DEVELOPMENT OF BALANCED SCORECARD FOR OFFICE RENTAL BUSINESS

BY

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ABSTRACT

In recent years, limited research has evaluated the performance of facility management within office buildings from diverse perspectives. Traditional performance assessments often focus on financial measurements, overlooking essential factors such as product quality, staff competency, operational efficiency, and customer satisfaction. Given the challenges faced by the office rental sector, especially after economic downturns, a more holistic approach to performance measurement is required.

This research applied the Balanced Scorecard (BSC) framework to assess and enhance building performance in the office rental business. Using a mixed-methodology approach that included in-depth interviews with five high-level managers (three from Grade A buildings and two from Non-Grade A buildings) and the surveys utilizing the Likert Scale questions, the study aimed to identify Critical Success Factors. It then employed the Modified Analytic Hierarchy Process (M-AHP) to assign weights to various performance measurement indicators through a questionnaire survey conducted with 35 managers (21 from Grade A buildings and 14 from Non-Grade A buildings). This analysis distinguished between models for Grade A and Non-Grade A office buildings.

The outcomes were the development of a customized BSC framework specifically designed for the office rental business. This framework will provide practical guidelines to enhance effective strategic management.

Keywords: Office rental business, Balanced Scorecard, Key Performance Indicators, Modified Analytic Hierarchy Process, Performance Measurement

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Veerapong Sukyot

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Symbols/Abbreviations	Terms
BSC	Balanced Scorecard
KPI	Key Performance Indicator
AHP	Analytic Hierarchy Process
Modified AHP	Modified Analytic Hierarchy Process
CI	Consistency Index
CR	Consistency Ratio

CHAPTER 1
INTRODUCTION

1.1 Introduction

The facility management (FM) industry has emerged as one of the fastest growing sectors over the decade. However, the scope and identity of FM remain unclear as evidenced by the definitions and issues attempting to describe its scope. FM encompasses multi-disciplinary work covering a wide range of activities, responsibilities, and knowledge. Moreover, every aspect of an organization seems to be drawn into FM (Patanapiradej, 2006).

Currently, many buildings adhere to traditional management practices, focusing on teams overseeing facility performance, particularly maintenance. However, embracing facilities management can optimize returns on investment and establish competitive advantages in the long term. Maximizing facility output is crucial for reducing life-cycle costs and enhancing profits. Recognizing facilities management as a vital component in the business value chain, especially in driving core business performance indicators, is key to organizational success (Kurdia et al., 2011).

In Facilities Management (FM), the task involves overseeing the coordination of planning, design, and management of buildings, systems, equipment, and furniture to enhance the organization's competitiveness in a dynamic environment. The objective of FM extends beyond minimizing building running costs to improving the efficiency of space and asset management for both people and processes. This approach aims to achieve the organization's mission and goals with optimal efficiency and cost-effectiveness (Kurdia et al., 2011).

In today's situation, where efficiency and quality matter, understanding building performance is crucial. However, the absence of a clear definition and common understanding of building performance slows progress in both building science and industry. This creates challenges when dealing with issues like the energy performance gap or creating building performance (Wilde, 2019).

Without a clear definition, it is difficult to measure how new developments relate to previous efforts, hindering the assessment of their contribution to knowledge and progress in the field. Establishing a common understanding of building performance is essential for advancing research, improving industry practices, and addressing pressing challenges effectively (Wilde, 2019).

Because building performance lacks a universally accepted definition, its interpretation varies across different disciplines. The concept traces back to 1760 when the first documentation focused on ensuring structural safety emerged, with methodological developments advancing in the twentieth century. A comprehensive understanding of building performance is essential for ensuring user comfort and satisfaction, leading to the establishment of fundamental platforms by organizations outlined requirements directly tied to building use, gradually becoming a support tool for operational efficiency, especially in countries where performance is crucial. The concept of performance varies depending on different perspectives and intended purposes (Pestana et al., 2021).

In the last 20 years, there have been only a few studies on measuring how well facility in building management performs. Previous research did not consider the different viewpoints of everyone involved in office buildings and did not cover all the important aspects of facility management today. Most of them did not even get past the planning stage, so they did not suggest specific ways to measure performance or offer frameworks that could be used for different strategic goals. Because there is not the best way to measure performance that considers everyone's perspective, it leads to some problems:

1. Building owners might not make as much money as they could because the focus is only on controlling costs.
2. Costs might go up too much because the focus is only on keeping tenants happy.
3. Overall, managing facilities might become more expensive (Tung et al., 2011).

It is widely recognized that traditional performance management have primarily relied on financial measurements like profit, cash flow, and return on investment to measure employee performance. However, this approach has limitations. Firstly, it does not provide a comprehensive view of performance across all strategic areas like quality and service delivery. Secondly, financial measurement only reflects outcomes, lacking insights into the underlying causes and thus limiting their usefulness in driving actionable improvements (Tung et al., 2011).

Performance in the field of office management, Facility management's importance is rising alongside the increasing complexity of office buildings and the growing recognition of office buildings as valuable assets. Financial investors, often building owners, emphasize the importance of facility management in meeting tenant expectations while managing financial constraints. Additionally, facility management now impacts the profitability of office buildings. Effective performance measurement in facility management must address conflicts between owner and tenant objectives and consider the building's physical characteristics. Thus, a holistic performance measurement model covering various perspectives is essential (Shin et al., 2023).

Managing office buildings comes with risks if one relies on cost-cutting for owner satisfaction. Conversely, focusing only on tenant satisfaction may result in overspending beyond what owners consider reasonable. To address these challenges, proposal a unified model, aiming to enhance practicality by incorporating a structured approach that considers various factors. This provides a balanced method to measure facility performance, considering the perspectives of stakeholders (Shin et al., 2023).

In today's rapidly changing world, organizations are undergoing significant changes driven by advances in information technology. This shift requires new skills to stay competitive in both manufacturing and service industries. Now, it is becoming more important to focus on things you can't touch, like understanding what customers want, improving how work gets done, and having smart problem solvers. To keep up, organizations are trying out new methods like total quality management and process re-engineering. But when it comes to measuring success, many still only look at financial reports. Unfortunately, these reports don't show the true value of things like

great products, skilled staff, smooth operations, and happy customers (Amaratunga et al., 2000).

That is why it is important to look beyond just money and consider all the things that make a business successful. The Balanced Scorecard is a way to do this, blending financial numbers with other important factors for future success. While many companies already track performance, they often focus only on short-term goals instead of long-term plans. So, there is a need for a shift in how we measure success to ensure organizations can thrive in the long run (Amaratunga et al., 2000).

The Balanced Scorecard (BSC) provides a structured framework encompassing four essential perspectives: financial, customer, internal processes, and learning and growth. Each of these perspectives holds significance in determining an organization's success, contributing to a holistic understanding of its overall performance (Kaplan & Norton, 1992).

To make effective decisions, it is essential for decision makers to thoroughly understand and define various aspects: the problem at hand, the underlying need and purpose of the decision, the criteria and sub-criteria used to evaluate alternatives, the available alternative actions, and the stakeholders and groups affected by the decision. These criteria and sub-criteria can encompass both tangible and intangible factors. However, when dealing with intangible criteria, it becomes challenging to measure them in order to rank the alternatives (Kaplan & Norton, 1992).

This is where the Analytic Hierarchy Process (AHP) comes into play. AHP is a decision-making method that facilitates this process by relying on expert judgments to establish priority scales through pairwise comparisons. It provides decision makers with a structured approach to weigh the priorities of the alternatives based on the established criteria. Despite the complexities involved, decision makers and researchers alike prefer AHP due to its simplicity and effectiveness in navigating and evaluating complex decision scenarios (Russo, 2015).

From the challenge of imbalanced performance measurement and the lack of guidelines that building management, specifically in Thailand, can use to

monitor success and improve long-term strategic success, this research aims to create guidelines for enhancing the strategic management capabilities of office rental businesses. It will provide them with a systematic approach to assess and improve overall performance and make informed decisions using the Balanced Scorecard.

The research process will involve conducting an in-depth exploration within the office rental business, using the Likert method with panel of experts, and questionnaires to arrive at a consensus opinion or decision. Additionally, it will involve creating weights for each measurement using a modified Analytic Hierarchy Process (AHP) method. The research will also involve reviewing existing literature on performance measurement and frameworks and it will provide a comprehensive rationale for the adoption of the Balanced Scorecard model as the primary tool for achieving organizational success within the unique context of office rental businesses in Thailand.

1.2 Objectives

1.2.1 To study the measurements in the office rental business that are being utilized.

1.2.2 To study the criteria and the weighting of factors that impact the operation of the office rental business.

1.2.3 To present a guideline of the balanced scorecard performance measurement model for the office rental business.

1.3 Scope of The Study

1.3.1 Scope of study area

This research focuses on the use of performance measurement tools within the office rental business, specifically targeting five office rental buildings. Among these, three Grade A office buildings are listed on the Stock Exchange of Thailand, while the other two Non-Grade office buildings are not listed. The criteria

used to differentiate between office grades in this study are based solely on the rental rate per square meter, with 1,100 THB per month.

1.3.2 Scope of study period

Data collection for this research will span a period of 2 months, from July to August 2024, allowing for comprehensive exploration and analysis.

1.3.3 Scope of informants

At high management levels, including assistant directors and general managers within the office rental industry, informants will participate in exploratory research interview sessions to assess critical factors influencing business success. Additionally, a questionnaire survey will be conducted for pairwise comparisons with supervisors, assistant managers, and managers responsible for identifying and collecting data for performance evaluation. The focus will be on 35 informants (7 managers per building), representing office business providers.

1.3.4 Scope of contents

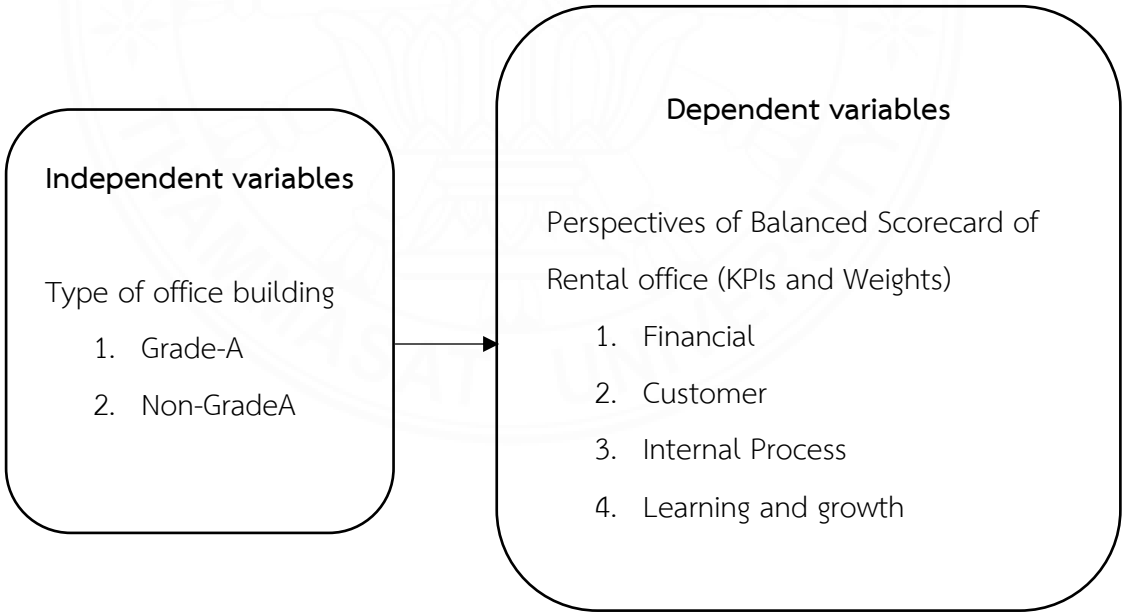
The study focuses on the application of performance measurement tools, such as the Balanced Scorecard (BSC) and Key Performance Indicators (KPIs), within the office rental business. Next, expert viewpoints will be gathered through interviews using the Likert method. Additionally, the Modified Analytic Hierarchy Process (Modified AHP) will be utilized to enhance the effectiveness of weighting for measurement. Unlike the Analytic Hierarchy Process (AHP), which extends to the decision-making process, the modified approach employed in this study concludes by providing weights for key measurements. These weights are then used to construct a customized Balanced Scorecard framework tailored to the needs of the office rental business.

1.4 Conceptual Framework

The objectives focus on analyzing key performance measurements in the office rental business, with particular attention to two types of office classifications: Grade A and Non-Grade A, which will be the independent variable. The analysis aims to assess the significance of each measurement in determining success across four perspectives: finance, customer, internal process, and learning and growth, which serve as independent variables. Additionally, a Modified AHP (Analytic Hierarchy Process) model will be created for weighting these measurements, along with the development of a balanced scorecard performance measurement model tailored to the office rental business.

Figure 1.1

Conceptual Framework



1.5 Expected Contributions

1.5.1 Development of Balanced Scorecard guidance for office rental business: To assist in establishing guideline and relevant criteria for measuring the performance of the Balanced Scorecard in the office rental business, enabling the manager and upper level to monitor success.

1.5.2 Efficient decision support for business check-up and adjustment: This study enables an effective business check-up and adjustment process by providing valuable insights and diagnostic tools, helping to assess current performance and identify areas for improvement.

CHAPTER 2
REVIEW OF LITERATURE

2.1 Facilities Management (FM)

Facility Management (FM) has rapidly gained prominence within the industry over the past four decades. However, its definitions have evolved so quickly that they may lack a solid foundation, often shaped by the perspectives, environment, and demographic context of those defining it. The meaning and scope of FM remain subjects of debate, influenced by cultural factors, organizational priorities, and individual preferences. (Azman, 2014).

Traditionally, buildings were renovated reactively, waiting until issues arose. However, modern facilities often experience slow deterioration, leading to unnoticed problems until they become emergencies. To prevent this, periodic evaluation methods are necessary to assess building systems and components. A comprehensive facility assessment report includes details on existing conditions, component service life, maintenance funding, and renewal forecasts. This assessment helps facility managers prioritize tasks based on funding availability and address minor issues before they escalate (Lavy et al., 2010).

Developing a clear understanding of FM's evolution is crucial to ensure that, as the field diversifies, its core principles remain intact and are not overshadowed by newer elements that might dilute its essence. In Europe, for example, some industry players use the term "facilities management" to attract clients but fail to deliver true professional FM services .This misuse can only be fully understood by tracing FM back to its origins. The phrase "facilities management" is relatively new in continental Europe, where some subcontractors or service providers adopt the term without fully understanding its meaning. There is also a growing trend among service companies to incorporate the letters "FM" into their branding to appear more professional (Azman, 2014).

Table 2.1

Definition of FM

Author	Definition of FM
Becker (1990)	FM is responsible for coordinating all efforts related to planning, designing and managing buildings and their systems, equipment and furniture to enhance the organization's ability to compete successfully in a rapidly changing world.
Nourse (1990)	FM unit is seldom aware of the overall corporate strategic planning, and does not have bottom line emphasis.
NHS Estates (1996)	The practice of coordinating the physical workplace with the people and work of an organization; integrates the principles of business administration, architecture, and the behavioral and engineering science.
Alexander (1999)	The scope of the discipline covers all aspects of property, space and environmental control, health and safety, and support services.
Then (1999)	The practice of FM is concerned with delivery of the enabling workplace environment – the optimum functional space that supports the business process and human resources.
Hinks and McNay (1999)	… common interpretations of FM remit: maintenance management; space management and accommodation standards; project management for new-builds and alterations; the general premises management of the building stock; and the administration of associated support services.

Table 2.1

Definition of FM (Cont.)

Author	Definition of FM
Nutt (2000)	The primary function of FM is resource management, at strategic and operational levels of support. Generic types of resource management central to the FM function are the management of financial resources, physical resources, human resources, and the management of resources of information and knowledge.
IFMA (2003)	The practice of coordinating the physical workplace with the people and work of the organization; integrates the principles of business administration, architecture, and the behavioral and engineering sciences.
BIFM (2006)	"Facilities management is the integration of processes within an organization to maintain and develop the agreed services which support and improve the effectiveness of its primary activities".

Note. From "Facility management history and evolution," By Azman, N. ,2014, *International Journal of Facility Management,* 5(1*),* p 1-10.

At the corporate level, FM aims to ensure continuous productivity and sustainable business growth by integrating all aspects of management principles. From an execution standpoint, FM emphasizes the optimization of workspace environments and activities to sustain longevity and profitable growth (Azman, 2014).

Facility management is often related to building management, but it encompasses more than just day-to-day operations. It involves long-term planning and prioritizes the needs of users. This approach should start during the initial stages of construction planning. The effectiveness of facility management processes and operational costs are largely determined during the building design phase. Additionally, factors such as sustainability and user experience are crucial

considerations. The ecological aspect of a building influences the living environment due to the materials used for its construction as well as the energy consumption necessary for its operation (Potkany et al., 2015).

2.2 Facility managers

Facility managers play a crucial role in various companies, overseeing all support processes within the organization. They are responsible for managing employees and ensuring efficient support services are provided to meet the needs of the enterprise. Facility managers focus on optimizing facility management to provide quality support to employees and efficiently manage resources. When outsourcing is employed, internal facility managers oversee policy, strategic administration, performance measurement, supplier selection, and financial planning. The building life cycle consists of acquisition, use, maintenance, and deconstruction phases, with facility managers typically involved in the operational phase. However, involving facility managers early in the building life cycle can lead to significant cost savings and operational efficiencies (Potkany et al., 2015).

2.3 Balanced Scorecard (BSC)

The Balanced Scorecard (BSC), devised by Robert Kaplan and David Norton in 1992, has become the most renowned and widely used system for business performance management across industries. Originally intended as a performance measurement tool, it has evolved into a comprehensive management system for companies. However, an individual owner may still focus on maximizing short-term profits, often associated with dubious practices rather than legitimate business operations (Harden & Upton, 2016).

The BSC has gained immense popularity globally and is recognized as a pivotal instrument for driving business success. Its significance was quickly

acknowledged, being considered one of the most influential management tools of the twentieth century just five years after its inception (Sibbet, 1997).

