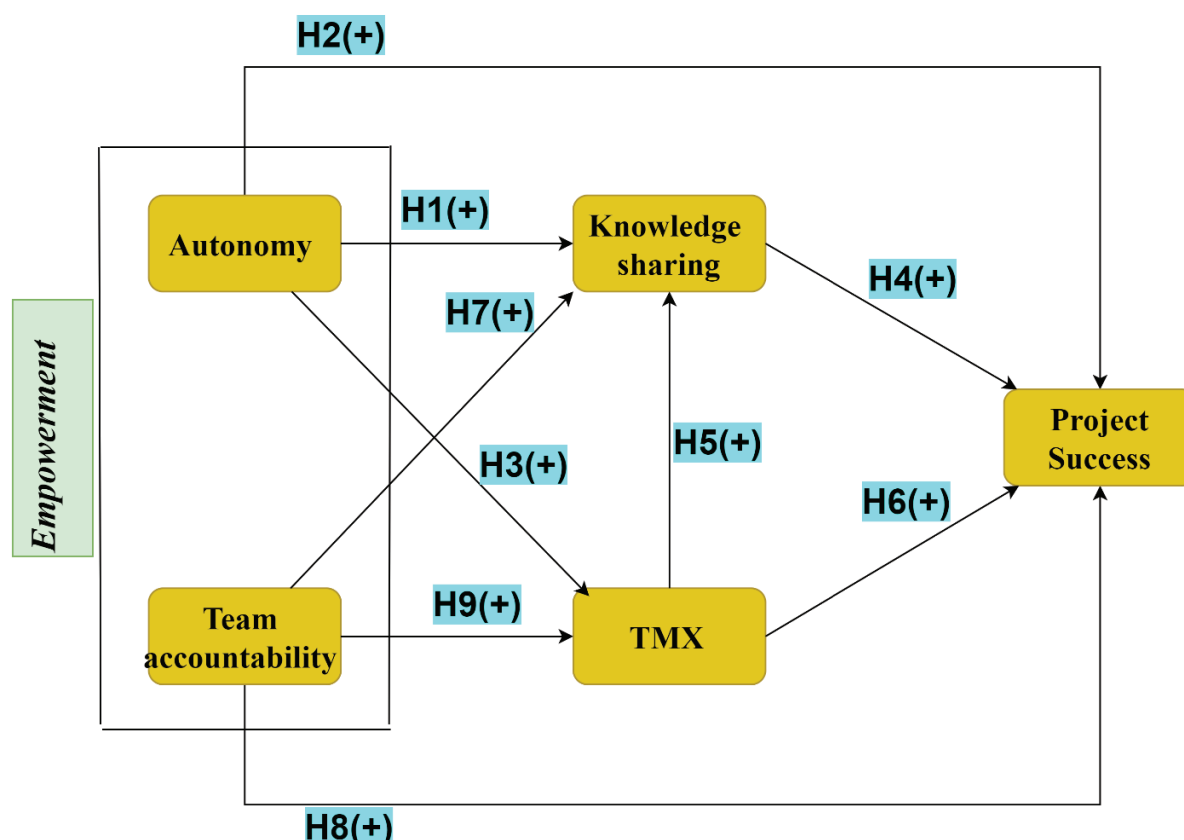


Fig. 1. Proposed research model

Source: compiled by the authors.

3. RESEARCH METHODS

3.1. Characterization of the study

This study uses the deductive method to analyze project management teams in the Sindh region, focusing on the integration of elements within the last six months. The research is confirmatory in nature, aiming to validate different alternatives and hypotheses. It adopts a cross-sectional causal design to provide insights into the problem under investigation. The study is classified as quantitative, as the data collected can be measured and analyzed statistically [27]. The target population was identified through a five-phase process, and data collection was conducted via email and LinkedIn, targeting companies in the Sindh region. Data collection took place in March and July 2021, despite the COVID-19 pandemic. A sample size of 228 participants was determined, ensuring the robustness required for statistical analysis with small samples. Strengths: The quantitative part of the research is well presented, with a survey of 228 Pakistani project managers. Responses were analyzed through the SPSS 25.0

and SMART PLS 4 software, allowing good statistical analysis. The results show a positive significant relationship among empowerment, collaboration, knowledge sharing, and project success, hence giving good insights into the best project management practices.

