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Enterprise Resource Planning System Enhancing Capital Budgeting With Effective Impact of Cashflow Management and Budget Efficiency

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	Abstract
<p>Afreen Junaid Master of Business Administration-Finance, Bahria University Karachi Campus, Karachi. Email: zainub.dhedhi@gmail.com</p> <p>Shaheer Ahmed Senior Officer, Ministry of Industries & Production, Government of Pakistan, Karachi. Email: shaheer_qadri21@yahoo.com</p>	<p>Purpose: This study will focus on how the implementation of ERP can be linked to enhanced results in implementing capital budgeting in the corporate sector of Karachi. This study will focus on the idea of how different factors will affect the implementation of ERP system to the Capital budgeting with the mediating effect of Cashflow management, Budget Efficiency, and Top Management Support.</p> <p>Methodology & Design: This research is based on one objective, forwarding with the theory of positivism. Taking 400 samples with a quantitative approach to bringing out all possible and relatable answers to make this research more practical and proven.</p>
Keywords	ERP-Enterprise Resource Planning, ERP System Usage, ERP Implementation, Capital Budgeting, Net Present Value (NPV)



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1 INTRODUCTION

1.1 Introduction

In today's complex business environment, companies utilize various financial tools to streamline their processes. Handling diverse data such as vendor invoices, payment information, project schedules, shipping timelines, and customer details is essential. Digital financial tools like ERP (Enterprise Resource Planning) systems play a crucial role in this. An ERP system helps organizations manage and integrate these data types efficiently, enhancing overall business operations. By adopting ERP solutions, companies can ensure smoother, more defined workflows, improving productivity and decision-making. This integrated approach not only simplifies data management but also optimizes resource allocation, ultimately supporting better strategic planning and operational efficiency. (Tavana et al., 2020) The ERP systems can benefit organizations and companies from a comprehensive solution that offers a real-time view of their core business processes. This integrated system seamlessly incorporates essential operations such as production, planning, manufacturing, inventory management, and development. By leveraging this powerful tool, businesses can optimize their workflows, and enhance productivity. (Bahssas et al., n.d.). Many different factors affect the implementation of ERP systems in organizations, as many prior studies prove that human behavioral factors. These cultural factors include national culture as well as multi-national culture and shared beliefs of users. It has been also studied previously that considering the different choices of an adequate ERP System is also a big challenge. (Botta-Genoulaz et al., 2005). A complete software platform that benefits the entire organization is the Enterprise Resource Planning (ERP) system. It is comprised of several functional modules, including supply chain management (SCM), accounting, human resources, sales, and financial reporting, and it is built on an integrated database. These modules can be gradually adapted in accordance with the unique operating requirements of the organization. ERP systems combine these features to improve productivity, simplify business procedures, and offer a unified framework for handling various organizational responsibilities. This helps improve decision-making and strategic planning throughout the company. (Katuu, 2020a).

1.2 Background

Firstly, if we take the idea of an ERP system, An Enterprise Resource Planning (ERP) system is a comprehensive software suite that integrates various modules to streamline business processes. The ERP system stands out for introducing a cutting-edge system with in-memory computing support. This innovative technology enables rapid analysis of extensive non-aggregated data by leveraging local memory resources. The implementation of this system has the potential to significantly elevate the operational efficiency and overall effectiveness of business processes. (Salim et al., 2020). The ERP system has been designed to support interactive business applications with full transactional behavior. (Färber et al., 2012). In the development of an Enterprise Resource Planning (ERP) system, it is crucial to enlist the guidance of experts if the organization intends to use an ERP package from an external vendor. This is because each ERP package software has distinct logic and features that require specific expertise. It is worth noting that individuals who possess expertise in one ERP player, such as SAP, may not necessarily be proficient in Oracle ERP. (Wijaya et al., 2021).

Over the last decades, the deployment of Enterprise Resource Planning (ERP) systems has become one of the most significant and costly Information Technology (IT) implementations in the corporate world. The importance of these systems has been further highlighted by the continuous development of technology, enabling the implementation of advanced industry concepts such as the Internet of Things, visualization, and data analytics. This has resulted in the evolution of the next generation of ERP systems, characterized by intelligent and autonomous systems. This technology has contributed significantly to the enhancement of ERP system performance in critical areas, including planning and scheduling, machine monitoring, and maintenance. (Alaskari et al., 2021). Secondly, while taking into consideration the other factor, Capital budgeting represents one of the most crucial decisions for any kind of organization, regardless of its size. It plays a fundamental role in determining the success and profitability of the company by making the most significant financial decisions. It functions as a planning mechanism that allows for evaluation decisions on how to allocate resources among investment projects. The process of capital budgeting is complex and involves the assessment of various factors such as the expected return on investment, the risk associated with a particular investment, and the overall financial stability of the organization. The goal of capital budgeting is to determine which investment projects will provide the highest return on investment while minimizing risk and ensuring the long-term financial health of the organization. (de Souza Michelin et al., 2020). Among all the modules of calculating capital budgeting, the NPV model is the one that helps managers increase the discount rate to account for unsystematic risk. (de Souza Michelin et al., 2020).

While considering the mediating factors such as Budgeting efficiency in organizations, Efficiency, which is defined as the function of input to outcome or performance, is a critical component of an organization's performance and indicates how skillfully its resources are being deployed to produce a given volume of output. Budgets are a crucial instrument for short-term planning and control. They help businesses consider other options and provide them with a chance to assess how well they are using their operational capacity. Budgets can also be utilized to keep expenditure under control over the duration of the project. (Bergmann et al., 2020). The other factor of Cash flow management



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represents the flow of cash made available by a corporate entity's primary operations is referred to as cash flow from operating activities in the context of financial accounting. When calculating operational profit, net cash flow from operating activities is the net increase or reduction in cash equivalent that comes from operations as reported in the income statement. The cash created from operations represents the transactional effect, which is a factor in calculating an entity's net income.

One of the three cash flow components that directly correlates with a particular corporate entity is the cash flow from investment activities. Financial cashflow, on the other hand, accounts for funds received from equities, debt issuance, dividend payments, loan repayments, and share repurchases. (Alayemi & Salaudeen, 2020). The ERP solution is designed to facilitate the integration of business processes across the entire enterprise, thereby minimizing the need for separate systems for each department or functional area. The integration of diverse systems that may or may not interface with each other can lead to inefficiencies and waste valuable resources. With the ERP solution, business operations can be streamlined, reduce complexities, and achieve greater efficiency. The benefits of choosing the ERP solution are numerous, including its ability to enable seamless integration of all areas of your business and optimize your overall performance. (Soliman & Youssef, 1998)

The findings of numerous comprehensive studies in the field of finance have consistently pointed to the application of six primary techniques for evaluating capital investment. These widely utilized techniques encompass net present value (NPV), internal rate of return (IRR), payback period (PBP), accounting rate of return (ARR), return on investment (ROI), and real option valuation (ROV). Among these, the net present value (NPV) technique stands out as the most frequently employed and contemporary method for assessing the viability of capital investments. (de Souza Michelin et al., 2020). This study first introduces the concept of paper and all its variables that define the reliability of the topic. Secondly, it discusses the Problem statement or the research gap to identify this paper's unique idea or concept. Thirdly, it reflects the theoretical background that supports the concept in the historical period.