Notable multinational corporations such as Apple Computer, Chrysler, Nike, and Pepsi have successfully implemented the BSC. Its success can be attributed to its innovative approach to measuring business performance, which goes beyond traditional reliance on economic and financial measurement. By incorporating a balanced perspective encompassing both short-term and long-term goals, the BSC has provided management with a more holistic view, enabling better decision-making aligned with organizational objectives (Sartor, 2019).

Introduction of the Balanced Scorecard (BSC) aimed to align long-term strategy with short-term operational actions. By integrating traditional financial indicators with new measurement dimensions, the BSC provides a forward-looking perspective, enabling the prediction of future company performance. The interdependence of these measurement perspectives is underscored by explicit cause-effect relationships, translating long-term strategy into operational terms and anticipating future results. This interconnectedness allows for the alignment of organizational objectives with the targets of various company groups, fostering proactive decision-making and strategic alignment (Sartor, 2019).

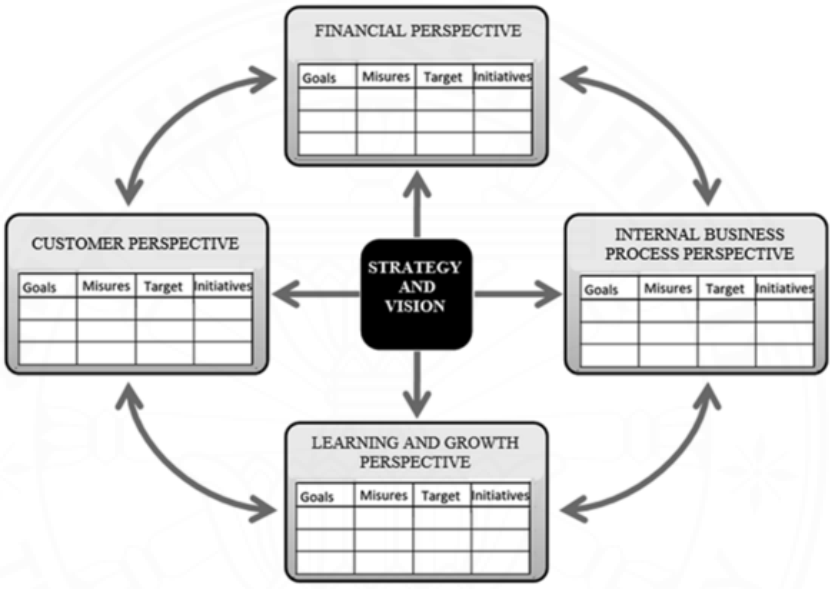
The Balanced Scorecard (BSC) model revolutionized traditional measurement systems by introducing a multidimensional approach to business evaluation. It comprises four key measurement perspectives that balance both long- and short-term goals, incorporating financial performance markers and economic indicators (Kaplan & Norton, 1996). These perspectives, outlined include:

1. Financial perspective: Evaluates whether the company achieves the economic outcomes expected by owners or shareholders.
2. Customer perspective: Assesses the value of products and services from the viewpoint of customers or users.
3. Internal business processes perspective: Examines the effectiveness and efficiency of critical processes aimed at creating value for owners and customers.

4. Learning and growth perspective: Considers the infrastructural elements necessary for successful performance in the other three perspectives.

Figure 2.1

The Balanced scorecard



Note. From Sartor, M. (2019). The Balanced Scorecard. *Quality Management: Tools, Methods, and Standards* (pp. 55-76)

By integrating these diverse perspectives, the BSC offers a comprehensive framework for assessing business performance and guiding strategic decision-making. Moreover, the BSC is a balanced structure of indicators sourced from various business areas like finance, marketing, operations, and human resources. These perspectives are interconnected, aligned with the business strategy, and define objectives and performance measures tailored to the target strategy. This interconnectedness demonstrates how specific actions can influence the future performance of the company (Sartor, 2019).

A Balanced Scorecard employs measures from all four perspectives to assess performance levels. This comprehensive approach compels personnel to maximize overall scorecard measures rather than focusing on a single metric, such as total product sales. (Harden & Upton, 2016).

This shift in focus better aligns the incentives of employees and managers with those of owners and the long-term health of the business. Including the four perspectives expands one's view of organizational performance. The customer perspective emphasizes the importance of future revenue generation for the business's success. Business process improvement highlights the importance of operational efficiencies in generating competitive advantage. For long-term sustainable performance, employee education, service, and process innovations are essential. Financial performance remains a primary concern, but emphasizing non-financial performance measures is necessary to balance short-term performance with long-term sustainability (Harden & Upton, 2016).

The Customer perspective focuses on how a company creates value for its customers. The first step involves defining its customer and market segments. Once identified, companies should select measures such as market share, customer retention, customer acquisition, customer satisfaction, and customer profitability. Additionally, companies need to focus on performance drivers like product/service attributes, customer relationships, and image and reputation. Ultimately, the Customer perspective uses a value proposition to describe the product, price, and image offered to customers (Kime, 2015).

The Internal Process perspective focuses on what companies must excel at to meet customer and shareholder expectations. It includes three business processes: innovation, operations, and post-sale service. The innovation process involves identifying and creating new products and services to meet customer needs. The operations process entails building and delivering these products and services. The post-sale service process offers support to customers after the product or service has been delivered or sold. In summary, the Internal Process perspective outlines what

a company must do internally to satisfy customer and shareholder expectations (Kime, 2015).

The Learning and Growth perspective examines whether companies can continuously improve and create value. This perspective outlines the necessary infrastructure to achieve the objectives of the other three perspectives. It includes three main categories: employee capabilities, information systems capabilities, and motivation, empowerment, and alignment (Kime, 2015).

Employee capabilities involve reskilling employees to move from merely reacting to customer needs to predicting and anticipating them. Employees need timely and accurate information about customers and product feedback to eliminate defects, extra costs, and waste from the production system. Information systems are essential for process improvement. To contribute to a company's overall success, employees must be empowered to make decisions independently.

It is crucial for company and employee goals to align with the objectives in the Balanced Scorecard (BSC). In summary, the Learning and Growth perspective emphasizes the continuous learning and training of employees, the development of new products, and the improvement of existing ones. (Kime, 2015).

The Balanced Scorecard (BSC) serves as a framework for evaluating the alignment of activities with a company's strategic plans. It is commonly employed in strategic planning to ensure that the company's endeavors are in line with its overall strategy and vision (Mikula et la., 2020).

In the context of the capital market, policymakers are worried that corporate financial reporting has not adapted to the fast-paced changes in the business landscape. In response, researchers have presented evidence highlighting the importance of incorporating nonfinancial measures that capture assets usually overlooked. Several studies have indicated that certain nonfinancial measures correlate with future financial performance, although the findings vary. Similarly, there are arguments stressing the significance of nonfinancial measures in guiding internal decision-making processes (Banker & Mashruwala, 2007).

In contrast to the conventional emphasis on financial measurement, the BSC presents a multifaceted perspective of business success. Additionally, a eight-step process has been suggested for developing the BSC, which encompasses elements such as defining scorecard components, identifying performance drivers and measures, communicating its significance, operationalizing it, providing training, and establishing monitoring, evaluation, and review mechanisms (Gawankar et al., 2015).

In today's business world, having a strong strategy is more crucial than ever. However, research shows that companies are finding it increasingly difficult to execute these necessary plans to stay ahead. One significant reason is that while these plans and the problems they address are constantly changing, the tools we use to assess their effectiveness have not kept pace. Many companies still measure success based solely on tangible assets. However, in modern business, intangible assets such as knowledge, skills, and relationships are valued just as highly. Given the constant changes in technology and competition, it is essential for everyone in a company to be aligned with the strategy. They must use the same language to discuss it and have clear methods for implementation (Kaplan & Norton, 2001).

Utilizing the Balanced Scorecard (BSC) enables organizations to move beyond solely relying on short-term financial measures as performance indicators. A crucial initial step in implementing strategy is constructing a reliable framework, known as a Strategy Map (SM), which outlines the cause-and-effect relationships between the organization's strategy and daily activities. This map provides a clear understanding of how strategic objectives are connected to everyday tasks, facilitating effective strategy implementation (Gomes et al., 2013).

This map links the objectives of the four perspectives through cause-and-effect relationships, showing how the various objectives come together to create value for the firm. Both the strategy map and the Balanced Scorecard are part of a continuum that flows from the mission to strategic outcomes: Mission ➞ Values ➞ Vision ➞ Strategy ➞ Strategy Map ➞ Balanced Scorecard ➞ Targets and Initiatives ➞ Personal Objectives ➞ Strategic Outcomes. Each component is crucial for the firm's success. It begins with specifying the organization's mission, influenced by its values

and management. The mission must transition from a general idea to a clearly defined statement, allowing the organization to develop its vision. With a defined mission and vision, professionals can establish and implement a strategy. The Balanced Scorecard then provides a structure to translate strategic objectives into operational performance measures that employees can understand and embrace. Importance of Alignment of Resources with Strategy, key element of success is the alignment or matching of an organization's resources to its strategy implementation. This alignment allows for the emergence of synergies across the four perspectives. The largest difference between top-performing organizations and others is their degree of organizational alignment. The larger and more complex the organization, the more challenging this process becomes. Strategy maps facilitate this alignment by enabling the organization to focus resources on implementing its strategy (Harden & Upton, 2016).

Linking the Balanced Scorecard (BSC) to an organization's strategic planning process starts with identifying key stakeholders. The strategic plan begins with a Vision Statement that outlines the organization's future goals and aspirations. To achieve this vision, the organization must identify its stakeholders and develop specific value propositions for each group, leading to the creation of a Mission Statement. This statement summarizes the organization's goals and purpose and is crucial for communicating these goals to employees and stakeholders. Without a public Mission Statement, organizations are less likely to be accountable to stakeholders (Kime, 2015).

2.4 Performance measurement overview

Performance management spans multiple industries, evolving from individual metrics to include operational and strategic levels. It aligns individual and team performance with organizational goals, using measurements for decision-making and strategic planning (Molan et al., 2019).

Within this framework, performance measurement is crucial but often not clearly explained. Essentially, it involves quantifying action, where measurement equal to quantification and action results in performance. From a marketing perspective,

organizational success links on efficiently and effectively satisfying customers in comparison to competitors. Efficiency gauges how well resources are utilized to provide customer satisfaction, while effectiveness measures how well customer requirements are met (Neely et al., 2005).

Criticism has been assessed against the traditional approach to performance measurement for its narrow focus on financial measurement, potentially fostering short-term thinking. Scholars have advocated for an integrated performance measurement system that transforms cost accounting to emphasize continuous improvement. Additionally, there is a growing acknowledgment of the necessity for a holistic approach to performance measurement, encompassing both financial and non-financial factors, to drive organizational success (Gomes et al., 2006).

Key Performance Indicators (KPIs) play a crucial role as indicators spotlighting aspects of organizational performance vital for current and future success. These indicators, often preexisting within the organization, serve as essential tools in directing attention towards critical areas of performance directly impacting organizational success (Parmenter, 2015).

Moreover, performance measurement holds significant importance in evaluating the effectiveness of constructed facilities comprehensively. It provides essential guidance to organizations, facilitating informed decision-making processes and allowing for a review of past and present operations to inform future strategies essential for successful organizational functioning and the achievement of strategic goals (Lavy et al., 2010).

In today's competitive landscape, the ability to track, manage, and enhance competitive performance is indispensable for organizational success. Performance measures and measurement practices emerge as crucial tools for organizations navigating these challenges and striving to maintain a competitive edge. Executives increasingly recognize the importance of understanding the scope, frequency, and relevance of various performance measures available to them to drive strategic decision-making and enhance organizational effectiveness (Gomes, 2007).

Performance measurement should address this gap by facilitating the translation of strategy into actionable steps. The primary goal is to ensure that managers and employees are motivated to successfully execute the organization's strategy (Kaplan and Norton, 1996). Organizations that effectively integrate strategy with performance measurement are better positioned to communicate objectives, align actions, and achieve strategic goals (Amaratunga & Baldry, 2003).

2.5 Financial perspective

The Financial perspective addresses how a company appears to its shareholders, varying with the business cycle stage. Kaplan and Norton identify three stages: growth, sustain, and harvest. Growth businesses, in the early stage, usually operate with negative cash flows and emphasize sales growth. Most businesses are in the sustain stage, focusing on maintaining and growing market share, with financial objectives related to profitability through measures like operating income and gross margin. In the harvest stage, businesses aim to gain returns from investments made in the previous stages, focusing on cash flow. The stage a company is in determines its financial objectives. Overall, the financial perspective shows managers if their strategies and objectives are contributing to the bottom line and increasing shareholder value (Kime, 2015).

Without proper financial analysis, companies risk making poor decisions, leading to significant losses, liquidity issues, unsustainable debts, and potentially bankruptcy. Therefore, organizations must invest time and resources in evaluating their financial situation and planning improvement strategies. These indicators are traditionally categorized into four types: liquidity, activity, profitability, and indebtedness, each involving various indicators used in the analysis of financial statements (Kime, 2015).

2.5.1 Liquidity Indicators

Liquidity indicators assess a company’s capacity to meet its short-term financial obligations. They focus on cash flows or assets easily convertible to cash to determine if the company can promptly respond to financial commitments. This is crucial for creditors who need to evaluate the payment capacity of a client or potential client. During challenging times, a company might need to deplete its liquidity reserves to cover immediate expenses. Various measures can be used to evaluate whether a company has sufficient cash or cash equivalents to fulfill current obligations without having to liquidate other assets (Riofrio et al., 2023).

2.5.2 Activity Indicators

Activity indicators, also known as efficiency indicators, measure how effectively a company utilizes its resources to generate sales and revenue. These indicators provide insights into operational efficiency by evaluating metrics such as accounts receivable turnover, inventory turnover, accounts payable turnover, cash conversion cycle, and asset turnover. They reflect how quickly certain accounts are converted into cash and help gauge the company’s productivity and operational performance. For small and medium-sized enterprises (SMEs) reliant on short-term financing, these indicators are particularly important for understanding asset management and long-term performance (Riofrio et al., 2023).

2.5.3 Profitability Indicators

Profitability indicators are crucial for assessing a company's long-term sustainability and financial health. They measure the relationship between the investment made and the results obtained from economic activities. High profitability indicates that a company is generating significant profits, which suggests a strong potential for meeting future debt obligations and ensuring long-term survival. Conversely, a decline in profitability can weaken the company's liquidity position, increasing the risk of default. Profitability indicators help analyze accounts to optimize costs and expenses, facilitating better financial management and decision-making (Riofrio et al., 2023).

2.5.4 Debt Indicators

Debt indicators or leverage indicators, analyze how a company uses external resources and manages financial risks. They evaluate the company's ability to obtain capital through loans and its capacity to meet debt obligations. These indicators are essential for understanding the company's financial position and risk levels. High levels of debt relative to equity can signal financial strain, potentially leading to bankruptcy if the company cannot meet its short-term debt commitments. Monitoring debt indicators helps assess whether the company is taking on excessive financial risk and how responsibly it is managing its obligations (Riofrio et al., 2023).

Critics have criticized financial measures for their inability to reflect contemporary value-creating actions. Some argue that the terms of competition have changed over time and that traditional financial measures do not improve customer satisfaction, quality, timeliness, and employee motivation. In their view, financial performance is the result of operational actions, and financial success should be the logical consequence of doing the fundamentals well. While most organizations will emphasize profitability objectives, other financial objectives are also possible. A well-designed financial control system can enhance management planning, control, and decision-making. Moreover, they can serve to remind the management that any changes they seek to make – for instance, in service quality – will ultimately benefit their organization only if they lead to improvements in the overall "bottom-line" view of their organization (Amaratunga & Baldry 2003).

While the financial perspective alone may not suffice for long-term business performance management, it remains essential for evaluating economic outcomes and determining if desired financial goals have been met. Financial indicators, such as profitability measures, play a crucial role in this perspective, though the selection of indicators depends on the company's specific financial objectives (Sartor, 2019).

2.6 Customer Perspective

The Customer perspective addresses how a company creates value for its customers. The first step is to define its customer and market segments. Once identified, a company should select two sets of measures: generic measures (market share, customer retention, customer acquisition, customer satisfaction, and customer profitability) and performance drivers (product/service attributes, customer relationship, and image and reputation). Companies must determine what customers value and define how they differentiate themselves from other companies to retain, attract, and satisfy their target customers. In sum, the Customer perspective uses a value proposition to describe the product, price, and image that a company offers (Kime, 2015).

Customer-related performance measures describe how value is created for customers and how customer demand for this value is satisfied. Customer relations are a significant concern for facilities managers, highlighting the need for performance measures that adequately reflect important customer-oriented factors. Customers' concerns typically fall into four categories: time, quality, performance, and service. These measures relate to the most desired customer requirements and are considered the heart of the organization. If an organization fails to deliver the right products and services to cost-effectively satisfy customer needs in both the short and long term, revenue will not be generated, and the business will decline. Facilities managers should have a clear understanding of their customer and business segments and select a set of core outcome measurements for those targeted segments. These outcome measures should represent the targets for an FM organization's product and service development process (Amaratunga & Baldry 2003).

Similar to the financial perspective, measures in the customer perspective are not standardized but rather tailored to the type of business and its objectives. Customization ensures alignment with specific business goals and enhances the effectiveness of performance evaluation in this dimension (Sartor, 2019).

2.7 Internal Processes Perspective

The Internal Process perspective focuses on what companies must excel at to meet customer and shareholder expectations. A value-chain model encompasses three business processes: innovation, operations, and post-sale service. During the innovation process, businesses identify and create new products and services to meet customer needs. The operations process involves building and delivering these products and services. The post-sale service process offers support to customers after the product or service has been delivered or sold. In sum, the Internal Process perspective outlines the internal actions a company must take to satisfy customer and shareholder expectations (Kime, 2015).

Conventional performance measurement systems typically focus on monitoring and improving cost, quality, and time-based measures of existing business processes. However, there is a need for an approach that measures performance, deriving demand for internal process performance from the expectations of specific external constituencies. Managers must decide which operations, processes, competencies, and skills their organizations must excel at to adequately meet customer demands. Moreover, it is essential that such internal measures relate to those areas most likely to have the greatest impact on customer satisfaction. (Amaratunga & Baldry 2003).

