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Chapter Three

Methodology and Procedures

1. Research Methodology

1.1. Introduction

The methodology of any research serves as the foundation that guides the process of inquiry, data collection, and analysis in alignment with the study's objectives. For the present study, which seeks to investigate *the impact of Project Management Offices (PMOs) on strategic planning in the Saudi private sector*, a quantitative research methodology has been adopted. This choice stems from the study's objective of empirically measuring and analyzing relationships between organizational variables—specifically, the functions and characteristics of PMOs and their influence on strategic planning outcomes. Quantitative methodology allows the researcher to transform conceptual and theoretical propositions into measurable constructs, facilitating statistical testing of hypotheses and enabling generalization of results to a wider population. According to (Creswell, 2018), the quantitative approach is best suited for studies that aim to explain phenomena through numerical data and objective statistical analysis. Hence, this method ensures that the findings are not based merely on subjective interpretation but are supported by verifiable and replicable evidence.

1.2. Justification for the Quantitative Approach

The decision to employ a quantitative methodology is grounded in the nature of the research problem and its objectives. The core aim of this study is to determine the extent to which PMOs contribute to the effectiveness of strategic planning in private sector organizations in Saudi Arabia. Addressing this aim requires quantifiable data that can reveal the degree and direction of relationships between defined variables, such as PMO structure, maturity level, strategic alignment, and organizational performance. Quantitative research allows for hypothesis testing using statistical tools that objectively evaluate these relationships. As (Saunders, 2019) suggest, when a research question seeks to assess the strength of associations between measurable constructs, the quantitative paradigm provides greater analytical precision than qualitative approaches. Furthermore, this approach enhances the reliability and validity of findings by minimizing researcher bias, providing

replicable procedures, and enabling the comparison of data across different organizations and sectors.

1.3. Research Approach: The Deductive Method

This study adopts the deductive scientific approach, which proceeds from general theories to specific empirical testing. The deductive method begins with theoretical propositions derived from prior literature on project management, organizational strategy, and performance measurement, and then seeks to test these propositions in the context of Saudi private enterprises. The researcher formulates hypotheses based on established frameworks such as the Project Management Institute's (PMI) model of PMO maturity and strategic alignment theories, and then gathers quantitative data to confirm or refute these hypotheses. The deductive method is appropriate for this study because it aligns with the positivist paradigm, which assumes that social phenomena can be measured objectively and that causal relationships between variables can be identified through statistical testing (Bryman, 2016). By employing this approach, the study ensures logical coherence between theory, research design, and empirical analysis.

1.4. Research Design

The research adopts a descriptive and correlational design within the quantitative framework. The descriptive aspect aims to present a clear picture of the current status, roles, and characteristics of PMOs operating in Saudi private sector organizations. It describes how these offices are structured, the functions they perform, and the degree to which they are integrated into the organizations' strategic management processes. The correlational aspect, on the other hand, focuses on identifying and measuring the relationships between PMO characteristics (independent variables) and strategic planning effectiveness (dependent variable). This design enables the researcher to test whether the existence and maturity of PMOs significantly influence strategic planning performance, and to what extent. Importantly, this design does not manipulate variables but rather observes them as they naturally occur within organizations, thus maintaining ethical and practical feasibility for field research in a corporate environment.

1.5. Data Collection Methods

Data for this study will be collected using a structured questionnaire survey, which is the most common and effective instrument in quantitative research for collecting standardized data from a large population. The questionnaire will be designed based on validated instruments used in prior studies on PMOs, project management maturity, and strategic planning effectiveness, ensuring that the constructs measured are both reliable and valid. The survey will consist of closed-ended questions and Likert-scale items that capture participants' perceptions of PMO roles, strategic alignment, and organizational outcomes. The target population will include project managers, PMO directors, strategic planners, and senior managers working within selected private sector organizations in Saudi Arabia. Data collection will be conducted electronically and, where necessary, through field distribution to maximize response rates and ensure a representative sample across industries such as construction, information technology, and manufacturing.

1.6. Data Analysis Procedures

After data collection, the responses will be encoded and analyzed using statistical software such as SPSS or SmartPLS. The analysis will begin with descriptive statistics to summarize demographic data and general trends in PMO characteristics. Subsequently, inferential statistical techniques such as correlation analysis, multiple regression, and possibly structural equation modeling (SEM) will be employed to test the hypotheses and evaluate the strength and direction of relationships between variables. These methods enable the researcher to determine whether PMO practices significantly predict the effectiveness of strategic planning and to identify which PMO functions contribute most to strategic success. The rigorous statistical analysis enhances the reliability of findings and allows for evidence-based conclusions that can inform managerial practice and policy decisions in the Saudi private sector.