1.3 Problem Statement

ERP systems play a critical role in the integration of various corporate processes, which improves decision-making and operational efficiency. Research has indicated that Enterprise Resource Planning (ERP) systems enhance company performance by streamlining many processes like financial reporting, inventory management, and production scheduling. (Tavana, 2022) (Bahssas, 2020)

The practice of keeping an eye on, evaluating, and optimizing the net amount of cash receipts less cash expenses is known as cash flow management. When financial resources are used optimally for long-term investments, an organization's ability to satisfy short-term obligations is guaranteed by effective cash flow management. (M Sheikh, 2021) discuss that by offering real-time visibility and more precise forecasting, ERP systems greatly improve cash flow management and the distribution of funds to capital projects. Conversely, efficient budgeting entails precise and expedient creation, oversight, and modification of monetary plans. ERP systems increase the efficiency of budgeting by enabling real-time updates, automating data entry, and lowering errors. The use of ERP results in more accurate and efficient budgeting procedures, which are essential for successful capital planning. The association between ERP systems and improved capital budgeting results is mediated by these advances in cash flow management and budgeting efficiency, which make it easier to make more informed and strategic investment decisions.

(Sheikh Behl, 2020) (Albar, 2019)

The purpose of this research is to examine how ERP systems affect capital budgeting, with a particular emphasis on the mediating roles played by top management support and cash flow management. Comprehending these variables is imperative for enterprises to proficiently utilize ERP systems, maximize investment choices, and augment their overall fiscal outcomes.

1.4 Research Objectives

The research aims to investigate and assess the efficacy of ERP as a digital financial tool in improving capital budgeting processes. Specifically, the study is designed to:

1. **Evaluating the Impact of ERP on Capital Budgeting Effectiveness:** The goal is to evaluate how Enterprise Resource Planning (ERP) technologies affect how well capital budgeting procedures work in businesses. It specifically aims to ascertain whether ERP systems result in better project selection, more accurate financial forecasts, and ultimately better investment decisions.
2. **Examining Intervening Effects on the Relationship between ERP and Capital Budgeting:** examines the relationship between ERP and capital budgeting efficacy and the possible intervening impacts of cash flow management and budgeting efficiency. It looks into how capital budgeting effectiveness may be impacted by enhanced cash flow visibility, which may be made possible by ERP, and by streamlined budgeting procedures, which may result from ERP adoption.

3. **Analyzing the Role of Top Management Support for ERP in Capital Budgeting:** examines the impact of senior management's backing for ERP on the efficiency of capital planning. It investigates whether the environment more conducive to effective capital budgeting procedures is created by strong top management support for ERP implementation.

1.5 Research Questions

RQ1: How does the ERP system usage impact the effectiveness of capital budgeting processes in corporate sector of Karachi?

RQ2: How much does better cash flow management impact capital budgeting effectiveness, possibly because of ERP implementation?

RQ3: How does capital budgeting relate to the degree of top management support for ERP implementation?

1.6 Significance of Study

This section emphasizes the study's impact on improving financial management practices, integrating theoretical and practical knowledge, and offering actionable insights for professionals and researchers. This research can bring new sources for academics and practitioners which can cause new research to be built within the near future.

The study endeavors to ascertain and confront the challenges linked with the adoption and usage of ERP in capital budgeting. An in-depth comprehension of these challenges can empower organizations to formulate more effective strategies for surmounting obstacles and ensuring the successful integration of the tool.

1.7 Scope of Research

The relationship between ERP and capital budget planning is probably complex, and there could be several impacting elements. Effective budgeting and cash flow management are two major areas of focus. This study will look at how ERP systems-enabled improved cash flow visibility might boost capital budgeting efficacy. It will also examine the effects of ERP implementation-enabled improved budgeting procedures on capital budgeting framework decision-making. The report also recognizes that senior management support is essential to the effective deployment of ERP systems. Thus, we will examine the impact that robust support from upper management has on capital budgeting procedures' efficacy. The purpose of this study is to ascertain whether strong support from upper management fosters an environment that is more conducive to efficient capital planning.

The overall goal of the research is to enhance both professional practice and scholarly understanding by offering insightful analysis and useful recommendations for optimizing ERP advantages in capital budgeting.

1.8 Organization of the Thesis

Introduction, the study narrated the main points that were closely related to ERP usage with a mediating effect of Cash flow management, Budget Efficiency, and Top management support in terms of corporate sector of Karachi where management can use this software for their enhanced capital budgeting decisions.

Literature Review—Chapter 2 was a Literature review that was based on all constructs which included all the important points closely related to the variables of our topic.

Research Methodology—The research we did is quantitative research Simple Explanatory research, the empirical test was run, and it was concluded that quantitative research is the research that we must use, Data collection was done through surveys of SME employees.

Discussion—Our research is based on a sample size of 400 to 300 people targeting the mid-senior level, senior level, and managerial level of employees of corporate sector of Karachi. The paper follows a quantitative approach to bring out all possible and relatable answers to make this research more practical and proven.

2 LITERATURE REVIEW

ERP systems revolutionize business processes, boosting budgeting efficiency. By providing real-time data access and reducing errors, ERP implementation empowers organizations to allocate resources effectively and make informed investment decisions. (Albar, 2019) Ensuring strong cash flow management is imperative for successful capital budgeting, as it guarantees the availability of funds for investment opportunities. Enterprise Resource Planning (ERP) systems play a pivotal role in enhancing cash flow management by integrating financial data, providing real-time visibility into cash positions, and strengthening forecasting capabilities. According to (Sheikh Behl, 2020), ERP systems empower organizations to accurately monitor cash flows and forecast future cash requirements with greater precision.

The Enterprise Resource Planning (ERP) system is an invaluable tool for organizations, providing crucial support for data analysis, decision-making, consultation, and reporting. When combined with specialized IT infrastructure, the ERP system can efficiently disseminate critical information to enable organizations to make informed and timely decisions, even in high-pressure situations. Through the effective leveraging of the ERP system, organizations can gain a competitive advantage in the digital and global



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economy. The system's ability to unlock valuable insights can enable companies to differentiate themselves from their competitors and take advantage of new business opportunities. (Bin Hammad et al., 2024).

Contingency Theory and ERP Systems in Capital Budgeting

Contingency Theory demonstrates that an organization's success hinges on effectively aligning its internal structures and processes with the external environment's demands. When it comes to ERP (Enterprise Resource Planning) systems, this theory makes it clear that customizing ERP functionalities to fit the unique operational and strategic needs of an organization is crucial. In the realm of capital budgeting, the effectiveness of ERP implementation relies heavily on key factors such as the industry landscape, organizational culture, and resource availability. Embracing these considerations will enhance the likelihood of achieving sustainable success.