Measures in the internal processes perspective typically relate to cost, quality, time, and flexibility parameters, aligned with predefined strategic objectives. These may include production cost, product compliance, procurement lead time, and flexibility in production volumes. Additionally, innovation processes are considered, with specific indicators such as the rate of patenting, number of completed projects, and time to market. By focusing on internal processes and their optimization, companies can enhance their ability to deliver value to both customers and owners, ultimately contributing to long-term success and competitiveness (Sartor, 2019).

2.8 Learning and Growth Perspective

The Learning and Growth perspective focuses on whether companies can continue to improve and create value. The objectives in this perspective describe the infrastructure needed to achieve the objectives of the other three perspectives. There are three principal categories for the Learning and Growth perspective: employee capabilities, information systems capabilities, and motivation, empowerment, and alignment. It is crucial for the company and employees to align their goals with the objectives stated in the Balanced Scorecard (BSC). In sum, the Learning and Growth perspective emphasizes continual learning and training of employees, the development of new products, and the improvement of existing products (Kime, 2015).

Learning and growth issues identify the infrastructure necessary for long-term growth and improvement. This involves assessing employee capabilities, the quality of information systems, and the effects of organizational alignment in supporting organizational goals. It ensures the organization's capacity for long-term renewal, crucial for survival. The organization must consider not only how to maintain and develop the know-how to understand customer needs but also how to sustain the efficiency and productivity of processes (Mikula et al., 2020).

Moreover, Happiness in the workplace significantly boosts productivity by improving employee morale, leading to a greater willingness to work harder and contribute to the company's goals. Studies show that businesses with higher employee satisfaction experience 86% higher customer ratings, a 76% improvement in lowering turnover, a 70% increase in profitability, a 44% boost in productivity, and a 78% better safety record. Companies rely on skilled, knowledgeable employees, and if these employees are not treated fairly, they are likely to seek other job opportunities that offer more stability, better benefits, and higher compensation (Gregory, 2011).

Ultimately, the ability to meet ambitious targets for financial, customer, and internal process objectives depends on the organizational capabilities for learning and growth. While customer and internal processes focus on the organization's current competitive position, issues relating to learning and growth are essential to recognize

that this position is constantly changing. Intense global competition requires that organizations make continual adjustments to stay ahead (Amaratunga & Baldry, 2003).

Objectives in this perspective may involve employee training, strengthening internal information systems, and aligning routines and procedures with production processes. These objectives are tailored to meet the performance requirements of preceding perspectives. Indicators in the learning and growth perspective encompass not only employee satisfaction, training levels, and turnover rates but also the availability and depth of customer information, plant renewal rates, and alignment between incentive systems and production processes (Sartor, 2019).

The relationship between learning and performance improvement highlights that managers can facilitate behavioral changes and enhance performance by effectively understanding and optimizing the learning process. As a result, the emphasis on performance measurement within the FM discipline appears to be closely connected to organizational performance and drives innovation in achieving performance goals (Pitt & Tucker, 2008).

2.9 Analytic Hierarchy Process (AHP)

The Analytic Hierarchy Process (AHP) has become a prominent methodology in the field of Multiple Criteria Decision Making (MCDM) over the past two decades (Ho, 2008). For MCDM, which is acknowledged as an assessment framework employed across diverse fields, including environmental, economic, and technical, its widespread adoption come from its capacity to enable decision-makers to evaluate all relevant criteria and make decisions in accordance with their priorities. MCDM assists decision-makers by quantifying specific criteria based on their relative importance compared to others (Kumar & Anbalagan, 2016). AHP relies on pairwise comparisons and expert judgments to establish hierarchies, effectively assessing the relative importance of intangible variables (Saaty, 2008). By systematically breaking down complex difficulty into manageable segments, AHP facilitates streamlined

decision-making processes, providing a comprehensive understanding of underlying dynamics (Saaty, 1994).

Additionally, the Analytic Hierarchy Process (AHP) involves pairwise comparisons weighting, assigning values on a scale from 1 to 9 to determine the relative importance of each criteria. Comparing elements and calculating values such as the maximum Eigenvalue and consistency ratio help in decision-making. AHP facilitates consensus through questionnaires, offering advantages in decision-making processes (Vaidya & Kumar, 2006). Its application requires a well-ordered approach comprising several sequential stages. Beginning with problem definition and data gathering, the process progresses to constructing a decision hierarchy, ranging from goals to specific alternatives. This framework enables pairwise comparisons, allowing experts to notice the relative importance of elements at each level. Consequently, these priorities cascade downward. This results in determining the final priorities for alternatives (Saaty, 2008).

In utilizing the Analytic Hierarchy Process (AHP) and its extension, the Analytic Network Process (ANP), individuals establish hierarchies or interconnected networks. Subsequently, they evaluate pairs of elements in relation to a controlling factor, facilitating the derivation of ratio scales. These scales are then amalgamated across the structure to determine the optimal choice (Saaty & Vargas, 2011).

The method application can be explained in four steps:

1. Hierarchy Development: The decision problem is structured hierarchically, with the goal at the top, criteria and sub criteria at intermediate levels, and alternatives at the bottom.
2. Prioritization Process: Decision makers prioritize elements at each level through pair-wise comparisons. This involves comparing all possible pairs of elements at a level, starting from the top of the hierarchy and progressing downwards.
3. Calculation of Relative Significance: Based on pair-wise comparisons, the relative significance (weights) of elements in the hierarchy are calculated. Numerical calculations determine the relative priorities for

each decision-making element. Results are synthesized into an overall priority list of alternatives. Decision makers can adjust preferences and test results for consistency.

4. Result Presentation and Sensitivity Analysis: The results consist of a priority list of alternatives and a hierarchy tree indicating relative significance. Sensitivity analysis is conducted to assess the impact of changes in criteria or preferences on the ranking of alternatives (Begicevic et al., 2007).

2.10 Modified Analytical Hierarchy Process (Modified AHP)

The Analytic Hierarchy Process (AHP) is a powerful tool in Multiple Criteria Decision Making (MCDM), but it requires development to overcome constraints. Researchers have extended AHP to suit specific goals, showcasing its adaptability.

AHP's versatility shines through its seamless integration with various techniques like Linear Programming, Quality Function Deployment, and Fuzzy Logic. This integration allows users to harness multiple methods simultaneously, enhancing goal achievement (Vaidya, 2006).

The conventional AHP method, while useful, presents challenges for significant decisions involving senior executives due to its requirement for numerous comparisons. In response, a modified AHP version has been proposed, aiming to streamline the process by comparing one element against all others. This adaptation prioritizes crucial elements to minimize evaluation inconsistencies (Leal, 2019).

Another modified version, termed M-AHP, addresses expert subjectivity in factor comparisons. Variances between the two methods mainly concern the preparation of the factor comparison matrix in the second stage of the conventional AHP (Nefeslioglu et al., 2013).

This research utilizes pairwise comparison within the Analytical Hierarchy Process to determine the weights of factors crucial to the criteria's importance and to

ensure weighting of both primary and secondary criteria, by avoiding towards selecting process a particular alternative (Tochaiwat et al., 2021).

2.11 Sample size of AHP method

The analysis of sample sizes in AHP studies shows that while most involve groups ranging from 2 to 100 participants, some studies even include just one person, demonstrating the method's flexibility. However, for more general conclusions, larger groups are preferable. Many AHP studies focus on undergraduate students, academics, and experts, particularly in educational contexts. AHP is beneficial in system development, especially in need analysis, as it can identify stakeholders' priorities and preferences. The method is more engaging than traditional Likert scales but should be facilitated by a moderator for optimal implementation (Şahin & Yurdugül, 2018).

2.12 Likert scale

The Likert scale, devised in 1932, measures attitudes scientifically and validly. An attitude is defined as preferential ways of behaving/reacting in specific circumstances, rooted in enduring beliefs and ideas acquired through social interactions. Attitudes involve cognition (thinking), affect (feeling), and psychomotor actions (behavior) in various combinations.

The Likert scale quantifies these subjective preferences reliably. It consists of statements related to a real or hypothetical situation under study. Participants indicate their level of agreement (from strongly disagree to strongly agree) on a metric scale, with all statements together revealing a specific dimension of the attitude. Article addresses two key issues regarding the Likert scale: the preferable number of points on a scale and the analysis of the scale. (Joshi et al., 2015).

Developing a Likert-scale questionnaire starts with a thorough understanding of the target construct, achieved by reading academic literature and analyzing items from previous questionnaires on the topic. Engaging in discussions with

others familiar with the construct can also enhance understanding. This approach, known as the construct-centered approach, begins by identifying the knowledge, skills, or attributes to be assessed. It then considers the behaviors or performances that should reveal those constructs and the tasks or situations that should elicit those behaviors. This ensures a close relationship between the hypothesized construct and the tasks or items on the instrument, guiding item development to measure the construct accurately (Nemoto & Beglar, 2014).

It is important to acknowledge the limitations of this type of opinion measurement. It lacks precision and does not guarantee that the intervals between responses (e.g., “strongly agree” and “agree”) are equal. Additionally, the statements themselves may not hold equal weight in expressing "for" or "against" opinions. Respondents may also struggle to accurately reflect real-life situations in their responses to short, printed statements. Finally, equal scores from different individuals may not reliably indicate equal favorableness, as different combinations of responses can lead to the same overall score without reflecting identical attitudes (Best & Kahn, 2016).

When Likert-scaled items are treated as interval measurements, the data are often summarized using a weighted mean. The results are then interpreted by matching them to a defined range, each corresponding to a verbal description.

For example, in research examining common errors by nursing students, the intervals are adjusted to have equal differences. This ensures uniformity across categories, as seen below:

1.00-1.80: "Never"

1.81-2.60: "Rare"

2.61-3.40: "Sometimes"

3.41-4.20: "Often"

4.21-5.00: "Always"

This system allows consistent interpretation of survey responses, aiding in clearer data analysis and communication (Pimentel, 2010).

2.13 Rental office overview

Office buildings serve as essential spaces for businesses to conduct their office-related tasks. They are structured to accommodate either multiple organizations or a single company, tailored to meet their specific operational requirements. The primary functions of office spaces revolve around effective management, utilization of resources, and ensuring operational efficiency, creating an environment conducive to various tasks such as administration, planning, communication, and information processing (Salam et al., 2022).

The emergence of rental offices can be attributed to the rapid urbanization driven by industrialization, construction activities, trade, and banking. These fully equipped office spaces offer leased areas along with amenities and services necessary to support a wide range of business operations (Nurzukhrufa et al., 2018).

Office properties come in diverse forms, including low-rise offices, high-rise complexes, and office parks, with their success contingent upon factors like proximity to the workforce and transportation facilities. Grade A office buildings, distinguished by their superior features such as spacious layouts, efficient air conditioning systems, and appealing designs, are preferred choices for modern businesses (Klinchuanchun, 2023).

The value of an office property is determined by several factors, including its size, age, quality attributes, and lease terms (Dunse & Jones, 1998). For the lower grade such as Grade-B offices are slightly older buildings compared to Grade-A, with good management, quality tenants, and decent building finishes, although not at Grade-A levels.

They are often well-maintained with average rental rates and are targeted by occupants planning renovations to elevate them to Grade-A status. The key difference between Grade-A and Grade-B buildings lies in the quality and variety of amenities and building finishes. Grade-B office spaces cater to a diverse range of users seeking average rental rates in their respective market areas.

Typical tenants include companies prioritizing functional, modern workspaces over prestige, such as those in IT, creative services, and call centers (Namayanja & Mubiru, 2023).

CHAPTER 3
RESEARCH METHODOLOGY

3.1 Research Design

This study, focused on examining performance measurement indices based on the Balanced Scorecard framework within office rental business, employs a Mixed Methodology. The research design comprises both qualitative researches, utilizing interviews, and quantitative research, employing questionnaire surveys.

3.2 Population and Samples

In the qualitative data collection part, four informants includes general managers responsible for defining key performance measurements in office rental buildings. Meanwhile, for the quantitative data collection, the informants comprise supervisors, assistant managers, and assistant general managers tasked with performing and delivering performance in a sample of totaling 35 samples to provide a proper representation for the office building provider industry.

3.3 Data Sources

The researcher will gather information from the following sources:

1. Primary Data: This includes gathering information through interviews and questionnaires, with the data collection period extending from July to Aug 2024. The emphasis is on groups within the four perspectives of the balanced scorecard.

2. Secondary Data: This information obtained from theoretical studies related to the concept of Balanced Scorecard, performance measurement theory, AHP concepts, and the characteristics of office building. Various theories will be referenced to analyze the study results. Additionally, data will be collected from articles, journals,

research reports, academic documents, and printed media, including information available on the internet.

3.4 Research Tools

The researcher utilizes interview and questionnaires guides as tools for data collection from the sample group. The process of creating these tools involves the following steps:

1. Review of study objectives and BSC perspectives.

2. Study how to create interview questions and survey questionnaires based on relevant concepts and theories.

3. Examine methods for constructing interview questions and divide into

Section 1: Personal Information

This section consists of questions, including years of industry experience, duration of employment in the building, and qualifications of the informants as indicated for participants in qualitative data collection.

Section 2: Opinions on Performance Measurement

In this part, questions are designed to gather opinions on measuring success in the business. This encompasses criteria for selecting key performance indicators and methods of measurement.

4. Create a questionnaire to assess the level of importance of performance measurement in the workplace obtained through the form. Formulate closed-ended questions to allow informants to express their opinions using pair-wise comparison methods.

3.5 The process of collecting and data gathering

The researcher conducted data collection following the steps as follows:

Qualitative data gathering:

The researcher personally collected four sets of data face-to-face with informants. Prior to the data collection process, the researcher gained an understanding of the interview questions. Additionally, any unclear points in the questionnaire were explained during the data collection process.

Quantitative data gathering:

The researcher sent letters to the sample group by E-mail, explaining the research objectives and instructing the sample group to respond to a questionnaire. The researcher created the questionnaire. The document included the researcher's name, working experiences for further inquiries and details.

3.6 Data Analysis Process

1. Study key points related to performance measurement in the office building.
2. Compile measurements from literature reviews and interviews.
3. Create weights for Balanced Scorecard (BSC) from 4 perspectives.
4. Consolidate data from pairwise method and create weights within each perspective.
5. Create a Balanced Scorecard for the office rental business.

CHAPTER 4
RESULTS AND DISSCUSSION

This analysis summarizes the data through descriptive text and the Analytical Hierarchy Process (AHP) based on the defined sample group. The data collection employed a Likert scale to measure key measurements, which were then weighted using AHP to determine their relative importance. The researcher was able to analyze the data and interpret the results of the analysis as follows:

4.1 Qualitative research data analysis

4.1.1 Personal information of interviewees

Interviews were conducted with managers working in the office building business, performing management roles, and located in Bangkok. A total of 5 buildings were involved. The perspectives on key performance measurements, based on the Balanced Scorecard theory, can be summarized as follows :

Table 4.1

Information of interviewees and buildings

Building	Position	Working Experience	Building Capital (THB)	Average rental rate	Occupancy rate	Location
A	General Manager	25	6,300	1400	92	Phrom Phong
B	Sales Director	17	2,400	1100	82	Phrom Phong
C	General Manager	10	880	600	56	Bang Na
D	General Manager	15	1,500	1000	48	Sathorn
E	Marketing Director	18	2,000	1200	76	Bang Na

From table 4.1 the information of the interviewees reveals the following : Three buildings have registered capital in the range of 1,000 to 7,000 million THB

Building A has a registered capital of 6,300 million THB, is managed by a General Manager with 25 years of experience, and is located in Phrom Phong, a high-demand area. The building boasts an average rental rate of 1,400 THB and a high occupancy rate of 92%.

Building B has a registered capital of 2,400 million THB, managed by a Sales Director with 17 years of experience. Also located in Phrom Phong, it maintains an average rental rate of 1,100 THB with an occupancy rate of 82%.

Building E has a registered capital of 2,000 million THB, managed by a Marketing Director with 18 years of experience. It is located in Bang Na with an average rental rate of 1,200 THB and an occupancy rate of 76%.

Two buildings have registered capital of less than 1,000 million THB:

Building C has a registered capital of 880 million THB and is managed by a General Manager with 10 years of experience. It is located in Bang Na, with an average rental rate of 600 THB and an occupancy rate of 56%.

Building D has a registered capital of 1,500 million THB, managed by a General Manager with 15 years of experience. Located in Sathorn, it has an average rental rate of 1,000 THB, but with a lower occupancy rate of 48%.

The interviewees shared their perspectives as follows:

Table 4.2

Financial Perspective with Likert scale data

Measurement	Likert Scale					Total	Average
	Low >>>> High						
	1	2	3	4	5		
Operating profit compared to the target			1	2	2	21	4.2
Cost control according to the spending plan compared to the target			1	3	1	20	4.0
Operating income compared to the target			1	3	1	20	4.0
Space occupancy ratio compared to the target		1	1	2	1	18	3.6
Efficiency of utility cost control compared to the target		1	2	2		16	3.2
Ratio of other income beyond rental income		1	2	2		16	3.2
Return on total assets compared to the target:(ROA)		1	3	1		15	3.0
Efficiency of cost control for decoration and alterations		3	1	1		13	2.6
Current ratio		2	3			13	2.6
Return on equity		2	2	1		14	2.8

From Table 4.2, the evaluation of performance measurements using the Likert scale establishes a threshold of 3.4 for decision-making. This threshold ensures that only measures demonstrating satisfactory performance are selected for further analysis. The Likert scale ratings range from 1 to 5, where 1 represents "Low" and 5 represents "High." In this context, a score of 3.4 is considered the minimum acceptable level, representing a performance that is generally satisfactory but may not yet be

optimal. The criteria for evaluating the average scores of Likert scale measures are interpreted as follows:

1.00 - 1.80: Represents the lowest level

1.81 - 2.60: Represents a low level

2.61 - 3.40: Represents a moderate level

3.41 - 4.20: Represents a high level

4.21 - 5.00: Represents the highest level

In this research, only criteria with an average score above 3.40 will be selected to indicate a high level of opinion, based on the guidelines provided (Best & Kahn, 2016).

