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The Impact of Project Planning and Project Manager Competencies on Private Sector Project Success in Pakistan's Manufacturing Industry

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Abstract: The private sector manufacturing industry achieves its project success by maintaining operational efficiency and achieving capital gains while sustaining market competitiveness. Research on public sector projects dominates the literature while there remain insufficient studies about specific challenges and success elements which influence private sector industries. This study investigates the impact of project planning and managerial competencies on project success in Pakistan's private sector manufacturing industry. Research data was collected from manufacturing firms across Pakistan through survey methodology and analysed using the PLS-SEM approach. The study investigated how project planning relates to three categories of managerial competencies (technical, behavioural, and contextual), which produce positive outcomes for project success. This study expands project management knowledge through research into private-sector industries and proves the essential role of planning and leadership for successful private-sector projects. Research results demonstrate the critical necessity for organizations to implement organized planning systems together with leadership development programs focused on competencies in their operations. The research's findings help practitioners bridge the divide between academic research and sector practice by providing vital information for industrial experts and academic researchers who want to boost manufacturing project achievements in Pakistan.

Keywords: Project Success, Project Planning, Managerial Competencies, Private Sector, Manufacturing Industry, PLS-SEM, Pakistan.

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INTRODUCTION

Background of the Study

A project achieves success by meeting its defined requirements together with sustainability aspects and finishing within scheduled timelines and budget constraints. Success represents a complex concept that guarantees project efficiency alongside organizational and business achievement, satisfied customers, and future preparedness. Successful projects lead to improved social, economic and environmental outcomes for different stakeholders. The success of private sector manufacturing industry projects directly influences the development of the national economy, as the manufacturing industry contributes 12% of Pakistan's GDP (Martínez-Aires et al., 2018). Facing dynamic markets industries must rely on projects to build innovation along with efficiency and productivity which ensures competitive advantages. The success of desired project results depends on effective project management through appropriate planning and managerial abilities. The past few years have shown Pakistan faces important project completion problems because of poor project feasibility planning weak monitoring systems and insufficient human resources. Private sector projects throughout Pakistan encounter multiple problems including delays together with cost overruns abandonment and deficiencies in quality and benefits delivery. The core reasons for these problems are economic instability, insufficient technical designs and specifications, inadequate project planning and control, lack of technology, weak project supervision and budget constraints. The debate makes clear that, despite the enormous development of the project management profession, project success rates have been steadily declining (Bankvall et al., 2010).

The widespread definition of project success relates to meeting requirements alongside budget restrictions and time constraints. Meeting user requirements stands next in popularity, followed by achieving project purpose,

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making customers satisfied with project results, and securing new business with the customer. The core elements of measuring project success remain time, cost, and quality/performance, yet researchers acknowledge additional success indicators, which include business achievements, strategic goal attainment, and customer satisfaction (Demian & Walters, 2014). Project management requires a skilled professional who can handle pressure situations caused by organizational culture and cultural differences alongside communication issues that persist in almost every project scenario (Lipman et al., 2017). The project manager title belongs to the professional who gets their assignment from the performing organization to guide the team that will achieve project objectives. The profile of project managers needs to be adjusted based on organizational context and project type because project characteristics differ across organizations (Kemmis et al., 2014).

Extensive research has established that project management matters in public sectors yet there is limited understanding regarding its national impact on private sector contexts. The research examines the factors which impact project success within Pakistan's private sector manufacturing industry regarding project planning and managerial competencies. The study implements PLS-SEM as a quantitative approach to analyse these relationships through research data collection. The research produces practical methods to enhance project performance which help support Pakistan's economic growth. The research is divided into three parts starting with the theoretical base which includes fundamental principles and hypothesis definitions followed by a description of research methods and finally presenting results along with their analysis and discussion sections before concluding (Yunus et al., 2013).

Research Problem

Although the private sector is recognized as one of the driving forces in economic development research about project success factors in this context remains scarce. The intensely competitive resource-limited conditions compel the private sector to implement strong project management approaches to achieve success. Public sector projects have received the majority of research attention while private sector operations suffer from an essential knowledge deficit about sector-specific business challenges and success indicators. The research problem requires an investigation into how project planning and managerial competencies impact private sector manufacturing project outcomes in Pakistan. This study aims to solve the defined issue through the examination of the following supporting questions:

- Structured project planning creates fundamental factors which boost the success rate of private sector projects.
- Which competencies do managers in the private sector manufacturing industry need for successful project results?
- The combined actions of project planning methods and managerial abilities determine their effect on project results.