3.2. Instruments and procedures for data collection

A questionnaire was created using Google Forms to analyze and compare results from respondents. It consists of three parts: identifying companies, analyzing main variables, and characterizing respondents. The questionnaire aims to understand the company's purpose, size, number of projects, type, and duration for project management [28]. It also addresses variables like project success, empowerment, collaboration, and knowledge sharing. Data collection began by emailing a list of companies in the Sindh region and publicizing it online on LinkedIn. The questionnaire used nominal scales for the first and third parts and 7-point Likert scales for the second part.

3.3. Sociodemographic characterization of the sample

Data collection resulted in 228 valid observations from respondents who stated that they belonged to project teams. From the characterization of the sample presented in *Table 1*, 48 individuals (21.05%) were female and 180 individuals (78.95%) were identified as male. For the most part, responses were obtained from individuals aged 31 and 40 years of age ($N = 96$; 42.10%). The academic qualifications of individuals are distributed across five levels of education, where the majority of individuals have a master's degree ($N = 98$; 42.98%) as shown in *Table 1*. When we observed the seniority of individuals in the company, we found that 101 respondents (44.3%) remained in the company for

3 to 5 years. *Table 1* summarizes the sociodemographic profile of the analysis conducted in this investigation.

This study uses a deductive and confirmatory methodological approach, with a sample of 228 individuals, mostly male, aged 31–40, with a master's degree and 3–5 years of experience in their companies. The data collection methodology is presented, with a questionnaire chosen as the instrument. The questionnaire was designed with a simple layout, vocabulary, and size, following literature recommendations. The 7-point Likert scale was chosen to measure variables. The questionnaire was disseminated to companies in the Sindh region via email and LinkedIn. Data analysis and processing were performed using SPSS 25 and SMART PLS 4.

Table 1

Sociodemographic characterization of the sample

Sociodemographic characteristics	Frequency	Percentage
Gender		
Female	48	21.05%
Male	180	78.95%
Age		
Less than 30 years old	85	37.28%
Between 31 and 40 years old	96	42.10%
Between 41 and 50 years old	34	14.91%
Between 51 and 60 years old	13	5.70%
Academic qualifications		
Basic education	0	0.00%
High school	11	4.82%
Graduation	87	38.16%
Master's degree	98	42.98%
Ph.D	32	14.04%
Experience at the company		
Less than 2 years	81	35.53%
Between 3 to 5 years	101	44.3%
Between 6 to 10 years	34	14.9%
More than 10 years	12	5.26%

Source: compiled by the authors.

4. RESULTS AND DISCUSSION

In the first phase, the study assessed the consistency and validity of the measurement model by analyzing the multicollinearity of various items and interpreting the results obtained. In the second phase, the structural equation model was estimated using SMART PLS 4. Finally, the results were interpreted and discussed, providing a critical analysis of the factors influencing project success.

4.1. Analysis of multicollinearity

Following the characterization of the sample, a descriptive analysis was conducted on the indicators of the measured variables. In this way, the mean and standard deviation of the responses were obtained, taking into account the use of a 7-point Likert scale (*Table 2*). From *Table 2*, the following average values of the items that make up each variable can be observed: Project Success with Average (M) = 6.05; Collaboration between team member exchanges M 6.04; Knowledge sharing M 5.99; Empowerment M 6.09. Therefore, the highest averages are considered to refer to items that measure characteristics of empowerment. Analyzing in greater detail, the highest average is found in item 11 “We seek to understand the customer’s needs” when registering an average of 6.22, followed by item 14 “Working as a team” with an average of 6.15, and item 5 “There is a clear understanding of the roles and responsibilities of each employee” with an average of 6.14. From the previous table, it was analyzed that knowledge sharing has average values of its items, which leads to the consideration that there may not be high levels of sharing of knowledge in the project teams analyzed.

In a preliminary analysis, it is important to analyze multicollinearity through analysis of the value of the VIF (Variance Inflation Factor) coefficient. This VIF value checks whether a given item presents a correlation with the other items that make up the model, avoiding thus biases caused by the existence of multicollinearity. In this sense, they must all questions with VIF values greater than 5 must be eliminated. In this follow-up, all items that presented values of VIF above 5. As a result, *table 2* presents the VIF values and it can be seen that the items under study meet the criteria proposed by the literature ($VIF < 5$) and that there will be no analysis problems arising from the existence of multicollinearity.

4.2. Study of the consistency and validity of the measurement model

To study the validity of the measurement model, the average variance extracted indicator was used

(AVE), through which it is possible to verify to what extent, each of the items of each concept relates to the remaining items of the concept. In this form, it is understood that, from the moment in which the values of the average variance extracted exceed the minimum value of 0.5, the various items that are associated with each other and the construct present convergent validity. Following the thought described, it can be seen in *Table 3* that all constructs in the investigation have convergent validity since they are above the threshold value of 0.5.