Resource-Based View (RBV) Theory and ERP Systems

The Resource-Based View (RBV) theory asserts that an organization's competitive edge is rooted in its distinct resources and capabilities. By effectively implementing ERP systems, companies can transform these systems into strategic assets that significantly boost operational efficiency and enhance decision-making processes, ultimately driving success.

2.1 ERP History & Revolution

An institution's core is its enterprise resource planning (ERP) system. It addresses the fundamental duties of real-time business process integration and management. According to global research and advisory firm Gartner, one of the biggest areas of enterprise software spending in 2019 was ERP systems. From 2018 to 2022, a compound annual growth rate of 7.1 percent was predicted for it. ERPs are classified as a concept as well as a system. According to its conceptual framework, ERP systems "integrate the integration of business processes within an organization, with improved workflow and SCM, accurate inventory information, and better standardization of business and best practices. ERP systems are frequently thought of as technological infrastructure created to offer the necessary functional capacity needed to make the ERP idea a reality. Usually built on an integrated database, the ERP system is a software platform used by the entire company. Depending on their operational requirements, several functional modules (such as financial reporting, accounting, human resources management, sales, or supply chain management) can be deployed gradually. (Katuu, 2020b)

As companies began to modify and upgrade their enterprise applications with increasing frequency, the need arose for software that was easy to implement. Additionally, customers could no longer tolerate waiting for software updates that were only available on a rigid schedule. The enterprise applications market had already reached saturation, especially among large multinational companies. Over the last ten years, ERP system usage has grown. ERP systems are now a very helpful tool for company management and are a need for contemporary, competitive businesses. The ERP system is regarded as a software package, which is composed of several software pieces. To a work function or an operational unit, each of these units oversees processing and gathering information. (AlMuhayfith & Shaiti, 2020)

2.2 ERP System & Budgeting Efficiency

ERP systems are made to automate and simplify a variety of corporate operations, which increases the effectiveness of budgetary tasks. Implementing an ERP system reduces errors, eliminates manual data entry, and offers real-time data access, all of which greatly improves budgeting efficiency. Organizations are better able to distribute resources and make wise investment decisions because of their greater efficiency. (Sheikh Behl, 2020)

ERP systems give stakeholders access to real-time information by combining data from multiple departments into a single platform. Making decisions about the budget is guaranteed to be based on the most accurate and up-to-date information possible thanks to this rapid access to updated financial data. Data integrity is ensured by built-in validation checks and error detection algorithms included in ERP systems. These systems improve the entire budgeting process reliability by reducing the possibility of human error. Organizations can deploy resources more effectively when budgeting is more efficient. Managers can pinpoint areas where resources are being misused or overextended and implement the necessary corrections with the use of precise and up-to-date financial data. Organizations may make more informed investment decisions when their budgeting is more accurate and efficient. ERP systems give management thorough financial data that help them assess the risks and possible returns on investment (ROI). (Nassima & Hassane, n.d.)

2.3 ERP System Usage & Cash Flow Management

Successful capital budgeting depends on efficient cash flow management since it guarantees the availability of money for investment opportunities. ERP systems improve forecasting skills, give real-time visibility into cash positions, and integrate financial data across departments, all of which help to improve cash flow management. ERP systems give businesses the ability to more precisely forecast their future cash needs and manage cash flows. (M Sheikh, 2021).



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ERP systems' improved cash flow management features enable more strategic and knowledgeable capital budgeting choices. Strong ERP systems help businesses manage their liquidity and allocate money to capital projects more skillfully. Better cash flow management makes capital budgeting more adaptable and responsive while lowering the possibility of funding shortages. (Cheffi, 2020)

Empirical data is presented in several studies to support the beneficial effects of ERP systems on cash flow management. Those businesses utilizing ERP systems reported a 25% increase in the accuracy of their cash flow forecasts, allowing them to improve their capital planning procedures and bottom-line results. (Akinyemi, 2019)

2.4 ERP System Usage

The process of integrating ERP systems into routine corporate operations is known as ERP use. Businesses must encourage and assist users in using ERP systems to maximize their benefits after implementation. ERP systems may not be successfully adopted if they are used incorrectly. Understanding how users acquire the necessary skills to operate ERP systems is essential. ERP system implementation may be effective from a technical standpoint, but user behavior when utilizing these systems to their maximum potential determines the success of ERP systems. (AlMuhayfith & Shaiti, 2020). Predicting user behavior and enhancing the efficacy of training can be greatly aided by understanding how users view the ERP system and how this understanding relates to their acquisition of business process knowledge and system usage abilities. According to research, a person's intention to utilize computer systems is significantly influenced by their level of computer self-efficacy, or confidence in their capacity to use computers successfully. Furthermore, research shows that increased computer self-efficacy influences users' views of the value and simplicity of ERP systems, which in turn affects how the system is used.

Furthermore, it has been demonstrated that the ERP system itself improves users' absorptive capacity, that is, their capacity to comprehend, integrate, and use the system to accomplish their jobs. The correlation between user perceptions, system utilization, and learning results is further supported by this. Organizations can customize their training programs to improve users' experiences with the ERP system and, eventually, increase user acceptance and competency by getting insight into these dynamics. Therefore, examining user perceptions and how they relate to learning and system usage abilities can offer important insights for improving ERP deployment plans and user training programs. (Shim & Shim, 2020)

2.5 ERP Usage having a Positive Impact on Cash Flow Management

Enterprise resource planning, or ERP, systems have a favorable effect on cash flow management because they offer a wide range of tools for tracking and projecting cash flows, strengthening decision-making procedures, and increasing the accuracy of financial data. ERP systems integrate financial data from multiple sources to provide firms with real-time visibility into cash flow positions. By correctly tracking cash inflows and outflows, this integration lowers the possibility of liquidity problems. (Dechow, 2020)

ERP systems also make it possible for automated payment and invoicing procedures, which hasten cash collections and shorten the period between sales and cash receipts. ERP systems increase the predictability and consistency of cash flow by reducing delays and inconsistencies in financial transactions. (Dutta, 2021). As per the research of (Al-Mashari, 2019) ERP systems enable sophisticated financial reporting and analytics, enabling companies to plan scenarios and do in-depth cash flow analysis. This makes it possible for businesses to anticipate financial surpluses or shortages and take proactive steps to deal with them. All things considered, the incorporation of ERP systems into cash flow management improves financial transparency, accuracy, and control, resulting in better financial health and more efficient cash flow management.

2.6 Hypothesis Development

2.6.1 Contingency Theory and ERP Systems in Capital Budgeting

Contingency Theory demonstrates that an organization's success hinges on effectively aligning its internal structures and processes with the external environment's demands. When it comes to ERP (Enterprise Resource Planning) systems, this theory makes it clear that customizing ERP functionalities to fit the unique operational and strategic needs of an organization is crucial. In the realm of capital budgeting, the effectiveness of ERP implementation relies heavily on key factors such as the industry landscape, organizational culture, and resource availability. Embracing these considerations will enhance the likelihood of achieving sustainable success.