Measurements scoring above 3.4 are indicative of satisfactory and are selected for further analysis. These measurements include:

1. Operating Profit Compared to the Target (4.2)
2. Cost Control According to the Spending Plan Compared to the Target (4.0)
3. Operating Income Compared to the Target (4.0)
4. Space Occupancy Ratio Compared to the Target (3.6)

Even though Return on Total Assets (ROA) scores below the 3.4 threshold with a rating of 3.0, it should be selected for analysis from a corporate perspective. ROA is a critical financial measurement that provides insight into how efficiently the company is using its assets to generate profits. Despite its lower rating, ROA is essential for understanding overall corporate performance and should be prioritized for strategic improvement initiatives.

Table 4.3

Customer Perspective with Likert scale data

Measurement	Likert Scale					Total	Average
	Low >>>> High						
	1	2	3	4	5		
Customer service satisfaction survey compared to the target				4	1	21	4.2
Success rate of lease renewals compared to the target			2	1	2	20	4.0
Rate of complaint resolution according to the plan compared to the target			2	1	2	20	4.0
Overall tenant satisfaction survey compared to the target			3		2	19	3.8
Customer acquisition rate compared to the target			2	3		18	3.6
Satisfaction survey on rental prices		1	4			14	2.8

From Table 4.3, Measurements scoring above 3.4 are indicative of satisfactory performance and are selected for further analysis. These measurements include:

1. Customer service satisfaction survey compared to the target (4.2)
2. Success rate of lease renewals compared to the target (4.0)
3. Rate of complaint resolution according to the plan compared to the target (4.0)
4. Overall tenant satisfaction survey compared to the target (3.8)
5. Customer acquisition rate compared to the target (3.6)

Table 4.4

Internal Process Perspective with Likert scale data

Measurement	Likert Scale					Total	Average
	Low >>>> High						
	1	2	3	4	5		
Efficiency of air conditioning system management compared to targets			1	2	2	21	4.2
Efficiency of managing tenant complaints compared to targets				4	1	21	4.2
Control of air quality compared to targets			1	3	1	20	4.0
Efficiency of elevator management compared to targets			3	1	1	18	3.6
Maintenance management according to planned schedules compared to targets			3	2		17	3.4
Efficiency of controlling electricity usage			4	1		16	3.2
Efficiency of electricity and emergency backup power supply		1	3	1		15	3.0
Waiting time for the elevator		1	3	1		15	3.0

From Table 4.4, Measurements scoring above 3.4 are indicative of satisfactory performance and are selected for further analysis. These measurements include:

1. Efficiency of air conditioning system management compared to targets (4.2)
2. Efficiency of managing tenant complaints compared to targets (4.2)
3. Control of air quality compared to targets (4.0)
4. Efficiency of elevator management compared to targets (3.6)

5. Maintenance management according to planned schedules compared to targets (3.4)

Table 4.5

Learning and Growth Perspective with Likert scale data

Measurement	Likert Scale					Total	Average
	Low >>>> High						
	1	2	3	4	5		
Employee education and training compared to the target			1	3	1	20	4.0
Employee turnover rate compared to the target			1	4		19	3.8
Employee satisfaction compared to the target			2	3		18	3.6
Development of employee capabilities and promotion of growth compared to the target			1	3	1	20	4.0
Continuous improvement compared to the target			3	2		17	3.4
Employee absenteeism compared to the target			2	3		18	3.6
Average length of service of employees compared to the target		2	2	1		14	2.8

From Table 4.5, Measurements scoring above 3.4 are indicative of satisfactory performance and are selected for further analysis. These measurements include:

1. Employee education and training compared to the target (4.0)
2. Development of employee capabilities and promotion of growth compared to the target (4.0)
3. Employee turnover rate compared to the target (3.8)

4. Employee satisfaction compared to the target (3.6)
5. Employee absenteeism compared to the target (3.6)
6. Continuous improvement compared to the target (3.4)

Based on the interviews with informants regarding their opinions on the performance indicators from various perspectives according to the Balanced Scorecard theory, as well as the literature review, the researcher was able to summarize the analysis of these opinions. This summary will be used for pairwise comparison analysis between the factors as follows:

Table 4.6

Summarize the analysis of these opinions to be used for pairwise comparison analysis between the measurements

Perspective	No.	Measurement
Financial	F1	Operating profit compared to the target
	F2	Cost control according to the spending plan compared to the target
	F3	Operating income compared to the target
	F4	Space occupancy ratio compared to the target
	F5	Return on total assets compared to the target
Customer	C1	Customer service satisfaction survey compared to the target
	C2	Success rate of lease renewals compared to the target
	C3	Rate of complaint resolution according to the plan compared to the target
	C4	Overall tenant satisfaction survey compared to the target
	C5	Customer acquisition rate compared to the target

Table 4.6

Summarize the analysis of these opinions to be used for pairwise comparison analysis between the measurements (Cont.)

Perspective	No.	Measurement
Internal process	I1	Efficiency of air conditioning system management compared to targets
	I2	Efficiency of managing tenant complaints compared to targets
	I3	Control of air quality compared to targets
	I4	Efficiency of elevator management compared to targets
	I5	Maintenance management according to planned schedules compared to targets
Learning and growth	L1	Employee education and training compared to the target
	L2	Employee satisfaction compared to the target
	L3	Development of employee capabilities and promotion of growth compared to the target
	L4	Continuous improvement compared to the target
	L5	Employee absenteeism compared to the target

4.2 Quantitative research data analysis

The study of appropriate performance measurements in office buildings through pairwise comparison analysis between measurements. The normal pairwise comparison data between measurements involves the reliability values derived from normal calculations and the net importance weights of each key measurement from the respondents. The data can be analyzed as follows.

Table 4.7

Pairwise comparison data of main measurements for grade-A office buildings

Comparison of perspective	Financial	Customer	Internal Process	Learning and Growth
Financial	1.000	3.476	4.238	3.190
Customer	0.288	1.000	2.429	1.670
Internal Process	0.236	0.412	1.000	2.039
Learning and Growth	0.313	0.599	0.491	1.000
Total	1.000	3.476	4.238	3.190

Using the data from Table 4.7, the average for each measurement is calculated, resulting in the weights of importance for each main measurement. These weights can be used for standard pairwise comparisons between factors, as shown in Table 4.8. For ease of data entry, FIN represents the Finance perspective, CUS represents the Customer perspective, PRO represents the Internal Process perspective, and LNG represents the Learning and Growth perspective of the organization.

Table 4.8

Pairwise comparison data of main measurements for grade-A office buildings with ranking

Comparison of perspective	FIN	CUS	PRO	LNG	Total - Row	Weight	Rank
FIN	0.544	0.634	0.520	0.404	2.101	0.525	1
CUS	0.157	0.182	0.298	0.211	0.848	0.212	2
PRO	0.128	0.075	0.123	0.258	0.584	0.146	3
LNG	0.171	0.109	0.060	0.127	0.466	0.117	4
Total -Column	1.000	1.000	1.000	1.000	4.000	1.000	

Multiply the relative importance scores from the pairwise comparison of each measurement in Table 4.7 with the importance weight scores of each measurement obtained from Table 4.8

$$\begin{bmatrix} 1.000 & 3.476 & 4.238 & 3.190 \\ 0.288 & 1.000 & 2.429 & 1.670 \\ 0.236 & 0.412 & 1.000 & 2.039 \\ 0.313 & 0.599 & 0.491 & 1.000 \end{bmatrix} X \begin{bmatrix} 0.525 \\ 0.212 \\ 0.146 \\ 0.117 \end{bmatrix} = \begin{bmatrix} 2.253 \\ 0.913 \\ 0.595 \\ 0.480 \end{bmatrix}$$

Divide the result obtained from the above multiplication by the importance score of each factor, which is obtained from the numbers in Table 4.8, in order to calculate the lambda max value.

$$\begin{bmatrix} 2.253 \\ 0.913 \\ 0.595 \\ 0.480 \end{bmatrix} / \begin{bmatrix} 0.525 \\ 0.212 \\ 0.146 \\ 0.117 \end{bmatrix} = \begin{bmatrix} 4.289 \\ 4.304 \\ 4.074 \\ 4.115 \end{bmatrix}$$

Find the λ_{max} value from the average of the results obtained from the above

$$\lambda_{max} = \frac{4.289+4.304+4.074+4.115}{4} = 4.196$$

Calculate the consistency index (CI) and consistency ratio (CR) according to the equations provided below, where n is the size of the pairwise comparison matrix or the number of factors being compared. In this case, n = 4, and RI is the average random consistency, which is RI = 0.90 when n = 4.

Table 4.9

RI values compared to the number of respondents' choices

N	1	2	3	4	5	6	7	8	9	10	11	12
RI	0	0	0.58	0.90	1.12	1.24	1.32	1.41	1.45	1.49	1.51	1

Consistency Index (CI) Formula:

$$CI = \frac{\lambda_{max}-N}{N-1} \quad (4.1)$$

$$= \frac{4.196-4}{4-1} = 0.065$$

Consistency Ratio (CR) Formula:

$$CR = \frac{CI}{RI} \quad (4.2)$$

$$= \frac{0.065}{0.9} = 0.072$$

Table 4.10

Confidence results from calculating the normal values of respondents in grade-A office buildings

Parameter	Value
λ_{max}	4.196
N	4
CI	0.065
RI	0.9
CR	0.072

Based on the calculation, the Consistency Index (CI) is 0.065, and the Random Index (RI) is 0.9, resulting in a Consistency Ratio (CR) of 0.072 or 7.2%. Since this value is below the threshold of 0.1 or 10%, it can be concluded that the decision-makers have consistently compared the main measurement pairwise and rated the importance of each measurement in a coherent manner.

Table 4.11

Presents the net importance weights of each main measurement according to the respondents of grade-A office buildings

Measurement	Importance (%)	Rank
Financial	52.5%	1
Customer	21.2%	2
Internal process	14.6%	3
Learning and growth	11.7%	4

According to Table 4.11, the financial perspective is the most important, with an importance score of 52.5%. The customer perspective ranks second, with an importance score of 21.2%. The internal process perspective is third, with an importance score of 14.6%. Lastly, the learning and growth perspective ranks fourth, with an importance score of 11.7%.

Table 4.12

Pairwise comparison data of main measurements for non-grade-A office buildings

Comparison of perspective	Financial	Customer	Internal Process	Learning and Growth
Financial	1.000	4.429	3.857	3.571
Customer	0.226	1.000	2.143	1.610
Internal Process	0.259	0.467	1.000	2.524
Learning and Growth	0.280	0.621	0.396	1.000
Total	1.765	6.517	7.396	8.705

Using the data from Table 4.12, the average for each measurement is calculated, resulting in the weights of importance for each main measurement. These weights can be used for standard pairwise comparisons between factors, as shown in Table 4.13. For ease of data entry, FIN represents the Finance perspective, CUS represents the Customer perspective, PRO represents the Internal Process perspective, and LNG represents the Learning and Growth perspective of the organization.

Table 4.13

Pairwise comparison data of main measurements for non-grade-A office buildings with ranking

Comparison of perspective	FIN	CUS	PRO	LNG	Total	Weight	Rank
FIN	0.567	0.680	0.522	0.410	2.178	0.544	1
CUS	0.128	0.153	0.290	0.185	0.756	0.189	2
PRO	0.147	0.072	0.135	0.290	0.644	0.161	3
LNG	0.159	0.095	0.054	0.115	0.422	0.106	4
Total	1	1	1	1	4	1	

Table 4.14

Confidence results from calculating the normal values of respondents in non-grade-A office buildings

Parameter	Value
λ_{max}	4.246
N	4
CI	0.082
RI	0.9
CR	0.091

Based on the calculation, the Consistency Index (CI) is 0.082, and the Random Index (RI) is 0.9, resulting in a Consistency Ratio (CR) of 0.091 or 9.1%. Since this value is below the threshold of 0.1 or 10%, it can be concluded that the decision-makers have consistently compared the main measurement pairwise and rated the importance of each measurement in a coherent manner.

Table 4.15

Presents the net importance weights of each main measurement according to the respondents of non-grade-A office buildings

Measurement	Importance (%)	Rank
Financial	54.4%	1
Customer	18.9%	2
Internal process	16.1%	3
Learning and growth	10.6%	4

According to Table 4.15, the financial perspective is the most important, with an importance score of 54.4%. The customer perspective ranks second, with an importance score of 18.9%. The internal process perspective is third, with an importance score of 16.1%. Lastly, the learning and growth perspective ranks fourth, with an importance score of 10.6%.

Table 4.16

Comparison data of financial measurement between pairs of respondents for grade-A buildings

Comparison of measurement	Operating profit compared to the target	Cost control according to the spending plan compared to the target	Operating income compared to the target	Space occupancy ratio compared to the target	Return on total assets
Operating profit compared to the target	1.000	2.810	2.238	3.190	4.619
Cost control according to the spending plan compared to the target	0.356	1.000	2.111	0.915	2.333
Operating income compared to the target	0.447	0.474	1.000	1.857	4.333
Space occupancy ratio compared to the target	0.313	1.093	0.538	1.000	4.143
Return on total assets compared to the target	0.216	0.429	0.231	0.241	1.000
Total	2.333	5.805	6.118	7.204	16.429

Using the data from Table 4.16, the average values for each measurement are calculated to determine the weights of importance for each main measurement. For ease of data entry, the measurements are categorized as follows:

F1: Operating profit compared to the target

F2: Cost control according to the spending plan compared to the target

F3: Operating income compared to the target

F4: Space occupancy ratio compared to the target

F5: Return on total assets compared to the target

Table 4.17

Pairwise comparison data of financial measurements for grade-A office buildings with ranking

Comparison of perspective	F1	F2	F3	F4	F5	Total	Weight	Rank
F1	0.429	0.484	0.366	0.443	0.281	2.003	0.401	1
F2	0.153	0.172	0.345	0.127	0.142	0.939	0.188	3
F3	0.192	0.082	0.163	0.258	0.264	0.958	0.192	2
F4	0.134	0.188	0.088	0.139	0.252	0.802	0.160	4
F5	0.093	0.074	0.038	0.034	0.061	0.299	0.060	5
Total	1.000	1.000	1.000	1.000	1.000	5.000	1.000	

Table 4.18

Confidence results from calculating the normalized values of respondents in grade-A office buildings and weighting them across the financial perspective

Parameter	Value
λ_{max}	5.306
N	5
CI	0.077
RI	1.12
CR	0.068

Based on the calculation, the Consistency Index (CI) is 0.077, and the Random Index (RI) is 1.12, resulting in a Consistency Ratio (CR) of 0.068 or 6.8%. Since this value is below the threshold of 0.1 or 10%, it can be concluded that the decision-makers have consistently compared the main measurement pairwise and rated the importance of each measurement in a coherent manner.

Table 4.19

Presents the net importance weights of each financial measurement according to the respondents of grade-A office buildings

Measurement	Importance (%)	Rank
Operating profit compared to the target	40.1	1
Cost control according to the spending plan compared to the target	18.8	3
Operating income compared to the target	19.2	2
Space occupancy ratio compared to the target	16.0	4
Return on total assets compared to the target	6.0	5

According to the table 4.19, "Operating profit compared to the target" is the most important measure, with an importance score of 40.1%. "Operating income compared to the target" ranks second, with an importance score of 19.2%. "Cost control according to the spending plan compared to the target" is third, with an importance score of 18.8%. "Space occupancy ratio compared to the target" ranks fourth, with an importance score of 16.0%. Finally, "Return on total assets compared to the target" ranks fifth, with an importance score of 6.0%.

Table 4.20

Comparison data of financial measurement between pairs of respondents for non-grade-A buildings

Comparison of measurement	Operating profit compared to the target	Cost control according to the spending plan compared to the target	Operating income compared to the target	Space occupancy ratio compared to the target	Return on total assets
Operating profit compared to the target	1.000	2.357	2.857	1.192	3.857
Cost control according to the spending plan compared to the target	0.424	1.000	2.667	0.863	2.000
Operating income compared to the target	0.350	0.375	1.000	1.219	4.143
Space occupancy ratio compared to the target	0.839	1.159	0.820	1.000	4.000
Return on total assets compared to the target	0.259	0.500	0.241	0.250	1.000
Total	2.873	5.391	7.586	4.523	15.000

Using the data from Table 4.20, the average values for each measurement are calculated to determine the weights of importance for each main measurement. For ease of data entry, the measurements are categorized as follows:

F1: Operating profit compared to the target

F2: Cost control according to the spending plan compared to the target

F3: Operating income compared to the target

F4: Space occupancy ratio compared to the target

F5: Return on total assets compared to the target

Table 4.21

Pairwise comparison data of financial measurements for Non grade-A office buildings with ranking

Comparison of perspective	F1	F2	F3	F4	F5	Total	Weight	Rank
F1	0.348	0.437	0.377	0.263	0.257	1.683	0.337	1
F2	0.148	0.185	0.352	0.191	0.133	1.009	0.202	3
F3	0.122	0.070	0.132	0.269	0.276	0.869	0.174	4
F4	0.292	0.215	0.108	0.221	0.267	1.103	0.221	2
F5	0.090	0.093	0.032	0.055	0.067	0.337	0.067	5
Total	1.000	1.000	1.000	1.000	1.000	5.000	1.000	

Table 4.22

Confidence results from calculating the normalized values of respondents in non-grade-A office buildings and weighting them across the financial perspective

Parameter	Value
λ_{max}	5.353
N	5
CI	0.088
RI	1.12
CR	0.079

Based on the calculation, the Consistency Index (CI) is 0.088, and the Random Index (RI) is 1.12, resulting in a Consistency Ratio (CR) of 0.079 or 7.9%. Since this value is below the threshold of 0.1 or 10%, it can be concluded that the decision-makers have consistently compared the main measurement pairwise and rated the importance of each measurement in a coherent manner.