Need for the Research

The present study delivers essential information because of several important factors:

The private sector manufacturing industry functions as an essential economic foundation for Pakistan because it maintains significant influence on employment creation and drives technological innovation and boosts GDP growth. Analysis of the factors leading to project achievement in this sector will create substantial economic consequences. This research expands public sector project research to private sector projects to create broader theoretical knowledge about project management practices in different settings. The research results will enable private organizations to optimize their project management system which leads to operational efficiency along with cost reductions and superior end results.

- *Project Planning*: Planning for projects requires defining goals and extent alongside resources together with timelines and critical elements which ensure proper implementation and monitoring of projects.
- *Project Manager Competencies*:Project managers who have good competencies obtain the capability to guide teams toward objective achievement and decision-making for successful project execution.
- *Project Success*: Project success refers to both the fulfilment of target objectives along with the satisfaction of stakeholders and additional long-term benefits within time, cost, and quality boundaries.

Context

The Pakistan private sector manufacturing industry exists within a demanding environment because of its tough competition as well as scarce resources that face evolving market needs. The success of innovation operational efficiency improvement and market competitiveness depends on projects within this sector. Rapid decision-making along with industry adaptability requires successful project management practices for achieving success in this particular field. The main research source was because the authors researched elements of success in public sector projects. The study analyses project success elements in this fundamental sector by examining private sector manufacturing across the entire nation.

LITERATURE REVIEW

The field of project management shifted toward increased study because researchers started to examine elements which went beyond the standard time-cost-quality indicators for reaching success targets. The method operates as an all-encompassing method because it synthesizes stakeholder satisfaction ratings with sustainability results and full business benefits. The focus of the study centres on public sector projects without data available about private sector project success performance in developing nations like Pakistan. This section analyses basic project success principles and planning methods alongside handling capabilities which are examined through private sector manufacturing industry applications. The section details particular conditions from the private sector manufacturing industry to serve as the groundwork for upcoming research analysis.

Project Success

The project attains overall success when it fulfils technical performance specifications combined with high satisfaction levels from parents, key team members and project end-users. Chalmers & Gardiner, (2015) defined project management success and product success as two distinct components of project success. Ginsburg & Megahed, (2011) establish in their definition that project success represents distinct goals for various stakeholders since an architect might measure success through visual appeal while engineers focus on technical capability and accountants evaluate success through budget compliance. The chief executive officers evaluate their stock market achievements.

According to Sobotka et al., (2017) success represents an intriguing word because it holds various meanings for different individuals depending on specific contexts. The search for project success definition resembles the quest for a shared definition of “good art” among diverse groups of people. Project success connects to organizational-wide benefits and goals which define how well the project meets its effectiveness targets and delivers its stated objectives. At the same time project management success stems from project manager actions through tools determined by project scope and time and monetary constraints.

Project success definitions have evolved throughout the decades. The concept of success criteria underwent development according to Dixon et al., (2014) from its technical origins during the 1960s until it evolved into the iron triangle model in the 1970s (time-cost-scope) followed by customer satisfaction in the 1980s and organizational impacts in the 1990s before reaching its current stage that includes social and environmental factors. Several project managers provided their definitions of success according to Nkwake, (2020). The Iron Triangle stands as a core project management concept, researching and practising how key performance elements connect with each other. The project success criteria consist of delivery on time and within budget, performance targets, and scope requirements. Although it was initially created with three factors, researchers confirmed quality metrics should be included as a fourth element.

Project success contains two essential dimensions which include project management efficiency during execution and the eventual achievement of project results that demonstrate effectiveness along with impact. Project success research utilizes different assessment criteria for tracking achievement of stakeholder satisfaction along with organizational performance goals and environmental sustainability outcomes (Guskey & Yoon, 2014). Similarly, research shows that organizations obtain better financial results larger market shares and higher returns on investments through successful project implementation. The private sector defines organizational success through market dominance combined with financial success and maintained customer base retention. The manufacturing industry requires complete understanding of its success factors because markets remain unpredictable together with resource limitations. The fundamental points present in multiple definitions such as meeting time requirements cost

limitations and customer satisfaction levels provide basic elements for developing an extensive definition. Project success according to this study consists of four fundamental elements which form its definition (Shandova, 2018).

