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REVENUE MANAGEMENT STRATEGY IMPLEMENTATION: ROLE OF CRITICAL FACTORS ON REVENUE MANAGEMENT STRATEGY EFFECTIVENESS

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Revenue Management Strategy Implementation: Role of Critical Factors on Revenue Management Strategy Effectiveness

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OLIVE NELLY MUTHONI NYAGA

DEDICATION

To my Husband (Joseph) and Son Caylan Jones. With God, all things are possible.

ABSTRACT

Revenue management (RM) practice has remained integral to hotel business operations. As a key strategy in the hotel industry, RM has played a major role in driving revenue optimization. Consequently, implementing an effective RM strategy is vital to maximizing the benefits of RM. However, due to the complex and dynamic nature of operations, the hotel industry has experienced challenges from different perspectives in recent years that have severely hampered its performance and growth. To address these challenges, stakeholders should thoroughly understand the critical factors (CFs) influencing the implementation of strategies. In addition, stakeholders must develop appropriate business tactics to cope with present and future challenges to ensure their business' survival.

Despite numerous studies documenting the paybacks and drawbacks of the RM strategy in the hotel industry, few studies have specifically focused on the implementation of the RM strategy. Consequently, there is limited awareness of CFs for RM strategy implementation as existing information is unclear or fragmented. Therefore, this study explores and identifies the CFs of RM strategy implementation in the hotel industry and their impact on its effectiveness. The study examines five main objectives: (1) to identify the dimensionality of CFs for RM strategy implementation in the hotel industry, (2) to model the interrelationship among the identified CFs for RM strategy implementation in the hotel industry, (3) to examine the relationship between CFs and RM strategy effectiveness in the hotel industry, (4) to examine the moderating effects of the RM strategy approach, and (5) the moderating effects of RM implementation level on the relationship among CFs, and RM strategy effectiveness in the hotel industry.

An exploratory sequential mixed-method research design was employed in this study. In the first phase, a Fuzzy Delphi Method and Fuzzy Analytic Network process were used to validate

the identified CFs. In the second phase, a survey was conducted, and data was collected from 683 hotels from ten countries. An Exploratory Factor Analysis (EFA) and multiple regression analysis were used to examine factors and predict the relationships between CFs, RM strategic approach, RM level of implementation, and RM strategy effectiveness. Seven critical factors, namely 1) organizational factor, 2) monitoring factor, 3) human resource factor, 4) operational factor, 5) technological factor, 6) culture factor, and 7) evaluation factors, were identified by this study. All the factors had a significant positive influence on RM strategy effectiveness. Additionally, the RM strategy implementation level and approach partially moderated the relationship between CFs and the effectiveness of RM.

Theoretically, this study identified CFs for implementing the RM strategy from a global perspective, thus enriching the literature. Additionally, the study investigates the predictive effects of CFs on RM effectiveness, the moderating effects of the strategic approach, and the level of implementation. Knowledge of these relationships will assist in identifying the most influential factors and how they affect other factors and influence RM strategy effectiveness. Finally, by employing a modified total interpretative structural modeling (m-TISM), the study proposes an integrated model of the interrelationship among CFs. Verifying these predictive effects enriches the literature as it helps explain the relationship between the factors and performance. Practically, the study provides hotel practitioners and revenue managers with insight into effectively implementing the RM strategy. Understanding these factors assist revenue managers in knowing the elements within their control. Secondly, the study provides the decision makers and RM system suppliers with a RM strategy implementation model to guide the strategy execution.

Keywords: Revenue management, strategic management, strategy implementation, critical factors, implementation level, implementation approaches, strategy effectiveness, performance, financial, nonfinancial.

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"If you want to go fast, go alone, but if you want to go far, go together."

Martha Goedert.

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CHAPTER ONE: INTRODUCTION

1.0 Introduction

This chapter discusses key issues and concepts that contextualize the study. The chapter commences with an overview of the study's purpose, followed by a background of the study, which focuses on a review of the revenue management (RM) concept and strategy implementation in the hotel Industry. The aim is to provide a rationale for the study and explain RM strategy's role in hotels' operations. An overview of the critical factors (CFs) will be highlighted, followed by the problem statement, research objectives, and study contributions. Finally, a summary of the outline and contents of each chapter will be provided.

1.1 Purpose of the study

Over the last three decades, the adoption and practice of RM strategy in the hotel industry have become widespread and sophisticated (Anderson & Xie, 2010), with many hotels reporting optimized revenues and profits from applying this technique. The importance of RM has been accentuated by various scholars who assert that the strategy is critical to hotel management in anticipating demand and optimizing inventory and pricing (Chiang et al., 2007; Erdem & Jiang, 2016; Kimes, 2011; 2016; Queenan et al., 2011; Vinod, 2004; Wirtz et al., 2003) to obtain the best possible financial performance. This flourishing significance and recognition of RM in hotels today have elicited widespread interest among industry practitioners and hospitality researchers seeking a clearer understanding of RM practice to use the knowledge for strategic decision-making. Following the awareness of the long-term viability and potential benefit of RM practice as a strategic approach to gaining competitive advantage in hotels, academic research in strategic RM strategy has been emerging recently in the hospitality literature (Altin, 2017; Brlečić Valčić & Bagarić, 2017; Enz, 2012; Kimes, 2011; Okumus, 2001; Schwartz et al., 2017).

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Like other strategies, effectively adopting the RM strategy requires hotels to fully comprehend the key factors that regulate and facilitate the strategy's process (Ariyachandra & Frolick, 2008; Kumar, 2008). As such, understanding the RM strategy implementation critical factors (CFs) is essential for hotels embarking on a RM strategy implementation journey. Additionally, the awareness of how these factors influence the strategic approach and level of strategy implementation will be beneficial. That said, there is a dearth of literature on the best approach to RM strategy implementation in the hotel industry, as most extant studies on RM research have broadly focused on the value RM strategy has in the hospitality industry (Abad et al., 2019; Altin, 2021; Emeksiz et al., 2006; Ivanov, 2014; Kimes, 2000; Queenan et al., 2011; Talón-Ballestero et al., 2014), with several proposing models and frameworks for RM strategy implementation (Donaghy et al., 1995;1997; Emeksiz et al., 2006; Guillet & Mohammed, 2015; Ivanov, 2014; Ivanov & Zhechev, 2012; Jones & Hamilton, 1992: Jones & Kevin, 1997; Okumus, 2004; Talón-Ballestero et al., 2014; Tranter, 2009; Yeoman & Watson, 1997). However, these studies fail to identify the CFs that determine effectual implementation and lack unanimity on the most reliable approach to RM implementation.

Given this, this study aims to contribute to the growing literature on strategic revenue management by identifying the CFs for RM strategy implementation, investigating the interdependencies of these factors, and modeling a decision hierarchy of CFs for RM implementation in the hotel. The study also examines the predictive relationships between CFs, RM implementation approach, level of RM implementation, and RM strategy effectiveness.

1.2 Background of the study

The rapidly changing business environment, heightened competition among businesses, declining markets, mounting customer demands, and technological advancements have pressured companies worldwide to continually innovate their business operations strategies (Bashir & Verma, 2017). Like other businesses, the hotel industry is steadily evolving to adapt to its ever-changing customer landscape, trends, and competitive business environment while rifling through every opportunity to increase its revenues (Schaap, 2017). As such, the hotel industry has responded to contingencies and changes in the operating environment by acquiring and adopting strategic management techniques (Hill & Jones, 2011; Pechlaner & Sauerwein, 2002) relevant to the industry, such as revenue management whose basis on anticipating demand and optimizing inventory and price to maximize their revenue (Talón-Ballestero et al., 2014).

Revenue Management (RM) is the collection of dynamic and strategic tactics firms use to logically manage and optimize demand and supply for their products through pricing to maximize revenue and profits for the firm (Rodríguez-Algeciras & Talón-Ballestero, 2017; Van Ryzin & Talluri, 2005). Hotels achieve the RM objective through demand forecasting, market segmentation, product definition and differentiation, strategic and variable pricing, competitive benchmarking, business mix manipulation, and distribution channel management (Forgacs, 2010; Ng, 2007). The key objective for RM is selling the right product and service, to the right consumer, at the right time, at the right rate, through the most cost-efficient channel (Hayes & Miller, 2010; Kimes, 1989; Kimes, 2000).

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The concept of RM has evolved since its origin as yield management (YM) in the early 1970s (Littlewood, 1972) following the deregulation of the airline industry in America (Donaghy & McMahon, 1995) to become one of the essential business strategies for profit maximization and customer satisfaction adopted by the service industry, particularly the hospitality and tourism sectors (Anderson & Xie, 2010; Ivanov & Zhechev, 2012; Kimes, 1989; Rodríguez-Algeciras & Talón-Ballestero, 2017).

The integration of the RM practice by hotels has proven to be iconic in managing the dynamics of supply and demand by varying prices, thus corroborating itself as a sustainable and robust tool for optimizing revenue and demand and the financial success of the hotel (Rodríguez-Algeciras & Talón-Ballestero, 2017; Schwartz et al., 2017). Research shows that many hotels have adopted current RM practices due to the potential benefits of integrating the technique over not adopting or applying the traditional intuition method (Ortega, 2016). Traditional RM practice was mainly devoted to rooms and highly relied on static prices, using the best available rate (BAR) as the basis for discounting. This method was rigid and poorly optimized because it relied mainly on managers' intuition or judgment (Garrow & Ferguson, 2008; Tony & Poon, 2012). As a result, hotels could not fully capitalize on available demand, decision-making was complex, and revenue was unsatisfactory. Compared to traditional RM, technology-based RM practice uses sophisticated algorithms which offer hotels the convenience of dynamic pricing that can be adjusted in real time for specific markets segments and distribution channels (Cetin et al., 2016; Vives et al., 2018; Westermann, 2006).

Additionally, they offer customers the convenience of searching, interacting, and comparing hotel prices at different times and making reservations (Choi & Mattila, 2005; Ip et al., 2012; Rohlfs & Kimes, 2007).

Hotels are also able to easily benchmark against their competitors and make quick adjustments where required (Alrawadieh et al., 2021; Brlečić Valčić & Bagarić, 2017; Lieberman, 2003; Nair, 2019). Hotels are extending the RM practices to other revenue-generating centers within the hotel, such as restaurants, spas, conference and meeting rooms, and entertainment facilities (Ferguson & Smith, 2014; Kimes & Singh, 2009; Kimes &Wirtz, 2015; Thompson, 2010) in a move towards total revenue management (Zheng & Forgacs, 2017). As a result, hotels that have adopted the RM strategy are continually reporting improved revenue and profits (Haley & Inge, 2004; Hormby et al., 2010). For example, InterContinental hotels realized a 2.7% ($145 million) year increase in revenue from implementing a RM system in 2,000 properties (Koushik et al., 2012).

From an operational and strategic standpoint, RM strategy has become integral to hotel management due to its numerous benefits (Altin, 2021). Operationally, RM is a standard operating procedure for managing hotel inventory and booking procedures (Wang, 2012). As a strategy, RM is based on the premise that capacity-constrained service industries' total revenue depends on the firm's ability to utilize capacity efficiently (van Ryzin & Talluri, 2005). As idle capacities do not generate revenue and are defined as unprofitable if not sold within a specified time, the goal of the RM strategy is to attain a balance between the opportunity cost of selling a resource today versus saving it to sell at a higher price in future considering the perishable nature of hotel resources (Goldman et al., 2002). Therefore, RM plays an increasingly integral role in shaping the financial viability of hotels and other service industries (Cross et al., 2011).

Based on this, researchers acknowledge and emphasize the recognition of RM as more strategic than tactical, given the potential impact of RM practices on hotel profitability (Altin et al., 2017; Kimes, 2011; Ivanov et al., 2021).

Researchers also highlight the potential negative influence of certain RM practices that conflict with departments, such as customer relationship management, sales, and marketing, and the hotel's long-term relationships with key clients who may have perceptions of unfairness (Wang, 2012; Wang & Brennan, 2014). For this reason, hotels must establish an effective RM strategy that supports the hotel's vision and mission, promotes growth and resilience, and maintains a strategic and sustainable competitive advantage relative to competitors (Altin et al., 2017). From a strategic point of view, RM, like other strategies deployed in the hotel, is concerned with the strategic orientation required to construct new operations. As such, hotels develop and implement the RM system to optimize the hotel's revenue and profits, thus ensuring financial success (Chiang et al., 2007; Okumus, 2001).

An absolute effect of the budding popularity of RM strategy among hotels is increased duplication of tactics and competition due to increased exposure. Duplication spans from the fact that hotels must share their information on the internet to make it readily available to customers, which also exposes them to competitors (Buhalis, 2000). For this reason, hotels need to gain and sustain a competitive edge through strategic RM practice. To achieve this, hotels must have a thorough knowledge and understanding of the RM strategy, including the implementation process, critical factors influencing the practical implementation, the most appropriate RM strategy implementation approach based on the hotel characteristics, how to achieve high levels of RM strategy implementation and how to attain and maintain an effective RM strategy.

1.3 Revenue management strategy implementation

Just like other strategic management tools, the success and survival of RM in the hotel are highly dependent on strategic decisions, the implementation process, and correct operationalization (Dooley & Fryxell, 1999).

Implementation is the phase of defining 'who' (person), 'where' (place), 'when' (period), and 'how' (process) functions (Altin et al., 2017). Successful implementation of RM is a complex and challenging process that requires commitment, discipline, creativity, leadership, and superior execution skills (Freedman, 2003). Additionally, the multi-dimensional nature of RM practice requires multiple crucial factors to be considered and controlled simultaneously in execution. These include forecasting models, pricing knowledge, market segmentation, demand cycles, competitor analysis, production and sales costs, training costs, and monitoring performance (Okumus, 2004). Implementing the RM strategy within the organization results in people, processes, and systems working in a tightly integrated system that requires proper management to realize its full potential. This is because the implementation of RM in the organization causes profound changes.

Over the years, research has shown that hotels can optimize their revenue, grow their profits, and improve their performance and competitiveness by correctly integrating and implementing the RM strategy in their operations (Altin, 2017; Ferguson & Smith, 2014). However, while strategy formulation is challenging, making a strategy work through implementing and practicing is more difficult (Nutt, 1999). While the potential benefits of RM application in the hotel industry are well acknowledged, the actual implementation and subsequent practice are challenging (Altin, 2017). Additionally, business strategy can only succeed with effective implementation; thus, the increased adoption of RM necessitates understanding critical factors in successful RM implementation and practice. Regrettably, many managers know about strategies formulated or adopted in their companies. However, few know about executing the strategy (Hrebiniak, 2006), which is the same in the case of the RM application.

Research shows that the strategy's success depends on its operationalization and correct implementation, and choosing the best approach to execute the strategy plays a significant role. Therefore, the hotel must understand its competencies, capabilities, and capacity and apply the strategy that best fits these skills and abilities (Altin, 2017; Freedman, 2003).

Another critical aspect of the effective strategy implementation process is knowledge of the different degrees (extent, level, or sophistication) of strategy implementation. The level of strategy implementation depicts the extent to which full potential can be realized by applying that strategy (Thorpe & Morgan, 2007). Logically it is expected that the higher the level of implementation, the greater the anticipated performance. However, this holds true only if the strategy is implemented correctly. Additionally, integrating factors such as leadership, level of staff expertise, and availability of information systems in the strategy implementation process affects the extent of strategy implementation (Miller et al., 2004; Olson et al., 2005). In the RM context, models like MERMI (model for evaluating revenue management implementation) by Talón-Ballestero et al. (2014) can assess the extent of RM strategy implementation. This model classifies the extent of RM implementation into excellent to low degrees depending on the number of categories and items the hotel has integrated. The level of implementation implies the extent of RM strategy effectiveness (Abad et al., 2019; Rodríguez-Algeciras & Talón-Ballestero, 2017).

Thishere is a lack of a well-defined model that holistically estimates the extent of RM strategy implementation and development in hotels, more research is needed to fill the gap emanating from a lack of clarity in identifying the requirements and procedures for RM strategy implementation; this study seeks to understand the extent of RM strategy implementation by the hotels and the how this influences the effectiveness of the RM strategy.

The other significant decision the managers must make in the implementation process is related to the best approach to implementing the RM strategy. A taxonomy of the RM strategy implementation approach (Altin, 2017) identified five main approaches: in-house, centralized, corporate outsourcing, third-party outsourcing, and a combination of any of these methods (mixed method). Nonetheless, selecting the most appropriate implementation approach is marred by many unknown factors, as each approach has inherent advantages and disadvantages based on various contingencies in the hotel's operating environment. As such, it is prudent for property management to explore and invest in the most optimal implementation strategy based on the property characteristics to guarantee RM strategy implementation effectiveness (Altin, 2015).

Previous research has identified and proposed several RM implementation models since the adoption of the practice in the hotel industry (See: Donaghy et al., 1995;1997; Emeksiz et al., 2006; Ivanov, 2014; Ivanov & Zhechev, 2012; Jones & Hamilton, 1992: Jones & Kevin, 1997; Okumus, 2004; Talón-Ballestero et al., 2014; Tranter, 2009; Yeoman & Watson, 1997). Despite these previous contributions, RM strategy implementation is fuzzy because studies examining the implementation process of the RM strategy lack consensus on the model's effectiveness, as each model has pros and cons. Since hotels have already applied the RM strategy, this study seeks to understand how the RM implementation approach that a hotel chooses to use affects the RM strategy's effectiveness. Additionally, the study aims to understand the most appropriate model for RM strategy implementation.

1.4 Critical Factors

Understanding the CFs in strategy implementation and practice is crucial in the hotel business. This is because, while few major competitors exist in similar industries like airlines, the hotel business has many competitors offering products and services that are difficult to differentiate (Crook et al., 2003). This means that customers have a wide array of selections of where to purchase the hotel product, and if they are dissatisfied with rates or services offered to them, they may go elsewhere and never return (Mandić & Petrić, 2020; Lado-Sestayo et al., 2016). Research has shown the importance of businesses adopting strategies that give them a competitive edge over other businesses to maximize their potential and thrive (Enz, 2012b). However, these strategies are only helpful to the business operations if they are running as they ought to.

CFs refer to the key factors essential for attaining a business, that is, the limited vital areas where things must go well for business goals and objectives to be realized, and if ignored, they result in business failure (Geller, 1985). They are characteristics necessitating careful and relentless communication and attention from the management. CFs in RM implementation are the essential ingredients without which RM strategy would stand little chance of success; thus, they must be carefully deliberated upon (Brotherton, 2004). Therefore, hotels must understand the critical areas of the RM strategy where they need to concentrate their efforts to ensure competitive performance for the organization. CFs may vary from organization to organization within an industry and among managers in each organization (Geller, 1985). This is because CFs are determined by the strategy, and in turn, CFs determine the information of importance for controlling the strategy (Boynton & Zmud, 1984).

There are two dimensions of CFs. First, the internal dimension reflects the organization's core capabilities and resources, such as products, people, and systems, for survival in the operating environment. Second, external dimensions reflect threats and opportunities that the organization must overcome to survive in the market, such as competition, the state of the economy, and market conditions. Further, as some factors are independent while others depend on others for their success, CFs can be categorized based on their causal and linkage relationship, that is, whether they are (standing or instigating, direct or indirect-acting, or enhancing or inhibiting) (Williams & Ramaprasad, 1996). Firms that identify the CFs for their specific strategies and implement these CFs fully through accurate evaluation, feedback, and management perform better than firms that do not identify the CFs (Jenster, 1987). Understanding the CFs in RM implementation is crucial because wrongful implementation costs the organization.

However, while research on CFs in the hospitality and tourism industry has existed for some time (Avcikurt et al., 2011; Brotherton, 2004; Geller, 1985; Griffin, 1995; Hansen & Eringa, 1998; Jones et al., 2015; Lee et al., 2019), there is a lack of research into the CFs affecting the implementation of RM strategy. Consequently, this study seeks to fill this gap by examining the CFs for RM strategy implementation in the hotel industry and identifying the interdependencies among these factors.

1.5 Problem statement

Integrating the RM concept is no longer a competitive advantage but a 'must-have' for the service industry, especially hotels. Over the past four decades, the service industry has been implementing and practicing RM with the core objective of revenue growth and optimizing profits making it an increasingly important strategy in the service industry (Schwartz et al., 2017).

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RM has been recognized as an essential technique for long-term profitability and competitiveness in the service industry. After airlines, hotels have shown tremendous adoption and practice of RM strategies in their daily operations (Hansen & Eringa, 1998). During the same period, research in the area has grown tremendously, with researchers seeking to understand the impact of the RM on performance and its competitiveness (Guillet & Mohammed, 2015; Kubickova, 2021; Yeoman, 2016). Nonetheless, while the strategy has progressively become more acclaimed in the matured economies, the strategy has not received much academic attention in Africa, Latin America, parts of Europe, and the Middle East's hotel industry (Ivanov & Ayas, 2017), with the exemptions of scholars like (Emeksiz et al., 2006; Ivanov, 2014). Existing research shows that hotels that have adopted the RM strategy outperform the non-adopters in performance (Ortega, 2016), implying that hotels that have yet to embrace the RM strategy are potentially losing out.