Table 4.23

Presents the net importance weights of each financial measurement according to the respondents of non-grade-A office buildings

Measurement	Importance (%)	Rank
Operating profit compared to the target	33.7	1
Cost control according to the spending plan compared to the target	20.2	3
Operating income compared to the target	17.4	4
Space occupancy ratio compared to the target	22.1	2
Return on total assets compared to the target	6.7	5

According to the data, "Operating profit compared to the target" is the most important measure, with an importance score of 33.7%. "Space occupancy ratio compared to the target" ranks second, with an importance score of 22.1%. "Cost

control according to the spending plan compared to the target" is third, with an importance score of 20.2%. "Operating income compared to the target" ranks fourth, with an importance score of 17.4%. Finally, "Return on total assets compared to the target" ranks fifth, with an importance score of 6.7%.

Table 4.24

Comparison data of customer measurement between pairs of respondents for grade-A buildings

Comparison of measurement	Customer service satisfaction survey compared to the target	Success rate of lease renewals compared to the target	Rate of complaint resolution according to the plan compared to the target	Overall tenant satisfaction survey compared to the target	Customer acquisition rate compared to the target
Customer service satisfaction survey compared to the target	1.000	1.229	1.413	0.755	3.952
Success rate of lease renewals compared to the target	0.814	1.000	3.063	0.683	1.597
Rate of complaint resolution according to the plan compared to the target	0.708	0.326	1.000	1.305	4.143

Table 4.24

Comparison data of customer measurement between pairs of respondents for grade-A buildings (Cont.)

Comparison of measurement	Customer service satisfaction survey compared to the target	Success rate of lease renewals compared to the target	Rate of complaint resolution according to the plan compared to the target	Overall tenant satisfaction survey compared to the target	Customer acquisition rate compared to the target
Overall tenant satisfaction survey compared to the target	1.324	1.464	0.766	1.000	3.857
Customer acquisition rate compared to the target	0.253	0.626	0.241	0.259	1.000
Total	4.099	4.646	6.484	4.002	14.549

Using the data from Table 4.24, the average values for each customer measurement are calculated to determine the weights of importance for each main measurement. For ease of data entry, the measurements are categorized as follows:

C1: Customer service satisfaction survey compared to the target

C2: Success rate of lease renewals compared to the target

C3: Rate of complaint resolution according to the plan compared to the target

C4: Overall tenant satisfaction survey compared to the target

C5: Customer acquisition rate compared to the target

Table 4.25

Pairwise comparison data of customer measurements for grade-A office buildings with ranking

Comparison of perspective	C1	C2	C3	C4	C5	Total	Weight	Rank
C1	0.244	0.264	0.218	0.189	0.272	1.187	0.237	2
C2	0.199	0.215	0.472	0.171	0.110	1.167	0.233	3
C3	0.173	0.070	0.154	0.326	0.285	1.008	0.202	4
C4	0.323	0.315	0.118	0.250	0.265	1.271	0.254	1
C5	0.062	0.135	0.037	0.065	0.069	0.367	0.073	5
Total	1.000	1.000	1.000	1.000	1.000	5.000	1.000	

Table 4.26

Confidence results from calculating the normalized values of respondents in grade-A office buildings and weighting them across the customer perspective

Parameter	Value
λ_{max}	5.439
N	5
CI	0.110
RI	1.12
CR	0.098

Based on the calculation, the Consistency Index (CI) is 0.110, and the Random Index (RI) is 1.12, resulting in a Consistency Ratio (CR) of 0.098 or 9.8%. Since this value is below the threshold of 0.1 or 10%, it can be concluded that the decision-makers have consistently compared the main measurement pairwise and rated the importance of each measurement in a coherent manner.

Table 4.27

Presents the net importance weights of each customer measurement according to the respondents of grade-A office buildings

Measurement	Importance (%)	Rank
Customer service satisfaction survey compared to the target	23.7	2
Success rate of lease renewals compared to the target	23.3	3
Rate of complaint resolution according to the plan compared to the target	20.2	4
Overall tenant satisfaction survey compared to the target	25.4	1
Customer acquisition rate compared to the target	7.3	5

According to the data, **"**Overall tenant satisfaction survey compared to the target" is the most important measure, with an importance score of 25.4%. "Customer service satisfaction survey compared to the target" ranks second, with an importance score of 23.7%. "Success rate of lease renewals compared to the target" is third, with an importance score of 23.3%. "Rate of complaint resolution according to the plan compared to the target" ranks fourth, with an importance score of 20.2%. Finally, "Customer acquisition rate compared to the target" ranks fifth, with an importance score of 7.3%.

Table 4.28

Comparison data of customer measurement between pairs of respondents for non-grade-A buildings

Comparison of measurement	Customer service satisfaction survey compared to the target	Success rate of lease renewals compared to the target	Rate of complaint resolution according to the plan compared to the target	Overall tenant satisfaction survey compared to the target	Customer acquisition rate compared to the target
Customer service satisfaction survey compared to the target	1.000	1.492	1.790	0.897	2.390
Success rate of lease renewals compared to the target	0.670	1.000	3.429	1.986	2.000
Rate of complaint resolution according to the plan compared to the target	0.559	0.292	1.000	1.205	2.196
Overall tenant satisfaction survey compared to the target	1.115	0.503	0.830	1.000	2.344
Customer acquisition rate compared to the target	0.418	0.500	0.455	0.427	1.000
Total	3.762	3.787	7.504	5.515	9.930

Using the data from Table 4.28, the average values for each customer measurement are calculated to determine the weights of importance for each main measurement. For ease of data entry, the measurements are categorized as follows:

C1: Customer service satisfaction survey compared to the target

C2: Success rate of lease renewals compared to the target

C3: Rate of complaint resolution according to the plan compared to the target

C4: Overall tenant satisfaction survey compared to the target

C5: Customer acquisition rate compared to the target

Table 4.29

Pairwise comparison data of customer measurements for non-grade-A office buildings with ranking

Comparison of perspective	C1	C2	C3	C4	C5	Total	Weight	Rank
C1	0.266	0.394	0.239	0.163	0.241	1.302	0.260	2
C2	0.178	0.264	0.457	0.360	0.201	1.461	0.292	1
C3	0.148	0.077	0.133	0.219	0.221	0.798	0.160	3
C4	0.296	0.133	0.111	0.181	0.236	0.957	0.191	4
C5	0.111	0.132	0.061	0.077	0.101	0.482	0.096	5
Total	1.000	1.000	1.000	1.000	1.000	5.000	1.000	

Table 4.30

Confidence results from calculating the normalized values of respondents in non-grade-A office buildings and weighting them across the customer perspective

Parameter	Value
λ_{max}	5.274
N	5
CI	0.068
RI	1.12
CR	0.061

Based on the calculation, the Consistency Index (CI) is 0.068, and the Random Index (RI) is 1.12, resulting in a Consistency Ratio (CR) of 0.061 or 6.1%. Since this value is below the threshold of 0.1 or 10%, it can be concluded that the decision-makers have consistently compared the main measurement pairwise and rated the importance of each measurement in a coherent manner.

Table 4.31

Presents the net importance weights of each customer measurement according to the respondents of non-grade-A office buildings

Measurement	Importance (%)	Rank
Customer service satisfaction survey compared to the target	26.0	2
Success rate of lease renewals compared to the target	29.2	1
Rate of complaint resolution according to the plan compared to the target	16.0	4

Table 4.31

Presents the net importance weights of each customer measurement according to the respondents of non-grade-A office buildings (Cont.)

Measurement	Importance (%)	Rank
Overall tenant satisfaction survey compared to the target	19.1	3
Customer acquisition rate compared to the target	9.6	5

According to the data, "Success rate of lease renewals compared to the target" is the most important measure, with an importance score of 29.2%. "Customer service satisfaction survey compared to the target" ranks second, with an importance score of 26.0%. "Overall tenant satisfaction survey compared to the target" is third, with an importance score of 19.1%. "Rate of complaint resolution according to the plan compared to the target" ranks fourth, with an importance score of 16.0%. Finally, "Customer acquisition rate compared to the target" ranks fifth, with an importance score of 9.6%.

Table 4.32

Comparison data of internal process measurement between pairs of respondents for grade-A buildings

Comparison of measurement	Efficiency of air conditioning system management compared to targets	Efficiency of managing tenant complaints compared to targets	Control of air quality compared to targets	Efficiency of elevator management compared to targets	Maintenance management according to planned schedules compared to targets
Efficiency of air conditioning system management compared to targets	1.000	2.048	0.729	1.349	4.048
Efficiency of managing tenant complaints compared to targets	0.488	1.000	1.104	1.055	1.667
Control of air quality compared to targets	1.372	0.906	1.000	2.587	4.048
Efficiency of elevator management compared to targets	0.741	0.948	0.387	1.000	3.571
Maintenance management according to planned schedules compared to targets	0.247	0.600	0.247	0.280	1.000
Total	3.848	5.501	3.466	6.272	14.333

Using the data from Table 4.32, the average values for each internal process measurement are calculated to determine the weights of importance for each main measurement. For ease of data entry, the measurements are categorized as follows:

I1: Efficiency of air conditioning system management compared to targets
I2: Efficiency of managing tenant complaints compared to targets
I3: Control of air quality compared to targets
I4: Efficiency of elevator management compared to targets
I5: Maintenance management according to planned schedules compared to targets

Table 4.33

Pairwise comparison data of internal process measurements for grade-A office buildings with ranking

Comparison of perspective	I1	I2	I3	I4	I5	Total	Weight	Rank
I1	0.260	0.372	0.210	0.215	0.282	1.340	0.268	2
I2	0.127	0.182	0.318	0.168	0.116	0.912	0.182	3
I3	0.356	0.165	0.288	0.413	0.282	1.505	0.301	1
I4	0.193	0.172	0.112	0.159	0.249	0.885	0.177	4
I5	0.064	0.109	0.071	0.045	0.070	0.359	0.072	5
Total	1.000	1.000	1.000	1.000	1.000	5.000	1.000	

Table 4.34

Confidence results from calculating the normalized values of respondents in grade-A office buildings and weighting them across the internal process perspective

Parameter	Value
λ_{max}	5.208
N	5
CI	0.052
RI	1.12
CR	0.046

Based on the calculation, the Consistency Index (CI) is 0.052, and the Random Index (RI) is 1.12, resulting in a Consistency Ratio (CR) of 0.046 or 4.6%. Since this value is below the threshold of 0.1 or 10%, it can be concluded that the decision-makers have consistently compared the main measurement pairwise and rated the importance of each measurement in a coherent manner.

Table 4.35

Presents the net importance weights of each internal process measurement according to the respondents of grade-A office buildings

Measurement	Importance (%)	Rank
Efficiency of air conditioning system management compared to targets	26.8	2
Efficiency of managing tenant complaints compared to targets	18.2	3
Control of air quality compared to targets	30.1	1

Table 4.35

Presents the net importance weights of each internal process measurement according to the respondents of grade-A office buildings (Cont.)

Measurement	Importance (%)	Rank
Efficiency of elevator management compared to targets	17.7	4
Maintenance management according to planned schedules compared to targets	7.2	5

According to the data, "Control of air quality compared to targets" is the most important measure, with an importance score of 30.1%. "Efficiency of air conditioning system management compared to targets" ranks second, with an importance score of 26.8%. "Efficiency of managing tenant complaints compared to targets" is third, with an importance score of 18.2%. "Efficiency of elevator management compared to targets" ranks fourth, with an importance score of 17.7%. Finally, "Maintenance management according to planned schedules compared to targets" ranks fifth, with an importance score of 7.2%.

Table 4.36

Comparison data of internal process measurement between pairs of respondents for non-grade-A buildings

Comparison of measurement	Efficiency of air conditioning system management compared to targets	Efficiency of managing tenant complaints compared to targets	Control of air quality compared to targets	Efficiency of elevator management compared to targets	Maintenance management according to planned schedules compared to targets
Efficiency of air conditioning system management compared to targets	1.000	1.905	0.867	0.829	3.286
Efficiency of managing tenant complaints compared to targets	0.525	1.000	1.467	1.548	1.571
Control of air quality compared to targets	1.154	0.682	1.000	2.181	4.143
Efficiency of elevator management compared to targets	1.207	0.646	0.459	1.000	2.762
Maintenance management according to planned schedules compared to targets	0.304	0.636	0.241	0.362	1.000
Total	4.190	4.869	4.033	5.920	12.762

Using the data from Table 4.36, the average values for each internal process measurement are calculated to determine the weights of importance for each

main measurement. For ease of data entry, the measurements are categorized as follows:

I1: Efficiency of air conditioning system management compared to targets
I2: Efficiency of managing tenant complaints compared to targets
I3: Control of air quality compared to targets
I4: Efficiency of elevator management compared to targets
I5: Maintenance management according to planned schedules compared to targets

Table 4.37

Pairwise comparison data of internal process measurements for non-grade-A office buildings with ranking

Comparison of perspective	I1	I2	I3	I4	I5	Total	Weight	Rank
I1	0.239	0.391	0.215	0.140	0.257	1.242	0.248	2
I2	0.125	0.205	0.364	0.262	0.123	1.079	0.216	3
I3	0.275	0.140	0.248	0.368	0.325	1.356	0.271	1
I4	0.288	0.133	0.114	0.169	0.216	0.920	0.184	4
I5	0.073	0.131	0.060	0.061	0.078	0.403	0.081	5
Total	1.000	1.000	1.000	1.000	1.000	5.000	1.000	

Table 4.38

Confidence results from calculating the normalized values of respondents in non-grade-A office buildings and weighting them across the internal process perspective

Parameter	Value
λ_{max}	5.300
N	5
CI	0.075
RI	1.12
CR	0.067

Based on the calculation, the Consistency Index (CI) is 0.075 and the Random Index (RI) is 1.12, resulting in a Consistency Ratio (CR) of 0.067 or 6.7%. Since this value is below the threshold of 0.1 or 10%, it can be concluded that the decision-makers have consistently compared the main measurement pairwise and rated the importance of each measurement in a coherent manner.

Table 4.39

Presents the net importance weights of each internal process measurement according to the respondents of non-grade-A office buildings

Measurement	Importance (%)	Rank
Efficiency of air conditioning system management compared to targets	24.8	2
Efficiency of managing tenant complaints compared to targets	21.6	3
Control of air quality compared to targets	27.1	1

Table 4.39

Presents the net importance weights of each internal process measurement according to the respondents of non-grade-A office buildings (Cont.)

Measurement	Importance (%)	Rank
Efficiency of elevator management compared to targets	18.4	4
Maintenance management according to planned schedules compared to targets	8.1	5

According to the data, "Control of air quality compared to targets" is the most important measure, with an importance score of 27.1%. "Efficiency of air conditioning system management compared to targets" ranks second, with an importance score of 24.8%. "Efficiency of managing tenant complaints compared to targets" is third, with an importance score of 21.6%. "Efficiency of elevator management compared to targets" ranks fourth, with an importance score of 18.4%. Finally, "Maintenance management according to planned schedules compared to targets" ranks fifth, with an importance score of 8.1%.

Table 4.40

Comparison data of learning and growth measurement between pairs of respondents for grade-A buildings

Comparison of measurement	Employee education and training compared to the target	Employee satisfaction compared to the target	Development of employee capabilities and promotion of growth	Continuous improvement compared to the target	Employee absenteeism compared to the target
Employee education and training compared to the target	1.000	0.914	0.729	1.540	3.190
Employee satisfaction compared to the target	1.094	1.000	1.851	1.763	2.333
Development of employee capabilities and promotion of growth compared to the target	1.372	0.540	1.000	2.587	2.470
Continuous improvement compared to the target	0.649	0.567	0.387	1.000	1.487
Employee absenteeism compared to the target	0.313	0.429	0.405	0.672	1.000
Total	4.428	3.450	4.371	7.562	10.481

Using the data from Table 4.40, the average values for each internal process measurement are calculated to determine the weights of importance for each main measurement. For ease of data entry, the measurements are categorized as follows:

L1: Employee education and training compared to the target

L2: Employee satisfaction compared to the target

L3: Development of employee capabilities and promotion of growth compared to the target

L4: Continuous improvement compared to the target

L5: Employee absenteeism compared to the target

Table 4.41

Pairwise comparison data of learning and growth measurements for grade-A office buildings with ranking

Comparison of perspective	I1	I2	I3	I4	I5	Total	Weight	Rank
I1	0.226	0.265	0.167	0.204	0.304	1.166	0.233	3
I2	0.247	0.290	0.423	0.233	0.223	1.416	0.283	1
I3	0.310	0.157	0.229	0.342	0.236	1.273	0.255	2
I4	0.147	0.164	0.088	0.132	0.142	0.674	0.135	4
I5	0.071	0.124	0.093	0.089	0.095	0.472	0.094	5
Total	1.000	1.000	1.000	1.000	1.000	5.000	1.000	

Table 4.42

Confidence results from calculating the normalized values of respondents in grade-A office buildings and weighting them across the learning and growth perspective

Parameter	Value
λ_{max}	5.122
N	5
CI	0.031
RI	1.12
CR	0.027

Based on the calculation, the Consistency Index (CI) is 0.031 and the Random Index (RI) is 1.12, resulting in a Consistency Ratio (CR) of 0.027 or 2.7%. Since this value is below the threshold of 0.1 or 10%, it can be concluded that the decision-makers have consistently compared the main measurement pairwise and rated.

Table 4.43

Presents the net importance weights of each learning and growth measurement according to the respondents of grade-A office buildings

Measurement	Importance (%)	Rank
Employee education and training compared to the target	23.3	3
Employee satisfaction compared to the target	28.3	1
Development of employee capabilities and promotion of growth compared to the target	25.5	2
Continuous improvement compared to the target	13.5	4
Employee absenteeism compared to the target	9.4	5

According to the data, "Employee satisfaction compared to the target" is the most important measure, with an importance score of 28.3%. "Development of employee capabilities and promotion of growth compared to the target" ranks second, with an importance score of 25.5%. "Employee education and training compared to the target" is third, with an importance score of 23.3%. "Continuous improvement compared to the target" ranks fourth, with an importance score of 13.5%. Finally, "Employee absenteeism compared to the target" ranks fifth, with an importance score of 9.4%.