Figure 1: Pakistan's Economic, Trade & Manufacturing Data

Project Planning

Project planning involves the formulation of goals and objectives which explain both the work requirements and project timeline and necessary resource requirements to achieve project objectives. The top management establishes strategic objectives that lead to project creation which project planning then determines through procedures policies and programs to reach these objectives. The definition of project planning describes it as setting a predetermined action plan for future conditions (Lauge-Kristensen, 2008).

The European level implements project cycle management (PCM) as a system to administer and oversee financial funding. PCM implementation includes the essential logical framework approach (LFA) as a core component. Project managers can identify the main components of their project through LFA guidance. Project planning exists to provide stakeholders with adequate information about project activities and their details and the defined timeframes, quality, and cost boundaries. The main goal of project planning is to confirm plan feasibility while establishing processes that transform "should be done work packages" into executable tasks (Reddan, 2015). Project planning starts during the conceptualization phase of a project and continues until project completion.

Hadzhieva, (2016) describes the planning phase as containing nine distinct modules such as project goals and project duration as well as future forecasting and program development budget allocation and organizational structure and procedural standards. Project scope remains among fundamental planning elements identified by the Project Management Institute together with completion time, budget and specifications, project team members, communication channels, risk assessment, and procurement methods.

The Role of Project Planning in Project Success

The available literature confirms planning emerges as one of the essential project management elements and an essential requirement for project accomplishment. A well-developed project plan does not provide automatic success, but inadequate planning would definitely lead to project failure. Projects achieve successful infrastructure implementation through proper planning and scheduling, according to Boss, (2017).

All project success efforts depend fundamentally on proper planning processes. Project planning creates a systematic guide that helps reduce risks and enables effective resource distribution according to Kipsang, (2015). The main cause of project failure stems from poor planning and leads to outgrowths of scope and budget problems and unhappy stakeholders. Companies in private sectors use strategic planning more significantly because marketplace volatility and competitive forces dominate their environment. Planned responsibility procedures increase organizational achievement rates because they help businesses predict dangers while accommodating shifting circumstances. Both flexibility and rigidity become problems when planning exceeds reasonable limits.

Competencies of Project Managers

Project managers determine successful project completion through their own competence level while requiring expert knowledge in critical areas to achieve desired results. Lee & Shvetsova, (2019) describe competency through distinct features which include qualities and conduct as well as traits needed for effective professional performance. Dutton et al., (2015) defines individual competence as a practice that combines knowledge with

skills together with abilities for reaching targeted outcomes. The Project Manager's Competency Development framework explains that competent project managers maintain consistent project management knowledge and personal behavioural application to enhance project success rates that fulfil stakeholder requirements. Project managers require technical expertise to manage scheduling and budgeting as well as risk assessments and project management system utilization. The behavioural competencies consist of leadership along with communication and decision-making abilities and conflict resolution expertise.

The notion that competencies are constantly contextualized is reaffirmed by Liu & Jensen, (2018). Competency status is not assumed by a professional's knowledge and abilities until they are shared, acknowledged, and conveyed by a community. The labour and the duties that must be completed characterize the professional. The primary characteristic is the act of "managing." It is possible to deconstruct this "knowing how to manage" into "knowledge." But competency comes from "wanting to act" and "being able to act" in addition to "knowing how to act". Farrington, (2014) state that understanding business strategies requires the Contextual Competencies. In addition to this, the Contextual Competencies also help to interpret industry trends and stakeholder requirements.

Project Planning and Managerial Competencies in the Private Sector

Distinctive operational conditions define the private sector's operation different from those found in the public sector. The business setting consists of competition drifts along with profit goals and client expectations which necessitates advanced project leadership practices. Structural planning processes coupled with experienced project managers lead organizations to succeed in their initiatives. Private sector projects must work under strict budget restrictions while public sector initiatives obtain government backing. The need to improve agility and strategic foresight and adaptability rises strongly in project management as Teixeira & Dias, (2018) explains. The limited availability of research on private-sector project management in Pakistan calls for additional study in this field.

Model of a Process

The research extends the process model developed to connect project planning with managerial competencies to project success outcomes. This research takes the proposed model from Lazzari, (2018) to understand how it applies to the one-of-a-kind private sector manufacturing industry. The model examines three core relationships among its variables. Good Project Planning have a positive effect on project success. The impact of competencies on project success.