The study analyzed the internal consistency of factors using a composite reliability index, which measures the relationship between items used to measure a concept. Composite reliability values range from 0 to 1, with an acceptable level of reliability suggested at 0.7. All constructs have values above 0.7. The alpha coefficient of Cronbach is used to verify the reliability of the concepts, with values above 0.7 indicating reasonable reliability. The study’s constructs have alpha Cronbach scores ranging between 0.739 and 0.882. The discriminant validity (*Table 4*) verification aims to understand the difference between the questions used to measure a given concept or construct from other questions that measure other constructs. This is done using Fornell’s criterion and Larker’s criterion, which compares the square roots of the AVE values of each construct with the correlations between concepts or latent variables. The matrix of correlations presents the connections between different concepts, with the square roots of the AVEs superior to inter-construct correlations.

In the analysis carried out on the validity and reliability of the measurement model, it is considered that the concepts under analysis verify the assumptions to consider that the measures used are valid and reliable so that it is possible to estimate the structural model and, in this way, carry out the test of hypotheses under study.

4.3. Structural model estimation results

The study used SMART PLS 4 software to estimate the measurement model and evaluate the determination coefficients of Pearson (R^2) to understand the causal relationship between variables (*Fig. 2*). The R^2 values must be greater than 0.2 to indicate a strong relationship, and greater than 0.1 to avoid a scarcity of information.

The study-dependent latent variables, Knowledge Sharing, Collaboration between team member exchanges (TMX), and Project Success, all have values

Table 2

VIF values of the adjusted model

Variable	Question	Items	VIF	Mean	Standard Deviation
Project success	1	In general, projects that were economically successful	1.360	6.12	0.607
	2	The projects were completed within the initially scheduled deadlines	1.210	6.08	0.571
	3	The initially planned budgets were not exceeded	1.537	5.95	0.666
	4	Projects usually have a positive return on investment	1.321	5.96	0.609
	5	The project deliverables were of high quality and met the required standards.	1.431	6.14	0.748
Autonomy	1	There is a clear understanding of the roles and responsibilities of each employee	1.332	6.02	0.697
	2	Communication is open between team member exchanges.	1.231	6.00	0.786
	3	There is standardization of work to reduce rework in project documentation	1.455	6.13	0.697
	4	Policies and procedures are documented.	1.696	6.10	0.623
	5	Researching ways to improve customer service	1.672	6.10	0.673
Team Accountability	1	All members actively participate	2.062	6.22	0.68
	2	There is easy access to information for all workers	1.530	6.14	0.579
	3	Each team member was clear about their responsibilities and roles within the project	1.32	6.10	0.596
	4	Team members communicated effectively with each other throughout the project	1.54	6.15	0.538
	5	Team members managed their tasks and deliverables effectively	1.631	6.09	0.604
Collaboration between team members exchanges	1	Team member exchanges often ask their colleagues for help	1.524	6.02	0.743
	2	Team member exchanges often offer extra help to their colleagues	2.063	6.08	0.743
	3	Team member exchanges are willing to complete the work assigned to their colleagues	2.181	6.09	0.52
	4	Team members communicate effectively with each other to achieve project goals	1.376	6.11	0.628
	5	Team members trust each other to deliver high-quality work	1.547	6.01	0.715
Knowledge Sharing	1	The company has procedures for sharing experiences	2.372	5.94	0.677
	2	The company promotes the distribution of information to business partners	2.193	6.01	0.679
	3	Disclosure of information is carried out in a uniform manner	2.162	5.99	0.748
	4	In all activities, the company seeks to share information	2.655	5.94	0.757
	5	I share my work-related skills and expertise with my colleagues when they ask for it	2.212	5.98	0.764

Source: compiled by the authors.

Table 3

Average Variance Extracted (AVE), Composite Reliability & Cronbach's alpha coefficient Values

Construct	(AVE)	Composite reliability	Cronbach's alpha
Autonomy	0.651	0.849	0.783
Knowledge sharing	0.745	0.935	0.882
Project Success	0.534	0.856	0.739
TMX	0.751	0.855	0.815
Team accountability	0.676	0.849	0.873

Source: compiled by the authors.

Table 4

Discriminant Validity

Construct	Autonomy	Knowledge sharing	Project Success	TMX	Team accountability
Autonomy	0.829	—	—	—	—
Knowledge sharing	0.639	0.879	—	—	—
Project Success	0.543	0.502	0.768	—	—
TMX	0.451	0.736	0.456	0.841	—
Team accountability	0.467	0.742	0.434	0.788	0.836

Source: compiled by the authors.