Table 4.44

Comparison data of learning and growth measurement between pairs of respondents for non-grade-A buildings

Comparison of measurement	Employee education and training compared to the target	Employee satisfaction compared to the target	Development of employee capabilities & promotion of growth compared to the target	Continuous improvement compared to the target	Employee absenteeism compared to the target
Employee education and training compared to the target	1.000	1.285	0.771	1.333	3.143
Employee satisfaction compared to the target	0.778	1.000	0.943	2.324	2.714
Development of employee capabilities and promotion of growth compared to the target	1.296	1.061	1.000	3.143	2.396
Continuous improvement compared to the target	0.750	0.430	0.318	1.000	1.725
Employee absenteeism compared to the target	0.318	0.368	0.417	0.580	1.000
Total	4.143	4.144	3.450	8.380	10.978

Using the data from Table 4.44, the average values for each internal process measurement are calculated to determine the weights of importance for each main measurement. For ease of data entry, the measurements are categorized as follows:

L1: Employee education and training compared to the target

L2: Employee satisfaction compared to the target

L3: Development of employee capabilities and promotion of growth compared to the target

L4: Continuous improvement compared to the target

L5: Employee absenteeism compared to the target

Table 4.45

Pairwise comparison data of learning and growth measurements for non-grade-A office buildings with ranking

Comparison of perspective	I1	I2	I3	I4	I5	Total	Weight	Rank
I1	0.241	0.310	0.224	0.159	0.286	1.220	0.244	3
I2	0.188	0.241	0.273	0.277	0.247	1.227	0.245	2
I3	0.313	0.256	0.290	0.375	0.218	1.452	0.290	1
I4	0.181	0.104	0.092	0.119	0.157	0.654	0.131	4
I5	0.077	0.089	0.121	0.069	0.091	0.447	0.089	5
Total	1.000	1.000	1.000	1.000	1.000	5.000	1.000	

Table 4.46

Confidence results from calculating the normalized values of respondents in non-grade-A office buildings and weighting them across the learning and growth perspective

Parameter	Value
λ_{max}	5.122
N	5
CI	0.025
RI	1.12
CR	0.023

Based on the calculation, the Consistency Index (CI) is 0.025 and the Random Index (RI) is 1.12, resulting in a Consistency Ratio (CR) of 0.023 or 2.3%. Since this value is below the threshold of 0.1 or 10%, it can be concluded that the decision-makers have consistently compared the main measurement pairwise and rated the importance of each measurement in a coherent manner.

Table 4.47

Presents the net importance weights of each learning and growth measurement according to the respondents of non-grade-A office buildings

Measurement	Importance (%)	Rank
Employee education and training compared to the target	24.4	3
Employee satisfaction compared to the target	24.5	2
Development of employee capabilities and promotion of growth compared to the target	29.0	1
Continuous improvement compared to the target	13.1	4
Employee absenteeism compared to the target	8.9	5

According to the data, "Development of employee capabilities and promotion of growth compared to the target" is the most important measure, with an importance score of 29.0%. "Employee satisfaction compared to the target" ranks second, with an importance score of 24.5%. "Employee education and training compared to the target" is third, with an importance score of 24.4%. "Continuous improvement compared to the target" ranks fourth, with an importance score of 13.1%. Finally, "Employee absenteeism compared to the target" ranks fifth, with an importance score of 8.9%.

CHAPTER 5
CONCLUSIONS AND RECOMMENDATIONS

This study on measurement in office rental buildings employs a mixed methodology, consisting of both qualitative and quantitative research. The qualitative research was conducted through interviews using a Likert scale, while the quantitative research involved collecting data from supervisors responsible for setting KPIs for office buildings. For the quantitative research, data was also gathered from employees within the company who have knowledge and understanding of performance measurement. The researcher has summarized the findings, discussed the results, and provided recommendations as follows

5.1 Qualitative data analysis finding

5.1.1 Financial Perspective: The most commonly used financial perspective indicators by interviewees include net profit, operating revenue, occupancy rate, Return on asset (ROA).

5.1.2 Customer Perspective: The most commonly used customer perspective indicators by interviewees include overall customer satisfaction, success rate of lease renewals, and customer acquisition rate.

5.1.3 Internal Process Perspective: The most commonly used internal process perspective indicators by interviewees include temperature and air conditioning, air quality, elevator usage, and preventive maintenance of buildings.

5.1.4 Learning and Growth Perspective**:** The most commonly used learning and growth perspective indicators by interviewees include the number of training sessions per person, overall employee satisfaction, and employee absenteeism.

Therefore, it can be concluded that the analysis of the interviewees' opinions on performance indicators based on the Balanced Scorecard can be used for comparative pairwise analysis between factors as follows:

Table 5.1

Summary of results from experts for pairwise comparison

Perspective	Measurement
Financial	Operating profit compared to the target
	Cost control according to the spending plan compared to the target
	Operating income compared to the target
	Space occupancy ratio compared to the target
	Return on total assets compared to the target
Customer	Customer service satisfaction survey compared to the target
	Success rate of lease renewals compared to the target
	Rate of complaint resolution according to the plan compared to the target
	Overall tenant satisfaction survey compared to the target
	Customer acquisition rate compared to the target
Internal process	Efficiency of air conditioning system management compared to targets
	Efficiency of managing tenant complaints compared to targets
	Control of air quality compared to targets
	Efficiency of elevator management compared to targets
	Maintenance management according to planned schedules compared to targets
Learning and growth	Employee education and training compared to the target
	Employee satisfaction compared to the target
	Development of employee capabilities and promotion of growth compared to the target
	Continuous improvement compared to the target
	Employee absenteeism compared to the target

5.2 Quantitative research data analysis findings

5.2.1 Main perspective measurement analysis

The main perspective measurements, which include financial

perspective, customer perspective, internal process perspective, and learning and growth perspective, reveal that Grade A office building manager prioritize the financial perspective as the most important. This is followed by the customer perspective, internal process perspective, and learning and growth perspective, in that order.

Similarly, non-Grade A office buildings also prioritize the financial perspective as the most important, followed by the customer perspective, internal process perspective, and learning and growth perspective, respectively. The important scores are presented in Table 5.2.

Table 5.2

Summary of importance scores for main perspective measurements

Perspective	Important (%)	
	Grade A Buildings	Non-Grade A Buildings
Financial	52.5%	54.4%
Customer	21.2%	18.9%
Internal Process	14.6%	16.1%
Learning and Growth	11.7%	10.6%

5.2.2 Financial perspective analysis

Based on the data, Grade A buildings place the highest importance on operating profit compared to the target, accounting for 40.1% of their financial considerations. This is followed by operating income compared to the target at 19.2%, cost control according to the spending plan compared to the target at 18.8%, space occupancy ratio compared to the target at 16.0%, and return on total assets compared to the target at 6.0%.

On the other hand, non-Grade A buildings prioritize operating profit compared to the target at 33.7%, followed by space occupancy ratio compared to the target at 22.1%, cost control according to the spending plan compared to the target at 20.2%, operating income compared to the target at 17.4%, and return on total assets compared to the target at 6.7%.

In summary, both Grade A and non-Grade A buildings prioritize operating profit compared to the target, but they differ in the importance placed on other factors, such as space occupancy and cost control, as detailed in the provided percentages. The important scores are presented in Table 5.3.

Table 5.3

Summary of importance scores for financial perspective measurements

Measurement	Importance (%)	
	Grade A Buildings	Non-Grade A Buildings
Operating profit compared to the target	40.1	33.7
Cost control according to the spending plan compared to the target	18.8	20.2
Operating income compared to the target	19.2	17.4
Space occupancy ratio compared to the target	16.0	22.1
Return on total assets compared to the target	6.0	6.7

5.2.3 Customer perspective analysis

Based on the data, Grade A buildings place the highest importance on the overall tenant satisfaction survey compared to the target, accounting for 25.4% of their considerations. This is followed by the customer service satisfaction survey compared to the target at 23.7%, the success rate of lease renewals compared to the target at 23.3%, the rate of complaint resolution according to the plan compared to the target at 20.2%, and the customer acquisition rate compared to the target at 7.3%.

On the other hand, non-Grade A buildings prioritize the success rate of lease renewals compared to the target at 29.2%, followed by the customer service satisfaction survey compared to the target at 26.0%, the overall tenant satisfaction survey compared to the target at 19.1%, the rate of complaint resolution according to

the plan compared to the target at 16.0%, and the customer acquisition rate compared to the target at 9.6%.

In summary, Grade A buildings focus more on overall tenant satisfaction, while non-Grade A buildings emphasize lease renewals. The importance scores highlight different priorities between the two categories, as detailed in the provided percentages. The important scores are presented in Table 5.4.

Table 5.4

Summary of importance scores for customer perspective measurements

Measurement	Importance (%)	
	Grade A Buildings	Non-Grade A Buildings
Customer service satisfaction survey compared to the target	23.7	26.0
Success rate of lease renewals compared to the target	23.3	29.2
Rate of complaint resolution according to the plan compared to the target	20.2	16.0
Overall tenant satisfaction survey compared to the target	25.4	19.1
Customer acquisition rate compared to the target	7.3	9.6

5.2.4 Internal process perspective analysis

Based on the data, Grade A buildings place the highest importance on the control of air quality compared to targets, accounting for 30.1% of their considerations. This is followed by the efficiency of air conditioning system management compared to targets at 26.8%, the efficiency of managing tenant complaints compared to targets at 18.2%, the efficiency of elevator management compared to targets at 17.7%, and maintenance management according to planned schedules compared to targets at 7.2%.

On the other hand, non-Grade A buildings prioritize the control of air quality compared to targets at 27.1%, followed by the efficiency of air conditioning system management compared to targets at 24.8%, the efficiency of managing tenant complaints compared to targets at 21.6%, the efficiency of elevator management compared to targets at 18.4%, and maintenance management according to planned schedules compared to targets at 8.1%.

In summary, both Grade A and non-Grade A buildings emphasize air quality control, but they differ in the weight given to other factors, such as managing tenant complaints and maintenance management. The important scores are presented in Table 5.5.

Table 5.5

Summary of importance scores for internal process perspective measurements

Measurement	Importance (%)	
	Grade A Buildings	Non-Grade A Buildings
Efficiency of air conditioning system management compared to targets	26.8	24.8
Efficiency of managing tenant complaints compared to targets	18.2	21.6
Control of air quality compared to targets	30.1	27.1
Efficiency of elevator management compared to targets	17.7	18.4
Maintenance management according to planned schedules compared to targets	7.2	8.1

5.2.5 Learning and growth perspective analysis

Based on the data, Grade A buildings place the highest importance on employee satisfaction compared to the target, accounting for 28.3% of their considerations. This is followed by the development of employee capabilities and promotion of growth compared to the target at 25.5%, employee education and training compared to the target at 23.3%, continuous improvement compared to the target at 13.5%, and employee absenteeism compared to the target at 9.4%.

On the other hand, non-Grade A buildings prioritize the development of employee capabilities and promotion of growth compared to the target at 29.0%, followed by employee satisfaction compared to the target at 24.5%, employee education and training compared to the target at 24.4%, continuous improvement

compared to the target at 13.1%, and employee absenteeism compared to the target at 8.9%.

In summary, both Grade A and non-Grade A buildings focus on employee development and satisfaction, but they differ slightly in their emphasis on training and growth promotion. The important scores are presented in Table 5.6.

Table 5.6

Summary of importance scores for learning and growth perspective measurements

Measurement	Importance (%)	
	Grade A Buildings	Non-Grade A Buildings
Employee education and training compared to the target	23.3	24.4
Employee satisfaction compared to the target	28.3	24.5
Development of employee capabilities and promotion of growth compared to the target	25.5	29.0
Continuous improvement compared to the target	13.5	13.1
Employee absenteeism compared to the target	9.4	8.9

Based on the analysis of the importance scores assigned to the main and sub-measurement for the key performance indicators of office buildings using the Analytic Hierarchy Process (AHP) technique, the researcher was able to rank the priorities of the main and sub-measurements for respondents who are business operators in Grade A and non-Grade A buildings as follow

Table 5.7

Summary of the importance scores of the main and sub-measurement criteria for grade A buildings

Perspective	Sub-measurement	% of Main Perspective	% of Sub-measurement	% of Total Measurement
Financial	Operating profit compared to the target	52.50%	40.1	21.1
	Cost control according to the spending plan compared to the target	52.50%	18.8	9.9
	Operating income compared to the target	52.50%	19.2	10.1
	Space occupancy ratio compared to the target	52.50%	16	8.4
	Return on total assets compared to the target	52.50%	6	3.2
Customer	Customer service satisfaction survey compared to the target	21.20%	23.7	5.0
	Success rate of lease renewals compared to the target	21.20%	23.3	4.9
	Rate of complaint resolution according to the plan compared to the target	21.20%	20.2	4.3
	Overall tenant satisfaction survey compared to the target	21.20%	25.4	5.4
	Customer acquisition rate compared to the target	21.20%	7.3	1.5

Table 5.7

Summary of the importance scores of the main and sub-measurement criteria for grade A buildings (Cont.)

Perspective	Sub-measurement	% of Main Perspective	% of Sub-measurement	% of Total Measurement
Internal process	Efficiency of air conditioning system management compared to targets	14.60%	26.8	3.9
	Efficiency of managing tenant complaints compared to targets	14.60%	18.2	2.7
	Control of air quality compared to targets	14.60%	30.1	4.4
	Efficiency of elevator management compared to targets	14.60%	17.7	2.6
	Maintenance management according to planned schedules compared to targets	14.60%	7.2	1.1
Learning and growth	Employee education and training compared to the target	11.70%	23.3	2.7
	Employee satisfaction compared to the target	11.70%	28.3	3.3
	Development of employee capabilities and promotion of growth compared to the target	11.70%	25.5	3.0
	Continuous improvement compared to the target	11.70%	13.5	1.6
	Employee absenteeism compared to the target	11.70%	9.4	1.1

According to the data in Table 5.7, the highest total measurement contribution was from "Operating profit compared to the target," which had a rating of 21.1%. The second highest contribution was from "Operating income compared to the target," with a rating of 10.1%. The third highest contribution was given to "Cost control according to the spending plan compared to the target," which had a rating of 9.9%.

Table 5.8

Summary of the importance scores of the main and sub-measurement criteria for non-grade A buildings

Perspective	Sub-measurement	% of Main Perspective	% of Sub-measurement	% of Total Measurement
Financial	Operating profit compared to the target	54.40%	33.7	18.3
	Cost control according to the spending plan compared to the target	54.40%	20.2	11.0
	Operating income compared to the target	54.40%	17.4	9.5
	Space occupancy ratio compared to the target	54.40%	22.1	12.0
	Return on total assets compared to the target	54.40%	6.7	3.6
Customer	Customer service satisfaction survey compared to the target	18.90%	26	4.9
	Success rate of lease renewals compared to the target	18.90%	29.2	5.5
	Rate of complaint resolution according to the plan compared to the target	18.90%	16	3.0
	Overall tenant satisfaction survey compared to the target	18.90%	19.1	3.6

Table 5.8

Summary of the importance scores of the main and sub-measurement criteria for non-grade A buildings (Cont.)

Perspective	Sub-measurement	% of Main Perspective	% of Sub-measurement	% of Total Measurement
Customer	Customer acquisition rate compared to the target	18.90%	9.6	1.8
Internal process	Efficiency of air conditioning system management compared to targets	16.10%	24.8	4.0
	Efficiency of managing tenant complaints compared to targets	16.10%	21.6	3.5
	Control of air quality compared to targets	16.10%	27.1	4.4
	Efficiency of elevator management compared to targets	16.10%	18.4	3.0
	Maintenance management according to planned schedules compared to targets	16.10%	8.1	1.3
Learning and growth	Employee education and training compared to the target	10.60%	24.4	2.6
	Employee satisfaction compared to the target	10.60%	24.5	2.6
	Development of employee capabilities and promotion of growth compared to the target	10.60%	29	3.1
	Continuous improvement compared to the target	10.60%	13.1	1.4
	Employee absenteeism compared to the target	10.60%	8.9	0.9

According to the data in Table 5.8, the highest total measurement contribution came from "Operating profit compared to the target," which had a rating of 18.3%. The second highest was "Space occupancy ratio compared to the target," with a rating of 12.0%. The third highest rating was given to "Cost control according to the spending plan compared to the target," which contributed 11.0%.

5.3 Discussion of findings

In this study, the researcher analyzed the factors influencing the main perspective measurement for office building management using the Modified Analytic Hierarchy Process (M-AHP) technique. The findings indicate that the financial perspective has the greatest impact on KPIs for office buildings, reflecting a strong focus on financial performance across various perspectives. According to research, the financial perspective includes traditional measures of financial performance related to a company's profitability. Financial indicators are quantitative measures that, when supported by analysis, provide important information about the company's financial situation and facilitate decision-making regarding its financial state (Riofrio et al., 2023). Additionally, financial performance results from operational actions, and financial success should logically follow the effective execution of the operations (Amaratunga & Baldry, 2003).

Further analysis of the data on the main perspectives and sub-measurements for both Grade A and Non-Grade A buildings revealed that both types placed the highest importance on the financial perspective, particularly the sub-measurement of operating profit compared to the target. Grade A buildings assigned 40.1% importance to this measurement, while Non-Grade A buildings assigned 33.7%. The lowest score was given to the learning and growth perspective, with Grade A buildings assigning 11.7% and Non-Grade A buildings 10.6%. The overall weighting of the main perspectives is quite similar to the findings in real estate industry research where the importance was distributed as follows: Financial Perspective at 49.3%,

Customer Perspective at 27.0%, Internal Process Perspective at 13.8%, and Learning and Growth Perspective at 9.9% (Natchanok, 2017).

Additionally, both building types emphasized the customer perspective. Grade A buildings focused on the overall tenant satisfaction survey compared to the target, valued at 25.4%, while Non-Grade A buildings prioritized the success rate of lease renewals compared to the target, at 29.2%. The reason behind this difference may stem from the occupancy rate of both building types and how maintaining a high occupancy rate may be directly related to customer satisfaction.

When examining the internal process perspective, both Grade A and Non-Grade A buildings similarly prioritized the control of air quality compared to targets. Grade A buildings valued this aspect at 30.1%, while Non-Grade A buildings valued it at 27.1%.