2.6.2 Resource-Based View (RBV) Theory and ERP Systems

The Resource-Based View (RBV) theory asserts that an organization's competitive edge is rooted in its distinct resources and capabilities. By effectively implementing ERP systems, companies can transform these systems into strategic assets that significantly boost operational efficiency and enhance decision-making processes, ultimately driving success.

2.7 Summary of Literature Review

Table 1: Summary of Literature Review

Construct	Definition	Source
Cash Flow Management	The process of keeping an eye on, evaluating, and optimizing the net amount of cash receipts less cash expenses during a certain time is known as cash flow management. It entails monitoring the inflow and outflow of funds from a company to make sure there is enough cash on hand to pay bills on time and make investments in expansion prospects.	(Alayemi & Salaudeen, 2020)
Budget Efficiency	Budgets are an essential tool for controlling and planning soon. They give companies the ability to evaluate how well they are utilizing their operational capacity and assist them in exploring alternative possibilities. Budgets can also be used to regulate spending during the project.	(Gupta & Deena, n.d.)
Top Management Support	For ERP systems to be implemented and used successfully in any firm, top management support is essential. By supporting the ERP endeavor, senior management ensures that all departments are in line with the project's goals and helps to overcome opposition to change. Additionally, their assistance makes prompt decision-making and problem-solving possible, both of which are necessary to keep the project moving forward and produce the intended results.	(Premkumar & Ramamurthy, n.d.)

2.8 Research Hypotheses

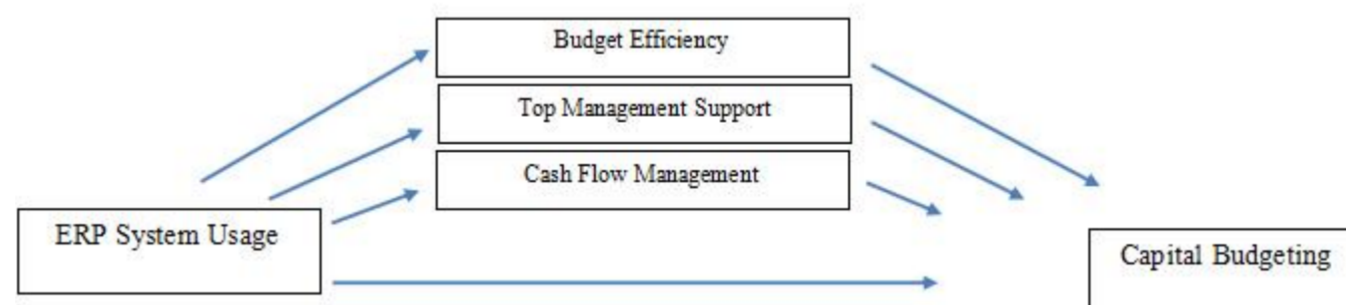
H1: The Usage of an Enterprise Resource Planning (ERP) system has a significant impact on capital budgeting.

H2: Top management support for ERP implementation will significantly mediate the relationship between ERP and capital budgeting effectiveness.

H3: Cash flow management significantly mediates the relationship between ERP systems and capital budgeting.

H4: Budget Efficiency significantly mediates the relationship between ERP systems and capital budgeting.

2.9 Conceptual Framework



3 Research Methodology

3.1 Research Approach & Type

This study is well suited for quantitative research since it makes it possible to systematically examine the correlations between variables, quantify data, and extrapolate findings from a sample to the population of interest. Statistical analysis is made easier, and data collection is guaranteed when structured questionnaires are used.

3.2 Research Design

The strategy used in the research is the theory of positivism, which is frequently associated with the use of the deductive method (i.e., theory and hypotheses are formed first, followed by collecting the necessary data to test hypotheses).

We conducted a quantitative, straightforward explanatory study. Data was gathered by means of surveys. After an empirical test, it was determined that the study would be quantitative in nature.

3.3 Research Population

The target market for this study will be the employees of the corporate sector of Karachi through the survey questionnaire. The employees will be in senior positions and managerial level positions because the study will be focusing on the management support for the Usage of ERP which helps to enhance the Capital Budgeting. The sample size will be 400.

3.4 Sample Size & Sampling Technique

This study focuses on workers in mid-senior, senior, and managerial roles within the corporate sector of Karachi. A quantitative, direct explanatory methodology will be used to collect data from 400 participants using the Morgan Table reference via a structured questionnaire. The sample size will be 410 participants, from which 400 accurate responses will be considered for the research analysis. The study summarizes ERP use in capital budgeting and looks at how it affects the efficacy of budgeting using a descriptive and correlational design. The technique of Smart PLS (Partial Least Squares) has been used because it is appropriate for small sample sizes and exploratory models and it is similar to the regression analysis. Confidentiality and informed consent are examples of ethical issues that will be respected. The purpose of this study is to advance knowledge in academic and applied financial management by shedding light on how ERP usage might improve capital budgeting procedures.

A snowball sampling strategy was used in the current investigation to select study participants. In Snowball sampling, Snowball sampling is an effective qualitative research method that leverages networking and referrals. Researchers start with a small group of initial contacts, known as "seeds," who meet specific criteria and are invited to participate. These participants then recommend others in their networks who qualify and may be willing to join. This approach creates a growing chain of participants, allowing researchers to access diverse perspectives and valuable insights. The process continues until a predetermined sample size or saturation point is reached, enhancing the richness of qualitative data while fostering a collaborative research environment. (*Snowball Sampling, 2020*)

For the current study, a Snowball sampling technique is utilized. In the Snowball sampling approach, only those participants chosen for the research study whom the researchers believe will be mid-senior, senior, and top managers of the Corporate sector of Karachi in this case. The results of this are beneficial for the environment of this study.

3.5 Research Instrument

A structured questionnaire will be the study's main research instrument. This questionnaire aims to gather quantitative information using the Likert Scale from workers in management, senior, and mid-senior roles in the corporate sector of Karachi. The purpose of the questionnaire is to collect information about how ERP is used and how it affects capital budgeting procedures.

Table 2: Summary of Research Instrument

Variable	Authors / Source	No. of items	Scale
Cash Flow Management	(Alayemi & Salaudeen, 2020)	5	1-5
Management Support	(Nassima & Hassane, n.d.)	5	1-5
Budget Efficiency	(Gupta & Deena, n.d.)	5	1-5
Capital Budgeting	(Siziba & Hall, 2021)	5	1-5

3.6 Data Collection

Structured questionnaires pertaining to mid-senior, senior, and managerial positions within the corporate sector of Karachi will be used for data collection. This approach guarantees systematic and consistent collection of pertinent data for the goals of the study. The level of ERP usage, perceived advantages and difficulties, management support, and general satisfaction with ERP in capital budgeting processes are just a few of the important topics that will be covered in the questionnaire. Snowball sampling will be used to target a sample size of 400 respondents, ensuring that participants have prior expertise with ERP usage and capital budgeting. To increase response rates, a clearly defined data collection time will be used, along with electronic distribution channels including email and professional networks. Throughout the process, ethical standards including informed consent and response confidentiality will be closely adhered to.