1.7. Suitability of the Methodology to the Research Problem

The chosen quantitative methodology is particularly suitable for this research because it aligns with the study's objective of providing empirical evidence on the relationship between PMOs and strategic planning outcomes. In a context such as the Saudi private sector—where organizations are increasingly adopting structured management practices in pursuit of Vision 2030 objectives—quantitative analysis offers a systematic and objective means of evaluating how PMOs contribute to strategic alignment and performance. By quantifying perceptions and practices across a diverse sample, the study is able to generalize its findings and offer actionable insights to both scholars and practitioners. Moreover, the methodological choice is supported by established research literature in project management and organizational studies, affirming that quantitative methods are most effective for investigating relationships between managerial variables that can be operationalized and measured (Kerzner, 2017).

In alignment with the methodological rigor required for quantitative research, the sample size for this study will be set between 300 and 500 respondents. This range is considered statistically robust for detecting relationships between PMO functions and strategic planning effectiveness across multiple sectors. A sample of this size ensures sufficient power for advanced statistical analyses, such as regression modeling and structural equation modeling, while also accommodating potential non-response rates commonly encountered in organizational surveys. Moreover, a sample of 300–500 participants allows for meaningful comparisons across key strata—such as industry type, organizational size, and PMO maturity level—thereby enhancing the reliability and generalizability of the findings. This sample size is also consistent with best practices in management and organizational research, ensuring that the results accurately represent the diverse perspectives of PMO and strategic planning professionals within the Saudi private sector.

2. Defining the Research Population and Sample

The research population for this study comprises organizations within the Saudi private sector that have established or are in the process of establishing Project Management Offices (PMOs). This includes a wide range of industries such as construction, information technology, telecommunications, manufacturing, finance, and services, as these sectors are among the most active in adopting structured project management practices in alignment with Saudi Arabia's Vision 2030 initiatives. The population includes key professional roles directly involved in project governance and strategic decision-making—such as PMO directors, project managers, portfolio managers, strategic planners, and senior executives. This population is appropriate because it encompasses those individuals and organizations most capable of providing informed perspectives on the integration of PMO practices into strategic planning processes. The research findings, therefore, are intended to be generalizable to similar private sector organizations operating under comparable economic and organizational conditions within Saudi Arabia.

The research sample will be drawn using a stratified random sampling technique, ensuring that different sectors and organizational sizes are adequately represented. This method enhances the representativeness of the sample and reduces sampling bias by dividing the population into relevant strata—such as industry type, organization size, and PMO maturity level—before randomly selecting participants from each group. A sample size sufficient for quantitative statistical analysis will be determined using established formulas based on the total estimated population of Saudi private sector firms with active PMOs. Data will be collected from a targeted number of respondents across various regions of the Kingdom, including Riyadh, Jeddah, and the Eastern Province, to capture geographic and sectoral diversity. By selecting respondents who are directly engaged in both project management and strategic planning, the sample ensures that the data collected accurately reflects the realities of PMO practices and their impact on strategic planning in the Saudi private sector, thereby reinforcing the validity and generalizability of the study's results (Makwana, 2023).

3. Developing Data Collection Instruments

3.1. Introduction

The process of developing data collection instruments is one of the most crucial stages in the research methodology, as the quality and accuracy of collected data depend largely on the appropriateness and validity of the instruments used. In this study, which adopts a quantitative research methodology, the primary goal is to collect objective, measurable data that can be statistically analyzed to test the proposed hypotheses about the relationship between Project Management Offices (PMOs) and strategic planning effectiveness in the Saudi private sector. Therefore, the instrument must be carefully developed to ensure that it accurately reflects the theoretical framework and operational definitions of the study's variables. Considering the nature of this research and its emphasis on quantifiable analysis, a structured questionnaire is selected as the main data collection instrument. This choice aligns with the quantitative nature of the study and enables the systematic collection of consistent data from a large number of participants across various industries.