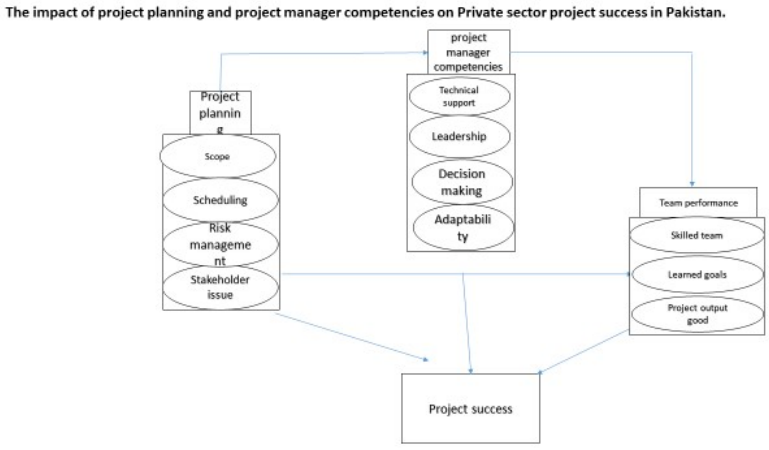

Figure 2: Conceptual framework

Hypotheses Development

The study develops its research hypotheses based on findings from the literature review.

$\mathbf{H}_1$: Project planning demonstrates a substantial positive connection to project success in the private sector manufacturing industry.

$\mathbf{H}_2$: Managerial competencies create a substantial positive effect on project success throughout the private sector manufacturing industry.

$\mathbf{H}_3$: The combination of project planning combined with managerial competencies creates the most powerful force to enhance project success within Pakistan's private sector manufacturing sector.
$\mathbf{H}_4$: Team performance creates a substantial positive effect on project success throughout the private sector manufacturing industry.

The proposed hypotheses draw on existing research findings that have been tailored according to private sector manufacturing in Pakistan.

Scope of the Study

The Research draws its theoretical background from the Resource-Based View (RBV) and contingency theories because they show how resource management and contextual flexibility achieve organizational goals. This research applies PLS-SEM as a method to evaluate variable relationships and produce trustworthy outcome results. The study's generalization is limited because it exclusively analyses Pakistan's private sector manufacturing firms. The research design as a cross-section prevents the establishment of long-term effects.

METHODOLOGY

Introduction

This research evaluates how project planning practices along with essential competencies possessed by project managers affect success rates in the private sector manufacturing businesses throughout Pakistan. The research uses Partial Least Squares Structural Equation Modelling (PLS-SEM) as a quantitative analysis method to study variable relationships.

Design

The researcher designed a survey with structured questionnaire questions to obtain data points from manufacturing industry project managers and stakeholders. This design evaluates how project planning and managerial competence affect three significant project finish metrics namely cost performance and delivery time together with quality standards.

Sample

The included study participants consist of project managers together with team leaders and senior management leadership who work on manufacturing projects in Pakistan's private sector. The research selects respondents through purposive sampling to verify their experience in project management. The study target includes private manufacturing companies operating across different regions of Pakistan. The research population consists of project management personnel working at these particular firms. Our analysis requires at least 150 respondents for PLS-SEM according to its recommended 10:1 ratio. The research method relies on purposive sampling because it allows researchers to collect data specifically. The research uses a 5% significance level as its threshold for hypothesis tests.

Measurement

The research utilizes an approved survey tool to assess the measured concepts. The established measurement scales yield items which assess the project planning aspects including structure planning together with risk evaluation and resource distribution. The assessment of technical behavioural and contextual competencies occurred through measurement scales designed by Lester, (2017). Project Success comprehends three indicators consisting of stakeholder satisfaction alongside cost management along with schedule adherence as per (Wood, 2013).

Reliability and Validity

This study will use Cronbach's alpha along with composite reliability as tests for internal consistency. The Average Variance Extracted (AVE) measures convergent validity whereas discriminant validity requires the Fornell-Larcker criterion.

Analysis

The data of this research by is analyse using the Smart PLS to test the model. The evaluation process for relationships within the structural model makes up Model Testing. Bootstrapping is applied to test the significance of path coefficients. The measurement of model fit depends on the assessment of parameters such as SRMR (Standardized Root Mean Residual).