As globalization intensifies, multinational hotel investments have increased tremendously, especially in developing countries (World Tourism Organization, 2020). Additionally, globalization has resulted in improved quality of life due to increased income. With improved quality of life comes demand and emphasis for better services, forcing hotels to innovate or adopt internationally recognized and proven management practices for strategic alignment in their day-to-day activities to remain operational (Wong & Kwan, 2001). Considering the contextual and situational differences between hotels, there is a high imbalance for more strategic resources, information, knowledge, and expertise. The continuous entrance of new hotels poses a challenge to the industry since they increase the competition for the share of the available market (Yannopoulos, 2011). They also tend to have technical solutions that older local hotels may lack, thus giving them a higher competitive advantage (Enz, 2012b). This, in turn, increases competition among businesses, and only firms with the right strategies can rise above.

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Therefore, a hotel's success and ability to compete today depends on various strategies, such as RM and customer perceived value of their tactics and products (Ntimane & Tichaawa, 2017). Failure to integrate RM practices by hotels minimizes the revenue optimization potential (Shoemaker & Gorin, 2008).

The RM strategy has been accepted by hotel managers and industry practitioners as a practical approach to managing the complexities of demand, inventory, and pricing in the hotel industry (Koushik et al., 2012). Generally, RM is instrumental in forecasting, rate management, inventory management, segmentation, and distribution channel management (Guillet, 2020). These allow hotels to discriminate and vary rates over time based on the heterogeneity of customers, level of supply and demand, and competitive pressure in the business environment (Ng, 2007; Ortega, 2016). Further researchers assert that by integrating RM strategy, hotels improve adaptability, effectiveness, and competitiveness in their operations (Noh et al., 2016). Subsequently, hotels can more efficiently cater to customers, suppliers, and shareholders' requirements. Therefore, RM becomes a source of customer satisfaction, business excellence, enhanced organizational performance, and sustainable competitive advantage (Zheng & Forgacs, 2017).

While researchers and practitioners have a consensus that the RM practice can potentially increase firms' revenues and profits, they also concede that the increase is attributable to effective RM strategy implementation (Altin et al., 2017). The importance of proper strategy implementation and execution has long been recognized by businesses (Baroto et al., 2014). Even so, numerous firms still need to improve their strategy and cost, which may be traced to ineffective execution of strategy implementation.

Research shows that about 66% of corporate strategies are never implemented, whereas only 63% of financial objectives are achieved (Mankins & Steele, 2005). Additionally, 70-90% of firms fail to realize the success of implementing their strategies due to poor implementation execution (Kaplan & Norton, 2005). When a strategy is not adequately understood and executed during the implementation stage, subsequent failure in applying the strategy is inevitable. Today's business context is ever-changing, and firms must change their strategies to retain or gain a competitive advantage in the business environment. Consequently, concerns about the extent of the hotel's knowledge of the RM strategy for its effective implementation and practice for long-term viability have been raised (Ivanov et al., 2021; Murimi & Wadongo, 2020; Okumus, 2004).

As such, researchers have stressed the importance of hotels' familiarity and understanding of RM strategy for successful implementation and sustainability (Anderson & Xie, 2010; Hernandez, 2015; Ivanov et al., 2021; Kimes & Anderson, 2011; Lieberman, 2003; Murimi & Wadongo, 2020). At the very least, effective implementation of RM strategy is critical for the successful application of RM strategy, as revenue and profit optimization will only be realized when organizations fully and correctly implement RM strategy without loopholes (Talón-Ballestero & González-Serrano, 2013). Specifically, understanding the critical factors that lead to successful implementation and practice is crucial. However, while the importance of these factors is critical for the long-run success and viability of any strategy, they are not well-understood (Belobaba, 2002; Geller, 1985; Griffin, 1995; Queenan et al., 2011).

This lack of understanding and awareness of the critical factors in implementing RM has resulted in trial and error in RM implementation and practice, sometimes resulting in inconsistencies in performance (Queenan et al., 2011).

As a result, some hotels have successful RM programs while others struggle with theirs (Belobaba, 2002; Lieberman, 2003; Queenan et al., 2011). Generally, improper RM implementation has been shown to negatively affect the hotel leading to high operating costs and detrimental revenues and profits (Lieberman, 1993). If hotels continually engage in a strategy without understanding what they need to make the strategy a success, they are likely to incur higher operational costs. The crux is that successful implementation of the RM strategy requires a thorough understanding of the property's internal resources and external factors that influence its performance. Despite this understanding, there is surprisingly limited research on RM implementation in the hotel industry (Altin, 2017; Altin et al., 2017; Talón-Ballestero et al., 2014).

The few studies on RM strategy implementation have focused narrowly on centralized RM system implementation (El Haddad, 2015; Okumus, 2004), RM implementation assessment model (Talón-Ballestero et al., 2014), characteristics that determine RM implementation (Abad et al., 2019), RM strategic implementation approaches (Altin, 2017; Altin et al., 2017), the effectiveness of RM strategy (Rodríguez-Algeciras & Talón-Ballestero, 2017), and simultaneous implementation of RM and customer relationship management (CRM) in the hotel (Peco-Torres et al., 2021). Considering the importance of RM in the hotel industry, research on RM implementation beyond the current discussion is vital. Specifically, research focusing on CFs for RM implementation execution is warranted. Additionally, existing studies were conducted majorly from a developed country perspective, whereas it is understood that contextual and situational differences may render differences in what constitutes critical factors. As such, studies covering a more comprehensive perspective are necessary.

Therefore, this study contributes to the existing discussion by addressing specific gaps. First, while it is extensively acknowledged that strategy implementation highly impacts the effectiveness of a strategy, and some researchers deliberate the strategic importance of RM, few have investigated the implementation of RM, specifically the CFs, in the implementation of RM strategy. For example, Griffin (1995) revealed factors such as user traits and education, organizational support, and external environment as crucial factors in implementing successful YM systems for lodgings, while Hansen and Eringa (1998) identified factors such as top-management commitment, employee commitment, and communication among others as human-resource-related CFs in YM implementation.

These studies notwithstanding, there need to be more studies addressing the CFs for RM strategy implementation holistically. Understanding the right mix of RM strategy implementation CFs that directly impact the strategy effectiveness helps the revenue managers comprehensively understand the strategy's role in hotel performance and the potential of the strategy in the future. Additionally, the existing studies have yet to examine the inter-relationship between CFs. Awareness of the relationships assists the revenue managers in knowing the most influential factors and how they affect other factors and influence RM strategy effectiveness. This study intends to fill this gap.

Second, there is a lack of consensus and incomprehensive focus on RM strategy implementation models that provide a precise procedure for implementation and models that estimate the degree of implementation. Existing models for implementation and execution of the strategy lack agreement on the model's effectiveness (see Donaghy et al., 1995; Emeksiz et al., 2006; Jones & Hamilton, 1992; Jones & Kevin, 1997; Yeoman & Watson, 1997).

Further, these models bear inherent drawbacks because they assume that RM strategy implementation involves a series of events or thoughts in which one follows another directly. However, logically this is different owing to the differences between hotel characteristics. Therefore, contextually developed models are invaluable considering various situations, operating environments, and contexts. Additionally, the models identified in the literature may not be fully applicable considering the fast-changing operating environment. As Talón-Ballestero et al. (2014) assert, implementation models must be revised from time to time due to the changing operating environment. This study proposes to address this gap by carrying out the study from different contexts and providing an up-to-date model.

Third, the relationship among the CFs, implementation approaches, level of implementation, and RM strategy effectiveness still needs to be explored. Revenue managers aim to optimize revenue and profits from applying the strategy and to continue utilizing value-adding strategies. Ergo, identifying the CFs for implementing RM and understanding the influence of strategic approach and implementation level on the RM strategy's effectiveness is a pertinent issue. Despite this importance, empirical work on the connection between CFs and RM strategy implementation and their impact on strategy effectiveness has received little attention. Furthermore, understanding these effects from a global context should be examined because success factors can vary significantly from one context to another. Nevertheless, there is a lacuna of studies examining the CFs of RM strategy implementation in hotels from a global perspective.

1.6 Research Questions & Objectives

1.6.1 Research Questions

Based on the research gaps identified above, the following research questions have been formulated:

RQ 1: What are the critical factors for RM strategy implementation in the hotel industry;

    a) as identified in the literature

    b) from the experts' (academia and industrial) perspective

    c) as identified by hotels.

RQ 2: How are the identified critical factors for RM strategy implementation in the hotel industry interrelated?

RQ 3: What is the relationship between critical factors and RM strategy effectiveness in the hotel industry?

RQ 4: What are the moderating effects of the revenue management strategy approach on the relationships among critical factors and revenue management strategy effectiveness in the hotel industry?

RQ 5: What are the moderating effects of revenue management strategy implementation level on the relationships among critical factors and revenue management strategy effectiveness in the hotel industry?

1.6.2 Research Objectives

This study aims to provide a clearer understanding of the critical factors for revenue management strategy implementation and to confirm the predictive value of the dimensions of the effectiveness of revenue management strategy.

The subsequent research objectives inform the study:

RO1: To identify the dimensionality of critical factors for RM strategy implementation in the hotel industry from;

      a) literature

      b) experts' (academia and industry) perspective

      c) hotels.

RO2: To model the interrelationship among the identified CFs for RM strategy implementation in the hotel industry.

RO3: To examine the relationship between critical factors and RM strategy effectiveness in the hotel Industry.

RO4: To examine the moderating effects of the revenue management strategy approach on the relationship among critical factors, and revenue management strategy effectiveness in the hotel Industry.

RO5: To investigate the moderating effects of revenue management implementation level on the relationship among critical factors, and revenue management strategy effectiveness in the hotel Industry**.**

1.7 Significance of the Study

Considering the significant and relevant research gaps identified for examination, the findings of this study have germane academic and practical contributions to the RM literature in the hospitality industry. Although RM has been in existence in the hotel industry for decades, there is a dearth of literature on implementation, and the existing literature lacks richness and clarity compared to the airlines (Clarke, 2004; Gorin & Belobaba, 2004; Hassan, 2003; 2004; Johns, 2000; Parker, 2003; Skugge, 2002; Slager & Kapteijns, 2004).

1.7.1 Theoretical contributions

Given the existing literature, this is the first attempt to extend the literature on RM strategy implementation from a global perspective. The theoretical contributions of this study are:

First, this study contributes empirical literature to the developing research in RM strategy implementation in the hospitality industry to augment our knowledge of strategy implementation. A thorough literature review of the existing literature shows a lacuna of studies on critical factors for revenue management strategy implementation. Specifically, existing RM studies have primarily focused on the impact of revenue management strategy on hotel performance compared to how revenue management can be implemented effectively. Further, the existing studies on critical factors have focused on single factors rather than the holistic viewpoint of the critical factors. Further, most studies have primarily been conducted from a developed country perspective than a developing country. There is little clarity regarding these aspects; thus, this study will shed light on them. Thus, the insights gleaned from this study will contribute to advancing knowledge of the critical factors affecting the successful implementation of revenue management strategies.

Second, previous research has not explicitly examined the CFs for implementing RM strategy in the hotel industry. By examining the CFs and identifying their interrelationships based on the RM strategy approach used by different hotels, revenue managers will know the most influential factors and how they affect others. Third, the existing models on RM have failed to paint a holistic picture of the CFs for RM strategy implementation. By applying a multidimensional approach, this study hopes to contribute to a broader and more precise understanding of the RM strategy implementation by proposing a new model for the direct and transitive relationships between the different CFs.

Fourth, this study investigates the predictive effects of a) CFs on RM strategy effectiveness, b) Moderating role of the RM implementation approach on the relationship between critical factors and RM strategy effectiveness, and c) Moderating role of the level of RM strategy implementation on the relationship between critical factors and RM strategy effectiveness. These relationships are conspicuously lacking in the literature, and the present study proposes to address this gap. This will contribute to a better understanding of the different RM implementation fundamentals and procedures and how they influence the effectiveness of RM strategy in the hotel industry.

Fifth, this study presents theoretical implications through the lens of contingency theory and CFs to explicate RM strategy implementation in the hotel context. Through this theory, this study will examine how organizations can influence and be influenced by their environment and how to maintain a sustainable competitive advantage. Last but not least, this research utilizes a unique data collection method in that; first, a significant gap in RM research is that there are few studies that use more than one method of data collection, and those that exist do not provide much insight into details of study design, analysis, or the relationship between methods and results.

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Uniquely, this study employs a mixed-method approach, integrating qualitative and quantitative data collection and analysis techniques. Further, results obtained from the different data collection methods will be compared. By using multiple data collection approaches, we can gain insight that goes beyond what could be obtained from a single approach. Second, the study sample unit will include experts and respondents with more than three years' experience and knowledge of the revenue management and hotel industry. This will make certain that respondents have sufficient knowledge and experience in the areas of revenue management and hotel operations.

1.7.2 Practical contributions

Given the growing interest in RM strategy among hotels, the outcome of this study could offer a platform to understand better how RM strategy should be appropriately implemented by providing empirical evidence from the industry. The findings will contribute to knowledge in the following ways:

First, to hotels, this study will provide strategy decision-makers with an RM implementation model to guide the strategy execution. The outcomes of this study highlight the factors that influence RM strategy implementation and effectiveness and relate them to hotel characteristics; thus, decision-makers may better understand how hotels in different classes make decisions to adopt RM or not. The study will also highlight the extent to which different hotel segments have implemented RM strategy, thus providing a platform for benchmarking to retain a sustainable competitive advantage. Further, the study's findings will highlight the significance of a firm's knowledge of its internal and external operating environment and resources and how they impact the adoption and implementation of the business strategy. Finally, an understanding of the success factors based on the RM implementation approach a hotel uses and how this impacts the hotel's performance will be invaluable to the decision-makers.

Second, this study informs revenue managers of the critical factors for a successful RM strategy implementation. The results of this study can help RM managers identify factors within their control that influence the successful execution of the strategy and help strategize how they can manage factors beyond their control to retain an advantage over their competitors. Additionally, the results of this study will highlight the influence of fully applying an RM strategy in the hotel on the effectiveness of an RM strategy. Lastly, to revenue management system (RMS) suppliers, by examining the CFs for RM implementation, this study will provide a framework for developing RMS based on the various hotel types and needs. Different RM systems can be offered based on the hotel's internal and external environment, resources available, and the clientele they serve.

1.8 Definition of terms

Table 1.1. Definition of Terms

Key concept	Definition/explanation	Reference
Revenue Management (RM) strategy	A customer-centric analytical function applied by hotels as a business strategy to manage and optimize revenues as well as maximize profits. It entails the logical management demand and supply through understanding customer behavior trends to improve pricing.	(Hollander, 2022; Rodríguez-Algeciras & Talón-Ballestero, 2017)
Critical factors (CFs)	They generally refer to critical areas where things must go well for the business to succeed. In this study, critical factors refer to the internal and external attributes of the strategy implementation that are necessary for a successful implementation of the hotel revenue management strategy. Specifically, CFs are the "Must-haves" strategy implementation components to ensure competitive performance for the hotel revenue management strategy.	(Brotherton, 2004; Griffin 1995; Hofer & Schendel, 1978; Rockart, 1979)
Strategy implementation	It involves communicating, interpreting, adopting, and enacting strategies. In this study, strategy implementation refers to all the decisions and activities required of a hotel to turn	(Miller, 2020; Noble, 1999)

	the RM strategy into reality and achieve the desired outcome.	
Contingency factors	Any factor that cannot be accurately predicted but has the potential to influence the effective implementation of the revenue management strategy positively or negatively in the hotel industry. These are mainly related to the uncertainty in hotel industry operating environment.	(Aladag et al., 2020)
Strategic management	The planning, formulation, or adoption of strategies and their successful implementation. This study focusses on the enactment of the RM strategy plans in the hotel industry by setting goals and stating desired objectives to gain competitive advantage.	(Evans, 2015; Noone et al., 2017))
Fuzzy Delphi Method	An advanced version of the Delphi Method that utilizes triangular statistics to determine the experts' levels of consensus	(Gil-Lafuente et al., 2014)
Fuzzy Analytic Network Process	A multi-criteria method that handles interactions among linguistics variables and criteria	(Quezada et al., 2018).
MICMAC analysis	An analytical method based on matrices' multiplication properties to analyze the factors' drive and dependency power.	(Dewangan et al., 2015).
Total Interpretative Structural Modelling (m-TISM)	An advanced modeling technique that converts complex issues with a large number of dimensions interacting with each other into an unambiguous structure, explaining what, how, and why the dimensions interact.	(Rajan et al., 2021

1.9 Organization of the Thesis

This thesis is organized into seven chapters: introduction, literature review, research methodology, findings Phase I, findings Phase II, discussion and implications, and conclusion.

Chapter 1 presents the purpose and background information of the study. The problem statement highlighting the study gaps is then presented. The research questions and study objectives follow this, and finally, the theoretical and practical contributions of the study are highlighted.

Chapter 2 thoroughly reviews the literature covering the theoretical and empirical foundations of the study. The concepts underlying contingency theory are discussed as the theoretical basis, while empirical studies covering critical factors, revenue management, and strategy implementation and evaluation are analyzed. A conceptual framework is derived from the problem statement and theory, and the relationship between the concepts is hypothesized.

Chapter 3 gives an overview of the methodological approach proposed for this study. It covers the philosophical approach to research, research design, sampling techniques, data analysis methods, and model specification.

Chapter 4 presents the findings of Phase I of the study, i.e., the Fuzzy Delphi, Fuzzy Analytic Network process, MICMAC, and modified Total Interpretative Structural Modelling (m-TISM).

Chapter 5 provides an overview of the study's Phase II findings. A comprehensive analysis of the multiple regression results using SPSS is presented.

Chapter 6 presents the discussion and implications of the findings concerning the existing research.

Chapter 7 outlines the study summary, conclusions drawn from the study, limitations, and suggestions for areas for further research.

1.10 Summary of the chapter

This chapter provided the study's purpose and background, including a summary of the pertinent issues. This includes revenue management concepts and strategy implementation, and critical factors. The problem statement includes gaps, research questions, and objectives. Lastly, the implication of the study is highlighted. The next chapter presents comprehensive literature on the critical factors, revenue management strategy implementation, and related literature.

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

This chapter reviews the literature on revenue management (RM) strategy implementation and critical factors. The focus is on RM strategy implementation and the critical factors in strategy implementation. The review also highlights the RM strategy implementation models, approaches, and application level. Finally, an overview of how RM's effectiveness in the hotel industry is evaluated is presented. The review aims to explain previous research on RM strategy implementation and the CFs.

2.1 Theoretical underpinning of the study: Contingency theory of organizations

Revenue management was initially conceived as a tactical solution to price wars, increased competition, and a significant drop in revenues and profits in the post-deregulation era, as the service industry strived to make their operations efficient (Cross et al., 2009; Fernández-Robin et al., 2019). Currently, RM assumes a strategic and operational role in the management of supply and demand as well as optimizing revenue and profits in the hotel industry. Research in RM began in the late 1980s and has attracted the attention of many scholars (Kimes, 1989). The studies on RM strategy seek, among other aspects, the understanding of how the strategy operates in practice, techniques that guarantee the strategy's effectiveness, and how the strategy contributes to the continuous improvement of the hotel performance (Altin, 2017; El Haddad, 2015; Guillet & Mohammed, 2015; Talón-Ballestero et al., 2014). Over time, different theories have been adopted to investigate RM research, such as the resource-based view, transactional cost theory, contingency theory, and commodity theory (Altin, 2017; Heo, 2010; Murimi et al., 2021).

Contingency theory will be the theoretical basis for this study based on the following assumptions. a) there is no one best way to make strategic decisions, b) the effectiveness of the strategy in an organization depends on the organization's understanding of the operating environment, c) implementation and execution of strategies can be more efficient when designed to respond environmental factors, d) environmental factors are dynamic and are constantly changing, therefore, continuous evaluation of the factors in the implementation process is vital.

Developed in the mid-1960s (Burns & Stalker, 1961; Galbraith, 1973; Thompson, 1967), the contingency theory is a key theoretical perspective used to view organizations (Donaldson, 2001). The contingency theory of organization contends that no one best way or universally accepted process system applies to all organizations in all circumstances. Instead, the specific aspects of the process system and its effectiveness or performance are highly dependent on certain organizational and contextual factors (Wadongo & Abdel-Kader, 2014). This implies that an effective process in one situation may not be successful in another. According to Roger et al. (1999), the notion is that organizations must maintain a fit and align their structures, strategy, and process with the contextual environment, contingent upon various internal and external constraints if they are to perform effectively.

Similarly, according to Donaldson (2001), organizational effectiveness results from syncing the organization's characteristics, such as its goals and policies, structures, and culture, with contingencies that mirror the situation in which the organization finds itself. Contingencies refer to defined and actionable plans that can be enacted if an identified risk becomes a reality. They include elements such as hotel operating environment (internal and external), organizational size, and organizational strategy (Burns & Stalker, 1961; Chandler, 1962; Child, 1997).