3.2. Rationale for Choosing the Questionnaire

The questionnaire is chosen because it is one of the most widely used quantitative research instruments for collecting standardized data efficiently from a large and geographically dispersed population. Given that this study targets professionals such as PMO directors, project managers, and strategic planners within Saudi private sector organizations, the questionnaire offers an effective means of gathering their perspectives without requiring extensive time or physical presence. As noted by (Creswell, 2018), questionnaires are suitable for research that seeks to measure attitudes, perceptions, and relationships between variables, particularly when the goal is to generalize results to a wider population. Additionally, the use of closed-ended, Likert-scale questions allows for easy quantification of responses, which facilitates the use of statistical analysis methods such as correlation, regression, and factor analysis. This makes the questionnaire not only practical but also scientifically robust for testing the study's hypotheses.

3.3. Steps in Developing the Questionnaire

The development of the questionnaire follows a systematic process to ensure that it accurately captures all relevant aspects of the study variables. First, the dimensions and indicators of each variable—such as PMO functions, governance, maturity level, strategic alignment, and planning effectiveness—are identified based on an extensive review of the literature and existing theoretical models. Second, items (questions) are constructed for each variable to reflect measurable aspects of these dimensions. The questionnaire will consist of several sections: (1) demographic and organizational information, (2) characteristics and structure of the PMO, and (3) elements of strategic planning and its effectiveness. Each item will be measured using a five-point Likert scale, ranging from “strongly disagree” (1) to “strongly agree” (5). This scaling technique enables respondents to express varying degrees of agreement, ensuring more nuanced and analyzable data. Lastly, the instrument will be formatted for clarity and simplicity, using concise language suitable for managerial and professional respondents.

3.4. Ensuring Validity and Reliability

To guarantee the scientific soundness of the questionnaire, both validity and reliability will be rigorously examined. Content validity will be established through expert review, where a panel of academic specialists in project management and strategic planning, as well as professional practitioners in the Saudi private sector, will assess the instrument's items to ensure they appropriately represent the study constructs. Construct validity will be verified through statistical analysis, particularly exploratory factor analysis (EFA), to confirm that the items group logically according to the theoretical dimensions they are intended to measure. Reliability will be evaluated using Cronbach's alpha coefficient, which assesses internal consistency among the questionnaire items. A coefficient value equal to or greater than 0.70 will be considered acceptable, indicating that the instrument consistently measures the intended constructs across respondents.

3.5. Pilot Testing of the Instrument

Before administering the questionnaire to the main study sample, a pilot study will be conducted using a small, representative group drawn from the same population but not included in the main survey. The purpose of the pilot test is to evaluate the clarity, comprehensibility, and timing of the questionnaire, as well as to identify any ambiguous or confusing items. The pilot data will also be used to recheck the psychometric properties—specifically validity and reliability—of the questionnaire within the Saudi organizational context. Any necessary modifications will then be made to improve the wording, sequencing, or scaling of the items. Conducting a pilot study ensures that the final instrument is both linguistically and culturally appropriate for the Saudi private sector environment, thus enhancing the credibility and accuracy of the data collected in the main study.

4. Defining the study variables

4.1. Introduction

In quantitative research, clearly defining and operationalizing study variables is essential for ensuring the precision, measurability, and relevance of the research. Variables are the elements of the study that are expected to influence or be influenced by other factors, and they form the foundation for hypothesis testing and statistical analysis. In the present study, which investigates *the impact of Project Management Offices (PMOs) on strategic planning in the Saudi private sector*, variables are classified into independent variables—those that represent PMO characteristics and organizational culture—and dependent variables, which capture the outcomes of strategic planning and organizational performance. Accurately identifying these variables allows the researcher to examine causal relationships, test theoretical assumptions, and draw evidence-based conclusions relevant to both academic understanding and practical management applications.

4.2. Independent Variables

The study focuses on three main independent variables, each representing critical dimensions of PMO influence and organizational practices:

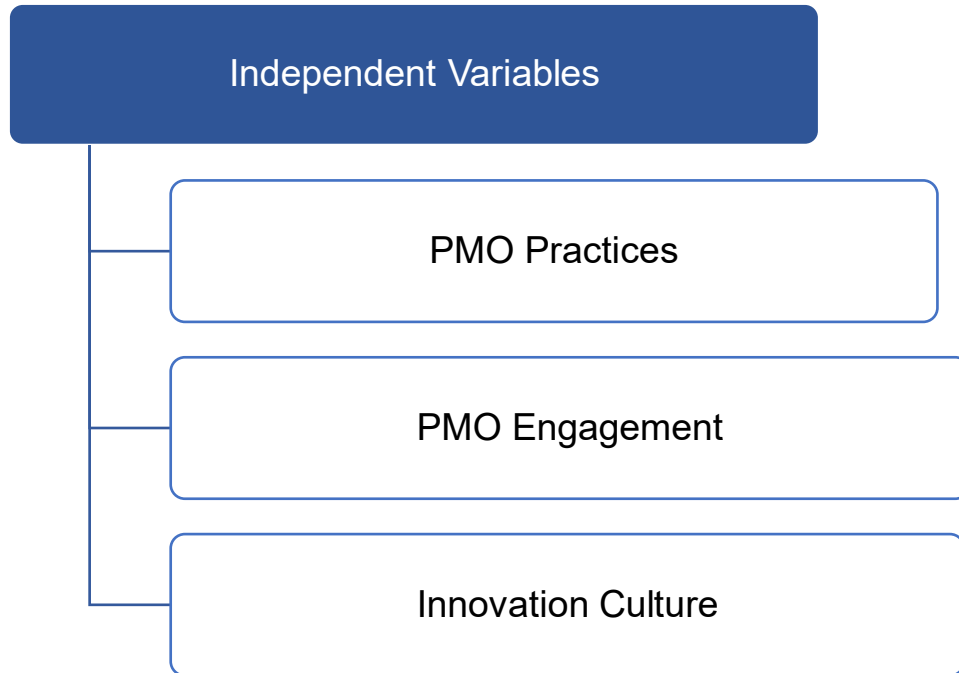


Figure 1: Independent Variables

1. **PMO Practices:** This variable captures the formal processes and operational frameworks that PMOs implement to guide project selection, prioritization, and alignment with organizational strategy. Key components include portfolio prioritization, which ensures that resources are allocated to projects that maximize strategic value, and strategic framework utilization, which involves the consistent application of structured methodologies to link project objectives with overall business strategy.
2. **PMO Engagement:** This variable reflects the extent to which PMOs actively involve stakeholders and communicate effectively throughout the project lifecycle. It includes stakeholder involvement, ensuring that key decision-makers, team members, and external parties are integrated into planning and monitoring processes, and communication, which encompasses transparency, timely reporting, and information sharing that facilitates strategic alignment.

3. **Innovation Culture:** Recognizing that organizational culture can enhance or inhibit strategic performance, this variable measures the degree to which organizations foster innovation within PMO operations. It includes Agile methodologies, which enable flexibility and responsiveness in project execution, and innovation programs, which encourage creative problem-solving, continuous improvement, and the generation of new ideas that can enhance strategic outcomes.

4.3. Dependent Variables

The dependent variables capture the outcomes that the study aims to explain and evaluate, reflecting the effectiveness of PMO operations in achieving strategic objectives:

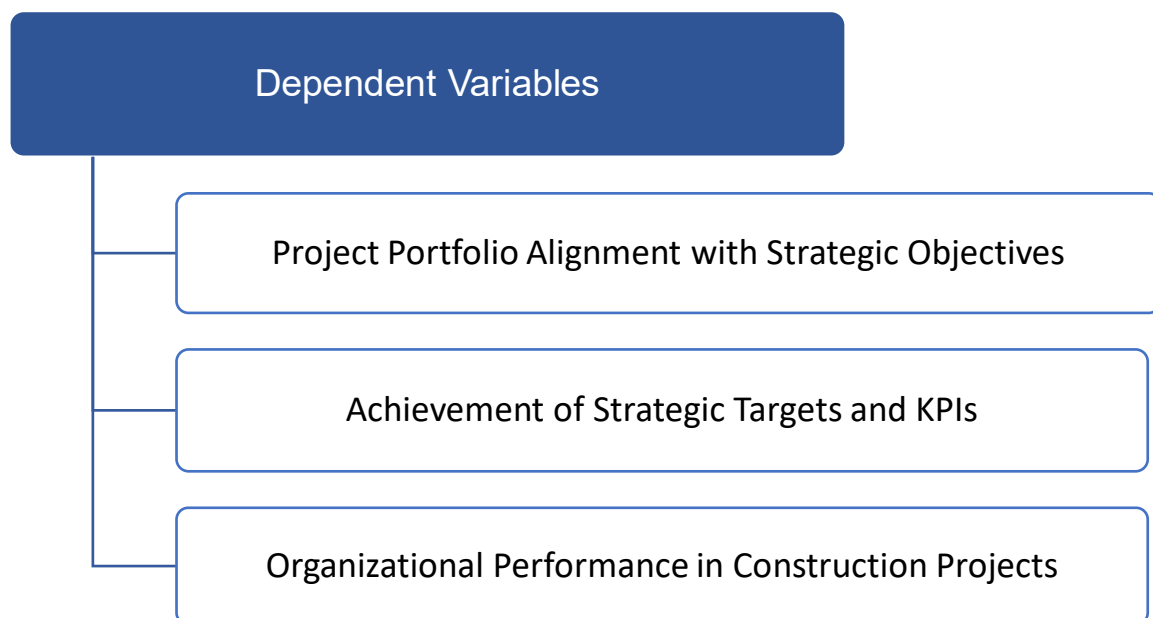


Figure 2: Dependent Variables

1. **Project Portfolio Alignment with Strategic Objectives:** This variable assesses how well the organization's portfolio of projects corresponds with its strategic goals. A high level of alignment indicates that PMOs successfully prioritize and manage projects in a way that supports the long-term vision and objectives of the organization.

2. **Achievement of Strategic Targets and KPIs:** This variable measures the extent to which organizations meet predefined strategic targets and key performance indicators (KPIs). It provides a tangible assessment of how PMO practices and engagement contribute to goal attainment at both departmental and organizational levels.
3. **Organizational Performance in Construction Projects:** Given the focus on the Saudi private sector, particularly in industries such as construction, this variable captures the operational and financial outcomes of projects under the PMO's governance. It includes metrics related to cost efficiency, schedule adherence, quality of deliverables, and overall project success, serving as a practical indicator of PMO effectiveness in translating strategic planning into measurable results.

4.4. Operationalization of Variables

Each variable will be operationalized through measurable indicators and captured using the structured questionnaire described in previous sections. For example, PMO Practices will be assessed through items measuring the frequency, rigor, and effectiveness of portfolio prioritization and strategic framework application. Similarly, Project Portfolio Alignment will be measured through Likert-scale items reflecting managers' perceptions of how well individual projects support strategic objectives. By clearly defining and operationalizing these variables, the study ensures that all constructs are quantifiable, comparable, and suitable for statistical analysis, which enhances the validity and reliability of the findings.

5. Determining the study implementation procedures

5.1. Introduction

Defining the implementation procedures of a study is essential for ensuring that the research is conducted systematically, consistently, and in a way that guarantees the accuracy and reliability of the results. Implementation procedures outline the step-by-step process for executing the study, including the collection, organization, and analysis of data. In quantitative research, such as this study examining the impact of Project Management

Offices (PMOs) on strategic planning in the Saudi private sector, clearly defined procedures help maintain methodological rigor, ensure ethical compliance, and provide transparency for replication or verification by other researchers. These procedures encompass preparing the research instruments, selecting the sample, collecting data, and applying statistical analysis methods.

5.2. Preparatory Phase

The first stage of implementation involves preparing all necessary research materials and tools. This includes finalizing the structured questionnaire, ensuring its validity and reliability through expert review and pilot testing, and obtaining any necessary permissions from organizations that will participate in the study. In this phase, the researcher also prepares detailed guidelines for participants to ensure they understand the purpose of the study, the confidentiality of their responses, and the instructions for completing the questionnaire. Additionally, the researcher identifies and trains any assistants who may be involved in distributing or collecting the instruments, guaranteeing consistency in the administration of the questionnaire across all selected organizations.

5.3. Data Collection Procedures

The second stage involves the actual data collection from the selected sample of participants. The sample is drawn using a stratified random sampling method to ensure that organizations of different sizes, industries, and geographic locations are adequately represented. The researcher distributes the questionnaires to targeted participants, primarily PMO directors, project managers, strategic planners, and senior executives, using both digital and physical formats to maximize response rates. Clear instructions and deadlines are provided to participants, and follow-up reminders are issued as needed. During data collection, the researcher ensures ethical compliance, including obtaining informed consent, guaranteeing anonymity, and safeguarding the confidentiality of the data collected.