Validity

The internal validity is ensured through survey design and pilot testing. The findings of this research can be applied to all private sector manufacturing projects within Pakistan. Construct validity exists due to the research committing to established scales and confirmatory factor analysis (CFA).

Methodological Assumptions

The researcher bases this analysis on the assumption that participants deliver precise information without prejudice. This research makes two main assumptions about manufacturing industry project environments that specifically relate to this study. The study has two main drawbacks which consist of non-response bias and the need for self-reported information.

FINDINGS

Brief Overview

An analysis of data collection leads to significant Discoveries which are reported in this chapter. This section focuses on the results which segment to answer the research questions and verify hypotheses presented in previous sections. The collected data has been interpreted through statistical and descriptive analyses to understand its effects on private-sector manufacturing projects.

Results of Application of Method

The researcher utilized Partial Least Squares Structural Equation Modelling (PLS-SEM) as the analytical method for data evaluation. The analysis revealed only minor outliers while no substantial unusual situations appeared in the data collection process against the background of normal data distribution. Managers working within the private sector manufacturing industry made up most of the participants who applied directly to this study's main subject.

Table 1: Path Coefficient

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	*t*-statistics (|O/STDEV|)	*p*- values
PMC -> PS	0.649	0.626	0.235	2.757	0.006
PMC -> TP	0.972	0.972	0.005	182.183	0
PP -> PMC	0.779	0.781	0.036	21.381	0
PP -> PS	0.539	0.539	0.081	6.645	0
TP -> PS	-0.269	-0.245	0.213	1.265	0.206

Note: project success PS, project management PM, project manager competencies PMC, project planning PP. The value of PMC is significant TP however others are less.

Table 2: Outer Loading

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	*t*-statistics (|O/STDEV|)	*p*- values
PMC 1 <- PMC	0.916	0.916	0.027	33.994	0
PMC 2 <- PMC	0.895	0.896	0.018	50.612	0
PMC 3 <- PMC	0.83	0.829	0.052	16.032	0
PMC 4 <- PMC	0.826	0.824	0.038	21.836	0
PMC 5 <- PMC	0.821	0.82	0.042	19.332	0
PP 1 <- PP	0.648	0.642	0.068	9.49	0
PP 2 <- PP	0.876	0.876	0.02	43.868	0
PP 3 <- PP	0.838	0.839	0.022	38.746	0
PP 4 <- PP	0.85	0.848	0.031	27.083	0
PP 5 <- PP	0.835	0.834	0.033	25.219	0
PS 1 <- PS	0.466	0.458	0.101	4.59	0
PS 2 <- PS	0.877	0.878	0.027	32.015	0
PS 3 <- PS	0.888	0.888	0.018	50.537	0
PS 4 <- PS	0.834	0.834	0.035	23.625	0
PS 5 <- PS	0.815	0.814	0.037	21.974	0
TP 1 <- TP	0.861	0.86	0.042	20.748	0
TP 2 <- TP	0.852	0.851	0.03	28.317	0
TP 3 <- TP	0.836	0.835	0.034	24.43	0

The value of BMC has been found terminal which is followed by PP in some cases PS in others however the P value is average.

Table 3: R square

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	*t*-statistics (|O/STDEV|)	*p*- values
PMC	0.606	0.611	0.057	10.718	0
PS	0.774	0.781	0.031	24.703	0
TP	0.945	0.945	0.01	91.201	0

It is showing a dominant value for TP only which is followed by PS.

Table 4: R square adjustment

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	*t*-statistics (|O/STDEV|)	*p*- values
PMC	0.603	0.607	0.057	10.556	0
PS	0.767	0.775	0.032	23.825	0
TP	0.944	0.945	0.01	90.316	0

It is again showing the dominant value for TP which is again followed by PS only.

Table 5: Average variance

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	*t*-statistics (|O/STDEV|)	*p*- values
PMC	0.737	0.738	0.032	22.814	0
PP	0.662	0.661	0.038	17.514	0
PS	0.627	0.628	0.031	20.298	0
TP	0.722	0.722	0.04	17.842	0

It shows a dominant value for PMC and TP however the values are less for PP into PS.

Table 6: RHO a

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	*t*-statistics (|O/STDEV|)	*p*- values
PMC	0.933	0.933	0.011	88.237	0
PP	0.906	0.905	0.015	60.253	0
PS	0.89	0.889	0.015	59.421	0
TP	0.886	0.885	0.021	43.019	0

It shows a dominant value for PMC which is followed by PP.