Further, Morton and Hu (2008) posit that the fit between the characteristics of the implementing firm and the process of executing the strategy has a high probability of implementation effectiveness. For this reason, organizations must strive to understand the contextual conditions under which the strategies they implement are most effective. From a contingency theory perspective, there is no one path to implementing the strategy.

Extant research has shown the causal relationship between contingency factors and the implementation of strategies (Abad et al., 2019; Avci et al., 2011; Bortoluzzi et al., 2020; Fernández-Robin et al., 2019), providing a firm basis to study the factors that influence strategy implementation and effectiveness specifically in the hotel industry. Hotels are among the businesses suited for investigating the interrelationship between contingency factors and strategy effectiveness based on the premise that hotels, besides being complex institutions, integrate complex strategies whose success is context-based. Every hotel has its internal and external operating environments that are both dynamic and ever-changing.

As such, hotels have considerable diversity in structures, daily operations, strategic management, and approach to implementing strategies (El-Said & ElMakkawy, 2017). Consequently, it can be argued that the implementation of RM strategy practices can vary significantly from one hotel to another depending on different circumstances, such as critical factors identified by hotels, the RM implementation approach a hotel adopts, and the degree of RM strategy implementation (Abad et al., 2019; Altin et al., 2017; Talón-Ballestero et al., 2014). Considering the complexity associated with executing the RM strategy, the contingency theory approach explains the RM strategy implementation process (Murimi et al., 2021).

As endorsed by the contingency theory, the effectiveness of RM strategy implementation is contingent upon the organization, structure, and management of the hotel and the context in which the hotel operates (Abrate et al., 2012; Ivanov & Ayas, 2017; McMahon-Beattie & Donaghy, 2000). For this reason, hotels need to consider all the contingencies in the RM strategy implementation during execution (Köseoglu et al., 2020). This study applies the contingency approach to examine the hotel context CFs variables such as (organizational, human-resource, operational, and technological) factors, level of RM strategy implementation, and RM strategy implementation approach that may influence the effectiveness of the RM strategy. Each variable has an underlying indifference that enhances or inhibits the implementation of the RM strategy displayed in practice.

Organizational factors: Organizational factors such as goal alignment, top-management support, and culture, among others, are known to have a significant impact on the effectiveness of strategy implementation (Okumus, 2001). For example, research has also shown that organizations characterized by formalization and regularization and those that draw attention to the importance of goal clarity while implementing strategies can be expected to be at ease when implementing strategies effectively (Burns & Stalker, 1961). Consequently, hotels that align the RM strategy to their goals and vision are likely to make decisions and allocate resources geared towards the effective implementation of the RM strategy compared to a hotel that fails to align its goals.

According to (Wheelen et al., 2017), aligning organizations' goals and strategies leads to measurable outputs related to those goals, making it easier to implement the strategy. Besides, Wang et al. (2015) underscore the importance of dedicated leadership in managing RM activities. According to Milla and Shoemaker (2008), the leadership potential of the revenue manager is paramount as the RM function has gained more centrality.

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Kimes (2011) asserts the importance of revenue managers possessing leadership skills in implementing RM effectively. Therefore, hotels that have revenue managers with strong leadership skills have a higher chance of effectively implementing the RM strategy compared to hotels whose revenue managers lack leadership skills. Contingency theory predicts higher effectiveness of RM strategy in hotels with goal clarity.

Human-resource factors: Several studies highlight the importance of having qualified staff to handle RM function in the organization and its effect on RM strategy implementation (Beck et al., 2011; Selmi & Dornier, 2011; Rodríguez-Algeciras & Talón-Ballestero, 2017). According to Abad et al. (2019), having skilled full-time RM personnel is one of the critical determinants for effective RM implementation. This is in contrast to not having a qualified revenue manager or just creating a revenue manager position without a revenue manager, or not having a revenue manager at all.

According to Donaghy et al. (1997), the level of training provided to staff members significantly influence the successful implementation of the RM strategy. Staff must possess a clear comprehension of the objectives and aims of the RM strategy, as well as the most effective methods of integrating it into their daily tasks. With adequate training, staff can become more involved and committed to the success of the RM strategy, ultimately resulting in heightened efficacy and favorable outcomes for the organization. Hotels that offer focused training are more likely to effectively implement the RM strategy compared to those that offer general training.

Operational factors: Ivanov and Zhechev (2012) underline the importance of managing the RM function process by ensuring efficient activities flow from booking to the point of sale. The efficiency of the RM process influences customer satisfaction and thus impacts the effective implementation of the RM strategy.

Avinal (2006) further emphasizes the importance of having an "ongoing" RM function by designing policies and procedures that create motivation to encourage staff continuity at the RM department. Hotels that ensure the RM process is managed are more likely to implement the RM strategy effectively than those that lack an efficient RM process.

Technological factors: It is acknowledged that RM strategy implementation requires a revenue management system (RMS) among other information (IT) infrastructure (Domingo-Carrillo et al.,2017; Guadix et al., 2010; Ivanov, 2004). Using an RMS system also gives hotels a significant competitive edge over those that rely on intuition alone (Emeksiz et al., 2006). However, as Abad et al. (2019) highlight, there are high costs involved in purchasing the RM system. As such, the effective implementation of the RM strategy in the hotel would depend on the hotels' technology capacity, where hotels that can afford the IT infrastructure have a higher likelihood of effectively implementing the RM strategy as compared to hotels that do not have the IT resources.

Level of RM strategy implementation: Studies endorse that RM strategy implementation and its associated effectiveness vary depending on the level of implementation (Abad et al., 2019; Rodríguez-Algeciras & Talón-Ballestero, 2017). A study by Rodríguez-Algeciras and Talón-Ballestero (2017) found a correlation between the level of RM strategy implementation and the effectiveness of RM strategy. The higher the level of RM strategy implementation, the greater the RM strategy effectiveness and the better the hotel's performance. As such, hotels that have integrated RM strategy to a higher level are more likely to perform better than those that implement basic RM functions.

RM strategy implementation approach: From a contingency theory perspective, there is no RM strategy implementation approach equally suited to all hotels, as the components of each implementation approach depend on the hotel's circumstances. For this reason, the situational factors and environment of the hotel in which the implementation approach will be applied must be carefully considered. For instance, a study by Altin (2017) shows that an in-house approach is best suited for hotels with their own RM system and highly competent staff to handle the RM function. In contrast, a third party may be the best solution for hotels lacking the expertise to handle RM functions. In the same light, the corporate outsourcing approach can only be utilized by hotels belonging to a specific brand of hotels.

On the other hand, a centralized approach would be a good option for hotels focused on reducing costs through employing economies of scale. A mixed-method approach may be more suited for hotels with a decentralized RM function, where different corporate entities perform different RM tasks. However, each approach has its advantage and drawbacks, thus affecting the effectiveness of the RM strategy. For example, while the in-house approach allows complete control of the RM function by the hotel, which improves the strategy's effectiveness, it tends to be quite costly to maintain the RM system and revenue managers. On the other hand, an approach like centralized is more affordable but gives the hotel less control of the RM function, affecting the RM strategy's effectiveness (Altin et al., 2017). As contingency posits, applying different RM strategy implementation approaches may lead to different outcomes of the RM strategy effectiveness.

For the reasons mentioned above, applying the contingency theory to RM implementation can reveal several critical factors that might influence the implementation and execution of RM-oriented practices.

To successfully implement the RM strategy in hotels, it is important to consider the various environmental, situational, and management factors that may come into play. Contingency theory can be a useful tool for understanding these factors and how they may influence the effectiveness of the RM strategy. The awareness of CFs will provide insight to the hotels and RM strategy decision-makers as they plan the implementation process of the RM strategy to optimize the outcomes. This study proposes a framework using the following contingency variable: critical factors, implementation, and RM implementation approaches in RM strategy effectiveness in the hotel.

2.2 Critical factors

The tourism and hospitality industries are some of the most competitive, with growing complexities and market dynamics related to globalization and competition. Similarly, the bargaining power of numerous competitors has been significantly increased by the low entry barriers that exist in the industry. Further, differentiation is essential in fostering competitive advantage for the hotel industry owing to the greater market dynamics, rapid fluctuations in consumer behavior, shortening of the product lifecycle, and product proliferation. Various scholars have corroborated the importance and significant ways in which a firm can gain a competitive advantage (Abrate & Viglia, 2016; Anning-Dorson & Nyamekye, 2020; Bilgihan et al., 2011; Casanueva et al., 2015; Eraqi, 2006; Hossain et al., 2020; Ivanov & Zhechev, 2012; Kandampully & Duddy, 2001; Kandampully & Solnet, 2020; Nair, 2019). As such, it is fundamental to understand the critical factors that form the basis for implementing strategies in a specific industry and, more so, for businesses operating within the industry.

One concept that is gaining popularity in the strategic management sphere is the critical factor (CFs) approach. The term CFs is used generically in management, although it originated in information systems. Daniel (1961) is regarded as the pioneer of using CFs to identify essential operations information for managers, while the works of Rockart (1979) furthered the popularity of the CFs in information management. Over time, the CFs concept has been applied widely in specialties such as strategic management, information systems, operational planning, balanced scorecard, and total quality management, among other areas (Brotherton, 2004; Cooper, 1988; Jarvenpaa et al., 1985; Kaplan & Norton, 1992; Leidecker & Bruno, 1984; Porter & Parker, 1993; Rockart & DeLong, 1988; Seetharaman et al., 2006). CFs are those business factors critical for implementing strategies and the foundation for the organization's operations. These factors provide standards for subsequent performance measurement and evaluation (Padilla-Meléndez & Garrido-Moreno, 2014).

As Leidecker and Bruno (1984) assert, CFs have the potential to considerably improve the probability of a strategy implementation when effectively implemented. CFs are mainly derived from the aspects of a firm's internal environment and reflect the firm's core capabilities and competencies critical to gain competitive advantage. CFs may also be instigated by a firm's operating environment as it influences the internal environment. While a firm can control the internal factors, they have less control over the external factors (Brotherton & Shaw, 1996). According to Geller (1985), the CFs may be viewed as general (applicable in most contexts) or specific (unique to certain fields, industries, firms, or functions).

Hofer and Schendel (1978) define CFs as variables influenced by management's decisions. They vary from industry to industry and can greatly impact the organization's competitive position.

They contend that these variables are derived from the interaction of the industry's economic and technological characteristics. This definition implies that CFs are easily recognizable and unique to each industry. Additionally, they are identified through sensitivity and elasticity analysis, which are valuable tools in identifying CFs.

According to Rockart (1979), as for any business, critical factors are the limited number of areas that assure the successful competitive positioning of the firm if they are adequately sustained. For the business to flourish, "things must go right" in these key areas. However, where these areas remain inadequate, the organization's effort for the period will be below expectation. Rockart further asserts that CFs are areas where management must give constant and careful attention and continually measure. Contrary to the previous definition, embedded in this definition is that CFs are not obvious nor unique to every industry business; rather, they are areas where a business must focus on and fully implement to accomplish the desired results. Narrowing down the CFs to just a few help the manageability of the factors and guarantees that each factor has a clear influence on the business. He implies that the execution of these factors should yield positive results and generate significant value for the business.

In 1984, Leidecker and Bruno summarized CFs as those characteristics, conditions, or variables that can significantly affect a firm's competitive advantage in a particular industry when properly managed. Different from the previous definitions is the view of a critical factor from different perspectives, for example, characteristics such as variability, a condition such as a customer mix, or variables such as price. Brotherton (2004) asserts that CFs are derived from a firm's internal and external environment features, such as products, processes, people, structures, core capabilities, and competencies. By focusing on these factors, businesses can gain a broader perspective.

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These definitions have formed the basis of the understanding and meaning of CFs. Generally, CFs are the crucial governing factors that ensure the success of the alignment of the company's goals and objectives with the expected success because they can identify the key performance areas which are fundamental for businesses in realizing their goals (Luo et al., 2021).

Over the last few years, determining the CFs has gained popularity in the hospitality and tourism industry. For instance, Avcikurt et al. (2011) explored the CFs for small hotel businesses in Turkey. They identified four factors: financial performance, internet use, marketing, and service quality critical for small businesses. Padilla-Meléndez & Garrido-Moreno, (2014) examined the CFs for implementing customer relationship management strategy. They identified four critical factors related to information technology, knowledge management capability, customer orientation, and organizational readiness. Jones et al. (2015) identified the CFs that led to the growth of wine tourism in the region. They identified key factors related to the standard of living, products, brands, accepting tourism, individuals, and community involvement and support. Luo et al. (2021) analyzed the CFs for an entertainment tourism destination, focusing on Macau. They identified eight key factors relating to planning and policy, facility and transport, marketing, product, human-resource, financial and economic support, security, service quality, and product.

2.2.1 Past Studies on CFs for Revenue Management /Yield Management Implementation

As part of extending the application of the CFs approach, hospitality researchers have also attempted to apply the approach to YM/RM research. Griffin (1995) was among the first to tackle the issue of the CFs for the lodging YM system's successful implementation. He applied a common factor analysis. He identified systems, organizational support, external environment, user education, and traits as CFs for successfully implementing a lodging YM system.

Hansen and Eringa (1998) investigated the people-related CFs in YM in hotels. They proposed common CFs as the organization of the YM function, empowerment, yield system, employee behavior, and yield percentage. The organization of YM, comprising aspects such as (top-management commitment to YM function, communication, and presence of a yield culture) was identified as the most important of the CFs. In 1999, Luciani investigated the obstacles and success factors for implementing YM in small and medium-sized hotels. Using interviews, he identified three main categories: user knowledge of YM, a decision support system for information technology, a system, human resources, and strategic and tactical decision-making.

Brotherton and Turner (2001) conducted a study on the introduction and implementation of YM in a 4-star branded chain hotel focusing on the technical/human balance. Using a case study approach, they identified six critical issues, mainly focusing on people. These include building awareness and promoting a culture of productivity, fostering participation and commitment, providing comprehensive training, maintaining effective communication, coordinating efforts, clarifying responsibilities, restructuring as necessary, and motivating and rewarding team members. By prioritizing these elements, leaders can make informed decisions and achieve positive outcomes.

Lieberman (2003) reviewed the literature on RM implementation to determine the factors that affect the success of an RM program. He identified factors relating to organizational, managerial, and operational aspects. Through a conceptual paper, Slager and Kapteijns (2004) investigated the implementation of RM in KLM cargo and identified seven CFs. These include understanding key stakeholders, mutual understanding between management and key stakeholders, management commitment, customer value, and satisfaction, management understanding of the specific business aspects such as market, competition, and customer behavior,

focus on actual impact, and optimum balance between support and challenge. They concluded that proper RM strategy implementation is driven by a combination of management commitment, tools, focus on reality, and people.

In 2006, Avinal, in a conceptual paper, explored the critical factors in implementing an RM system (RMS). They identified factors such as management commitment, business policies, and processes, understanding RMS, performance measurement, integration of RMS with the property management system, and integration of RM with other departments. Becker and Wald (2010), in their paper on challenges and success factors in air cargo RM, identified cost minimization, profit and operation optimization, service reliability, and network optimization as critical factors in ensuring the achievement of the goals. Queenan et al. (2011) explored the drivers of RM performance within the hotel industry and identified nine key factors categorized into two. These include social drivers composed of education, organizational focus, aligned incentives, training, and organizational structure—the technical drivers comprised information technology, capacity allocation, market segmentation, forecasting and pricing, and forecasting.

Table 2.1. Previously published studies on critical success factors

Year	Author(s)	Title	Key success factors		
1985	Geller	Tracking the CFs for Hotel Competencies	• Employee attitude Guest satisfaction (service) Superior product (physical plant) • Cost control Increase market share • Superior location Maximize revenue	• Achieve market segmentation • Increase customer price-value perception	
1995	Griffin	A categorization scheme for CFs of lodging yield management systems	• System User-education • External environment	• Organizational support • User-traits	
1998	Hansen & Eringa	CFs in yield management: a development and analysis	• Top management commitment Training of employees • Organization of the YM function Incentive and reward schemes • Feedback to employees	• Development of a yield culture • Employee commitment • Communication and interdepartmental cooperation • Experience of employees Recruitment	
2004	Brotherton	CFs in UK budget hotel operations	• Customer service • Core product • Strategic control	Hygiene and quality consistency	• Pricing • Location
2006	Li et al.	The importance and performance of key success factors in international joint venture hotels in China	• Financial support • Marketing strategic planning	• Information exchange • Performance review	
2007	DiPietro et al.	Multi-unit management is a key success factor in the casual dining restaurant industry	• Single unit operations • Standard operating procedures • Multi-unit strategic planning	• Interpersonal and social responsibilities Travel and visiting units • Human relations • Unit level finances	
2008	Camillo et al.	CFs for independent restaurants	• Create and articulate a clear, well-crafted, and well-researched vision and business plane • Stay focused • Allocate resources appropriately and consistently to execute the vision and plan • Concepts must be viable and distinct in the marketplace	• Competent employees and management • Manage and control business • Maintain an appropriate balance between food costs and labor costs • Manage employee turnover • Focus on food and service quality and consistency • Convenient location with sufficient demand generators	
2009	Burger & Saayman	Key success factors in managing a conference center in South Africa	• Activities and layout • Marketing • Core operational aspects	• Planning • Design and evaluation • Well-trained employees (human resources)	
2010	Alhroot & Al-Alak	An evaluation of the main CFs of tourist destination marketing	• Product • Quality • Accessibility	• People • Price • Promotion • Physical	
2011	Avcikurt et al.	CFs for small hotel businesses in Turkey: an exploratory study	• Use of Internet • Service quality	• Financial performance • Marketing	
2011	Jaafar	CFs (CFs): A comparison between coastal and island chalets in Malaysia	Island chalets: • Front office	Island chalets(cont.): • Guest accommodation • Food and beverages	Coastal chalets: • Guest accommodation Back of the house

			• The warmth of guest welcome • The efficiency of guest service • Operational flexibility and responsiveness	• Back of the house • Accounting and control • Leisure operation	• Food and beverages • Front office • Accounting and control
2012	Tung	Key success factors in Implementing marketing strategies in the tourism industry	• Market definition • Environmental analysis		• Marketing mix strategy • Internal marketing
2013	Ho & Chang	Key success factor in service innovation of hotel enterprises in Taiwan	• Market-oriented • Service		• Organization • Procedure
2014	Campos et al.	CFs for total quality culture: A structural model	• Leadership • Empowerment		• Info/Communication • Total quality culture
2015	Mardani et al.	A combined hybrid fuzzy multiple criteria decision-making approach to evaluating QM CFs in SME hotels firms	• Human • Organizational factors • Technological factors		• Leadership • Employee empowerment • Teamwork
2017	Marais et al.	CFs of a business tourism destination: Supply side analysis	• Finances, • human resources,		• Product • Customer-related

Source: (Adapted from Marais et al., 2017, pp.4-6)

The review of the existing studies argues that the critical factors for RM implementation can vary depending on the circumstances, such as the focus (e.g., systems or people) and other factors, such as context (Geller, 1985). From the studies, it is evident that both general and specific critical factors can be deduced. For example, organizational factors comprising (top-management commitment, organization culture, and effective communication), people-related factors comprising (employee involvement, education, training, and skills) and technological factors comprising (information technology infrastructure, system, and software), have been identified in many of the studies. On the other hand, specific critical factors can be identified; for example, operational factors comprising (service reliability, cost minimization, and network optimization) have been explicitly identified for implementing a revenue management system (RMS). From the studies, some CFs for RM implementation can therefore be identified. However, they cannot be taken as holistic owing to some limitations in these studies.

First, most studies have a limited scope because they focus on one aspect of the RM implementation (e.g., the system or people). Second, most studies focus on a single case study to finalize the CFs. These may not be generalizable to other organizations because CFs can be organization-specific (Geller, 1985). Third, some studies are conceptual; therefore, the identified CFs have yet to be empirically tested. Fourth, except for Hansen and Eringa (1998), none of the studies examine the inter-relationship between the identified CFs. Further, in the case of Hansen and Eringa (1998), the identification of this interrelationship is conceptual derived from Sparrowe's model of empowerment and employee turnover and Heskett et al.'s service-profit chain (SPC) model (Heskett et al., 1994; Sparrowe, 1994) thus, not statistically tested.

Finally, except for Queenan et al. (2011), the existing studies mainly focus on identifying the critical factors as antecedents of implementing the RM strategy but do not test the influence of these factors on RM strategy effectiveness. However, the study by Queenan and colleagues has some limitations, including that they only surveyed two large chain hotels; thus, results may not be generalized to smaller chain and independent hotels. They also state that the sample had an in-house RM function which could provide a variance with hotels using other RM implementation approaches. Therefore, the study though more comprehensive than the other is not holistic.

Based on this analysis, it is apparent that no study has yet focused holistically on the influence of CFs on RM strategy effectiveness. Therefore, this study proposes to fill these gaps by addressing the following gaps: first, the study proposes to identify CFs from an all-inclusive perspective, that is, not based on single aspects of RM implementation. These will complement the studies that were conducted from a single perspective. CFs will be identified from the literature, experts' opinion, and hotels to achieve these. Additionally, the study will focus on RM implementation in all revenue-generating centers, not just from the side of the rooms. This is lacking from the previous research. Further, the study will be unrestricted geographically and by hotel characteristics. This will ensure that the outcome is more generalizable in different contexts.