3.7 Data Analyses Method

A methodical approach utilizing a variety of quantitative techniques will be used in data analysis. Key variables pertaining to ERP usage and demographic data will be compiled using descriptive statistics. Correlation analysis will show how the use of ERP affects outcomes like forecasting accuracy and decision-making efficiency. The success of capital

budgeting will be predicted by ERP using multiple regression analysis, and particular research topics will be investigated using hypothesis testing. The data gathered from senior and managerial staff in the corporate sector of Karachi will be thoroughly and ethically examined through the use of software like Smart PLS for these studies.

4 Results

The results chapter reflect the result analysis of all the data received from the respondents totaling to 380 favorable responses, this data has been run using the Smart PLS Software. The chapter also represents the graphical representation of all tables and figures.

Table 4.1: Respondent Demographic Profile

		Frequency	Percentage
Gender	Female	220	55%
	Male	180	45%
Education	Graduate	230	57.5%
	Under-Graduate	60	15%
	Post-Graduate	110	27.5%
Job Level	Mid-Senior	100	25%
	Senior	160	40%
	Managerial	140	35%

Interpretation

Table 4.1 shows that Male respondents are 180 i.e. 45% and females are 220 i.e. 55% of the total number of respondents. With regards to Academic qualification, participants having Graduate Degrees are 57.5%, Under-Graduates are 15% and post-graduates are 27.5%. taking the consideration of Job level, candidates with mid-senior level are 25%, senior level 40% and managerial level 35%.

Table 4.2: Measurement Model (Outer Loading)

Constructs	Indicators	Outer loadings
BE	BE1	0.769
	BE2	0.607
	BE3	0.805
	BE4	0.819
	BE5	0.744
CB	CB1	0.786
	CB2	0.772
	CB3	0.781
	CB4	0.729
	CB5	0.818
	CB6	0.738
	CB7	0.742
CFM	CFM1	0.769
	CFM2	0.774
	CFM3	0.764
	CFM4	0.816
	CFM5	0.786
ERP	ERP1	0.809

	ERP2	0.815
	ERP3	0.666
	ERP5	0.722
TMS	TMS1	0.661
	TMS2	0.804
	TMS3	0.797
	TMS4	0.824
	TMS5	0.726
	TMS6	0.697

Note: The values of outer loadings are well above the required threshold values of 0.708, respectively (Hair et al., 2022).

Interpretation:

Table 4.2 Shows the measurement model with the values of outer loading. Outer loadings reflect indicator reliability. Since the values of CB & CFM constructs are well above the required threshold values (see Note), it means indicators and constructs are reliable and items are convergent well to the construct, But the value of BE construct all items are reliable but one item BE2 value are less than threshold value its means this item are not reliable and convergent, the value of ERP all are reliable but one items which is ERP3 the value is less than threshold value it means this items are not reliable and convergent and at last TMS all values are reliable but TMS1 & TMS6 values are less than threshold values it means these both items are not reliable and convergent.

Table 4.3: Structural Model (Hypothesis Testing)

	Path Coefficient
<i>Direct Effect</i>	
ERP System Usage -> Capital Budgeting	0.185
<i>Indirect Effect</i>	
Budget Efficiency -> Capital Budgeting	0.189
Cash Flow Management -> Capital Budgeting	0.212
ERP System Usage -> Budget Efficiency	0.853
ERP System Usage -> Cash Flow Management	0.746
ERP System Usage -> Top Management Support	0.888
Top Management Support -> Capital Budgeting	0.324
<i>Mediating/Interaction Effect</i>	
ERP System Usage -> Top Management Support -> Capital Budgeting	0.288
ERP System Usage -> Budget Efficiency -> Capital Budgeting	0.162
ERP System Usage -> Cash Flow Management -> Capital Budgeting	0.158

Note: The values of P are less than the required threshold value of 0.05 respectively. (Hair et al., 2022).

Interpretation:

Table 4.3 Shows the Structural model/Inner Model with the values of Path Coefficient. In this model hypothesis are to be tested. Since all the values of Direct Effect, Indirect Effect and Mediating Effect/Interaction Effect are greater than their threshold value it means the result is considered insignificant Effects.

Table 4.4: Outer Weight

Constructs	Indicators	Outer weights
BE	BE1	0.248
	BE2	0.180

	BE3	0.313
	BE4	0.318
	BE5	0.253
CB	CB1	0.183
	CB2	0.180
	CB3	0.203
	CB4	0.188
	CB5	0.204
	CB6	0.172
	CB7	0.173
CFM	CFM1	0.257
	CFM2	0.277
	CFM3	0.214
	CFM4	0.280
	CFM5	0.249
ERP	ERP1	0.365
	ERP2	0.393
	ERP3	0.269
	ERP5	0.286
TMS	TMS1	0.179
	TMS2	0.231
	TMS3	0.247
	TMS4	0.258
	TMS5	0.201
	TMS6	0.201

Note: The values of outer weight are less than the required threshold value of 0.50 respectively. (Hair et al., 2022).

Interpretation

Table 4.4 Shows the effects of a multiple regression that are the relative significance of all indicators in a formative measurement model. Outer weights are used to estimate the contribution of an influential indicator to a construction. Since all the values are below the threshold value it means that all indicators are significant.

Table 4.5: *Descriptive Analysis*

	Median	Observed min	Observed max	Excess kurtosis	Skewness	Number of observations used	P value
Budget Efficiency	0.098	-2.810	1.899	-0.611	-0.406	380.000	0.000
Capital Budgeting	0.073	-2.847	1.818	-0.138	-0.418	380.000	0.018
Cash Flow Management	0.061	-2.940	2.034	-0.248	-0.267	380.000	0.068
ERP System Usage	0.105	-2.777	1.547	-0.555	-0.453	380.000	0.000
Top Management Support	0.076	-3.097	1.973	-0.211	-0.322	380.000	0.019

Interpretation

Table 4.5 Shows the value of Skewness & Kurtosis. A (+ve) Values for the kurtosis indicates a distribution more peaked than normal and (-ve) value shows a flatter than normal. Since the kurtosis values are (-ve) it means this shows a flatter shape. Since all P value is 0.0 it indicates null hypothesis is eliminated and Mardia's test is statistically significant.

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Table 4.6: R-Square

	R-square	R-square adjusted
Budget Efficiency	0.728	0.728
Capital Budgeting	0.728	0.725
Cash Flow Management	0.557	0.556
Top Management Support	0.789	0.789

Note: The values of R-Square are well above the required threshold values of 0.7, respectively (Hair et al., 2022).

Interpretation

Table 4.6 Shows the measures the variance of the dependent (endogenous) variable by the independent (exogenous) variables in the model. It indicates the model's predictive power. Since the R square values are above the threshold value it indicates that the model has a good predictive power.

Table 4.7: F-Square

	F-square
Budget Efficiency -> Capital Budgeting	0.022
Cash Flow Management -> Capital Budgeting	0.055
ERP System Usage -> Budget Efficiency	2.681
ERP System Usage -> Capital Budgeting	0.024
ERP System Usage -> Cash Flow Management	1.258
ERP System Usage -> Top Management Support	3.749
Top Management Support -> Capital Budgeting	0.050

Note: The threshold values of F-Square are weak 0.02, Moderate 0.15 & Substantial 0.35 respectively (Hair et al., 2022).