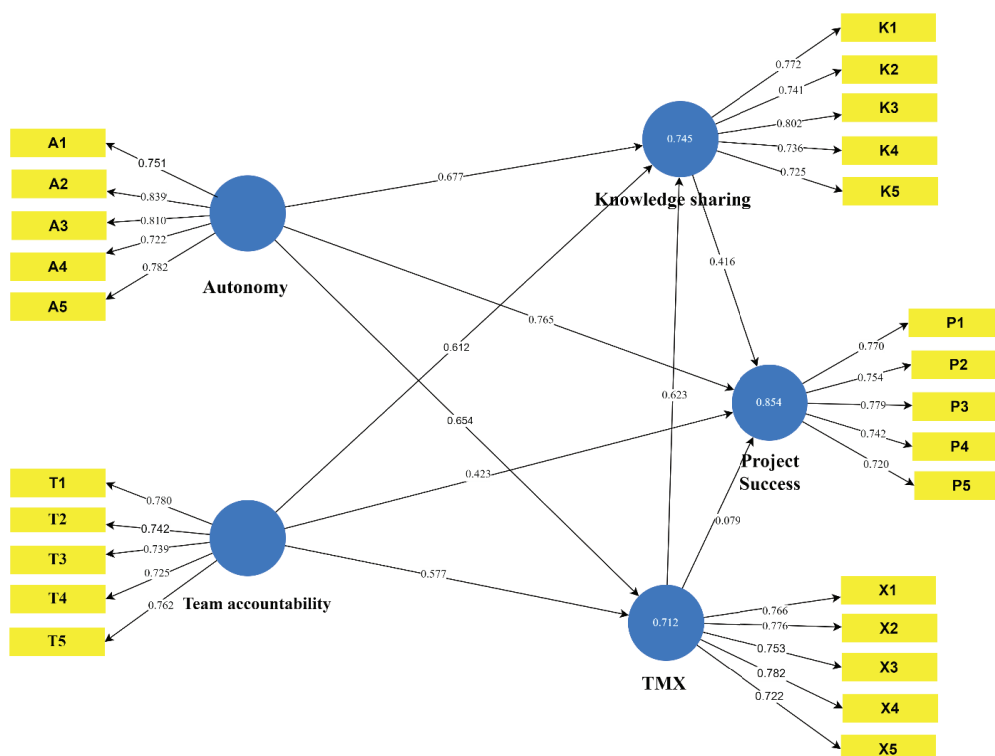


Fig. 2. Structural model- Structural coefficients and R² values

Source: compiled by the author.

above 0.1, indicating a strong relationship. The significance of the statistical relationships of each coefficient was determined using bootstrapping resampling with 5000 samples. The t-values of the standardized path coefficients (Std β) associated with R^2 indicate the statistical probability of confirmation or rejection of hypotheses, with t-values equal to or greater than 1.96, as a minimum confidence level of 95% is used.

From the analysis of *Table 5*, it appears that from testing the 9 hypotheses that the investigation proposes to study, 6 hypotheses are corroborated (H1, H2, H5, H7, and H9) as they present t-value equal to or greater than 1.96, which indicates that they are statistically relevant, and the remaining hypotheses tested were not corroborated by the present research.

4.4. Discussion of Results

The study investigates the factors influencing project success through a critical discussion. Hypothesis H1 suggests that project managers intervene in organizations to ensure that those involved understand and take ownership of project structure elements. Trust, fairness, leadership style, and empowerment are important in the role of the project leader, as they positively influence knowledge sharing, fairness, and empowerment.

Hypothesis H2 confirms that autonomy positively influences project success, as it is an independent action by individuals or teams to bring an idea to

completion. However, hypothesis H3 does not obtain statistical support, as tasks assigned individually by the project manager may result in little collaboration between team members exchanges.

Hypothesis H4 does not obtain statistical support, possibly due to the focus on project success as economic success rather than financial success. High quality knowledge sharing can lead to better performance, innovative products and processes, increased sales, and reduced costs.

Hypothesis H7 validates hypothesis H7, as employees who receive empowerment from the project manager report having the opportunity to discuss problems with their managers and influence decisions made by their organizations.

Hypothesis H8 tests whether team accountability positively influences the success of the project. Overall, the study found that collaboration between team members exchanges positively influences knowledge sharing and project success. Group membership is crucial for fostering social identity and collaboration within a group.