Second, the study proposes to examine the relationship between different CFs statistically. Knowledge of the interrelationships among the CFs will help the revenue managers understand one factor's impact on others, allowing them to take control and make focused resource allocations. Third, this study will assess the effect of the identified critical factors on the RM strategy level of implementation.

An awareness of how different factors affect the extent to which hotels can implement the RM strategy will enable the hotel management to make a reasonable judgement of the significance of each CFs based on their capability and competencies. Fourth, the study proposes to assess the impact of each identified CF on RM strategy effectiveness. This is essential as hotels implement RM strategy to achieve the desired result. Therefore, an understanding of how the CFs influence this achievement is key.

Finally, the study will also consider the influence of the RM strategy implementation approach (e.g., in-house, corporate outsourcing, centralized, third-party outsourcing, or mixed) on RM effectiveness. Knowledge of how the implementation approach affects the effectiveness will assist hotels in choosing the best-suited approach to the hotel. Unlike the previous studies, this study will also include control variables based on hotel characteristics, including location, size, age, affiliation, star rating, and class.

2.2.2 Critical factors influencing Revenue Management strategy implementation in the Hotel

This study assesses the CFs for implementing the RM strategy in the hotel industry. Drawing on the existing empirical literature on RM implementation, several CFs can be identified as the prospective influencers of RM strategy implementation. CFs provide a basis on which RM strategy implementation can be based and represent a hotel's ability to take these into account in developing an effective strategy for implementation. Failure to address these critical factors effectively could lead to less-than-desired results or total failure. Based on the above literature review, the CFs for RM success identified in the literature can be summarized as systems, people, processes, policies, technology, RM knowledge, management commitment, the operational environment, strategic and tactical decision-making, integration of RM, understanding key players, costs, optimization, and service reliability.

These factors can have a direct or indirect influence on RM strategy effectiveness. However, whether a factor directly or indirectly affects RM strategy effectiveness cannot be identified from the literature. The relationships will be ascertained later through a statistical model. For this research, the factors have tentatively been categorized into five main groups: organizational, human-resource, operational, and technological.

Organizational factor

Organizational factors refer to factors related to organizational structure, goal alignment, organizational focus and culture, organizational size, managerial RM knowledge, resource allocation, top-management support, financial resources, budgeting, and role of quality RM department (Baroto et al., 2014; Hyväri, 2016; Orfila-Sintes & Mattsson, 2009; Tawse & Tabesh, 2021; Shah, 2005). Considering that RM strategy implementation entails changes in the way a hotel is organized (structure) and the way activities are carried out (process), the management must consider and understand how these factors affect the effectiveness of RM strategy (Okumus, 2004; Peng & LittelJohn, 2001; Safdari Ranjbar et al., 2014). For instance, the hotel's vision is a key determinant of how the RM strategy will be crafted and aligned while adopting an RM culture in the hotel will play a key role in amalgamating the RM activities throughout the hotel (Ivanov & Zhechev, 2012; Okumus, 2001; Queenan et al., 2011). These factors have a direct influence on the implementation of the RM strategy. Accordingly, firms must redesign their processes and orient their operation to demand.

Additionally, managerial knowledge, skill, and ability, including communication, management of firms' resources, business area knowledge and skills, teamwork, leadership, creativity, work habits, organizing and coordinating, information handling, strategic problem solving, and ethics are also important (Claver-Cortés et al., 2008; Sigala, 2005).

Identifying and applying organizational factors related to RM strategy allow the hotel to plan, execute and assess the RM function as a key business process ensuring RM effectiveness. According to Gilley and Rasheed (2000), firms should utilize managerial practices that best suit their internal abilities and skills to increase effectiveness. For example, managers should foster teamwork between RM staff and staff from other departments to ensure there is a free flow of information.

Properly applying the organizational factor, hotels can implement the RM strategy well. Additionally, (Yang et al., 2010) emphasize the need for synergy between people, processes, and systems to implement the strategy successfully. For these reasons, hotels that wish to implement successful RM systems must be ready for a transformation.

Human-resource factor

These refer to people-related factors such as RM team (knowledge and skills), education and training, aligned incentives (that is, fair distribution of risks, costs, and rewards), employee commitment, employee relations, motivation, communication, coordination, and cooperation (Cetin et al., 2016; Fulmer, 1990; Hitt et al., 2017). According to (Yang et al., 2010), human factors are considered the most important because even the best processes and systems cannot operate without the human element. As such, the relations that people have with processes and systems determine the extent of strategy success, making factors related to people key considerations in strategy implementation (Cross et al., 2009; Queenan et al., 2011; Varini & Burgess, 2010)

Operational factor

Operational factors relate to product and service design, efficiency, channel management, process management, quality data, and reporting. These are the factors that regulate the process and system flows to ensure the delivery of the services.

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A key characteristic of these factors is that their consequences are visible in short-period (Salaheldin, 2009); therefore, they need close monitoring considering their role in strategy implementation and execution. For instance, the quality of the hotel's RM data affects the output of the decision-making dynamics (Ivanov, 2004). Therefore, hotels must identify and comprehend how each operational factor affects the RM strategy implementation process.

Technological factor

Technological factors relate to systems, software, and information technology. With the growth, advancement, and popularity of technology in every sphere of operation, technology plays a key component in the implementation of any strategy. According to Mercan et al. (2021), technology helps the mass transmission of information more quickly and efficiently, saves time in processes and tasks, thus improving productivity, and helps in designing and customizing products and services for the customer, among other advantages. As (Ivanov, 2004) notes, a revenue management system (RMS) enables hotels to analyze different algorithms, including different revenue metrics and competitor rates, historical rates and booking trends, current and future booking trends, manage customer relationships, and any other data information related to RM function.

Consequently, hotels must have the right technology depending on the hotel size, type, and level of RM activities to optimize their process and successfully implement the RM strategy (Baker & Collier, 2003). A well-managed hotel and RMS offer numerous benefits to the hotel, thus improving the efficiency and effectiveness of the RM function process (El Gayar et al., 2011). In a nutshell, some components of CFs have been identified in RM-related literature. Nonetheless, owing to the different perspectives, contextual differences, and limitations, there is no agreement or understanding of the CFs necessary to implement RM successfully.

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Additionally, most studies are conceptual; thus, the findings are not empirically tested. For empirically tested studies, single case studies have been used; thus, findings are not generalizable. As such, a comprehensive examination of the CFs framework for implementing RM and the evaluation of the critical factors can give precision to this research area. This research extends existing studies and uses a careful process to ascertain key factors and develop a robust model that can adequately show the relationships of the CFs for implementing the RM strategy in the hotel industry.

2.2.3 Taxonomy of critical factors

Following the continued attention the CFs concept received, a clear understanding of criticality is essential. Williams and Ramaprasad (1996) proposed a taxonomy of CFs based on three sets of dichotomous attributes to advance this knowledge. The dichotomous attributes are a) standing and instigating factors, b) direct and indirect factors, and c) enhancing and inhibiting factors. The taxonomy framework provides a systematic classification of CFs based on the inter-relationship between the factors. The dichotomous relationships are as follows:

Standing and instigating factors

Little (1991) states that a standing critical success factor lingers over time. It generates an environment favorable to success while an instigating factor is fixed in time and whose existence brings success. Therefore, standing factors are more constant, while the instigating factors are more temporal. As claimed by Einhorn and Hogarth (1986), standing factors are part of the relationship (background) and are necessary for strategy effectiveness, while the instigating factors make a difference in the relationship (foreground) and trigger the effectiveness.

According to Little (1991), standing factors in social science may be implicit under normal conditions, while instigating factors may be those that cause the change from the normal conditions. Based on this, it can be presumed that a set of CFs consists of an amalgamation of standing and instigating factors.

Direct and indirect factors

As Williams and Ramaprasad (1996) assert, effectiveness may be affected by a factor directly or indirectly. Direct factors are synonymous with achievement, whereas indirect factors are not related to achievement but can potentially affect the achievement of factors through their influence on another direct factor or a mediating factor between direct factors and achievement, or both. Additionally, a factor may have both direct and indirect effects on effectiveness. Generally, a set of direct and indirect factors would generate a cause map showing the different relationships between the factors and the effectiveness. Therefore, a set of CFs is expected to provide direct and indirect factors to implement the RM strategy. For instance, Hansen and Eringa (1998), in their study on CFs in YM, identified factors with direct (e.g., YM knowledge and skill) and indirect (effective communication between YM department and other departments in the hotel) impact on transforming resources. Therefore, it is key to examining and identifying the direct and indirect factors and their relationships.

Enhancing and inhibiting factors

Enhancing CFs are factors that amplify and facilitate the likelihood of implementation, whereas the inhibiting CFs are lower or prevent the possibility of implementation. Humphreys (1981) refers to enhancing factors as positive or contributing factors and instigating factors as negative or counteracting. Existing CFs literature mainly identifies enhancing factors.

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For example, Wang et al. (2014) explored the CFs that enhance and inhibit customer relationship management in China's exhibition industry. They identified enhancers such as top executive support and commitment, user knowledge and training, and allocating funds and resources. They identified inhibitors such as poor data quality, organizational structure, and institutional factors. Köseoglu et al. (2020) determined that managers had different opinions regarding strategy formulation and implementation enhancers. While external factors enhanced strategy formulation, internal factors enhanced strategy implementation. These examples indicate a distinction between factors that enhance and factors that inhibit success.

As Williams and Ramaprasad (1996) assert, the literature on CFs is biased toward factors that enhance the possibility of success and is more silent towards factors that inhibit and minimize the possibility of success. Nonetheless, it is acknowledged that both enhancing and inhibiting factors play a major role in implementing a strategy and thus should be determined. As a result, organizations should endeavor to identify and control both enhancers and inhibitors; else, ignoring any one of these sets of the CFs may counter the effort dedicated to the other set of the CFs. Logically, if there are CFs for enabling strategy implementation, inhibiting CFs may also exist, although one is not necessarily the opposite. That is, the absence of enhancing CFs does not mean the presence of inhibiting CFs and vice versa (Williams & Ramaprasad, 1996).

The taxonomy supports multi-level CFs, thus supporting the implementation of the strategy for a specific purpose. This research will consider the taxonomy presented by Williams and Ramaprasad (1996) to classify the CFs for RM strategy implementation and illustrate the inter-relationship between the different features of the implementation process.

2.3 Strategic revenue management in the hospitality industry

The prevalent environmental dynamism in many industries today has pushed businesses to develop wits and initiatives to improve performance and retain business despite unwavering uncertainties. This has given rise to strategic management, a salient trend in every organization looking to gain and maintain a competitive edge over their competitors and meet their vision. Originally referred to as business policy, the popularity of the strategic management concept has grown tremendously into an art and science, especially in discussions relating to achieving the organizational goal (Ansoff et al., 2018), through the concerted effort of researchers and practitioners (Wheelen, 2014).

Over the years, researchers and practitioners from different industries have focused on resolving industry-specific problems by adapting or following strategies offered by mainstream strategic management research (Köseoglu et al., 2019a). The hospitality industry strategy research is one such industry that has largely been influenced by mainstream strategic management research (Harrington et al., 2014). Nonetheless, Shanley (2017) raised a concern with this approach of adopting strategies and solutions from other industries, citing that managers fail to get solutions to their problems when they borrow strategies from other industries because of the uniqueness of every industry. As a result, Grant (2021), Köseoglu et al. (2019a), and Singal (2015) emphasized the need for industry-specific strategic management research, considering the differences and uniqueness in the characteristics of various industries. They further insist on considering this difference because industry characteristics influence strategy design and implementation.

In the hospitality industry context, strategic management research developed in the 1980s mainly to confirm that strategic management-related theories and research are yet in their infancy.

Over time, many studies have been noted focusing on different aspects of strategic management in the hospitality industry. Some notable research includes the evolution of strategic management research in the tourism and hospitality industry (Köseoglu et al., 2019b), a review of the hospitality and tourism strategy literature (Aladag et al., 2020; Harrington & Ottenbacher, 2011; Harrington et al., 2014; Okumus et al., 2017; Olsen, 2004;), teaching strategic management (Okumus & Wong, 2004;2005), the contribution of hospitality management to strategic management research (Okumus, 2002; Olsen & Roper, 1998; Reichel, 1983), case study (Webster, 1994), Köseoglu et al. (2019b) focus on social structures, Harrington and Kendall (2006), Köseoglu et al. (2019a), Okumus and Roper (1999) and Okumus (2003; 2004), who focus on strategy formulation and implementation, and Jogaratnam and Law (2006) and Okumus (2004) who focus on environmental scanning.

Despite the advancement in strategic management research in the hospitality industry, it has been noted that most of these extant studies have mostly been restricted to the planning and formulating aspects of the strategic management process, while few have addressed the strategy implementation aspect (Aladag et al., 2020; Harrington et al., 2014; Köseoglu et al., 2019; Okumus & Roper, 1999; Olsen, 2004). For example, Aladag and colleagues (2020) conducted a systematic literature review of 139 articles on strategy implementation in the hospitality and tourism industry that were published in 42 journals between (1988-2019). They identified five key cluster areas that studies mainly focused on which include: - (a) understanding the management of internal and external relationships in strategy implementation (Farmaki, 2019; Kim & Oh, 2004; Waligo et al., 2013; Walsh & Dodds, 2017) (b) examining how organizational characteristics influence strategy implementation (Altin et al., 2017; Enz, 2012a; Kang et al., 2015; Sainaghi et al., 2013), (c) exploring enhancers and impediments in strategy implementation (Baker & Cameron, 2008;

Carasuk et al., 2016; Chan, 2008; El Haddad, 2015; Hansen & Eringa, 1998; Hwang & Lockwood, 2006; Köseoglu et al., 2018; Marais et al., 2017; Padilla-Meléndez & Garrido-Moreno, 2014; Styvén & Wallström, 2019), (d) developing strategy implementation frameworks (Abad et al., 2019; Benavides-Velasco et al., 2014; Okumus, 2001; Schmelzer & Olsen 1994; Talón-Ballestero et al, 2014) and (e) assessing strategy implementation effectiveness (Altin et al., 2018; Oh et al., 2007; Yilmaz & Bititci, 2006).

One reason for this gap is that, first, the implementation process is viewed more as a 'mere' detail in the planning process rather than an aspect of the investigation in its own right (Okumus & Roper, 1999). Second, the implementation process presents a higher level of complexity and challenges than the conception stage of the strategy, and few researchers have embarked on investigating this complexity (Verweire, 2019). Third, although many strategies acknowledge that implementation and execution of the strategy is the most important area in strategic management, only some understand strategy implementation (Verweire, 2019). This presents a prime area of investigation in the strategic management spheres. In their analysis, Aladag et al. (2020) flagged revenue management strategies, innovation, and information technology as the least studied strategies in terms of implementation. Based on this review and other researchers' (Abad et al., 2019; Altin et al., 2017; Talón-Ballestero et al., 2014; Okumus, 2003) observations, this study aims to help address the gap in strategy implementation research in hospitality. The study examines how hotels implement business-level strategic decisions, specifically the RM strategy, by considering the CFs for implementation.

2.4 Revenue Management as a Strategy

In the hotel industry, RM is the practice of managing the available but fixed and perishable inventory (rooms, floor space, seat time in a restaurant, treatment-hour) by dynamically allocating this inventory to the most profitable customer (Kimes &Wirtz, 2015). According to (Altin, 2021), Revenue management is important to hotel management from an operational and strategic perspective. From an operational perspective, RM is a standard operating procedure for managing hotel inventory and booking procedures (Wang, 2012). Implicit within this statement is that RM is a day-to-day tactical routine to achieve forecasted rates and occupancy by controlling inventory and adjusting prices within the hotel procedures to maintain quality and consistency of standards and service in the hotels.

Further, Cross (1997) posits that, since the development of RM, the concept has greatly improved the management of hotel operations with notable success. For instance, hotels make room rate adjustments as often as required during each booking day based on available demand and inventory to maximize revenues. Alternatively, a hotel can apply a rate fencing if they find that the length of stay at the hotel is diminishing, thus avoiding leaving money on the table. Hotels that monitor their rates in real-time have been seen to perform better than hotels with a static price for a long period (Viglia et al., 2016). Therefore, the centrality of the RM in the daily operations of hotel booking and inventory management cannot be discounted.

On the contrary, van Ryzin and Talluri (2005) view RM as a strategy based on the premise that service industries with capacity-constrained products, such as hotels' total revenue, are contingent on the firm's ability to maximize capacity (demand and inventory).

This capacity is utilized through various strategies, techniques, decisions, and technologies, such as offering discounts and promotions, applying rate fences, managing distribution channels, and benchmarking against competitors (Anderson & Xie, 2010; Vives et al., 2018). For example, revenue managers set room rates based on different market segments and utilize a dynamic pricing strategy to optimize the revenue generated per room based on fluctuating demand. Therefore, for revenue managers to achieve efficiency, they must strategically consider the different approaches to respond to market changes in supply and demand and to adapt to business environment changes.

As a tactical or strategic approach, the goal of RM is to balance the opportunity cost of selling a resource today versus saving it to sell at a higher price in the future, considering the perishable nature of hotel resources (Goldman et al., 2002). Idle capacities do not generate revenue and are considered unprofitable if not sold within a specified time. For instance, an unoccupied hotel room or tables in a restaurant do not generate any revenue, and the revenue the capacities would have generated today cannot be salvaged tomorrow. According to Ivanov and Zhechev (2012), the RM strategy aims at optimizing revenues by selling the maximum number of hotel capacities to different customer segments at different prices or by dynamically changing the rates based on demand.

The main aim for the management is to strike a balance by offering the best price or right price, i.e., ensure that prices are not too high to put off potential customers nor too low to leave money on the table, which may lead to low revenues. As Heo (2010) posits, RM assists in efficiently managing fixed and perishable capacities by charging different prices to different customer segments to balance revenue per capacity unit. With the emergence of the internet and a boom in internet distribution channels, online travel agents (OTAs), and price transparency, customers are more aware of the existence of the RM strategy (Noone et al., 2011).

With the advancement in technology, the approach to managing the RM has changed and advanced over time from tactical (capacity based) to strategic (profit maximization) (Wang et al., 2015). This means moving from a short-term tactical approach focused on pricing to a long-term strategic approach focused on total revenue potential from the total customer spend instead of revenue from room only (Chiang et al., 2007).

As such, contemporary technological developments are driving the advancement of RM, thus enabling the strategy to impact hotel performance significantly. Optimizing prices by integrating RM and advanced analytics has thus become ubiquitous in the hotel industry (Noone et al., 2017). Current RM systems use historical and real data to break down key customer components such as type of customer, demographics, the purpose of visit, booking channel, or length of stay. This allows the hotel revenue managers to forecast demand accurately and price precisely, increase direct bookings, and benchmark against competitors to maximize profit opportunities (Erdem & Jiang, 2016; Noone et al., 2013), thus increasing the importance of RM in the hotel industry.

Over the past four decades, the RM discipline has grown and changed dramatically. It is envisaged to continue transforming, especially with the emergence of big data, analytics, and computerization, advancing RM strategy improvement and decision-making. Some of the RM emerging trends include, first, the movement of RM from the silo mentality (Guillet & Chu, 2021) as hotels recognize that the effectiveness of RM is dependent on aligning with other departments such as marketing, sales, customer relationship management, and e-commerce thus becoming more centralized and strategic (Kimes, 2017). Second, when hotels initially adopted the RM strategy from the airlines, the strategy was mainly focused on rooms. However, with time, hoteliers discovered that RM principles could be applied to operational areas beyond rooms (Buckhiester, 2012).

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Today's RM practice is evolving from the traditional-room revenue model to the Total RM (TRM) approach in the hotel industry (Zheng & Forgcas, 2017). TRM is a holistic approach to RM that integrates and optimizes all revenue streams, such as restaurants and bars, conference space, health and rejuvenation centers, business centers, golf, and other revenue-generating centers within the hotel, as opposed to dealing with individual departments separately (Buckhiester, 2012). TRM is a long-term tactical view to capturing untapped revenue and profit potential that requires a coordinated effort by hotel managers (El Gayar et al., 2011).

Third, hotels are moving towards analyzing customer lifetime value by offering personalized pricing where customer behavior, preferences, and lifetime value are used to determine room rates and promotions (Wang et al., 2015). Through this, hotels can increase customer loyalty. Based on these trends, the RM strategy is moving from a reactive to a more proactive strategy that is more customer-centric and involves the entire hotel's revenue-generating centers as they strive to grow revenue, market share, and profits.

2.4.1 Revenue Management strategy implementation in the hotel industry

Okumus and Roper (1999) and Verweire (2019) assert that great strategies that cannot be implemented or result in good performance are worthless. From the previous discussions, it is evident that RM strategy plays a critical role in managing hotels' operations and enhancing performance strategically. Efficient and timely implementation of the RM strategy can enhance a hotel's ability to manage supply and demand, better cost control, improve the effectiveness of marketing strategies, and augment customer expectations (Lee & Bai, 2014; Queenan et al., 2011).