Interpretation:

Table 4.7 Shows the change in R-Square when an exogenous variable is removed from the model. In this table some values are weak & some are Moderate. But some values are greater than 1, it means that exogenous variable has a very big effect on the endogenous variable.

Table 4.8: Construct Reliability & Validity

	Cronbach's Alpha	Composite Reliability (rho_a)	Composite Reliability (rho_c)	Average Variance Extracted (AVE)
Budget Efficiency	0.808	0.831	0.866	0.566
Capital Budgeting	0.883	0.885	0.909	0.589
Cash Flow Management	0.842	0.845	0.887	0.612
ERP System Usage	0.750	0.770	0.841	0.571
Top Management Support	0.847	0.858	0.887	0.568

Note: The values of rho_c and AVE are well above the required threshold values of 0.7 0.7,0.70 and 0.50 respectively (Hair et al., 2022).

Interpretation

Table 4.8 Shows the measurement model with the values of Cronbach's, rho_a, rho_c and AVE. rho_a provides information of how closely related the items are to each other, rho_c shows construct reliability and AVE reflects convergent validity. Since all the values are well above the required threshold values (see Note), it means indicators and constructs are reliable and items are convergent well to the construct.

Table 4.9: Discriminate Validity-HTMT Ratios

	Budget Efficiency	Capital Budgeting	Cash Flow Management	ERP System Usage
Budget Efficiency				
Capital Budgeting	0.943			
Cash Flow Management	0.945	0.870		
ERP System Usage	1.038	0.967	0.916	
Top Management Support	1.067	0.954	0.932	1.081

Note: The values of HTMT Ratio are less than the required threshold values of 0.85 respectively (Hair et al., 2022).

Interpretation

Table 4.9 Shows the measurement model with the values of HTMT ratio. The HTMT ratio reflects Discriminant validity. The purpose of the discriminant validity calculation is to validate that a reflective construct shows stronger relationships with its indicators than with those of any additional construct. Since all the values are not less than the required threshold values (see Note), it means there is no stronger relationship between two reflective constructs.

Table 4.10: Collinearity Statistics (VIF)

Outer Model – List

Constructs	VIF
BE1	1.765
BE2	1.413
BE3	1.824
BE4	1.839
BE5	1.556
CB1	2.456
CB2	2.440
CB3	1.922
CB4	1.759
CB5	2.351
CB6	2.078
CB7	1.955
CFM1	1.662
CFM2	1.639
CFM3	1.729
CFM4	1.891
CFM5	1.797
ERP1	1.610
ERP2	1.582
ERP3	1.311
ERP5	1.418
TMS1	1.416
TMS2	1.951
TMS3	1.890



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TMS4	2.039
TMS5	1.607
TMS6	1.493

Inner model – List

	VIF
Budget Efficiency -> Capital Budgeting	6.105
Cash Flow Management -> Capital Budgeting	2.987
ERP System Usage -> Budget Efficiency	1.000
ERP System Usage -> Capital Budgeting	5.137
ERP System Usage -> Cash Flow Management	1.000
ERP System Usage -> Top Management Support	1.000
Top Management Support -> Capital Budgeting	7.801

Note: The values of VIF are above the required threshold values of 4 respectively.

Interpretation

Table 4.10 Shows the variance inflation factors (VIF) measure the level of multicollinearity in a regression analysis. Since most of the values are below 4 it means that multicollinearity does not exist, but some values are above it means that multicollinearity might exist, and further investigation is required.

Table 4.11: Stop Criterion Changes

Indicators	Iteration 1	Iteration 2	Iteration 3	Iteration 4	Iteration 5	Iteration 6	Iteration 7
BE1	0.266	0.249	0.248	0.248	0.248	0.248	0.248
BE2	0.266	0.180	0.180	0.180	0.180	0.180	0.180
BE3	0.266	0.315	0.313	0.313	0.313	0.313	0.313
BE4	0.266	0.312	0.318	0.318	0.318	0.318	0.318
CB1	0.186	0.184	0.183	0.183	0.183	0.183	0.183
CB2	0.183	0.18	0.18	0.18	0.18	0.18	0.18
CB3	0.186	0.202	0.203	0.203	0.203	0.203	0.203
CB4	0.186	0.189	0.188	0.188	0.188	0.188	0.188
CB5	0.186	0.203	0.204	0.204	0.204	0.204	0.204
CB6	0.186	0.172	0.172	0.172	0.172	0.172	0.172
CB7	0.186	0.173	0.173	0.173	0.173	0.173	0.173
CFM1	0.256	0.257	0.257	0.257	0.257	0.257	0.257
CFM2	0.256	0.279	0.277	0.277	0.277	0.277	0.277
CFM3	0.256	0.214	0.214	0.214	0.214	0.214	0.214
CFM4	0.256	0.279	0.28	0.28	0.28	0.28	0.28
CFM5	0.256	0.248	0.249	0.249	0.249	0.249	0.249
ERP1	0.331	0.364	0.365	0.365	0.365	0.365	0.365
ERP2	0.331	0.39	0.392	0.393	0.393	0.393	0.393
ERP3	0.331	0.271	0.269	0.269	0.269	0.269	0.269
ERP5	0.331	0.287	0.286	0.286	0.286	0.286	0.286
TMS1	0.222	0.18	0.179	0.179	0.179	0.179	0.179

TMS2	0.222	0.232	0.231	0.231	0.231	0.231	0.231
TMS3	0.222	0.245	0.247	0.247	0.247	0.247	0.247
TMS4	0.222	0.254	0.258	0.258	0.258	0.258	0.258
TMS5	0.222	0.203	0.201	0.201	0.201	0.201	0.201
TMS6	0.222	0.204	0.202	0.201	0.201	0.201	0.201

Interpretation

Table 4.11 Shows how many iterations have been functioned in the Smart PLS. Since all values are the change in the outer weights among two consecutive iterations is lesser than the stop criterion value.