5.4. Data Preparation and Organization

Once the questionnaires are collected, the third stage focuses on preparing the data for analysis. This includes reviewing the responses for completeness and consistency, coding the responses numerically (especially for Likert-scale items), and entering the data into statistical software such as SPSS or R. Missing or inconsistent responses are addressed through predefined handling methods, such as imputation or exclusion, depending on their nature and frequency. The researcher also performs initial descriptive checks to verify the distribution of responses, detect outliers, and ensure that the data is suitable for further statistical analysis.

5.5. Data Analysis and Interpretation

The fourth stage involves applying statistical techniques to analyze the collected data in order to test the study hypotheses. Descriptive statistics, such as means, frequencies, and standard deviations, are used to summarize the data and provide an overview of participants' responses. Inferential statistical methods, such as correlation, regression, and factor analysis, are employed to examine relationships between the independent variables (PMO practices, PMO engagement, and innovation culture) and the dependent variables (project portfolio alignment, achievement of strategic targets, and organizational performance). These procedures allow the researcher to determine the magnitude, direction, and significance of the impact of PMOs on strategic planning outcomes in the Saudi private sector.

5.6. Reporting and Documentation

The final stage of implementation involves documenting and reporting the results. This includes preparing tables, charts, and graphs to present statistical findings clearly and logically. The researcher interprets the results in light of the research objectives, theoretical framework, and previous literature, highlighting key patterns, relationships, and practical implications for PMO implementation and strategic planning in the Saudi private sector. Additionally, the researcher ensures that all stages of the study—from data collection to analysis—are documented to enhance transparency, reproducibility, and credibility of the research findings.

6. Designing the study and conducting the statistical analysis

6.1. Study Design

The current study employs a quantitative, descriptive-correlational research design aimed at examining the impact of Project Management Offices (PMOs) on strategic planning within organizations in the Saudi private sector. A descriptive design is appropriate because it allows the researcher to systematically describe the characteristics of PMO practices, engagement, and innovation culture as observed in real organizational settings, without manipulating the study environment. At the same time, a correlational design is utilized to investigate the relationships between independent variables (PMO practices, PMO engagement, and innovation culture) and dependent variables (project portfolio alignment, achievement of strategic targets and KPIs, and organizational performance in construction projects). This design is suitable for studies that aim to explore associations and predict outcomes, as it provides insight into both the direction and strength of relationships between organizational practices and strategic performance indicators.

The study design also reflects a field study approach, where data is collected directly from professionals and managers in the Saudi private sector. This ensures that findings are grounded in real-world organizational contexts, enhancing the practical relevance and applicability of the results. By combining descriptive and correlational components, the study design allows for a comprehensive understanding of how PMO characteristics and organizational culture influence strategic planning outcomes, while controlling for potential contextual variations among organizations.

6.2. Statistical Analysis Procedures

The statistical analysis in this study follows a structured sequence to ensure the accuracy, reliability, and interpretability of the findings. The process begins with descriptive statistics, which summarize the data collected through the structured questionnaire. Descriptive measures such as frequencies, percentages, means, and standard deviations are calculated to provide an overview of respondents' demographic characteristics, PMO

practices, engagement levels, innovation culture, and strategic planning performance. These descriptive analyses help identify patterns, trends, and variations within the dataset and provide a foundation for more advanced statistical tests.

Following the descriptive stage, inferential statistical techniques are employed to examine the relationships and potential causal effects between study variables. Correlation analysis is conducted to assess the strength and direction of associations between independent variables (e.g., PMO practices, PMO engagement, and innovation culture) and dependent variables (e.g., project portfolio alignment, achievement of strategic targets, and organizational performance). This analysis identifies which PMO characteristics are most strongly linked to strategic planning outcomes. Multiple regression analysis is then applied to determine the relative contribution of each independent variable in predicting variations in dependent variables, allowing the researcher to quantify the impact of PMO practices and culture on strategic effectiveness. In addition, factor analysis may be used to validate the underlying constructs of the questionnaire, ensuring that the items reliably measure the intended theoretical dimensions of PMO influence and organizational performance.

6.3. Data Interpretation and Reporting

After performing the statistical analyses, the results are interpreted in light of the study's research objectives and hypotheses. The findings are presented using tables, graphs, and charts to provide clear visual representations of relationships, trends, and patterns. Statistical significance, effect sizes, and confidence intervals are reported to ensure that interpretations are both statistically sound and practically meaningful. The analysis not only reveals the overall impact of PMOs on strategic planning but also highlights specific practices, engagement strategies, and innovation initiatives that contribute most significantly to organizational performance in the Saudi private sector.

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