With the RM strategy's feasibility to increase revenues and profits, reduce unnecessary costs, add value to products and services offered to customers, and create sustainable competitive advantage, RM applications in the hotel industry have increased tremendously over the years (Anderson & Xie, 2010). Despite these success claims, Altin et al. (2017), Belobaba (2002), Lieberman (2003), and Queenan et al. (2011) record that the success of RM strategy application in hotels varies widely. Why do some hotels succeed in implementing the RM strategy while others fail despite investing their time and resources?

The RM strategy in the hotel industry is a business-level strategy adopted by the airline industry. The adoption of the strategy was based on the similarity in the business characteristics between the airline and hotel industries. However, the two industries also exhibit subtle structural differences in implementing the RM complex. As Klein et al. (2020) state, one of the key issues for hotels is the lack of a clear end of the service period. For instance, while airline itineraries rarely have more than two subsequent legs, hotel stays of more than one week or over-stays are common. Such complexities have also impacted the extent of successful implementation of the adopted strategy in other industries, such as hotels, compared to airlines (Okumus, 2004). Considering these differences, attempts were made to modify the RM strategy to meet the hotel industry requirement before its adoption, and since the strategic management process is a continuous iterative process (Freedman, 2003), the hotels are still required to modify the strategy to fit into the industry's operating environment perfectly.

In view of the development, continuous improvement, and maturity of the RM strategy in the service industry, the main concern for the hotel industry is the successful execution (i.e., implementation and evaluation) of the RM strategy.

Notwithstanding, the RM strategy implementation process is complex and multi-dimensional (Jones & Hamilton, 1992; Schwartz, 1998; Upchurch et al., 2002). As Lieberman (2003) observed, many hotels have had challenges implementing the RM strategy, like other businesses face implementation challenges. The study cites issues such as a lack of understanding of the RM strategy, lack of or poor performance measurement, and inaccurate performance measurement information. For example, the commonly used performance benchmark in the hotel industry is Revenue Per Available Room (RevPAR), and a hotel judges the success of its RM strategy based on the RevPAR it achieves relative to the RevPAR of its competitors.

However, scholars and practitioners (Brown & Dev, 1999; Enz et al., 2001; Lieberman, 2003; Slattery, 2002; Varini & Murph, 2006; Younes & Kett, 2003) have raised concern about the accuracy of RevPAR as a measure of the success of RM strategy because factors such as operating environment, group bookings, and corporate negotiated business, influence the RevPAR of the hotel more than RM strategy decisions. Lieberman (2003) argues that RevPAR can be a good indicator of how the hotel RM strategy compares to the competitors' programs but not an indication of the success of RM strategy implementation. As such, using RevPAR as a benchmark for the success of the RM strategy may present misleading information.

Similarly, Abad et al. (2019), Abrate et al. (2012), and Ivanov and Ayas (2017) postulated that the success of RM implementation is dependent on several factors, such as hotel category, size, location, affiliation, and staff. The studies reveal that these factors significantly impact the extent of RM application, subsequently, successful RM implementation. Ivanov and Ayas (2017) concluded that luxury, urban, chain-affiliated hotels are likely to adopt the RM strategy compared to lower-category, suburban, independently owned hotels.

Additionally, the application of RM by hotels in developing countries is wide and advanced compared to their counterparts in developing countries.

Another challenge marring revenue management strategy implementation in the hotel industry is the flawed view of revenue management as just an application or system. As Talón-Ballestero et al. (2014) posit, RM is a management culture with implementation costs, not just an application or system. This implies that RM is an all-inclusive strategy that requires understanding employees and managers from various departments. This calls for commitment and utilization of the hotel's tangible and intangible resources and capabilities. This aligns with Freedman (2003), who asserts that successful strategy implementation is a complex and difficult process that requires commitment, discipline, creativity, leadership, and superior execution skills. The diversity in factors impacting the application of RM strategy further compounds the intricacy of executing the RM strategy in the hotel industry.

According to Okumus (2004), this complexity requires the synchronized management of various key factors, including forecasting models, pricing knowledge, market segmentation, demand cycles, competitor analysis, production and sales costs, training costs, and monitoring performance. Other factors, such as communication within the organization, training of employees, and educating customers on RM practices, have also been flagged as critical factors in the successful implementation of RM in the hotel industry (Abad et al., 2019; Brotherton and Mooney, 1992; Griffin, 1995; Talón-Ballestero et al., 2014).

2.4.2 Past Research on revenue management implementation in the hotel industry

Over the years, attempts to study the effective implementation of the RM strategy by examining various factors that influence the implementation process of the RM strategy have been made. These studies can be categorized into various themes as discussed below:

The foremost category of studies examines the influence of a hotel operating environment's internal and external environmental factors on the effective implementation of the RM strategy. Studies in this category approached the phenomenon by examining different CFs. The first factors highlighted in the studies related to organizational factors and how they influence the effective implementation of the RM strategy in the hotel. For example, El Haddad (2015) explored RM practices in an upscale budget hotel chain in the UK and found that RM culture and top-management commitment and involvement in the RM practices were significant in the effective implementation of RM strategy. In a previous study, Emeksiz et al. (2006), in developing a YM implementation model, found that besides the involvement of the upper management, compatibility of the hotel's management goals and RM strategy highly motivated the RM team, thus leading to effective RM strategy implementation. Other studies, including (Aubke et al., 2014; Cetin et al., 2016; Cross, 2011; Farrell & Whelan-Ryan, 1998; Hansen & Eringa, 1998; Wang et al., 2015), also emphasize the significance of organizational factors such as hotel focus on RM function, availability of resources to support RM function, budgeting and quality of the RM department among others. These studies highlight the significance of managing the organizational aspects in effectively implementing the RM strategy in hotels.

The second set of factors considered in the studies concerns human resource and their impact on the effective implementation of the RM strategy. Studies have emphasized that human resource is the most significant in the effective implementation of RM strategy because the RM system cannot run without the human interface (Beck et al., 2011; Selmi & Dornier, 2011; Zarraga-Oberty & Bonache, 2007). These researchers concur that the revenue management team plays a significant role in effectively implementing the RM strategy.

Authors focus on specific human resources aspects that enhance the RM team, including education and training (El Haddad, 2015; Lieberman, 2003), employee involvement and commitment (Aubke et al., 2014; Xu et al., 2019), RM staff relations with other departments (Noone & Hultberg, 2011) and effective communication (Cox, 2018) to be effective and efficient in supporting the implementation the RM strategy. A study by MacVicar & Rodger (1996) concluded that hotels must hire skilled personnel, evaluate and regularly train staff, have succession plans, and liaison between managers and staff for flawless implementation of the RM system.

Similarly, Brotherton and Turner (2001) further emphasized the importance of considering and building the people aspect in the RM implementation process. They underscored the need for increased awareness about RM by employees in the hotel, encouraging involvement and commitment and developing motivation and rewards. These studies concluded that effective implementation was best achieved by integrating all organizational levels. They emphasize the need for teamwork between the RM specialists and employees in other departments.

The third set of factors is allied to the managerial function of the hotel and how it impacts the RM function's effectiveness. Lieberman (2003) reviewed the implementation factors that affect the realization of the RM program. He concluded that RM programs are less effective when hotels fail to take appropriate managerial actions. Several authors investigate the managerial aspects, including managing the RM resources (Noone et al., 2017), leadership (Beck et al., 2014; Cetin et al., 2016; Kimes, 2017), strategic problem-solving (Aubke et al., 2014; Cross, 1997), information handling and decision making (Alrawadieh et al., 2021; Kimes, 2017), and revenue integrity and ethics (Wang et al., 2015). They highlighted these managerial operations as key factors that impact the hotel's effective implementation of the RM strategy.

The next set of factors is related to operational dynamics and how they influence the effective implementation of the RM strategy. El Haddad (2015), in the study on the implementation of RM, highlighted the need for the RM implementation evaluation process as an important aspect in ensuring the strategy's effectiveness. In another study, Guadix et al. (2010) emphasized the importance of collecting quality data for RM decision-making. They conclude that RMS will not perform well without good data. This reinforces the need for quality data in the RM function. Several authors also underscore the need for efficient distribution channel management (Erdem & Jiang, 2016; Ferguson & Smith, 2014; Ivanov & Zchechev, 2012; Kimes, 2011; Noone et al., 2011; Wang et al., 2015). These authors highlight the need to efficiently utilize various distribution channels to dispense the RM strategy activities effectively.

Another factor is related to technology and its impact on RM strategy implementation. Sigala et al. (2001) analyzed the effect of information systems on the effective implementation of the RM strategy. They concluded that implementing the RM depends on hotels reengineering and redefining the reservation systems by leveraging information technology capability. This is supported by other researchers (Erdem & Jiang, 2016; Guadix et al., 2010; Kimes, 2011), who assert that technology plays a key role in effectively implementing the RM strategy in hotels. Alrawadieh et al. (2020), in their study on digital transformation and revenue management, found revenue managers' consensus on the significance of technology importance of technology and specific automated software in running RM tasks. They assert that these are key aspects of implementing RM strategy in hotels. The final set of studies under factors investigated the impact of different hotel characteristics on the effectiveness of RM strategy implementation. For example, Abad et al. (2019) sought to identify the hotel and staff characteristics that influence the successful implementation of the RM strategy.

They concluded that factors such as hotel category, chain affiliation, and skilled staff are key in implementing RM effectively. In a previous study, Altin et al. (2017), in their study on the impact of RM implementation strategies on performance, found that hotel characteristics such as size and affiliation impact the hotel's choice of where to perform the RM function, thus affecting the effectiveness of the RM strategy.

The next stream of research concerns the impact of strategy dynamics, such as the level of strategy implementation and implementation approach chosen on the effectiveness of the RM strategy implementation. Rodríguez-Algeciras and Talón-Ballestero (2017) investigated RM effectiveness in Spains' five-star hotels. They found that hotels that integrated RM strategy significantly had better RM function and overall performance. This assertion is supported by other studies (Abad et al., 2019: Talón-Ballestero et al., 2014; Xu et al., 2019). Altin (2017) examined the impact of different approaches on RM strategy implementation and found that each approach affected the effectiveness of the RM strategy. Approaches that allow the hotel to have control of the RM function, such as in-house and corporate outsourcing, offer a higher effectiveness of the RM strategy but tend to be very costly to maintain.

The final set of studies concentrated on theoretical models of RM strategy implementation. Several previous studies have also proposed YM/RM implementation models, where they identify the salient factors of effective RM strategy implementation discussed above (Donaghy et al., 1995; Emeksiz et al., 2006; Jones & Hamilton, 1992; Jones & Kevin, 1997; Yeoman & Watson, 1997). Okumus (2004) carried out a study to investigate the process of implementing an RM project in a service organization.

They determined that RM strategy implementation was complex, the RM implementation process is not a linear nor rational process, RM implementation is still viewed as a tactical, not strategic activity, RM implementation is more than a system, and forecasts and various factors surrounding the operations of the hotel influence the effective implementation of RM strategy. To achieve this, they recommended that RM implementation be viewed from a strategic management perspective.

Table 2.2. Studies on RM implementation models

Year	Author (s)	Model	
1992	Jones, P., & Hamilton, D.	a) Develop a yield culture b) Analyze overall demand c) Establish the price value relationships d) Create appropriate market segments	e) Analyze the pattern of demand f) Track declines and denials g) Evaluate and revise the system
1993	Lieberman, W. H.	**Stated and debunked ten yield management myths** a) YM is a computer system b) YM takes control away from employees c) YM works only when demand exceeds supply d) YM is price discounting e) YM is incompatible with good customer service	f) YM is too complex g) YM does not address my problems h) YM programs automatically increase revenues i) Hotels using YM do not need to change a thing j) Hotels cannot use YM if competitors don't
1995	Griffin, R. K.	**CSFs of a lodging yield management system** a) System variables: Task and system b) User-education: Training and education of the user	c) User-traits: Attitude and commitment d) External environment: External factors no much control e) Organizational support: Internal factors the business has control
1995	Donaghy, K., & McMahon, U	**Key stages in a formal yield management system** a) Personnel b) Analyze demand c) Market segmentation d) Determine the most desirable guest mix e) Analyze trade-offs	f) Establish capacity levels g) Introduce the YM system h) Customer re-orientation i) Operational evaluation j) Action
1997	Jones and Kevin	**Six interrelated systems:** a) Strategic (Decision making) b) Operational (Decision making) c) Demand Analysis	d) Reservation e) Technology f) Human Resources
1997	Yeoman, I., & Watson, S.	a) People b) Forecasting	c) Strategy.

1998	Hansen & Eringa	**People-related CSFs in yield management in hotels** a) Training of employees b) Experience of employees c) Recruitment d) Employee commitment e) Top management commitment	f) The organization of the YM function g) Interdepartmental co-operation h) Feedback to employees i) Communication j) The development of a yield culture.
2006	Emeksiz, M., Gursoy, & Icoz, O	**Five-stage model:** a) Preparation b) Supply and demand analysis	c) Implementation of YM strategies d) Evaluations of YM activities e) Monitoring and revision of YM strategies
2011	Noone et al.	a) Demand modeling b) Demand forecasting c) Optimization d) Setting booking controls	e) Distribution channel management f) Total Hotel RM g) Business strategy h) Interactions with customers
2014	Talón-Ballestero, P., González-Serrano, L., & Figueroa-Domecq, C.	a) Culture b) Forecasting c) Segmentation d) Pricing	e) Analysis of distribution channels f) Competitive analysis g) Calculation and updating of the boundaries of reservations and sales h) Evaluation and budgeting.
2015	Guillet & Mohammed, 2015	a) Business analysis b) Pricing strategy c) Demand modeling and forecasting d) Inventory and price optimization	e) Booking controls f) Distribution channel management g) Performance analysis

A review of the above studies shows that, although researchers have tried to examine the RM implementation process, a gap exists as previous studies lack clarity in several ways. First, most studies are conceptual and thus not empirically tested. As such, the practicability of their findings is unknown. This study is empirical and thus will be able to verify the extent of the practicability of the existing assertions. Additionally, few empirical studies have mainly employed a qualitative approach that offers rich information and is highly subjective. This research proposes to use a mixed-method approach to arrive at more robust conclusions.

Second, most of these studies concentrate on particular aspects, such as (human-resource or technology) that influence the effective implementation of the RM strategy, which may be biased. Further, these studies have been carried out from a single case study perspective; thus, results may not be generalizable. A holistic view of the factors from all aspects affected by the RM function would eliminate the bias. This study thus proposes to identify the CFs from a holistic point of view by focusing on all aspects that are affected by RM function and collecting data from many hotels. Third, the existing studies have not examined the inter-relationship between different factors to determine how they influence each other to affect the effectiveness of RM strategy implementation. Understanding how different factors relate to each other is key to assisting revenue managers in knowing where to focus and allocate resources. This study will statistically examine and model the inter-relationship between the different CFs to address this gap.

Fourth, none of the existing studies examined the relationship between the CFs and the level of RM strategy implementation. Additionally, the relationship between CFs, level of RM strategy implementation and RM strategy implementation approaches, and RM strategy effectiveness has not been statistically tested in existing studies. Further, the studies only examine RM strategy effectiveness from a room revenue optimization perspective.

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To address this lacuna, this study will statistically examine the relationship between CFs, the level of RM strategy implementation and approaches, and RM strategy effectiveness. Consequently, the effectiveness of the RM strategy will be considered from an all-inclusive revenue (*RevPAR and TRevPAR*) and profit (*GOPPAR*) optimization perspective. The non-financial aspects, including the quality and efficiency of the RM system, its impact on customers, and strategy potential, will be examined. Finally, most of these studies have considered large hotels in a developed country context (except Luciani, 1999). Research-based on a wider context to verify the existing claims is key. In summary, the existing studies lack detailed explanations of the effective implementation of the RM strategy in the hotel industry, as many answers remain unanswered.

2.5 Approaches to revenue management strategy implementation

An approach to strategy is a guide that specifies how your strategy will be implemented. In particular, it describes how a strategic plan should be implemented by an organization. Researchers have highlighted the importance of a strategic approach to RM management (Altin, 2019; Altin et al., 2017; Anderson & Xie, 2010; Cross et al., 2011; Kimes, 2011; Okumus, 2001). However, a concern has been raised on the limited studies examining the strategic approach to RM strategy implementation. According to Altin (2019), a key consideration in choosing which approach to use is determining the resources required to handle the RM function. These include capabilities, e.g., human-resource and capacity, e.g., information technology infrastructure. In selecting the approach, a cost-benefit analysis evaluating the return on investment (ROI), and its impact on the firm's objectives must be conducted. This determines the type of strategic approach the hotel can choose whether to employ internal or external resources.

Altin (2017) highlights a taxonomy for RM strategy implementation. He identified five approaches to RM strategy implementation. These include:

An in-house approach refers to a property using its own resources (employees and system) to manage RM operations. In this approach, the hotel's human resource conducts all the RM functions, from the most basic to the most advanced, including forecasting, controls, and monitoring hotel performance. Factors such as hotel size and availability of skilled staff play a key role in choosing an on-site RM function (Altin, 2015; Kimes, 2011). The pro of this approach is that the hotel has greater control of the RM function. At the same time, the drawback is the cost involved and the tendency of the revenue manager to focus more on the property level RM and miss the wider industry view (Altin, 2017).

Centralization approach where the RM activities of multiple properties are managed and controlled from one centralized office or system. The properties may be the same ownership, for example, smaller chain hotels whose corporate office or different ownership maintains and control their RM system, e.g., independently owned hotels that pull resources for RM function to be managed from a single property or location. A centralized approach has the advantage of according economies of scale where an investment in a RM system would otherwise be impracticable for single properties due to high costs (Farrell, 2012). The disadvantage is that; single properties have lesser control of the RM function. It becomes more disadvantageous to the property if the department is not located in the same location because the decision maker could lack knowledge of the local market conditions.

*The corporate outsourcing approa*ch entails branded hotel companies purchasing the RM services from the parent company but managing the RM activities at the property level. In this approach, the parent company is in charge of acquiring all the necessary resources, including IT resources, and hiring the revenue manager contingent on the hotel's service level. The benefit of this approach is that the parent company is more acquainted with its products and systems, therefore, can customize them depending on the demands of each property. Additionally, individual properties do not bear the burden of acquiring the RM resources and have higher control of their revenue management function.

Third-party outsourcing approach where a hotel sub-contracts the RM function and activities to an external party to manage them on their behalf. In this case, the hotel gives full control to an independent organization to manage the RM function. Hotels may outsource for various reasons, including costs, hotel size, lack of expertise, or need for independent control of the function (Altin, 2019). The advantage is that the administrative burden of the RM function is transferred to another party, while the disadvantage is that the hotel loses control of the RM activities.

A mixed approach is a combination of any of the approaches mentioned above. Hotels may use different methods, each to perform a different RM task. For example, outsource the RM manager but make RM decisions locally. The advantage is that hotels can leverage the advantages of each approach to counter the disadvantage of the other. The disadvantage is that more errors may be experienced where there is a disconnect between one approach and another (Altin, 2017).

A hotel's RM strategy implementation approach is influenced by costs associated with implementation choice, resources, organizational capability, capacity, uncertainty about markets, decision-makers attitudes towards each approach, and perceived risk of a strategic approach.

Therefore, management is advised to assess the advantages and drawbacks of each approach and select the most optimal strategy based on the property's needs. Altin et al. (2017) study on the effectiveness of RM strategic implementation approaches reveals that the strategic approach impacts hotel performance compared to competitors and RM strategy effectiveness. The study concludes that the strategic approach the hotel chooses influences the level of control you have over the RM function and how well you carry out the RM activities. The findings identified the mixed method approach as one that guarantees the greatest effectiveness for RM strategy.

2.6 Level of revenue management strategy implementation

Research indicates that a firm's involvement in the strategy implementation process can influence various firms' outcomes (Harrington & Kendall, 2006). Involvement generally refers to the extent to which the organization interacts with strategy activities (depth) and the extent to which the strategy is being applied within the organization (breadth) (Harrington, 2004). Earlier works in general strategic management literature highlight the need for involvement in strategy execution. In Brenes et al. (2008), the execution of a firm's strategy is one of the key components of strategic implementation. This refers to the actions taken in the implementation of a strategy.

A key action to consider is the firm's ability to establish a priority system for each action to be implemented is an important consideration since the number of actions prioritized indicates how well the strategy has been implemented. Rumelt (1974) examined the heterogeneity in performance between competitor organizations and identified strategic development processes, the formulation of strategies, and the implementation of plans as key differentiating factors. He concluded that three factors affect the organizations' performance, reflecting the need for firms to monitor the degree of involvement in a strategy's activity.

Within the hospitality literature, researchers have highlighted the importance of greater involvement in the strategy implementation process by hotels (Harrington, 2004; Harrington & Kendall, 2006; Okumus & Roper, 1999). They suggest greater success by firms that utilize a greater involvement. However, environmental complexities such as geographic location, size, and type of firm, among others, play a key role in a firm's level of involvement (Harrington, 2006).