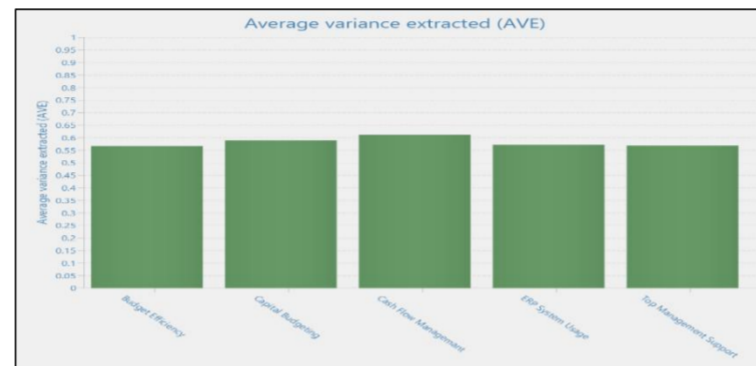


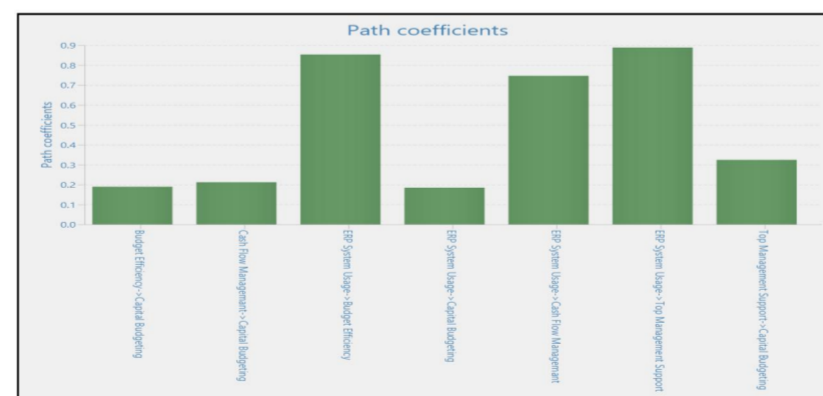
Table 4.12: *Posthoc minimum sample size*

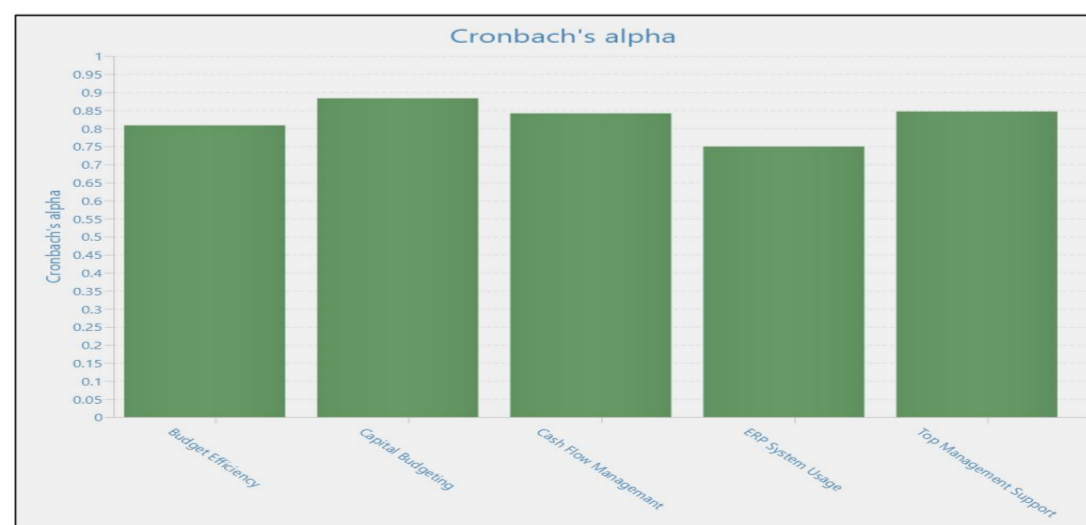
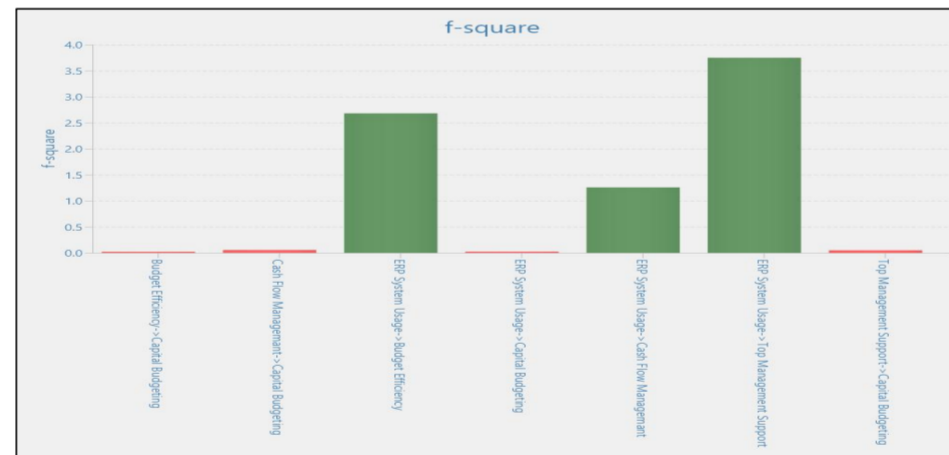
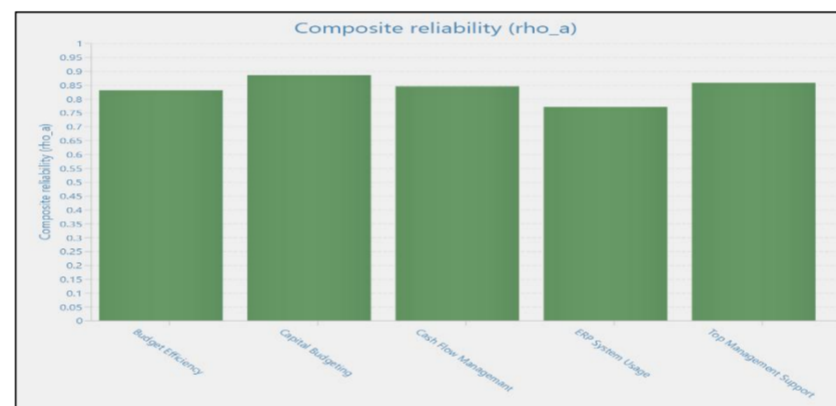
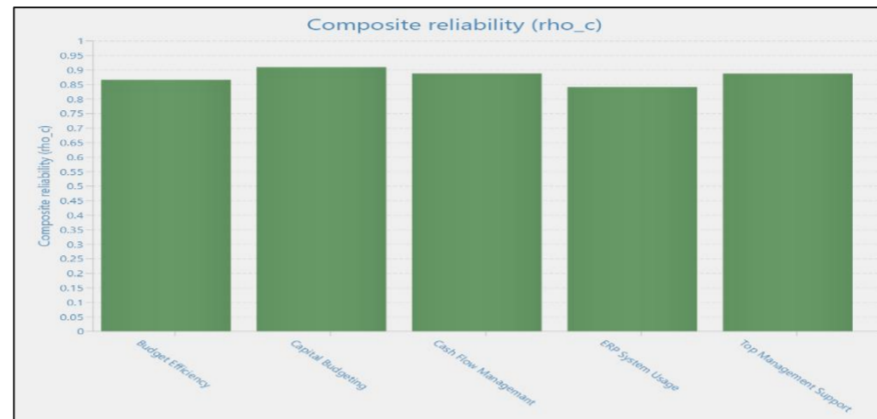
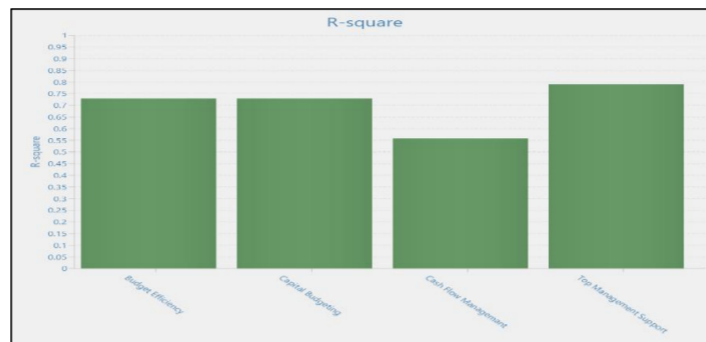
	Path coefficients	Alpha 1%, power 80%	Alpha 5%, power 80%	Alpha 1%, power 90%
Budget Efficiency -> Capital Budgeting	0.189	280.000	173.000	363.000
Cash Flow management -> Capital Budgeting	0.212	224.000	138.000	290.000
ERP System Usage -> Budget Efficiency	0.853	14.000	9.000	18.000
ERP System Usage -> Capital Budgeting	0.185	295.000	182.000	382.000
ERP System Usage -> Cash Flow Management	0.746	19.000	12.000	24.000
ERP System Usage -> Top Management Support	0.888	13.000	8.000	17.000
Top Management Support -> Capital Budgeting	0.324	96.000	59.000	124.000