In the learning and growth perspective, Grade A buildings placed greater importance on employee satisfaction, with values of 28.3% compared to 24.5% for Non-Grade A buildings. In contrast, Non-Grade A buildings focused more on developing employee capabilities and promoting growth, at 29.0% versus 25.5% for Grade A buildings. Experts suggest that this difference may be due to the unique challenges faced by Non-Grade A buildings, such as older infrastructure, maintenance difficulties, and the need for continuous effort to maintain standards. As a strategy, Non-Grade A buildings compensate for these challenges by investing more in employee development and career growth opportunities to attract and retain talent. In contrast, Grade A buildings, while potentially less competitive in terms of salary and career promotion, offer advantages such as prime locations, modern facilities, advanced building technology, and health and well-being benefits, making them attractive through a superior working environment.

Upon further review, it was found that while both Grade A and Non-Grade A buildings consistently emphasized the importance of financial and customer satisfaction perspectives, they also similarly prioritized air quality control within their internal processes. This highlights the critical role of maintaining environmental standards in building operations across both building types. Moreover, experts have

informed that there are other aspects that facility managers should be aware of, which may benefit them, such as the visualization of key internal processes, including building management, customer management, and engineering management. This will provide more real-time data, enable timely service to customers, and enhance overall customer satisfaction.

Based on the analysis of main perspective and sub-perspective measurements, two models can be presented, as shown in Tables 5.7 and 5.8, categorized by the type of building. These models can be used as guidelines to compare the performance of multiple companies simultaneously or to assess the performance of a building across different period. By representing the percentage of performance for each sub-measurement compared to the target in the tables, the overall percentage of company performance can be calculated for comparative analysis.

Table 5.9

The model for determining the priority ranking of measurements, scores, and overall scores of the main perspectives and measurements for the performance indicators of Grade A office buildings

Perspective	Sub-measurement	% of Total Measurement	Data1		Data2	
			Score	Total score	Score	Total score
Financial	Operating profit compared to the target	21.1				
	Cost control according to the spending plan compared to the target	9.9				
	Operating income compared to the target	10.1				
	Space occupancy ratio compared to the target	8.4				
	Return on total assets compared to the target	3.2				
Customer	Customer service satisfaction survey compared to the target	5.0				
	Success rate of lease renewals compared to the target	4.9				
	Rate of complaint resolution according to the plan compared to the target	4.3				
	Overall tenant satisfaction survey compared to the target	5.4				
	Customer acquisition rate compared to the target	1.5				

Table 5.9

The model for determining the priority ranking of measurements, scores, and overall scores of the main perspectives and measurements for the performance indicators of Grade A office buildings (Cont.)

Perspective	Sub-measurement	% of Total Measurement	Data1		Data2	
			Score	Total score	Score	Total score
Internal process	Efficiency of air conditioning system management compared to targets	3.9				
	Efficiency of managing tenant complaints compared to targets	2.7				
	Control of air quality compared to targets	4.4				
	Efficiency of elevator management	2.6				
	Maintenance management according to planned schedules compared to targets	1.1				
Learning and growth	Employee education and training compared to the target	2.7				
	Employee satisfaction compared to the target	3.3				
	Development of employee capabilities and promotion of growth	3.0				
	Continuous improvement compared to the target	1.6				
	Employee absenteeism compared to the target	1.1				

Table 5.10

The model for determining the priority ranking of measurements, scores, and overall scores of the main perspectives and measurements for the performance indicators of non-Grade A office buildings

Perspective	Sub-measurement	% of Total Measurement	Data1		Data2	
			Score	Total score	Score	Total score
Financial	Operating profit compared to the target	18.3				
	Cost control according to the spending plan compared to the target	11.0				
	Operating income compared to the target	9.5				
	Space occupancy ratio compared to the target	12.0				
	Return on total assets compared to the target	3.6				
Customer	Customer service satisfaction survey compared to the target	4.9				
	Success rate of lease renewals compared to the target	5.5				
	Rate of complaint resolution according to the plan compared to the target	3.0				
	Overall tenant satisfaction survey compared to the target	3.6				
	Customer acquisition rate compared to the target	1.8				

Table 5.10

The model for determining the priority ranking of measurements, scores, and overall scores of the main perspectives and measurements for the performance indicators of non-Grade A office buildings (Cont.)

Perspective	Sub-measurement	% of Total Measurement	Data1		Data2	
			Score	Total score	Score	Total score
Internal process	Efficiency of air conditioning system management compared to targets	4.0				
	Efficiency of managing tenant complaints compared to targets	3.5				
	Control of air quality compared to targets	4.4				
	Efficiency of elevator management compared to targets	3.0				
	Maintenance management according to planned schedules compared to targets	1.3				
Learning and growth Internal process	Employee education and training compared to the target	2.6				
	Employee satisfaction compared to the target	2.6				
	Development of employee capabilities and promotion of growth compared to the target	3.1				
	Continuous improvement compared to the target	1.4				
	Efficiency of air conditioning system management compared to targets	4.0				

5.4 Recommendations from the research for implementation

5.4.1 The study highlights that financial perspective are the most important when assessing the performance of office rental buildings. When applying the Balanced Scorecard (BSC) framework, financial measurement may be given the highest priority. This should be followed by evaluating customer satisfaction, internal process efficiency, and organizational learning and growth.

5.4.2 For Grade-A office buildings, the most crucial financial measurement is operating profit relative to targets, which reflects the overall profitability of the property. Other significant financial aspects include managing costs in line with budgets, achieving targeted operating income, maintaining high occupancy rates, and return on total assets (ROA). In Non-Grade-A office buildings, operating profit remains the key financial indicator, with cost control, occupancy rates, operating income, and return on assets also being critical for financial performance evaluation.

5.4.3 Customer satisfaction indicators are vital for Grade-A office buildings. The overall tenant satisfaction survey stands out as the most important measure, reflecting how well the building meets tenant needs. Other important customer metrics include satisfaction with customer service, the success rate of lease renewals, and the resolution of tenant complaints. For Non-Grade-A buildings, the success rate of lease renewals is the leading indicator, with overall tenant satisfaction, customer service satisfaction, and complaint resolution also being key factors in assessing customer experience.

5.4.4 Internal process efficiency is crucial for Grade-A office buildings, with a focus on controlling air quality being the most significant indicator. Additionally, effective management of air conditioning systems, handling tenant complaints, maintaining elevators, and adhering to maintenance schedules are important for ensuring smooth operations. For Non-Grade-A buildings, controlling air quality remains a top priority, along with efficient management of air conditioning, tenant complaints, and elevator operations, and timely maintenance.

5.4.5 When it comes to organizational learning and growth, Grade-A office buildings place significant emphasis on employee satisfaction. Other critical factors include the development of employee skills, education and training programs, efforts towards continuous improvement, and managing absenteeism. For Non-Grade-A buildings, the focus is also on developing employee capabilities and satisfaction, with additional attention given to education and training, continuous improvement efforts, and absenteeism management.

5.4.6 The methodology used to rank the importance of various perspectives and sub-perspective measurement for both Grade-A and Non-Grade-A office buildings can be adapted to other evaluation methods, such as the Likert Scale. This approach provides a systematic way to assess and compare performance across different dimensions.

5.5 Suggestions for future research

5.5.1 Other factors related to indicators should be studied, such as non-financial indicators, indicators related to activities for people development, and internal process system indicators related to security, health and safety, environment, hygiene, ergonomics, and carbon footprint generated by the building.

5.5.2 Comparative studies should be conducted regarding indicators with other types of organizations related to office buildings, such as buildings, and retail spaces business.

5.5.3 To expand the study beyond office buildings in Bangkok to include offices in the surrounding metropolitan area and major districts across the country.

5.6 Research limitations

5.6.1 Data collection period: The researcher had a specific timeframe for collecting data from a targeted sample group. To obtain participants involved in setting the indicators, it was not possible to gather data from a large number of samples.

5.6.2 Questionnaire format: The format of the questionnaire, particularly in comparing the importance of primary and secondary factors, was difficult to understand. This led to confusion among respondents and caused hesitation in answering each question.

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APPENDICES

APPENDIX A
INTERVIEW FORM

หัวข้อการศึกษา: การพัฒนา Balanced Scorecard สำหรับธุรกิจสำนักงานให้เช่า
คำอธิบาย: แบบฟอร์มการสัมภาษณ์นี้จัดทำขึ้นเพื่อสนับสนุนการวิจัยสำหรับหลักสูตรบริหารธุรกิจมหาบัณฑิต สาขาวิชานวัตกรรมทางธุรกิจ โครงการปริญญาโทออนไลน์ มหาวิทยาลัยธรรมศาสตร์ เลขทะเบียนนักศึกษา 6633145385 โดยมุ่งเน้นการศึกษาการวัดผลประสิทธิภาพในอาคารสำนักงาน ซึ่งประกอบด้วยสองส่วน:

ส่วนที่ 1: ข้อมูลทั่วไปของผู้สัมภาษณ์
ส่วนที่ 2: ความคิดเห็นเกี่ยวกับการวัดประสิทธิภาพที่ประสบความสำเร็จในการปฏิบัติงาน

ข้อมูลที่ได้รับจากการสัมภาษณ์นี้จะถูกนำไปวิเคราะห์และศึกษาเพื่อทำความเข้าใจความแตกต่างในการวัดประสิทธิภาพของบริษัทต่าง ๆ ซึ่งจะช่วยในการพัฒนาและให้คำแนะนำในการบริหารจัดการอาคาร คำตอบของคุณจะถูกใช้เพื่อการวิจัยเท่านั้น นักวิจัยขอขอบพระคุณในเวลาของคุณและความร่วมมือในการให้ข้อมูลนี้

ส่วนที่ 1: ข้อมูลทั่วไปของผู้รับการสัมภาษณ์

1.1ตำแหน่ง.....
1.2 ประสบการณ์การทำงาน(ปี).....
1.3 ทุนจดทะเบียนของบริษัท.....
1.4 ระดับราคาค่าเช่าเฉลี่ยต่อตารางเมตรของอาคารสำนักงาน.....

ส่วนที่ 2: ความคิดเห็นเกี่ยวกับการวัดประสิทธิภาพในการปฏิบัติงาน

2.1.1 ท่านคิดว่า ปัจจัยใดที่มีผลต่อประสิทธิภาพในการวัดผล ในมุมมองด้านการเงิน (Financial perspective)

ลำดับ	ปัจจัย	สูตรคำนวณ	มาตรวัดความคิดเห็น				
			1 ไม่เห็นด้วยอย่างยิ่ง	2 ไม่เห็นด้วย	3 ปานกลาง	4 เห็นด้วย	5 เห็นด้วยอย่างยิ่ง
1	ประสิทธิภาพการควบคุมต้นทุนตามแผนการใช้จ่าย	ต้นทุนด้านการจัดการ/ งบประมาณต้นทุนด้านการจัดการ					
2	ประสิทธิภาพการควบคุมต้นทุนใช้จ่ายด้านการซ่อมบำรุง	ต้นทุนด้านการซ่อมบำรุง/ งบประมาณต้นทุนด้านการซ่อมบำรุง					
3	ประสิทธิภาพการความคุมต้นทุนการใช้จ่ายด้านการ สาธารณูปโภค	ต้นทุนด้านสาธารณูปโภค/ งบประมาณต้นทุนด้านสาธารณูปโภค					
4	ประสิทธิภาพการควบคุมต้นทุนด้านการตกแต่ง ต่อเติม	ต้นทุนด้านการตกแต่ง ต่อเติม/ งบประมาณต้นทุนด้านการตกแต่งต่อเติม					
5	อัตราส่วนการเช่าพื้นที่	พื้นที่ที่มีผู้เช่า/พื้นที่ที่สามารถให้เช่าได้					
6	รายได้จากการดำเนินงาน	รายได้สุทธิ/ ประมาณการรายได้					
7	กำไรจากการดำเนินงาน	กำไรสุทธิ / ประมาณการกำไร					
8	อัตราส่วนรายได้ อื่น นอกเหนือ จากรายได้ ค่าเช่า	รายได้อื่นๆ / รายได้สุทธิ					
9	อัตราส่วนทุนหมุนเวียน	สินทรัพย์หมุนเวียน / หนี้สินหมุนเวียน					
10	อัตราผลตอบแทนจากสินทรัพย์ทั้งหมด	กำไรสุทธิ / สินทรัพย์รวม (เฉลี่ย)					
11	อัตราผลตอบแทนจากส่วนของผู้ถือหุ้น	กำไรสุทธิ / ส่วนของเจ้าของ (เฉลี่ย)					

2.1.2 นอกเหนือจากปัจจัยข้างตัน ท่านคิดว่ายังมีปัจจัยใดที่มีผลต่อประสิทธิภาพในการวัดผลในมุมมองด้านการเงิน (Financial perspective) อีกบ้าง

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2.2.1 ท่านคิดว่า ปัจจัยใดที่มีผลต่อประสิทธิภาพในการวัดผล ในมุมมองด้านลูกค้า (Customer perspective)

ลำดับ	ปัจจัย	สูตรคำนวณ	มาตรวัดความคิดเห็น				
			1 ไม่เห็นด้วยอย่างยิ่ง	2 ไม่เห็นด้วย	3 ปานกลาง	4 เห็นด้วย	5 เห็นด้วยอย่างยิ่ง
1	อัตราความสำเร็จในการต่อสัญญาเช่า	จำนวนผู้เช่าที่ต่อสัญญา / จำนวนสัญญาที่หมดอายุใน1ปี					
2	อัตราการตอบสนองต้องลูกค้าที่ทำได้ตามแผนงาน	จำนวนข้อร้องเรียนที่ได้รับการแก้ไข / จำนวนข้อร้องเรียนทั้งหมด					
3	ผลสำรวจภาพรวมความพึงพอใจของผู้เช่า	คะแนนความพึงพอใจของผู้เช่า					
4	ผลสำรวจความพึงพอใจต่อราคาค่าเช่า	คะแนนความพึงพอใจต่อราคาค่าเช่า					
5	ผลสำรวจความพึงพอใจต่อฝ่ายบริการลูกค้า	คะแนนความพึงพอใจต่อฝ่ายบริการลูกค้า					
6	อัตราการได้มาซึ่งลูกค้าใหม่	จำนวนผู้เช่าใหม่ / ประมาณการจำนวนผู้เช่าใหม่					

2.2.2 นอกเหนือจากปัจจัยข้างตัน ท่านคิดว่ายังมีปัจจัยใดที่มีผลต่อประสิทธิภาพในการวัดผลในมุมมองด้านลูกค้า (Customer perspective) อีกบ้าง

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2.3.1 ท่านคิดว่า ปัจจัยใดที่มีผลต่อประสิทธิภาพในการวัดผล ในมุมมองด้านกระบวนการภายใน (Internal process)

ลำดับ	ปัจจัย	สูตรคำนวณ	มาตรวัดความคิดเห็น				
			1 ไม่เห็นด้วยอย่างยิ่ง	2 ไม่เห็นด้วย	3 ปานกลาง	4 เห็นด้วย	5 เห็นด้วยอย่างยิ่ง
1	ประสิทธิภาพของการจ่ายไฟฟ้าและพลังงานสำรองฉุกเฉิน	ช่วงเวลาที่ระบบไฟฟ้า ไม่สามารถให้บริการ / ช่วงเวลาที่สามารถรับได้ ที่ระบบไฟฟ้า จะไม่สามารถให้บริการได้					
2	ประสิทธิภาพด้านการให้บริหารลิฟท์	ช่วงเวลาที่ระบบลิฟท์ ไม่สามารถให้บริการ / ช่วงเวลาที่สามารถรับได้ ที่ระบบลิฟท์ จะไม่สามารถให้บริการได้					
3	เวลาที่ใช้ในการรอลิฟท์	ระยะเวลาการรอลิฟท์ / ช่วงเวลาที่สามารถรับได้ ในการรอลิฟท์					
4	ประสิทธิภาพด้านด้านการให้บริหารระบบปรับอากาศ	ช่วงเวลาที่ระบบปรับอากาศ ไม่สามารถให้บริการ / ช่วงเวลาที่สามารถรับได้ ที่ระบบปรับอากาศ จะไม่สามารถให้บริการได้					
5	การจัดการดำเนินการบำรุงรักษา ได้ตามแผนงาน	ความก้าวหน้าของการซ่อมบำรุง / แผนการซ่อมบำรุง					
6	ประสิทธิภาพของการจัดการข้อร้องเรียนของผู้เช่า	เวลา เฉลี่ยในการจัดการข้อร้องเรียน					
7	การควบคุมคุณภาพของอากาศ	คะแนนค่า AQI index					
8	ประสิทธิภาพการควบคุม การใช้พลังงานไฟฟ้า	ค่าไฟฟ้าที่ลดลง / แผนงานลดใช้ไฟฟ้า					

2.3.2 นอกเหนือจากปัจจัยข้างตัน ท่านคิดว่ายังมีปัจจัยใดที่มีผลต่อประสิทธิภาพในการวัดผลในมุมมองด้านกระบวนการภายใน (Internal process) อีกบ้าง

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2.4.1 ท่านคิดว่า ปัจจัยใดที่มีผลต่อประสิทธิภาพในการวัดผล ในมุมมองด้านการเรียนรู้และการเติบโต (Learning and growth)

ลำดับ	ปัจจัย	สูตรคำนวณ	มาตรวัดความคิดเห็น				
			1 ไม่เห็นด้วยอย่างยิ่ง	2 ไม่เห็นด้วย	3 ปานกลาง	4 เห็นด้วย	5 เห็นด้วยอย่างยิ่ง
1	ความพึงพอใจของพนักงาน	คะแนนความพึงพอใจของพนักงาน					
2	การพัฒนาอย่างต่อเนื่อง	จำนวนความคิด หรือ แผนงานใหม่จากพนักงาน / เป้าหมายจำนวนแผนงานการพัฒนาอย่างต่อเนื่อง					
3	การให้ความรู้ และ ฝึกอบรมพนักงาน	จำนวนชั่วโมงการอบรบพนังงาน / เป้าหมายจำนวนชั่วโมงการอบรบพนังงาน					
4	อัตราการลาออกของพนักงาน	ค่าอัตราการลาออกของพนักงาน					
5	การพัฒนาขีดความสามารถและส่งเสริมการเติมโตของพนักงาน	จำนวนพนักงานที่ได้รับการขึ้นตำแหน่ง/เป้าหมายจำนวนพนักงานที่ได้รับการขึ้นตำแหน่ง					
6	การขาดงานของพนักงาน	จำนวนวัน (เฉลี่ย) ในการขาดงานของพนักงาน					
7	อายุงานเฉลี่ยของพนักงาน	ค่า (เฉลี่ย) อายุงานของพนักงาน					