As discussed, RM strategy implementation is influenced by several factors ranging from hotel size, affiliation, and type, influencing the extent of RM strategy implementation. The level of RM strategy implementation can be considered from two angles. First is the number of RM tactics or actions the hotel has integrated. This includes a mix of dimensions such as rate management, integration of RM culture, forecasting, segmentation, pricing, distribution channel management, and benchmarking, among others. Second, the number of revenue centers where the RM strategy is being implemented in the hotel are rooms only, rooms and restaurants, spas, conference, and meeting rooms.

The wider RM literature points to a disparity in the extent of RM strategy implementation among hotels based on hotel characteristics (El Haddad, 2015; Ivanov, 2004; Ivanov & Zhechev, 2012; Tranter, 2009). Rodríguez-Algeciras and Talón-Ballestero (2017) found that even though all hotels practice some RM, the hotel's levels of implementation of the RM strategy are different. However, they identified factors such as the scope of operation (national or international) and chain affiliation as determinants of the RM application level in sampled hotels. Similarly, Ivanov et al. (2021) found a lack of homogeneity in RM practices and highlighted the significant role that organizational characteristics play (category, size, location, and chain affiliation). This finding could be explained by different hotels' resource availability and capability.

According to Harvey (2008), a key factor affecting the level at which actions are executed is the availability of the resources required to implement each. This depicts that a hotel's resources affect the degree to which they can implement the RM strategy. Research shows a relationship between the level of involvement and performance (Rodríguez-Algeciras & Talón-Ballestero, 2017), where greater involvement results in better performance (Abad et al., 2019). For this reason, hotels must strive to attain higher levels of RM strategy implementation to leverage the strategy.

2.7 Strategy effectiveness

2.7.1. Revenue Management Strategy Effectiveness

Strategy effectiveness refers to an organization's ability to set the right goals and consistently achieve them by utilizing the resources allocated to the plan (Daft, 2021). According to Sukley and Debarliev (2012), a firm's strategy is considered effective when its aims, targets, or objectives are adequately implemented, or when it produces working effects or results. This is usually measured in terms of the degree to which the organization achieves its goals or is able to produce the desired effect expressed through the organizational performance (Yukl, 2008). Therefore, strategy effectiveness is determined by the firm's achievement of its outcome goals rather than by the performance of any single performance metric such as revenue or profit. Contrary to this, an ineffective strategy is one that does not achieve its objectives but consumes allotted or additional resources.

In relation to existing RM research, there is a dearth of literature on RM strategy effectiveness, thus, the definition of RM effectiveness in this study borrows from the general strategic management literature. Consequently, in this study an effective revenue management strategy refers to "hotel's ability to set revenue management goals that align with the hotel's vision and mission, and consistently achieving those goals using the hotel's resources".

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It is dependent on how well the strategy is implemented, aligned with the hotel's objectives, and its influence in achieving the set objectives. While the specific goals for adopting the RM strategy may vary from property to property, research acknowledges that a key objective for any hotel adopting RM strategy is to optimize its revenues and maximize profits (Ivanov & Zhechev, 2012; Noone et al., 2017; Zaki, 2022).

Besides this, ability to compete with the comp set and gain a competitive edge over the competition is a significant goal for implementation of RM strategy by hotels (Abrate & Viglia, 2016; Hinterhuber & Liozu, 2017). Thus, RM strategy is effective when it delivers the desired result based on the set objective or enhances the hotel's overall performance after implementing it. Without this achievement, hotels may find it difficult to optimize their revenues which in turn means they are unable to achieve their profits and their overall vision. This suggests that hotels should evaluate the effectiveness of the RM strategy using objective-based outcomes based on the net outcome compared to the set targets.

Notwithstanding, while every organization strives to achieve strategic effectiveness, research has shown that few attain this feat due to certain factors (Farida & Setiawan, 2022). These include, first, poor strategy implementation. As Carucci (2017) asserts, proper strategy implementation is a prerequisite to strategy effectiveness. However, many firms have poorly implemented business strategies resulting in mediocre outcomes that are below expectations (Sukley and Debarliev, 2012). The second factor in making a strategy effective is aligning it with the firm's strengths and setting attainable goals. Additionally, managers should understand and be able to explain how the outcome will be achieved. Nonetheless, research shows that most managers struggle with thinking through such tasks, necessitating a strategy implementation framework detailing all stages from planning to evaluation (Beer & Eisenstat, 2000).

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Third, the majority of managers are focused more on determining what needs to be measured rather than ensuring the right things are being measured. This has resulted in too many metrics, wrong metrics, or no metrics at all being used to measure outcomes thus organizations end up not getting a true reflection of their outcomes (Eccles, 1991; Mayne, 2007). Finally, strategy effectiveness requires the firm to continuously evaluate whether the strategy is hitting the objectives by monitoring resource use and performance, a task that organizations are yet to get a good grip of executing (Lohman et al., 2004; Marr & Gray, 2012). Therefore, true strategic effectiveness requires proper strategy planning (clear objectives and performance measurement) and execution. These aspects apply to the hotel industry in the context of RM strategy implementation and effectiveness thereof.

Further, to determine the effectiveness of a strategy, a firm must be able to measure its performance and gauge if it will achieve the firm's objectives (Ittner & Larcker, 2003). As such, the genesis of an effective strategy is a clear understanding of what you want to accomplish and how the strategy links to your goal, especially in today's dynamic and competitive business environment (Kaplan & Norton, 2001). As effectiveness is represented by a firm's ability to relate to its environment, particularly in highly competitive environments, firm's must carefully select the desired outcome and actively work towards achieving it (Farida & Setiawan, 2022; Islami et al., 2020). Without a target, there is no real criterion to ascertain which measures should be taken.

Research indicates that there are diverse techniques and approaches for measuring strategy effectiveness such as benchmarking, balanced score card, operational effectiveness, customer relationship management, value, and activity-based management among others (Barney, 2002; Digman, 2006).

While there is no one fits all approach to measuring strategy effectiveness, research recommends that organizations ensure a balanced set of measures covering all aspects of the organization, including financial and non-financial aspects of the organization (Phillips & Moutinho, 1999;2000; Sukley and Debarliev, 2012).

As the measurement of the RM strategy effectiveness within the hotel context is largely lacking, this study borrows the measurement of RM strategy effectiveness from the generic strategy management literature. In tandem with the study by Phillips and Moutinho (2000), this study sets operational effectiveness (performing similar tasks better than competitors) by rating the performance of their hotel's RM strategy operation over the past year in comparison with primary competitors as the end goal and combines financial and non-financial aspects as the measurement approach.

2..7.2 Performance evaluation

According to Brignall and Ballantine (1996), performance measurements are historically developed to monitor, control, and evaluate an organization's operations results. The aim is to ensure that organizations formulate, adopt, and practice strategies that lead to achieving the organization's overall goals and objectives. As such, performance measurement, whether *ex-ante* (feedforward) or *ex-post* (feedback control), is at the core of an organization's success (Pavlov & Bourne, 2011); thus, the importance of performance measurement in the successful operations of a business cannot be overemphasized. Haktanir and Harris (2005) observed that traditional performance measurements mainly focus on financial performance measures based on comparing budgeted and actual results. Nonetheless, researchers have highlighted increased dissatisfaction with these traditional performance measures because they ignore the nonfinancial aspects of business performance.

As Otley (1980) and Yukl (2008) argue, success is a multifaceted concept that varies between individuals, groups, and organizations and changes over time. As a result, the success of an organization is not just dependent on financial achievement. Still, it is also influenced by how well the organization adapts to its operating environment. Therefore, businesses need to adopt measures that understand and incorporate different stakeholder needs in the context of both the strategy and competitive environment (Haktanir & Harris, 2005). Additionally, performance measures are contextually defined; thus, one measure may have different meanings and importance in different organizational situations. Recognizing the uniqueness of the industry and organization is key in deriving the performance measure.

As such, these traditional financial measures have received criticism over the past two or more decades for their concentration on financial measures, thus prompting a failure to monitor multiple performance dimensions (Brignall & Ballantine, 1995). Some of the cited criticism for the financial measure include being too narrow and easily quantifiable (Harris & Mongiello, 2001) and lagged indicators which may be a result of organizational performance and management actions but not a cause of it (Eccles & Pyburn, 1992), their short-termism (Doyle, 1994), largely profit based (Brown & McDonnell, 1995), lack neutrality and higher focus on results from operations rather than managerial effort (Emmanuel et al., 1990), failure to balance between financial and operations measures (Kaplan & Norton, 1992)

In response to this criticism and dissatisfaction, several new performance measures such as data distortions (Cooper & Kaplan, 1998), results and determinants (Fitzgerald et al., 1991), CFs (Geller, 1985; Rockart,1979), strategic cost management (Govindarajan & Shank, 1993), balanced scorecard (Kaplan and Norton, 1992), key characteristics of performance measures (Nanni, 1999), performance pyramid (Lynch & Cross, 1991), and pay linked performance (Rappaport, 1999).

These new measures consider both the financial and non-financial aspects of the performance and thus are more strategic than the traditional financial measure. The comprehensive nature of the hotel industry's operations as a total product experienced by customers makes it unique and calls for an all-inclusive measurement of performance measures of various operations aspects (Harris & Mongiello, 2001).

The implementation of RM practices necessitates the use of various measurements for the attainment of RM goals and hotel performance. These measures assist hotel owners in assessing business performance and making informed decisions on the best way to improve the strategy or formulate another strategy, thus enabling the hotel to optimize their business strategies and maximize their revenues and profits. The performance of the organizations can be measured using various variables. Common measurement variables include economic viability (growth rate or profit ratio) and competing priorities such as cost, quality, price, flexibility, and speed of delivery (Marr, 2012; Zairi, 2012).

According to Schwartz et al. (2017), a typical RM cycle entails four main elements: forecasting, optimization, setting control, and monitoring and evaluation. Different RM performance evaluation metrics, mainly financial performance, are used in the hotel industry. The most commonly used RM metric is Revenue Per Available Room (RevPAR), a function of the average daily rate and occupancy rate, which is a measure of the average amount of revenue generated per available room in the hotel, whether occupied or vacant (Enz et al., 2001; Varini & Murph, 2006; Younes & Kett, 2003). Nonetheless, the over-dependence on RevPAR in the hotel industry as a performance measurement has been faulted because the metric measures a single revenue-generating department, thus not a true reflection of performance.

Additionally, with the paradigm shift from traditional-room-centered RM towards an all-inclusive strategy that considers all revenue-generating centers and total revenue management (TRM) within the hotel (Anderson & Xie, 2010), the RevPAR metric is not all-inclusive. Further, as Schwartz and colleagues assert, using the metric to evaluate the performance of the RM system might be suboptimal and directionally misinforming. For this reason, hotels use other profit-oriented performance metrics such as Revenue Per Available Seat Hour (RevPASH), Revenue Per Available Square foot (RevPAS), Total Revenue Per Available Room (TRevPAR), Gross Operating Profit Per Available Room (GOPPAR), Net Revenue Per Available Room (NRevPAR), Net Operating Income Per Available Room (NOIPAR) and Revenue Per Available Customer (RevPAC) among others (Banker et al., 2005; Younes & Kett, 2003).

Forlornly, while different financial performance metric options to evaluate RM performance are available to hotels, there is a lack of nonfinancial performance metrics. However, considering that RM practices may affect customer perception of pricing fairness, there is a need to consider nonfinancial performance metrics such as customer satisfaction because customer satisfaction can potentially affect long-term RM performance. The argument is that RM performance evaluation should comprehensively consider financial and nonfinancial performance metrics.

2.8 Development of conceptual framework and Hypothesis

2.8.1 Conceptual framework

Following the thorough literature review, a conceptual framework is proposed to address the research gap identified in the study. Figure 2.1 is a graphical representation of the conceptual framework, which postulates that Revenue management strategy effectiveness consisting of financial and nonfinancial dimensions is influenced by three sets of dynamics comprising of critical factors, RM strategy implementation level, and RM implementation approach.

Contingency theory and literature allied to RM strategy implementation are the basis of the conceptual framework. Literature on critical factors identifies the internal and external environment characteristics influencing the RM strategy level of implementation and RM strategy effectiveness. RM literature contributes to identifying the level of RM implementation and approaches to RM strategy implementation and how they influence RM strategy effectiveness.
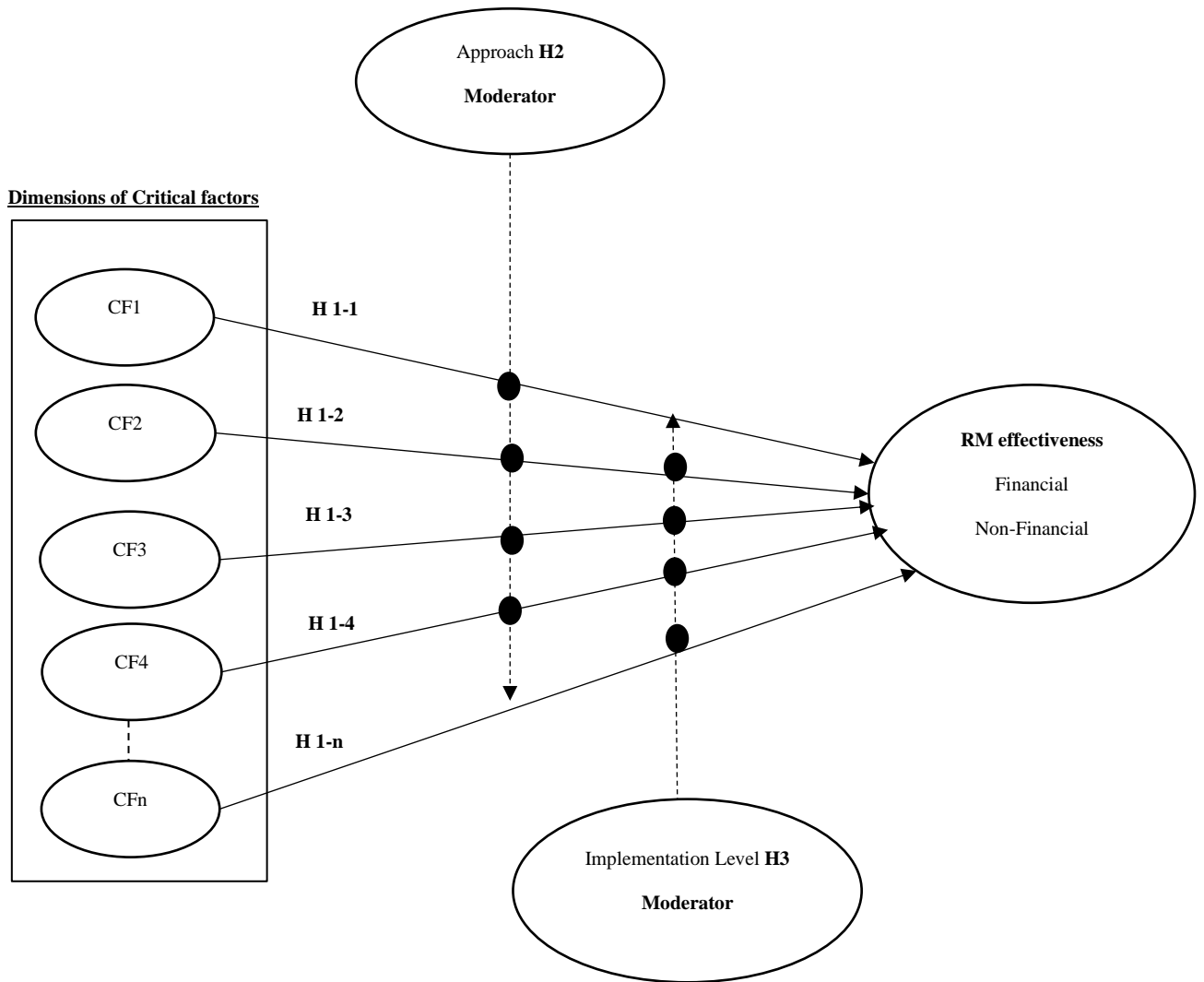
Figure 2.1. Proposed conceptual framework

2.8.2 Relationship between Critical Factors and Revenue Management strategy effectiveness

In strategic management, certain factors have been shown to influence the effectiveness of strategy choices compared to competitors (Okumus et al., 2017). These factors have a direct or indirect, or enabling or inhibiting influence on the success of the strategy based on the degree of interaction. Factors that enable the functioning of a strategy result in favorable outcomes and effectiveness of a strategy. In contrast, factors that inhibit the proper functioning of a strategy may fail the strategy (Sanchez & Terlizzi, 2017). Knowledge and awareness of critical factors surrounding the strategy execution process have been espoused to connect strongly with the subsequent performance of the strategy (Hrebiniak, 2006; Olson et al., 2005; Srivastava & Sushil, 2017), and contingency theory is instrumental in explaining this connection. Scholars have further affirmed that the chosen implementation approach shapes the strategy's overall efficiency and effectiveness (Altin, 2017; Barota et al., 2014; Thorpe & Morgan, 2007).

There has been an increasing body of research exploring the relationship between critical factors and strategy implementation effectiveness, particularly in the field of information system research, quality management systems, enterprise resource planning, and the manufacturing industry (Choy & Suk, 2005; Gherbal et al., 2012; Motwani,2005). However, this research is nascent within the hospitality and tourism industry. Hong and Kim (2002) conclude that successful ERP implementation depends on the organizational fit and implementation contingencies, while Salaheldin (2009) draws attention to the role of strategic factors in successfully implementing total quality management programs within Small, Micro, and Medium Enterprises. Within the hospitality and tourism context, Padilla-Meléndez & Garrido-Moreno (2014) examine CSFs for implementing customer relationship management and highlight the crucial role of organizational factors.

Marais et al. (2017) investigated the critical success factors for business tourism destinations and identified finances, product, human resources, and customer-related aspects as the most important factors. They concluded that CSFs may differ from destination to destination. Köseoglu et al. (2020) examined the key success factors for strategy formulation and implementation in the hotel industry from a manager's perspective. They concluded that staff engagement and strategic alignment are critical factors for success.

Nonetheless, this research area has gained little attention in some areas, such as the RM research context, where very few studies exist (Griffin, 1995; Hansen & Eringa, 1998; Lieberman, 2003). Accordingly, the multi-dimensional nature of the CFs in the RM /YM context has also been identified as previous studies have identified certain factors (Avinal, 2006; Brotherton & Turner, 2001; Hansen & Eringa, 1998; Slager & Kapteijns, 2004). Griffin (1995) identified four broad categories: - "system classification, organizational support user training and attributes, and external environment," as the CSFs for YM system implementation. Upchurch et al. (2002) exploratory review of the RM competency revealed revenue management practice, demand indicators, benchmarking, demand forecasting, and supply and demand factors as CFs for RM competency.

Queenan et al. (2011) explored drivers of RM performance and unraveled nine factors categorized into two: - social drivers and technical drivers. There is a lack of agreement on the CFs for successfully implementing the RM strategy in the literature. However, existing studies have supported that CFs, such as organizational, technological, human resource, and operational factors, significantly shape RM strategy effectiveness (Brotherton, 2004; Lieberman, 2003). Currently, there is little agreement on the dimensions of critical factors; this study evaluates the effectiveness of RM strategy in the hotel industry through the lens of these critical factors.

An increasing amount of research within the strategic management literature has examined the role of organizational factors on strategy effectiveness (Aydin & Ceylan,2009; Donate & Guadamillas, 2011; Lu et al., 2006). Within the hotel context, organizational factors stem from internal and external aspects of the hotel environment. At the organizational level, factors referring to aspects of organizational structure, organizational focus and culture, implementation management, interdepartmental communication and cooperation, organizational size, and management support tend to be echoed in the CFs literature (Chen, 2013; Pavlatos & Paggios, 2009; Tavitiyaman et al., 2012)

Human-resource has been cited as one of the most crucial elements in advancing organizational performance and effectiveness (Richard & Johnson, 2001). Human factors include staff knowledge and skills, education and training, motivation, employee commitment, and employee relations. Employee knowledge and skill have been highlighted as a key human-resource elements in deploying RM strategy within the hotel context (cetin et al., 2016). To this extent, RM practice emphasizes the need for the staff to have adequate expertise and competence to perform their jobs and possess certain values, acumen, and judgement associated with RM activities (Helmold, 2020; Zarraga-Oberty & Bonache, 2007). In a nutshell, technical and soft skills are required to successfully support the RM function (Ferguson & Smith, 2014; Kimes, 2011;). A study by Varini and Burgess (2010) concluded that one of the greatest drawbacks of RM function is the lack of qualified staff and regular training.

Operational factors explain actions, activities, and programs required to achieve or implement a strategy in an organization (Asif et al., 2009). This study examined operational factors, including product and service design, efficiency, channel management, process management, quality management, and reporting.