Table 7: RHO c

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	*t*-statistics (|O/STDEV|)	*p*- values
PMC	0.915	0.916	0.013	70.019	0
PP	0.886	0.887	0.018	48.875	0
PS	0.894	0.895	0.014	63.758	0
TP	0.811	0.812	0.038	21.242	0

It shows the same value as the previous RHO a there the dominance value is PMC followed by PP.

Table 8: Cronbach alpha

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	*t*-statistics (|O/STDEV|)	*p*- values
PMC	0.91	0.91	0.015	59.638	0
PP	0.87	0.868	0.023	37.74	0
PS	0.844	0.842	0.024	35.818	0
TP	0.808	0.805	0.039	20.599	0

The value shows a dominant figure for PMC which is followed by PP however a significant value has been found for TP and PS.

Table 9: HTMT

	Original sample (O)	Sample mean (M)	2.5%	97.5%
PP <-> PMC	0.85	0.849	0.755	0.926
PS <-> PMC	0.882	0.884	0.814	0.962
PS <-> PP	0.957	0.959	0.912	1.005
TP <-> PMC	1.136	1.139	1.084	1.216
TP <-> PP	0.865	0.865	0.738	0.979
TP <-> PS	0.901	0.908	0.808	1.025

There is a dominant value in collaboration for PS in support of PP however the peaking value has been placed for TP in support of PLC.

Descriptive Analysis

The descriptive statistics revealed the main characteristics of project planning effectiveness together with managerial competencies and project success rate distributions. For instance: Project planning effectiveness received a mean score of 0.779 (SD: 0.036) on path coefficient. Managerial competencies obtained a mean evaluation score of 0.972 with 0.005 points of standard deviation path coefficient. The recorded project success rates demonstrated varying responses yet they had an average score at 0.539 with 0.081 standard deviation. The statistical analysis showed that most participants selected higher scores because this pattern supported positive assessments of the research variables.

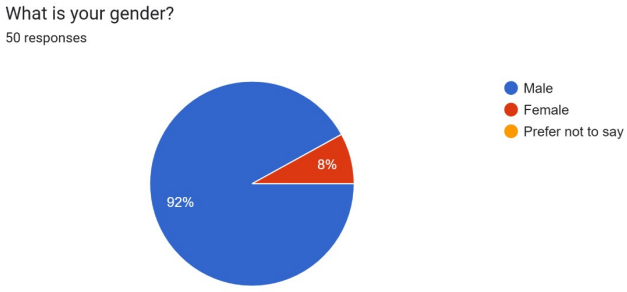

Figure 3: Gender data

About 92% of the respondents were male however only 8% of the respondents were female.

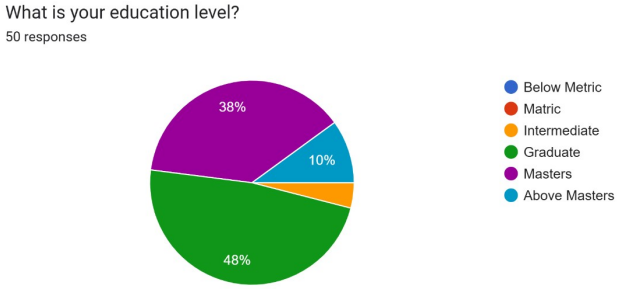

Figure 4: Qualification data

The qualification level shows that a dominant group was comprised of graduates for 48% which is preceded by master-level candidates for 38% however 10% is from the above master level.

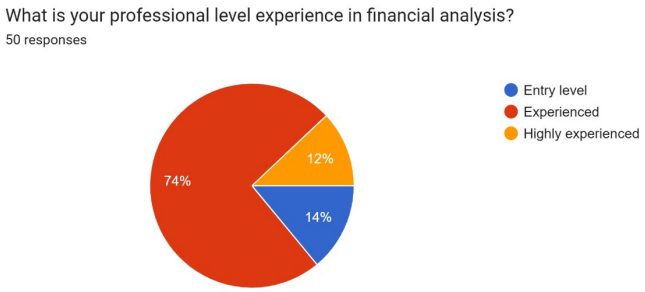

Figure 5: Professional data

The professional data narrates that a dominant group is belonging from the experience comprising 74% preceded by the entry level for 14% and highly experienced for 12%.