The results of this study bring out a number of interesting differences between the research model proposed and the structural model pointing to areas where the model can be refined. Most importantly, the fact that a revised model does not overrun originally planned budgets does not serve as a definition of a successful project, indicating the need for a

Table 5

Hypothesis test result

Hypothesis	Relationship	Std β	T-Value	P-Value	Validation
H1	Autonomy -> Knowledge sharing	0.129	3.131	0.01	Validated
H2	Autonomy -> Project Success	0.115	2.485	0.010	Validated
H3	Autonomy -> TMX	0.080	1.505	0.108	Not Validated
H4	Knowledge sharing -> Project Success	0.240	0.360	0.795	Not Validated
H5	TMX -> Knowledge sharing	0.120	2.471	0.010	Validated
H6	TMX -> Project Success	0.125	1.715	0.070	Not Validated
H7	Team accountability -> Knowledge sharing	0.116	2.527	0.015	Validated
H8	Team accountability -> Project Success	0.144	0.080	0.944	Not Validated
H9	Team accountability -> TMX	0.064	9.364	0.000	Validated

Source: compiled by the authors.

better definition of what constitutes success. Also, from a theoretical point of view, the exclusion of empowerment and project success from the structural model points to the incompleteness of the model itself. These results indicate that future research should focus on explicitly justifying the elements of the model, rigorously testing theoretical frameworks, and examining the role of empowerment in project success. Addressing these gaps will aid in the development of more robust models that capture the complex interactions between budget management, empowerment, and project outcomes.

5. CONCLUSIONS

The study explores the impact of knowledge sharing on project success, focusing on empowerment, autonomy, team accountability, and collaboration. It found that autonomy and collaboration positively influence knowledge sharing, while collaboration is crucial for maintaining team unity and increasing project success in terms of cost, deadline, quality, and customer satisfaction. The study also found a positive relationship between collaboration and employee performance. The autonomy of project team member exchanges significantly influences project success and knowledge sharing. Team accountability is also crucial for knowledge sharing and collaboration. The study suggests that companies that promote employee autonomy in project team member exchanges are more successful in their projects. The responsibility of project teams influences collaboration and knowledge sharing, allowing for increased organizational knowledge.

The study emphasizes the importance of a project manager with a defined leadership style to shape their team and promote personal growth. Companies should focus on developing specific behavioral trends and styles among business managers to achieve project success. Further investigation into factors influencing project success is also essential.

5.1. Limitations and suggestions for future work

This study has limitations, including a small sample size and non-probabilistic convenience, which requires caution when drawing conclusions from the general population. The data was collected in a single moment and at the same source, posing a risk of contamination due to common method variance. For future research, it is recommended to conduct

a larger study with a larger number of respondents, conduct the study in more sectors and countries, and include other critical factors of success in mediating variables like emotional intelligence and project leadership. Deepening the definition of the project, segmenting it for simple and complex projects, and separating public and private companies in the sample definition are also suggested. Additionally, case studies and pilot projects in companies with the concepts evaluated in this work can provide real tests that highlight the difficulties faced by projects, making more relevant information available to organizations. This will help to improve the understanding of project management and its impact on success.

5.2. Originality of the Solution to the Problem

An integrative approach has been adopted for the study, considering not only the concept of empowerment in isolation but also its interaction with collaboration and knowledge sharing. This multidimensional perspective is relatively underexplored in the literature, which often treats these concepts independently. In this research, these elements are interconnected to offer a novel framework for understanding their collective impact on project success. The study's contextual focus on Pakistani project managers provides insights that are particularly relevant to a region where project management practices may differ from those in Western contexts. The localized focus adds originality because it creates awareness about the unique cultural and organizational factors that influence team empowerment and collaboration. The strong empirical methodology and advanced statistical analysis, using SPSS 25.0 and SMART PLS 4 respectively, on responses from 228 respondents, provide concrete evidence in support of the hypotheses formulated. The empirical findings provide strong evidence in support of the proposed hypotheses, distinguishing this study from theoretical discussions that lack empirical validation. In conclusion, the novelty of this research lies in its integrative approach, contextual relevance, empirical validation, contribution to filling existing gaps in the literature, and practical implications for project management practices. The study also highlights significant gaps in current knowledge regarding how empowerment drives project success through collaboration and knowledge sharing.

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Mohammad Mesba Ul Hoque — contributed to the development and the implementation of the research design was done. Participated in result discussion and implication for Project Management. Read the final manuscript, ensuring clarity and coherence of presentation.

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