2.4.2 นอกเหนือจากปัจจัยข้างตัน ท่านคิดว่ายังมีปัจจัยใดที่มีผลต่อประสิทธิภาพในการวัดผลในมุมมองด้านการเรียนรู้และการเติบโต (Learning and growth) อีกบ้าง

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2.5 นอกเหนือจากมุมมองทั้งสี่ข้างต้น ท่านมีข้อมูลหรือปัจจัยเพิ่มเติมท่านคิดว่ามีประโยชน์ต่อการวัดประสิทธิภาพที่ประสบความสำเร็จในการปฏิบัติงาน

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2.6 ท่านมีความคิดเห็นหรือข้อมูลเพิ่มเติมหรือ แนวทางที่ช่วยส่งเสริม หรืออุปสรรคและปัญหาใดบ้างในการปรับใช้ Balance scorecard ในองค์กรคือสิ่งใด

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APPENDIX B

QUESTIONNAIRE FORM

คำชี้แจง: แบบสอบถามนี้ จัดทำขึ้นเพื่อสนับสนุนการวิจัยสำหรับหลักสูตรปริญญาโทด้านบริหารธุรกิจ นวัตกรรมธุรกิจ มหาวิทยาลัยธรรมศาสตร์ มีวัตถุประสงค์เพื่อศึกษาดัชนีการวัดผลการดำเนินงานในธุรกิจอาคารสำนักงานให้เช่า โดยประกอบด้วย 4 ส่วนหลักดังต่อไปนี้:

ส่วนที่ 1: รายละเอียดของอาคารและประสบการณ์การทำงาน

ส่วนที่ 2: การเปรียบเทียบความสำคัญของเกณฑ์หลักต่างๆ

ส่วนที่ 3: การเปรียบเทียบความสำคัญของเกณฑ์รองต่าง

ส่วนที่ 4: ข้อเสนอแนะเพิ่มเติม

แบบสอบถามฉบับนี้ออกแบบมาเพื่อรวบรวมข้อมูลเพื่อวิเคราะห์การจัดอันดับความสำคัญของดัชนีการวัดผลการดำเนินงานในธุรกิจให้เช่าสำนักงาน ผลการศึกษาเหล่านี้จะเป็นเครื่องมือสำคัญในการกำหนดเกณฑ์สำหรับลักษณะของดัชนีในธุรกิจอาคารสำนักงานให้เช่า ข้อมูลที่ท่านตอบมีความสำคัญอย่างยิ่งต่อการสรุปผลในการศึกษาวิจัยครั้งนี้ เนื่องจากข้อมูลที่เป็นจริงหรือที่เป็นไปตามความเห็นของท่านจริง ๆ จะนำไปสู่การสรุปผลที่ใช้ประโยชน์ได้จริงดังนั้น ผู้วิจัยจึงขอความร่วมมือจากท่านในการตอบคำถามของแบบสอบถามหรือมอบหมายให้คนในองค์กรของท่านที่มีความเข้าใจในภาพรวมของกิจการตอบแบบสอบถามตามความเป็นจริง ผู้วิจัยขอรับรองว่าผลการศึกษาจะนำไปใช้ในการวิจัยเท่านั้น และขอขอบพระคุณท่านเป็นการล่วงหน้าไว้ ณ โอกาสนี้ด้วย

ส่วนที่ 1: รายละเอียดของอาคารและประสบการณ์การทำงาน

1.1 กรุณาระบุประเภทหลักของอาคารที่บริษัทของคุณมีส่วนเกี่ยวข้อง โปรดทำเครื่องหมายด้วยเครื่องหมายถูก (√) ในช่องที่เหมาะสม:

☐ สำนักงานเกรด A (ช่วงระดับราคาค่าเช่า มากกว่า 1100 บาทต่อตารางเมตรต่อเดือน)

☐ สำนักงานเกรด Non-A (ช่วงระดับราคาค่าเช่า น้อยกว่า 1100 บาทต่อตารางเมตรต่อเดือน)

1.2 ประสบการณ์การทำงานด้านอาคารสำนักงานให้เช่า

☐ 1-5 ปี

☐ 6-10 ปี

☐ มากกว่า 10 ปี

ตัวอย่างการตอบสำหรับส่วนที่ 2 และ 3 ของแบบสอบถาม:

คำอธิบาย: โปรดใส่สัญลักษณ์ในช่องการให้คะแนนเพื่อเปรียบเทียบความสำคัญของเกณฑ์ต่างๆ

เกณฑ์		คะแนนมาตรฐานของการเปรียบเทียบเกณฑ์									เกณฑ์
		มากกว่า				เท่า	น้อยกว่า				
1	A	9	(7)	5	3	1	3	5	7	9	B
2	A	9	7	5	3	1	3	5	7	(9)	C
3	A	9	7	5	3	(1)	3	5	7	9	D

คำอธิบาย

จากข้อ 1 หมายถึง ท่านมีความเห็นว่า A มีความสำคัญมากกว่า B อยู่ในระดับ 7 จาก 9 ระดับ

จากข้อ 2 หมายถึง ท่านมีความเห็นว่า A มีความสำคัญน้อยกว่า C อยู่ในระดับ 9 จาก 9 ระดับ

จากข้อ 3 หมายถึง ท่านมีความเห็นว่า A มีความสำคัญเท่ากับ D

ส่วนที่ 2: การเปรียบเทียบความสำคัญของเกณฑ์หลัก

คำแนะนำ: โปรดใส่สัญลักษณ์ O ในช่องการให้คะแนนเพื่อเปรียบเทียบความสำคัญของเกณฑ์ต่างๆ

เกณฑ์		คะแนนมาตรฐานของการเปรียบเทียบเกณฑ์									เกณฑ์
		มากกว่า				เท่า	น้อยกว่า				
1	ด้านการเงิน	9	7	5	3	1	3	5	7	9	ด้านลูกค้า
2	ด้านการเงิน	9	7	5	3	1	3	5	7	9	ด้าน กระบวนการภายใน
3	ด้านการเงิน	9	7	5	3	1	3	5	7	9	ด้านการเรียนรู้และการเติบโตขององค์กร
4	ด้านลูกค้า	9	7	5	3	1	3	5	7	9	ด้าน กระบวนการภายใน
5	ด้านลูกค้า	9	7	5	3	1	3	5	7	9	ด้านการเรียนรู้และการเติบโตขององค์กร
6	ด้าน กระบวนการภายใน	9	7	5	3	1	3	5	7	9	ด้านการเรียนรู้และการเติบโตขององค์กร

ส่วนที่ 3: การเปรียบเทียบความสำคัญของปัจจัยย่อยด้านต่าง ๆ

คำชี้แจง: กรุณาใส่เครื่องหมาย O ในช่องระดับคะแนนเพื่อเปรียบเทียบความสำคัญของเกณฑ์

3.1: การเปรียบเทียบความสำคัญของปัจจัยด้านการเงิน

เกณฑ์		คะแนนมาตรฐานของการเปรียบเทียบเกณฑ์									เกณฑ์
		มากกว่า				เท่า	น้อยกว่า				
1	กำไรจากการดำเนินงานเทียบกับเป้าหมาย	9	7	5	3	1	3	5	7	9	การควบคุมต้นทุนตามแผนการใช้จ่ายเทียบกับเป้าหมาย
2	กำไรจากการดำเนินงานเทียบกับเป้าหมาย	9	7	5	3	1	3	5	7	9	รายได้จากการดำเนินงานเทียบกับเป้าหมาย
3	กำไรจากการดำเนินงานเทียบกับเป้าหมาย	9	7	5	3	1	3	5	7	9	อัตราส่วนการเช่าพื้นที่เทียบกับเป้าหมาย
4	กำไรจากการดำเนินงานเทียบกับเป้าหมาย	9	7	5	3	1	3	5	7	9	อัตราผลตอบแทนจากสินทรัพย์ทั้งหมดเทียบกับเป้าหมาย
5	การควบคุมต้นทุนตามแผนการใช้จ่ายเทียบกับเป้าหมาย	9	7	5	3	1	3	5	7	9	รายได้จากการดำเนินงานเทียบกับเป้าหมาย
6	การควบคุมต้นทุนตามแผนการใช้จ่ายเทียบกับเป้าหมาย	9	7	5	3	1	3	5	7	9	อัตราส่วนการเช่าพื้นที่เทียบกับเป้าหมาย
7	การควบคุมต้นทุนตามแผนการใช้จ่ายเทียบกับเป้าหมาย	9	7	5	3	1	3	5	7	9	อัตราผลตอบแทนจากสินทรัพย์ทั้งหมดเทียบกับเป้าหมาย
8	รายได้จากการดำเนินงานเทียบกับเป้าหมาย	9	7	5	3	1	3	5	7	9	อัตราส่วนการเช่าพื้นที่เทียบกับเป้าหมาย
9	รายได้จากการดำเนินงานเทียบกับเป้าหมาย	9	7	5	3	1	3	5	7	9	อัตราผลตอบแทนจากสินทรัพย์ทั้งหมดเทียบกับเป้าหมาย
10	อัตราส่วนการเช่าพื้นที่เทียบกับเป้าหมาย	9	7	5	3	1	3	5	7	9	อัตราผลตอบแทนจากสินทรัพย์ทั้งหมดเทียบกับเป้าหมาย

3.2: การเปรียบเทียบความสำคัญของปัจจัยด้านลูกค้า

เกณฑ์		คะแนนมาตรฐานของการเปรียบเทียบเกณฑ์									เกณฑ์
		มากกว่า				เท่า	น้อยกว่า				
1	ผลสำรวจความพึงพอใจต่อฝ่ายบริการลูกค้าเทียบกับเป้าหมาย	9	7	5	3	1	3	5	7	9	อัตราความสำเร็จในการต่อสัญญาเช่าเทียบกับเป้าหมาย
2	ผลสำรวจความพึงพอใจต่อฝ่ายบริการลูกค้าเทียบกับเป้าหมาย	9	7	5	3	1	3	5	7	9	อัตราการตอบสนองข้อร้องเรียนลูกค้าที่ทำได้ตามแผนงานเทียบกับเป้าหมาย
3	ผลสำรวจความพึงพอใจต่อฝ่ายบริการลูกค้าเทียบกับเป้าหมาย	9	7	5	3	1	3	5	7	9	ผลสำรวจภาพรวมความพึงพอใจของผู้เช่าโดยรวมเทียบกับเป้าหมาย
4	ผลสำรวจความพึงพอใจต่อฝ่ายบริการลูกค้าเทียบกับเป้าหมาย	9	7	5	3	1	3	5	7	9	อัตราการได้มาซึ่งลูกค้าใหม่เทียบกับเป้าหมาย
5	อัตราความสำเร็จในการต่อสัญญาเช่าเทียบกับเป้าหมาย	9	7	5	3	1	3	5	7	9	อัตราการตอบสนองข้อร้องเรียนลูกค้าที่ทำได้ตามแผนงานเทียบกับเป้าหมาย
6	อัตราความสำเร็จในการต่อสัญญาเช่าเทียบกับเป้าหมาย	9	7	5	3	1	3	5	7	9	ผลสำรวจภาพรวมความพึงพอใจของผู้เช่าโดยรวมเทียบกับเป้าหมาย
7	อัตราความสำเร็จในการต่อสัญญาเช่าเทียบกับเป้าหมาย	9	7	5	3	1	3	5	7	9	อัตราการได้มาซึ่งลูกค้าใหม่เทียบกับเป้าหมาย
8	อัตราการตอบสนองข้อร้องเรียนลูกค้าที่ทำได้ตามแผนงานเทียบกับเป้าหมาย	9	7	5	3	1	3	5	7	9	ผลสำรวจภาพรวมความพึงพอใจของผู้เช่าโดยรวมเทียบกับเป้าหมาย
9	อัตราการตอบสนองข้อร้องเรียนลูกค้าที่ทำได้ตามแผนงานเทียบกับเป้าหมาย	9	7	5	3	1	3	5	7	9	อัตราการได้มาซึ่งลูกค้าใหม่เทียบกับเป้าหมาย
10	ผลสำรวจภาพรวมความพึงพอใจของผู้เช่าโดยรวมเทียบกับเป้าหมาย	9	7	5	3	1	3	5	7	9	อัตราการได้มาซึ่งลูกค้าใหม่เทียบกับเป้าหมาย

3.3: การเปรียบเทียบความสำคัญของปัจจัยด้านกระบวนการภายใน

เกณฑ์		คะแนนมาตรฐานของการเปรียบเทียบเกณฑ์									เกณฑ์
		มากกว่า				เท่า	น้อยกว่า				
1	ประสิทธิภาพด้านการให้บริหารระบบปรับอากาศเทียบกับเป้าหมาย	9	7	5	3	1	3	5	7	9	ประสิทธิภาพของการจัดการข้อร้องเรียนของผู้เช่าเทียบกับเป้าหมาย
2	ประสิทธิภาพด้านการให้บริหารระบบปรับอากาศเทียบกับเป้าหมาย	9	7	5	3	1	3	5	7	9	การควบคุมคุณภาพของอากาศเทียบกับเป้าหมาย
3	ประสิทธิภาพด้านการให้บริหารระบบปรับอากาศเทียบกับเป้าหมาย	9	7	5	3	1	3	5	7	9	ประสิทธิภาพด้านการให้บริหารลิฟท์เทียบกับเป้าหมาย
4	ประสิทธิภาพด้านการให้บริหารระบบปรับอากาศเทียบกับเป้าหมาย	9	7	5	3	1	3	5	7	9	การจัดการดำเนินการบำรุงรักษา ได้ตามแผนงานเทียบกับเป้าหมาย
5	ประสิทธิภาพของการจัดการข้อร้องเรียนของผู้เช่าเทียบกับเป้าหมาย	9	7	5	3	1	3	5	7	9	การควบคุมคุณภาพของอากาศเทียบกับเป้าหมาย
6	ประสิทธิภาพของการจัดการข้อร้องเรียนของผู้เช่าเทียบกับเป้าหมาย	9	7	5	3	1	3	5	7	9	ประสิทธิภาพด้านการให้บริหารลิฟท์เทียบกับเป้าหมาย
7	ประสิทธิภาพของการจัดการข้อร้องเรียนของผู้เช่าเทียบกับเป้าหมาย	9	7	5	3	1	3	5	7	9	การจัดการดำเนินการบำรุงรักษา ได้ตามแผนงานเทียบกับเป้าหมาย
8	การควบคุมคุณภาพของอากาศเทียบกับเป้าหมาย	9	7	5	3	1	3	5	7	9	ประสิทธิภาพด้านการให้บริหารลิฟท์เทียบกับเป้าหมาย
9	การควบคุมคุณภาพของอากาศเทียบกับเป้าหมาย	9	7	5	3	1	3	5	7	9	การจัดการดำเนินการบำรุงรักษา ได้ตามแผนงานเทียบกับเป้าหมาย
10	ประสิทธิภาพด้านการให้บริหารลิฟท์เทียบกับเป้าหมาย	9	7	5	3	1	3	5	7	9	การจัดการดำเนินการบำรุงรักษา ได้ตามแผนงานเทียบกับเป้าหมาย

3.4: การเปรียบเทียบความสำคัญของปัจจัยด้านการเรียนรู้และการเติบโตขององค์กร

เกณฑ์		คะแนนมาตรฐานของการเปรียบเทียบเกณฑ์									เกณฑ์
		มากกว่า				เท่า	น้อยกว่า				
1	การให้ความรู้ และ ฝึกอบรมพนักงานเทียบกับเป้าหมาย	9	7	5	3	1	3	5	7	9	ความพึงพอใจของพนักงานเทียบกับเป้าหมาย
2	การให้ความรู้ และ ฝึกอบรมพนักงานเทียบกับเป้าหมาย	9	7	5	3	1	3	5	7	9	การพัฒนาขีดความสามารถและส่งเสริมการเติมโตของพนักงานเทียบกับเป้าหมาย
3	การให้ความรู้ และ ฝึกอบรมพนักงานเทียบกับเป้าหมาย	9	7	5	3	1	3	5	7	9	การพัฒนาอย่างต่อเนื่องเทียบกับเป้าหมาย
4	การให้ความรู้ และ ฝึกอบรมพนักงานเทียบกับเป้าหมาย	9	7	5	3	1	3	5	7	9	การขาดงานของพนักงานเทียบกับเป้าหมาย
5	ความพึงพอใจของพนักงานเทียบกับเป้าหมาย	9	7	5	3	1	3	5	7	9	การพัฒนาขีดความสามารถและส่งเสริมการเติมโตของพนักงานเทียบกับเป้าหมาย
6	ความพึงพอใจของพนักงานเทียบกับเป้าหมาย	9	7	5	3	1	3	5	7	9	การพัฒนาอย่างต่อเนื่องเทียบกับเป้าหมาย
7	ความพึงพอใจของพนักงานเทียบกับเป้าหมาย	9	7	5	3	1	3	5	7	9	การขาดงานของพนักงานเทียบกับเป้าหมาย
8	การพัฒนาขีดความสามารถและส่งเสริมการเติมโตของพนักงานเทียบกับเป้าหมาย	9	7	5	3	1	3	5	7	9	การพัฒนาอย่างต่อเนื่องเทียบกับเป้าหมาย
9	การพัฒนาขีดความสามารถและส่งเสริมการเติมโตของพนักงานเทียบกับเป้าหมาย	9	7	5	3	1	3	5	7	9	การขาดงานของพนักงานเทียบกับเป้าหมาย
10	การพัฒนาอย่างต่อเนื่องเทียบกับเป้าหมาย	9	7	5	3	1	3	5	7	9	การขาดงานของพนักงานเทียบกับเป้าหมาย

4: ข้อเสนอแนะเพิ่มเติม

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BIOGRAPHY

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