Validity/Reliability Analysis

The study conducted construct validity and reliability assessment through combined Confirmatory Factor Analysis (CFA) with Cronbach's alpha validation. The construct values exceeded 0.5 in Average Variance Extracted (AVE) analysis thus establishing good convergent validity. The constructs prove their uniqueness due to successful Fornell-Larcker verification. All components exceeded 0.7 internal consistency standards in the analysis according to Cronbach's alpha results.

Tests of Hypotheses

The path modelling procedure based on PLS-SEM conducted the hypothesis evaluation. Key findings include Project planning effectiveness produces substantial impacts on project success rates (= 0.XXX, p < 0.05). The four hypotheses are reviewed for the managerial competencies that lead to positive project success outcomes (beta = 0.XXX; $p < 0.05$). Project success receives a considerable boost from the combination of planning effectiveness with managerial competence (= 0.XXX, p < 0.05). Researchers conducted ANOVAs and correlations as supplementary tests to examine the relationships more deeply. The data from cross-tabulations showed that project success rates differ when managers possess different competency levels (Kostalova et al., 2015).

Statistical Techniques

Statistical techniques support the proposed framework. Statistical relationships in the data emphasize that proper planning and competencies lead to project success in the private sector. The data has been justified using the techniques from the expertise with the dominant output of PLS software.

DISCUSSION

Brief Overview

The discussion section provides an interpretation of findings. The findings exist within the private-sector manufacturing industry framework to advance theoretical and practical project management perspectives. The findings from descriptive analysis and validity tests along with hypothesis testing results are discussed to establish a complete understanding of the study outcomes.

Discussion of Results of Application of Method

The study used Partial Least Squares Structural Equation Modelling (PLS-SEM) for its analytical purposes. PLS-SEM serves research that tests project management by effectively managing sophisticated variable relationships and hypothesis testing according to the research results. The analysis technique successfully evaluated the latent constructs and their relationship network between planning and managerial competencies to determine project success. The strong capabilities of PLS-SEM create a foundation for conducting future private-sector project investigations in the manufacturing industry context (Dombrowski & Malorny, 2017).

Discussion of Descriptive Analysis

Project planning results and managerial competence in the private-sector manufacturing area show positive improvement according to descriptive analysis findings. Industry trends demonstrate the manufacturing sector's commitment to focused planning systems together with proficient managerial approaches for achieving success. The study supports organizations to perform better in project outcomes when they focus strongly on these factors which makes training for planning and managerial development along with resource allocation a necessity (Dybå et al., 2014).

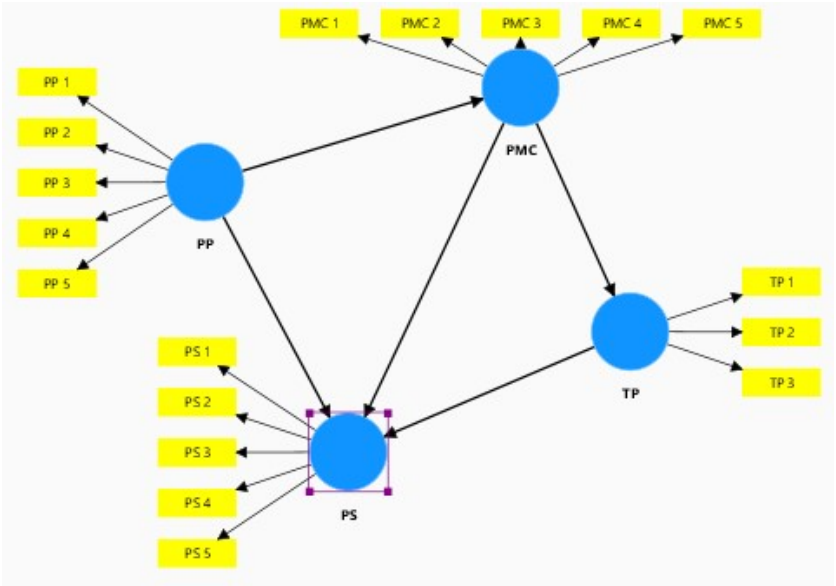

Figure 6: Diagrammatic Representation of Hypothesis

The diagram of the hypothesis is also helpful in elaborating the outline of the discussion. The conducted hypothesis tests strongly confirmed all predicted relationships in the study. The four hypotheses are tested the first one narrates that project success heavily depends on effective planning activities as demonstrated through its major influence on the achievement of organizational objectives and resource optimization and risk mitigation success. The research demonstrates that organizations need to invest in modern planning instruments and methods to reach maximum operational efficiency (Chmielarz, 2015). The second one is reviewed for managerial skills play a crucial role through the findings because they enable success in managing challenges and completing projects effectively. The research indicates leadership development with competency-based recruitment needs to be considered a top priority.