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These factors are important because they have a direct influence on the timing and quality of products and services and costs of work processes, aspects that foster continuous innovation of ideas and quality improvement of processes to cater to customers' needs and surpass competition (Cetin et al., 2016; O'Connor & Frew, 2004). A study by Finny and Corbett (2007) revealed that operational factors directly impact strategy effectiveness, affecting performance. For instance, Ng (2006) stresses the significance of product and service design in the hotel industry, exemplified by the differentiation of products and services offerings, personalized services, and upselling of products rather than imitating what competitors offer.

Various authors (Kimes, 2008; Noone et al., 2003; Noone et al., 2011) assert that product design should emphasize customer satisfaction and profits rather than focus on revenue only. In implementing the RM strategy, such a tactic should result in products and services attractive to customers and maximally serve the needs of the customers, thus leading to a more favorable perception of the hotel (Lieberman, 2003; Gallego & Topaloglu, 2019; Guadix et al., 2010). In return, the revenue and profits will be optimized; thus, the revenue management strategy effectiveness will increase.

Technological factors are the technological aspects, components, and tools that transform inputs into outputs (Phaal, 2004). These include systems and software and information technology infrastructure. Technological factors have a direct impact on maximizing the delivery of tasks and transmission of information (Zhang et al., 2009). Along with several authors, Selmi and Dornier (2011) establish that information systems, more so those that employ data archives, are essential for successfully implementing an RM system. Nieves et al. (2014) state that these factors boost innovation and continuous quality improvement in accomplishing set goals.

Mendoza et al. (2007) posit that proper system management is characterized by acquiring the right system and centralized information technology administration within an organization. In the RM context, the acquisition of the right software to handle the required data effectively depends on the size of the hotel, the number of users functionalities required, and the output required (Alrawadieh et al., 2021; Selmi & Dornier, 2011). Based on this argument, it is expected that hotels that acquire the right software are more likely to have an effective RM strategy.

Even though there is existing research on the CFs, a holistic analysis of the relationship between dimensions of the critical factors and RM strategy effectiveness has not been completed. In this study, each of the individual dimensions of CFs is anticipated to influence the RM strategy's effectiveness. Nonetheless, differences are expected based on the hotel contexts, such as country, location, affiliation, and service type. Based on previous studies, the hypothetical model predicts four critical aspects: organizational, human resources, operational, and technological. Against this backdrop, the following hypothesis is proposed:

H1: Critical factors significantly influence Revenue Management strategy effectiveness.

2.8.3 Moderating effects of revenue management strategy implementation approach on the relationship between the critical factors and revenue management strategy effectiveness

The literature has discussed the strategy implementation approach as an important predictor of strategy effectiveness (Andrews et al., 2017; Parsa, 1999; Slater et al., 2010; Thorpe & Morgan, 2007; Waltz et al., 2019). Previous studies postulate that the strategic approach opted by a firm relative to its competitors could affect the strategy's effectiveness (Barros & Fischmann, 2020; Hutchins, 1998; Kitsios & Kamariotou, 2018; Paul, 2018). Deffner et al. (2013) assert that a firm's implementation strategy is strongly linked to the organization's capacity because strategy effectiveness is based on identifying the internal and external environment.

Likewise, Pisharodi et al. (2003) examined the relationship strategy, effectiveness, and responsiveness in service marketing. They found that the relationship strategy approach strongly affects its effectiveness, enhancing firms' responsiveness to customers' needs. These findings highlight the importance of a firm understanding and choosing a strategic approach based on the firm's capabilities, resources, and operating environment. Further, it points to the influence of the strategic approach on the strategy effectiveness.

The approach to RM strategy implementation is relatively new within the RM context, and only a single study has been recorded on this to date. Altin (2017) presents a taxonomy of hotel RM strategy implementation approaches, including in-house, centralized, corporate outsourcing, third-party outsourcing, and mixed method. Based on this taxonomy, Altin et al. (2017) assert that the hotel's strategic RM implementation choice is dependent on the firm's capacity and competencies, including human resources, technology, performance measurements, leadership, set goals, and policies as important determinants of the most suitable approach for the hotel. Additionally, the chosen approach affects the hotel's relative performance compared to the competitors. Their findings indicated that while some approaches are more preferred to others, choosing an approach based on contextual fit guarantees RM strategy effectiveness. Based on the existing empirical evidence, this study asserts that the RM strategy approach to a hotel will influence the RM strategy's effectiveness. Consequently, this hypothesis is posited:

> *H_2: The revenue management strategy implementation approach moderates the relationship between the proposed critical factors and revenue management strategy effectiveness*

2.8.4 Moderating effects of the level of RM strategy implementation on the relationship between the critical factors and revenue management strategy effectiveness

Previous studies on critical factors have demonstrated that certain factors are important in the level of strategy implementation (also the degree of implementation, the extent of implementation, and the level of sophistication) (Brenes et al., 2008; Li et al., 2008; Ogbeide & Harrington, 2011; Okumus, 2001). The diffusion of innovation theory and contingency theory (Donaldson, 2001; Rogers, 2003) provide a solid theoretical foundation on how certain critical internal and external environmental factors, in conjunction with actions through which organizations influence implementation, conditions necessary for strategy implementation effectiveness, and capabilities that create the best strategic actions, influence degree of strategy implementation. RM researchers have theorized that an understanding of how the hotel's internal and external operating environment influence the RM strategy implementation process affects the speed of RM adoption and level of implementation (Abad et al., 2019; Altin et al., 2017; El Haddad, 2015; Rodríguez-Algeciras & Talón-Ballestero, 2017; Talón-Ballestero et al., 2014).

Besides, critical factors represent the knowledge, skills, and abilities required to implement RM (Tawse & Tabesh, 2021) successfully. In other words, the degree of critical factors a hotel can consider, afford and integrate into its daily operations based on its operating environment could impact the level of strategy implementation. This is because the level of implementation directly corresponds to the costs of implementation, size of the organization, location, and type of hotel (Cross, 1997). Talón-Ballestero et al. (2014) categorized levels of RM strategy implementation as ("low," "medium," "high," "very high," and "excellent") based on the number of RM of tactics out of nine a hotel employed. It also extends to the number of revenue centers integrated with the RM function by the hotel (Wang et al., 2015).

As an antecedent of strategy effectiveness, critical factors have been examined in diverse contexts in the literature (Gupta et al., 1997; Debarliev, 2015; Raymond & St-Pierre, 2005). For instance, Lai (1997) investigated the relationship between the extent of integrated services digital network (ISDN) implementation success and nine major innovations, management, and organizational variables and found that seven of the factors were important determinants. Lee and Kim (2007) assess the factors affecting the success of Internet-based information systems (ISS) and contend that compatibility and information systems infrastructure are critical elements of the degree of IIS implementation.

Within the RM context, Cross (1997) examined the level of RM strategy implementation appropriate for hotels. He concluded that factors such as market environment, the hotel's size and technical sophistication, and the hotel's and competitors' market tactics were the determining factors. Abad et al. (2019) postulate that hotel category, affiliation, and level of employee qualification determine the degree of RM strategy implementation. Similarly, Xu et al. (2019) examined the drivers of the degree of sophistication of the RM strategy. They found that factors such as competitive environment, organizational structure, and differentiation strategy as key positive drivers of RM strategy sophistication. Based on the empirical proof from the studies mentioned above, it can be averred that certain critical factors drive the level of RM strategy implementation. Therefore, a holistic consideration of the critical factors is significant in explaining the extent of RM strategy implementation in hotels. Accordingly, the following hypothesis is proposed:

> *H3: The level of revenue management strategy implementation moderates the relationship between the proposed critical factors and revenue management strategy effectiveness*

2.9 Summary of the Chapter

This chapter reviewed the literature on revenue management strategy to provide an in-depth understanding of the RM strategy implementation and propose a conceptual framework for this study. The review covered contingency theory, the importance of critical factors and previous research on CFs and existing gaps, revenue management, the concepts underlying strategy implementation, and an overview of RM strategy implementation models. The next chapter presents the proposed methodology to address the study's objectives.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Chapter Introduction

As discussed, the overarching goal of this study is to unearth the critical factors affecting revenue management strategy implementation in the hotel industry because an understanding of the perception of hotels regarding the implementation of RM practice as a strategy is essential. This chapter presents the research methodology that was assumed during the study. This chapter presents an overview of the research philosophies and paradigms, research design, identification and modeling of CFs of RM strategy implementation, data collection procedure, sampling design, and data analysis. The study's main purpose is to identify CFs, develop a model of the relationships between CFs, and examine and empirically test the hypothesized relationships between the CFs for RM strategy implementation and revenue management strategy effectiveness.

3.2 Research Philosophies and Paradigms

The research methodology that a researcher adopts does not exist in a void nor happen by probability; rather, the methodology is affected by a researcher's philosophical perspective. According to (Saunders et al., 2019), research philosophy refers to a belief system about how data regarding a phenomenon should be collected, analyzed, and utilized (the source, nature, and development of knowledge of information). Conversely, a research paradigm refers to the entire pattern of beliefs, values, and techniques researchers share. In simple terms, a way of framing what researchers know, what they can know, and how they can know it (Bell et al., 2018). Unique ontological and epistemological perspectives guide the research philosophies and paradigms. Ontology refers to the nature of reality, which is real, while epistemology refers to how researchers learn about reality (Bryman et al., 2019).

Epistemology is the process by which researchers decide whether subjectivity, objectivity, causality, generalizability, and validity are desirable (Patton, 2014). Choosing an overall philosophy for this study was a selection between two main perspectives of research philosophy: positivism and interpretivism philosophy (Saunders et al., 2019). Positivists believe that the social world exists externally, is objective, and is governed by natural laws that can be experienced. Natural scientists mainly adopt positivism as they believe that the behavior of a phenomenon can be understood based on objectively analyzing and explaining the data rather than a subjective inference based on intuition, reflection, or sensation (Easterby-Smith et al., 2012). As Bell et al. (2018) state, epistemology perception purports that knowledge exists in natural law and can be gauged precisely and accurately. Additionally, positivists believe that it is possible to control the occurrence and predict events hence research with an identifiable social reality can be carried out in a representative way. As Veal (2017) asserts, classic positivists use more qualitative approaches to conduct their research and use a deductive process to test their hypothesis.

On the contrary, interpretivism believes that reality is socially formed and internally experienced through interaction, and interpretations are based on the meaning people attach to it (Rubin & Babbie, 2016; 2017). Social scientists mainly adopt interpretivists as they believe that subjects' behavior is based on the environment in which they exist. As such, knowledge is understood subjectively based on the meanings people attach to physical and social objects and their actions concerning them (Ormston, 2014). Interpretivism involves qualitative data collection approaches and utilizes a deductive approach to develop rich data for theory building. Interpretivism and positivism philosophies are mutually exclusive and extreme paradigms concerning knowledge and nature. However, it is acknowledged that some studies fall within the positivist and interpretivism perspectives.

As such, there is a third philosophy between positivism and interpretivism: pragmatism. As Saunders et al. (2019) assert, pragmatics understands that the world can be interpreted in many ways, and research can be undertaken from different viewpoints. They concede that multiple realities exist and that no one point of view can give them a holistic perspective. Therefore, based on the research question, pragmatism can combine the positivism and interpretivism positions in a single study (Collis & Hussey, 2014).

Given the objectives of this study, the study adopted a pragmatic research philosophy. The research established in pragmatism emphasizes a mixed approach to empirical observations of subjects' behavior; knowledge interpretation is value-based and has an abductive logic to rationalize the observed relationships of a social phenomenon (Blaikie & Priest, 2017). Epistemologically, this study derives knowledge from experience by dealing with reality, facts, and practical results; as such, both the objective and subjective ideologies will be involved in observing, identifying, evaluating, and generalizing CFs for RM implementation. The study utilized statistical and non-statistical approaches to rationalize CFs and the interrelationships between the other variables of RM implementation and RM strategy effectiveness. The results of the study will enhance existing knowledge of CFs. Ontologically, this study emphasizes that there is no single way to understand reality and that reality exists internally and externally, is objective and subjective, and depends on the current situation. As such, measurements using mixed methods approach were appropriate for the study. This study posits that a relationship exists among the CFs for RM strategy implementation and between CFs of RM strategy implementation and RM strategy effectiveness in the hotel industry. The hypothesized relationships are consistent with a pragmatic view, as some posit that causal relationships exist as a rule of nature while others are based on perception and intuition (Lancaster, 2005).

3.3 Research design

The research design consists of the overall plan and procedures that connect data collection, analysis, and interpretation to solve the research problem (Dannels, 2018). There are three options for collecting and analyzing data from respondents: qualitative, quantitative, or a combination of both, also known as the mixed method (Creswell, 2014). According to Yilmaz (2013), qualitative research methods are used to develop a theory, explore why and how a phenomenon occurs, and describe the nature of an experience, while quantitative methodologies are used to explain the causality, generalizability, and degree of effect. The mixed method research, therefore, draws on the strengths of both qualitative and quantitative research. In tandem with other pragmatic studies, this study adopted a mixed-method approach to the empirical research. This approach was preferred because it helps avoid the limitations of a single approach, thus providing more reliable and effectual data (Morse, 2016). An exploratory sequential mixed method research design was employed to explore and understand the complexity of critical factors for implementing RM strategy in the hotel industry and how the CFs affect the effectiveness of RM strategy. Five questions guided this study:

RQ 1: What are the critical factors for RM strategy implementation in the hotel industry as identified in the literature by experts and hotels? (Qualitative and quantitative)

RQ 2: How are the identified critical factors for RM strategy implementation in the hotel industry interrelated? (Qualitative and quantitative)

RQ 3: What is the relationship between critical factors and RM strategy effectiveness in the hotel industry? (quantitative)

RQ 4: What are the moderating effects of the revenue management strategy approach on the

relationships among critical factors and revenue management strategy effectiveness in the

hotel industry? (quantitative)

RQ 5: What are the moderating effects of revenue management strategy implementation level on

the relationships among critical factors and revenue management strategy effectiveness in

the hotel industry? (quantitative)

In the first phase, qualitative data collection and analysis were conducted. This was used

to enhance the findings of a subsequent quantitative data collection and analysis phase, and a final

phase included integrating the data from the two streams (Creswell & Clark, 2017). Based on the

study's objectives, the qualitative approach was used in gathering data through a literature review

and in-depth interviews with RM strategy experts and hotel operators who have adopted the RM

concept in their hotel operations. Quantitative approaches were used to validate the identified CFs

through a survey. Combining the two presented the outcome and the relationship between variables

as a model. Employing this mixed method approach ensured the outcome's reliability, validity,

objectivity, and robustness, contributing to a better understanding of the RM implementation

phenomenon.

3.4 Sampling Technique

Sampling is selecting a population subset to make statistical inferences about the entire

population (Bhattacherjee, 2012). Research by Saunders et al. (2019) depicts that there are two

sampling methods; a) probability sampling (which includes systematic, simple random, stratified

multi-stage and cluster sampling) and b) non-probability sampling (which includes purposive,

snowballing, and convenience sampling).

Probability sampling is a sampling technique where each case in the target population has a known and equal chance of being selected (Saunders et al., 2019), while samples selected by non-probability sampling are selected based on personal judgement or convenience; any individual in a population can be chosen; there is no certainty that any individual in any population will be chosen (Zikmund et al., 2010).

In view of the objectives and research design of this study, both probability and non-probability sampling techniques were used. Stratified sampling, a sampling method involving dividing a population into smaller sub-groups called strata, was used to group the hotels into three-, four- and five-star strata (Saunders et al., 2019). Purposive sampling, in which the researchers use their assessment to select participants that are most suited to respond to the study's questions and meet the research objectives, was used to select the experts and respondents for the main survey (Zikmund et al., 2010). Additionally, snowballing, where participants are selected based on referral by other participants, was also used to reach experts and respondents for the main survey (i.e., individuals in charge of RM function in the hotel) (Saunders et al., 2019).

3.5 Identification and Modeling for CFs of RM Strategy Implementation

In addressing the purpose of this research, a multi-attribute decision-making (MADM) approach was employed to weigh the criteria and prioritize critical factors for RM strategy implementation. Multi-criteria decision-making (MCDM) concerns theory and methodology that can deal with complicated problems characterized by differing criteria and many alternatives based on the desired outcome (Bouyssou et al., 2006; Mardani et al., 2015). MCDM tool involves both qualitative and quantitative approaches to evaluate the subjective performance criteria by decision-makers (Yang et al., 2007). Fuzzy logic is one of the most widely used MCDM techniques.

It provides appropriate ways to carry out decision-making because it can deal with multi-attribute decision-making.

Fuzzy set theory is a problem-solving method for narratives, activities, and observations that are vague, indeterminate, and without specificities, such as human formulation of preferences, constraints, and goals. Therefore, the fuzzy set theory is designed to obtain a possible outcome resembling human reasoning. The term fuzzy refers to a situation in which it is difficult to distinguish the list of activities or observations that belong to members or non-members, as the concepts between membership and non-membership are hazy. The membership ranking is defined as a possible distribution between zero and one. The closer the value to unity, the greater the degree of membership (Kahraman et al., 2003).

Three fuzzy sets were used in this study to identify and model the relationships between the critical factors. The Fuzzy Delphi Method was used to provide a list of critical factors. The fuzzy Analytical Network process handled the interaction among the criteria and linguistic variables. A fuzzy MICMAC was applied to classify the factors into their respective clusters based on driving and dependence power. A hybrid analysis comprised of an integrated fuzzy set, m-TISM, and multiple linear regression approach was employed in this study to achieve the set objectives, as seen in Fig 3.1.

3.5.1 Fuzzy MADM approaches

Fuzzy sets

Zadeh (1965) developed the first fuzzy theory. The basic definition of fuzzy theory based on are as follows:

Definition 1: Regarding membership functions on X, the interval [0, 1] can be regarded as any function whose domain is X.

Definition 2: In the case of fuzzy numbers, they represent a regular real number in that they do not refer to a single value but instead to a set of possible values, each weighted between 0 and 1.

Definition 3: A triangular fuzzy number (TFN) can be defined as Ā = (a, m, b). There is an upper bound on a fuzzy number, a geometric mean, and a minimum bound on a fuzzy number, where a is the upper bound, m is the geometric mean, and b is the minimum bound on a fuzzy number. The definition of the triangular function is:

$$\mu_{\bar{A}=}\begin{cases} \dfrac{x-a}{m-a} & a \leq x \leq m \\[2mm] \dfrac{b-x}{b-m} & m \leq x \leq b \\[2mm] 0 & otherwise \end{cases}$$

3.6 Phase 1: Qualitative study to quantitative

Given the limited knowledge about the CFs for RM strategy implementation, it was important to initially uncover the experts' perspectives, experiences, and opinions to learn about the possible CFs for RM implementation. Purposive and snowballing sampling was used to select the most suitable RM and strategy implementation experts who could provide rich information from academia and industry. Data was collected and analyzed through A Fuzzy Delphi Method. A total of 46 hotel industry and academics participated in the study.

3.6.1 Literature review

A thorough literature review was conducted to identify the existing CFs relevant to RM strategy implementation. A literature review of studies in RM in the hotel industry, critical factors, and strategic management was conducted. Following the literature review, an attempt to understand the CFs in strategy implementation has been advanced by various scholars, especially in disciplines such as information systems and service quality. Many researchers have examined and attempted to model the CFs necessary for successful strategy implementation, with studies revealing a multi-dimensionality in the CFs and their applicability in many contexts, including the hospitality and tourism industry (Darwish & Rizk, 2015; Vargas & Comuzzi, 2020; Zhao et al., 2008).

However, with a specific focus on RM strategy, there is little understanding of the CFs which persuade the success or failure of RM. From the initial review, CFs relevant to RM and implementation have been identified and grouped into four main categories: organizational, people-related, operational, and technological. As such, a need exists to explore further and gain an in-depth understanding of the CFs specific to RM implementation. This formed the basis of the study.

3.6.2 Fuzzy Delphi Method

Delphi is a survey method characterized by anonymous responses, controlled feedback, iteration, and statistical group participation from experts (Dalkey & Helmer, 1963). In a real-life situation, expert judgement is laced with imprecision, vagueness, and the subjectivity of human reasoning, opinion, and preferences (Chen, 2000). As such, these inferences cannot be accurately represented quantitatively and require another representation method.

To overcome this challenge and to make it more robust, the fuzzy set theory, which combines the fuzzy set and Delphi method, was developed (Ishikawa et al. 1993; Zadeh, 1965), giving rise to Fuzzy Delphi Method (FDM). The FDM scrutinizes critical factors identified through the literature review. In FDM, a systematic analysis is followed. The prerequisites of FDM are fuzzy numbers and the defuzzification process.

A group of experts, represented by P1, P2, .., Pn, will be asked about d items (or choice criteria). Let $V_{ki} = (a_k i, b_k i, c_k i)$ be a triangular fuzzy number (TFN) to signify the fuzzy value rating allocated to the i-th item (e.g., the agreement of the top-management commitment) by expert P_k (where $i \in \{1, 2,. .., m\}$ and $k \in \{1, 2,. .., n\}$). The detailed steps of FDM are as follows:

Step 1: Identification of the possible factors and sub-factors related to the research.