Interpretation

Table 4.14 shows that the lowest number of observations is essential to get satisfactory statistical power after conducting the analysis. The lowest sample size for Partial Least Squares is classically between 30 and 50, however, it can be as small as 50 for predictive methods. In distinguish, Structural Equation Modeling usually wants a sample size of 100 to 200. Since all the values are between 100 to 200 it means that observation is satisfactory.

4.13 Graphical Representation of Result Analysis







4.14 Summary of Hypotheses Testing

Hypothesis	Result
H1: The Usage of an Enterprise Resource Planning (ERP) system has a significant impact on capital budgeting.	Supported
H2: Top management support for ERP implementation will significantly mediate the relationship between ERP and capital budgeting effectiveness.	Supported
H2A: Cash flow management significantly mediates the relationship between ERP systems and capital budgeting.	Supported
H2B: Budget Efficiency significantly mediates the relationship between ERP systems and capital budgeting.	Supported

5.1 DISCUSSION

This study underscores the crucial impact of Enterprise Resource Planning (ERP) systems on optimizing capital budgeting practices. The integration of ERP systems into financial management processes has proven to be transformative, leading to significant improvements in budgeting efficiency and cash flow management. These enhancements serve as powerful mediating variables that can drive organizational success and financial stability.

By automating tedious processes, combining financial data, and enabling real-time access to vital information, ERP systems improve the efficiency of budgeting. This automation speeds up the creation of capital budgets and lowers human error. One significant benefit of ERP systems is their ability to enhance cash flow management. These systems help companies maintain optimal liquidity by providing tools for real-time monitoring of cash balances and financial transactions. By preventing an excess of financial resources, ERP systems ensure that sufficient cash reserves are available for capital projects.

5.1.1 H1: The Usage of an Enterprise Resource Planning (ERP) system has a significant impact on capital budgeting.

Hypothesis 1 draw attention to how important Enterprise Resource Planning (ERP) solutions are for improving capital budgeting procedures. ERP system integration into financial management procedures has shown a revolutionary effect, especially in terms of more efficient budgeting and better cash flow management, two factors that were found to be mediating factors.

5.1.2 H2: Top management support for ERP implementation will significantly mediate the relationship between ERP and capital budgeting effectiveness.

Hypothesis 2 posits that top management support plays a crucial role in mediating the relationship between ERP adoption and the effectiveness of capital budgeting. The involvement and guidance of top management are vital for the successful implementation of ERP, as they ensure optimal resource allocation, alignment of organizational priorities, and effective management of potential employee resistance. This study underscores that when senior management champions ERP initiatives, it cultivates a culture of

collaboration and trust within the organization. Such an environment significantly enhances the system's capability to deliver accurate data for informed capital planning decisions.

5.1.3 H3: Cash flow management significantly mediates the relationship between ERP systems and capital budgeting.

Efficient cash flow management, powered by precise and up-to-date financial data, plays a pivotal role in enhancing the capital planning processes of ERP systems. By effectively aligning cash inflows with outflows, businesses can secure optimal liquidity for their capital projects, ultimately driving success. Research shows that ERP systems streamline cash flow tracking, significantly reducing uncertainty and delays in project execution. Moreover, by proactively anticipating and managing cash reserves, organizations can prioritize their investments and minimize reliance on external financing, leading to maximized financial performance. This connection clearly illustrates how ERP systems not only elevate operational efficiency but also bolster strategic decision-making in capital budgeting.

5.1.4 H4: Budget Efficiency significantly mediates the relationship between ERP systems and capital budgeting.

Enhancing the precision and speed of financial planning through budget efficiency is pivotal in shaping the connection between ERP systems and capital budgeting. ERP systems streamline data collection and processing, significantly reducing human errors and enabling far more accurate forecasting. This newfound efficiency not only optimizes resource allocation but also prioritizes investment effectively, ensuring that capital budgeting decisions are grounded in reliable and comprehensive data. Research shows that companies leveraging ERP systems tend to make more strategic financial choices and experience shorter budget preparation cycles. This clearly illustrates the critical role of effective budgeting as an essential driver of both capital budgeting success and successful ERP deployment.

6.1 Recommendations

According to the findings of this research, to truly maximize the potential of ERP systems in capital budgeting, companies must prioritize comprehensive training programs for their staff. By emphasizing ERP functionality, especially in budgeting and financial planning—organizations can empower their teams to leverage these powerful tools effectively. Investing in training is not just beneficial; it's essential for achieving outstanding results in capital management.

To secure robust support for ERP deployment, organizations must provide necessary resources, define clear objectives, and cultivate a culture of acceptance. This active engagement from senior management is vital not only to address any resistance but also to ensure that the initiative aligns seamlessly with the organization's strategic goals.

Elevate the capabilities of the ERP system for cash flow management by incorporating advanced analytics and real-time monitoring. This enhancement will empower stakeholders to make informed decisions about liquidity and efficiently fund capital projects.

Regularly assessing and enhancing ERP functionalities is essential to stay aligned with technological innovations. This proactive strategy guarantees that the system not only remains relevant but also effectively tackles the ever-changing challenges faced by businesses.

6.2 Limitations of Research

Despite the valuable insights provided, this study has certain limitations. Because the study takes a quantitative approach, it might miss qualitative information that could improve our comprehension of how ERP affects corporate culture and decision-making. Organizational differences in ERP systems (such as SAP vs. Oracle ERP) may result in differences in efficacy, which are not thoroughly examined in this study. Given how organizational processes change over time, the research might not fully account for the long-term effects of ERP implementation on capital planning.

6.3 Conclusion

In conclusion, this study compellingly illustrates how ERP systems significantly enhance capital budgeting processes. By optimizing cash flow management and improving budgeting efficiency, ERP systems empower businesses to make more strategic and informed investment decisions. However, to fully realize these advantages, organizations must proactively tackle implementation challenges and ensure that ERP features are tailored to their unique operational needs.

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