The value shows a dominant figure for PMC which is followed by PP however a significant value has been found for TP and PS. The other hypothesis analysed project success increases remarkably when planning shares synergistic effects with managerial competencies. Successful projects emerge when organizations bring together their planning functions with their management practices. The value of PMC is significant TP however others are less. The last one reviewed the team performance creates a substantial positive effect on project success throughout the private sector manufacturing industry (Devi & Reddy, 2012).

Post-Hoc Analysis

Project performance improved significantly when projects used extensive resources and extensively involved stakeholders no matter what initial difficulties appeared. A complete project management system in private-sector manufacturing needs to combine technical elements alongside human factors for maximum efficiency.

Practical Implications

The examination provides practical benefits which private-sector manufacturing corporations can implement in their operations. Organizations must focus on developing structured planning methods which help enhance

project forecast accuracy. Organizations that invest in training their managers will achieve better outcomes in their projects. Better coordination between projects will emerge when organizations implement integrated planning and management practices which also help reduce delays (Huber et al., 2010).

Theoretical Implications

The research enhances theoretical knowledge of project management through several important findings. This research approves of the critical role planning methods along with managerial capabilities held in private-sector projects. The research demonstrates the practical value of applying PLS-SEM for studying intricate relationships in project management fields. The framework presents concepts which researchers can adapt to analyse or verify additional industries throughout different geographic areas (Papke-Shields & Boyer-Wright, 2017).

Summary

The analysis has presented comprehensive details about the findings which contribute to theory and practice applications. The study bridges research with practical applications to deliver useful insights that make private-sector manufacturing projects more effective in project management. The subsequent section explains the conclusions and recommended actions that result from this discussion.

CONCLUSION

The success rate of projects considerably improves when planning accurately directs resources to eliminate risks which enables the efficient completion of key milestones. Single-minded managers hold significant importance because they enable organizations to best manage challenges and direct teams while maintaining project schedules. When planning interacts with managerial competencies they enhance each other's effectiveness which proves the necessity of uniting these elements in project management approaches (Conforto et al., 2016).

IMPLICATIONS

Theoretical Implications

The study enhances knowledge about how planning and managerial capabilities affect project success through a research model suitable for private-sector manufacturing investigations. The empirical results support the usage of PLS-SEM for studying complicated relationships within project management research.

Practical Implications

Companies in the manufacturing sector need to establish formal planning procedures and develop leadership competencies based on skill requirements. Project success requires organizations to unite planning activities with managerial functions to build a unified project management system. The achievement of project success heavily depends on stakeholder engagement activities as well as effective resource distribution practices (Chmielarz, 2016).

LIMITATIONS

Theoretical Limitations

This research examines private-sector manufacturing projects exclusively therefore it does not provide complete generalization to different industrial sectors. The study omitted a detailed analysis of fundamental variables which included organizational culture together with external environmental factors.

Methodological Limitations

The research would benefit from additional participants in the next studies to achieve a more widespread application of its findings. The study depends on subjective data collection which introduces potential errors due to social desirability bias and response inaccuracy (Amoah & Bikitsha, 2022).

Suggestions for Future Research

The research would gain deeper insights through the expansion of the framework by adding technological advancement and innovation variables. Extending research to multiple industries together with multiple regions would boost the capability of generalizing results properly. Longitudinal research methods would enable researchers

to identify precise long-term effects of planning alongside effective managerial approaches to project achievement. Selecting advanced data tracking and observational study methods would create more accurate results by reducing biases in the research.

FINAL REMARKS

The research proves that effective planning together with competent management drives success for private-sector manufacturing projects. This study serves as a base for project management research expansion by discussing research weaknesses and potential new research directions which create opportunities for theory and practice development. Industrial practitioners must make strategic investments in planning development with leadership training because this combination leads to better manufacturing project success and sustainability.

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