First, the possible critical factors related to RM implementation were identified through a thorough literature review on revenue management, strategy implementation, and critical factors. Based on the review, an example of the identified critical factors is shown in Table 3.1. These factors were used to develop the research questionnaire for the FDM. A seven-point Likert scale was used. Three conditions were necessary to attain an agreement on the i-th item. a) the value of threshold (d) ≤ 0.2, b) At least 75% agreement among the experts regarding the importance of the factor, meaning that the experts' opinion is very satisfactory on the item. b) no comment from any of the experts regarding the item. If there is a comment, the item needs some improvement.

Step 2: Collecting expert opinions using a decision group.

Based on the identified factors and subfactors, (n) a sample of the hotel industry and academia experts were interviewed and questioned using semi-structured questionnaires containing linguistic variables to determine the importance of critical factors.

This study employed fuzzy triangular numbers to evaluate the factors for RM implementation. A geometric mean model was used to verify the experts' group decision.

Table 3.1. Factors and sub-factors used in the model

Criteria	Factors	Sub-factors
(C$_1$)	Organizational factor	Top-management support and commitment The link between vision, goals, and task and RM strategy Provide necessary resources and budget Organizational culture Continuous improvement Strategic planning
(C$_2$)	Human-resource factor	Staff knowledge and skills Education and training Employee empowerment Employee involvement Teamwork skills Expertise and competence
(C$_3$)	Operational factor	Efficiency Channel management Process management Quality data Control and monitoring
(C$_4$)	Technological factor	Revenue management systems Effective use of software Building information infrastructure Updated databases

Step 3: Identification of important critical factors.

In the following phase of the FDM, the weights of each critical factor are compared to identify the most significant critical factors. A triangular fuzzy value interval was considered for each criterion using the average of all opinions. For each criterion, the range of values consists of the lowest, the geometric mean, and the highest. In the assumption that expert k among n experts has an opinion on criteria l, the evaluation value of the criteria is $V_{kl} = (a_{kl}, b_{kl}, c_{kl})$ where $l = 1$, 2, ...m and $k = 1, 2, ... n$. Based on this, the fuzzy criterion l is calculated as $V_l = (a_l, b_l, c_l)$:

$$a_l = \min \{a_{kl}\}$$

$$bl = 1/n \sum_{k=1}^{n} \text{bkl}$$

$$c_l = \max \{a_{kl}\}$$

The defuzzification of these numbers was done using the equation;

A= (1/3) *(m1 + m2 + m3),

where A score is based on the α – cut value of 0.5. The measured item is accepted if the score

value (A) is equal to or greater than 0.5 and rejected if it is less than 0.5.

Table 3.2. Triangular Fuzzy Numbers Linguistic scales

Linguistic variables	Fuzzy numbers
Extremely unimportant	(0, 0, 0.1)
Very unimportant	(0, 0.1, 0.3)
Unimportant	(0.1, 0.3, 0.5)
Moderately important	(0.3, 0.5, 0.7)
Important	(0.5, 0.7, 0.9)
Very important	(0.7, 0.9, 1.0)
Extremely important	(0.9, 1.0, 1.0)

Step 4: Consensus on the criteria

If a consensus for the *i*-th item is reached through the set conditions, then the item is not

presented again to the experts. However, if a consensus was not reached on the item either because

(d) ≤ 0.2*, Pi < 75%* or because there were comments on the item, the moderator modified the item

and tendered again to the experts for fresh opinion, and step 3 started again. This procedure

continued till a consensus was reached on each item or for a maximum of three iterative surveys.

Where a consensus was not reached, the item was dropped. The FDM is an effective and efficient

method to acquire and distill experts' judgement.

FDM was preferred because it allows flexibility, consumes less time, and provides an opportunity to include experts with different backgrounds within the same industry, thus increasing the convergence of experts. Since experts were selected from diverse backgrounds, including academia, industry, and practitioners, a guideline was used to select the most appropriate respondents.

This ensured the correctness and comprehensiveness of critical factors identification. The participants were selected using a criterion based on work experience, level of education, competence, and expertise in revenue management and specialism. The literature states that the number of experts is dictated by the industry's characteristics and the researcher's ability (Tabatabaee et al., 2021). According to (Minghat et al., 2012), the quality of experts is more desirable than quantity. Nonetheless, too small a sample for the Delphi method affects the quality of the study. Extant studies adopting FDM for refining and filtering the critical factors in management show that a panel expert sample of between 20-30 (Gil-Lafuente et al., 2014; Mardani et al., 2016) is sufficient. In line with the previous studies, this research interviewed 46 revenue management experts drawn from hotel managers, RM system developers, RM consultants, and academics.

3.6.3 Fuzzy Analytic Network Process

The analytic network process (ANP) is a simplification of the analytic hierarchy process (AHP), one of the (MADM) approaches introduced by Saaty (1996). According to Ip et al. (2012), AHP is designed to organize and analyze complex situations. This involves a comprehensive framework constructed to deal with logical and illogical responses when we make multi-attribute (objectives, criteria, and actors) decisions with many alternatives.

The advantage of AHP is that it can be used as a functional independence of a hierarchy cluster from the upper to the lower part and criteria or items in each level. Despite its simplicity in solving complex decision problems, it cannot model the interdependencies among the factors. The advantages of ANP over AHP are that it relies on a super matrix to determine weights based on interrelationships between attributes and decision levels. Compared to AHP, ANP can weigh factors, especially with multi-criteria, making it more robust (Quezada et al., 2018).

$$
\begin{array}{c|cccc}
 & \text{Goal} & \text{Criteria} & \text{Sub-Criteria} & \text{Alternatives} \\
\hline
\text{Goal} & I & & & \\
\text{Criteria} & W_{21} & W_{22} & & \\
\text{Sub-Criteria} & & W_{32} & W_{33} & \\
\text{Alternatives} & & & W_{43} & I \\
\end{array}
$$
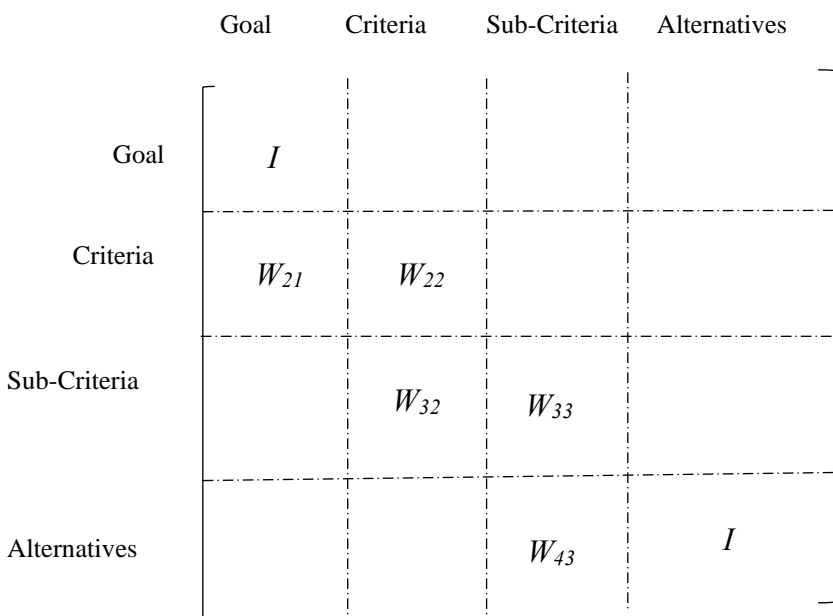
Figure 3.1. Generalized super matrix Source

Source: (Wu, et al., 2009 p.370)

ANP involves two levels: First, the control level, which involves the interactions of objectives, factors, and sub-factors, whereas the second level entails the construction of network structures that connects the factors, sub-factors, and alternatives. A pairwise comparison is used to establish the supremacy of an option over another. Considering the ambiguities and vagueness in the real world, researchers have combined the fuzzy theory with ANP. The F-ANP was used to calculate the weights using fuzzy comparison matrices. The steps of F-ANP are (Abdi, 2018, pp.21-22):

Step1: Set goals, criteria, sub-criteria, and alternatives to the problems and structure the problem

Step 2: Conduct a pairwise comparison to establish the correlations between all criteria and alternatives. Local weights were calculated using the $V_w = \lambda_{max}{}^w$, where w is the local weight, V is the preferences matrix, and λ_{max} is the biggest eigenvalue, all numbers used in the calculation were TFNs.

Step 3: Transform the local weights matrix into interdependent weights to calculate the inner dependence matrix.

Step 4: Create a matrix containing the normalized eigenvalues

Step 5: Obtain the global weights

3.6.4 Modified Total Interpretive Structural Modelling (m-TISM) Approach (Modelling results)

Once the CFs were identified and verified, the modified Total Interpretive Structural Modelling (m-T-ISM) was applied in structuring the model for identified CFs. The m-T-ISM is an upgraded version of the Total Interpretive Structural Modelling (T-ISM) and Interpretive Structural Modelling (ISM) (Attri et al., 2013; Menon & Suresh, 2019; Rajan et al., 2021). ISM is an advanced modeling technique proposed by Warfield (1974) that converts complex, ambiguous, and inadequately articulated issues with a large number of dimensions interacting with each other into an unambiguous structure. Generally, the ISM approach provides a well-defined hierarchical qualitative analysis-based model that defines the elements 'what' and 'how' relationship (Kumar et al., 2017; Warfield, 1977). The approach is called interpretative because the relationships between the elements are based on experts' opinions and as a modeling process.

A graphical model is structured based on the interrelationships among the elements (Thakkar et al., 2006; Yadav, 2014).

Over the past decade, the ISM model has been widely used and implemented in different fields, including food management (Zhao et al., 2018), strategy execution (Srivastava, 2017), information systems (Kedia, 2018), supply chain management (Mohanty, 2018; Sandeepa & Chand, 2018), Airline (Singh, 2013), organization management (Sushil, 2018). Researchers have utilized the ISM approach to analyze and demonstrate the intricate connections between various factors thoroughly. This has resulted in a simplified framework that offers valuable insights, which can assist executives in making informed decisions. However, although the model has been used in developing various models, the ISM has weak interpretation links and disregards the presence of transitive relationships between the dimensions.

To counter this shortcoming, the T-ISM approach, which includes the transitive relationships and interpretive matrix, was introduced (Singh, 2013; Sushil, 2017; Yadav, 2014). According to Sushil (20120 and Hasan et al. (2019), the T-ISM approach goes beyond the model's what' and 'how' relationship to examine the model's why.' In the T-ISM approach, interpretation is done for every identified variable, thus presenting a digraph (model) based on iterations (Sindhwani & Malhotra, 2017). The m-T-ISM approach enhances the T-ISM, where the degree of association and logic behind the relationship is added to the knowledge of interrelationships (Rajan et al., 2021). Through the m-T-ISM approach, critical factors can be identified, the contextual interrelationships among the identified factors developed, and a hierarchical model can be constructed (Rajan et al., 2021). While these approaches have been commonly used in other fields of research, such as information technology (Hughes et al., 2020; Singh & Dhir, 2021), business intelligence (Chaudhry & Dhingra, 2021), quality management (Alidrisi, 2014; Yadav et al.,

2021), and banking (Shamshad et al., 2018), there is a shortage of utility within the tourism and hospitality industry. Considering the complexity of the decision-making process in these industries, this approach would be useful in the decision-making process. The approach uses a reachability matrix, transitivity, and level partitioning. The modified Total Interpretive Structural Modelling (m-T-ISM) uses the following steps:

Step 1: Identifying and defining elements

Items are identified from relevant literature, survey, or expert interviews and defined. CFs for RM strategy implementation were identified following the literature review and experts' opinions.

Step 2: Determining contextual (indirect) relation

The contextual (indirect) relationships, for example, CF A, enhance CF B and play a key role among identified dimensions in the m-T-ISM approach. The caveat in this step is that the CFs and final model modalities may be problematic if there is confusion or a mistake when establishing their relationships. To establish the relationships, the experts were interviewed individually.

Step 3: Relationship interpretation

The next step was to interpret the contextual relations identified in the previous step, explaining how the elements affect/influence each other is important.

Step 4: Pairwise comparison

The identified elements are compared in this step, and a self-interaction matrix (Structural Self-Interactive Matrix (SSIM) is formed. The SSIM shows the direction of the relationship and the reason for the relation and develops an interpretive. For n number of elements, the total number of comparisons will be [n (n-1)/2]. Each comparison has either a 'yes'(Y) or 'No'(N) possibility of a relationship. If 'yes,' then further interpretations were conducted.

Step 5: Initial reachability matrix

In this step, the inputs from the pairwise comparison are converted into research format. In this case, the Y and N are replaced by the numerical value 1 and 0, respectively, in the SSIM table.

Step 6: Transitivity check and final reachability matrix

A reachability matrix is first created based on converting the comparison matrix into a binary matrix, after which the data is normalized to calculate how elements contribute to or impact each other. Transitivity is a term used to refer to this process of balancing. In this process, it is assumed that if element K is related to element L and element L is related to element M, element K and element M are related (Haleem et al., 2012).

Step 7: Level partition in the reachability matrix

This process is done to rank the elements and is determined based on the reachability, the element, and the intersection set. An element whose reachability matrix resembles its intersection set occupies the hierarchy's top level. For example, the reachability group for a variable y is termed the other variables influenced by y. A variable is said to be in level 1 if the intersection set and reachability matrix is mutual. Once an element is found at a level, it is excluded from all sets and not included in further calculations; other iterations are executed. The process is replicated until all the elements are found.

Step 8: Development of digraph

In this stage, the elements derived according to the relationships obtained in the reachability matrix are graphically represented. Two types of links are represented: - first, direct links, that is, variables having an absolute influence on or affected by each other. Second, transitive links refer to variables without a direct connection but with common variables.

Step 9: Interaction (binary) matrix

As a result of the ISM digraph, a binary interaction matrix is constructed using (0,1) to show the relationship (direct and transitive link) between elements and O, indicating that no relationship exists between the elements.

Step 10: m-T-ISM

This final step uses the understanding of interpretive modeling and level partitioning to obtain the T-ISM. A transitive and direct relationship interpretation is provided for every relationship.

3.6.5 Fuzzy MICMAC analysis (Modelling results)

Duperrin and Godet (1973) developed an analytical method known as "Matrice d'Impacts Croisés Multiplication Appliquée á un Classment (MICMAC)," a cross-impact matrix multiplication applied to classification. Based on the multiplication properties of matrices, the MICMAC approach can analyze factors' drive and dependency power (Dewangan et al., 2015). MICMAC approach is based on measuring the opportunity of each examined element in the model through indirect classification. Thus, it is suitable for analyzing complex issues to give a clear m-T-ISM outcome (Al-Zarooni & Bashir, 2020). In this research, the position of each CSF was determined by identifying the relationships and classifying them into their respective driving or dependence power. The MICMAC analysis utilizes a binary relationship where 1 represents the connection between factors and 0 represents no connection. However, this is not sufficient to explain the strength among factors. To deal with this challenge, a fuzzy set theory is integrated with the MICMAC to enhance its responsiveness of the MICMAC (Bhosale & Kant, 2016). According to Dubey and Ali (2014), the fuzzy MICMAC can help overcome this drawback by classifying the relations among the factors into very weak, weak, no, strong, and very strong.

The final variables were classified into four categories, namely: - a) *autonomous variables,* which refer to factors with weak driving and dependence power, thus do not influence the structure; b) *dependent variables,* which refer to factors possessing weak driving but strong dependence power thus creating a challenge for managers as an action on any factor might significantly affect these factors, c) *linkage variables* which refer to factors with strong driving and dependence powers. These factors are unstable and very sensitive that any action on these factors could elicit an effect on other factors and an effect on themselves, and d) *independent variable,* which refers to factors with a high driving and weak dependence power. These factors should be given a high priority because action on these will significantly affect others (Attri et al., 2013).

Problem Structuring Phase

Modelling Phase

Literature Review

Identification of factors and sub-factors

Expert Opinion

Fuzzy Delphi

Pair-wise comparison of factors and sub-factors

Calculate the factors and sub-factors, relative weight

Calculate the factors, interdependent weights

Calculate sub-factors global weights

Key factors to implement the revenue management strategy

Fuzzy-ANP

List the relevant factors

Determining contextual (indirect) relation

Relationship interpretations

Pair-wise comparison

Initial reachability matrix

Transitivity check and final reachability matrix

Satisfied with transitivity test

Level partition in reachability matrix

Development of diagraph

Interaction (binary) matrix

m- TISM

m-TISM

Determine driving power and dependence for each element

Classify elements into four sections (i.e., autonomous, dependent, linkage

Fuzzy MICMAC

Figure 3.2. Qualitative Research flow chart

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3.7 Phase 2: Quantitative study

Considering the initial exploration of the CFs, a relationship between the factors was investigated. Based the on the prior studies, a suggested conceptual model of CFs, RM approaches, level of implementation, and RM effectiveness was developed to facilitate the testing and validation of these relationships. The model suggested that the CFs positively influence RM effectiveness while the RM approaches and level of implementation moderate this relationship.

3.7.1 Sample

A survey instrument was developed primarily based on the themes and codes emerging from the qualitative phase. A pre-test was conducted for 30 doctoral students majoring in hospitality and tourism and ten experts (industry and academia). The doctoral students had adequate knowledge of the basics of RM strategy in the hotel industry. A 7-point Likert scale was used to ascertain the respondents' extent of agreement with the constructs and items. Additionally, a provision to indicate comments on the statements was made. Following the revision of the survey instrument, a pilot study was conducted to check the instrument's reliability and identify any possible challenges with the design and data collection method.

A purposive sampling approach was used to survey 200 revenue managers via an online survey provided by a data collection company, Market Xcel. A survey was conducted with staff in charge of the RM function from three, four, and five-star rated hotels globally. Surveying different regions and star-rated hotels made the output more inclusive, reliable, and generalizable. Online questionnaires were distributed to the respondents based on purposive and snowball sampling. G*Power 3.1.9.7 was used to conduct a priori power analysis to establish the sample size. With an alpha level of 0.05, minimum power established at.95, and a small effect size of 0.05, 423 participants would be necessary to find a statistically significant effect in the model.

Since drop-out of study subjects is inevitable when conducting research, it is important to consider the drop-out rate in sample determination. This study assumed a drop-out rate of 20%; therefore, the total sample was determined as follows:

$$N^D = \frac{N}{(1 - d)}$$

Where N: sample size before considering drop-out
d: expected drop-out
$N^{D:}$ sample size considering drop-out

The proposed sample size was, therefore, approximately 528. However, a total of 685 responses were collected.

3.7.2 Measurement variables

Dependent variable

Since there is no existing scale or reference point for measuring RM strategy effectiveness in the existing literature, in this study, gaining competitive advantage from using RM (performing better than competitors) was considered as the RM goal under measurement. The selection of this metric was based off the fact that it was not practically feasible to know the RM goals of each participating hotel at the beginning of the year. It was thus assumed that performing much better than the competitor would be a goal for each hotel utilizing a RM strategy. To evaluate RM strategy effectiveness, we assessed the hotel's performance in financial (RevPAR, TrevPAR and GOPPAR) and non-financial (market share growth, hotel sales growth, hotel customer satisfaction, hotel quality and efficiency of the RMS, and the hotel's overall RM strategy effectiveness) aspects compared to their competitors in the year 2021.

To measure the financial aspect of RM strategy effectiveness, three different performance variables were used to reach a strong conclusion: the Revenue Per Available Room (*RevPAR*), Total Revenue Per Available Room (*TRevPAR*), and gross operating profit per available room (*GOPPAR*). This allowed for the concurrent examination of revenue and profit aspects. *RevPAR* represents the revenue generated per room, calculated as the total room revenue divided by the total number of rooms available. *TRevPAR* indicates the total revenue generated per room, including revenue from rooms, food and beverage, and other operated departments, computed by dividing total revenue by total available room nights. *GOPPAR* represents the operating profit from each available room, calculated by dividing the gross operating profit by the total number of available rooms. The integration of both revenue and profit performance measurement gives a better picture of the operating effectiveness of RM in the hotel industry (STR, 2020).

The effectiveness of RM was measured using an eight-item self-assessment that included both financial and non-financial aspects of the hotel's RM performance in comparison to its competitors. Respondents were asked to indicate their hotel's 12-month average value and performance relative to their competitors for each metric from 1st January to 31st December 2021. A 7-point Likert scale was used (1 = Much worse to 7 = Much Better). Besides, the non-financial aspects of the RM performance were also considered. These included; market share growth, hotel sales growth, hotel customer satisfaction, hotel quality and efficiency of the RMS, and the hotel's overall RM strategy effectiveness. Respondents were asked to indicate the 12-month average performance of their hotel relative to their competitors for each metric from 1st January to 31st December 2021. A 7-point Likert scale was used (1 = Much worse to 7 = Much Better). The indicated performance in financial aspects and non-financial aspects were each then assessed as the composite (mean) score the measures on each dimension.

The use of multidimensional performance measures (financial and non-financial aspects) was subsequently calculated as the composite score (average) of those composite scores, with lower (higher) scores indicative of (in) effectiveness of RM strategy performance at the hotel.

Independent variables

The independent variables for this study are Critical factors derived from the literature review and experts' opinions following the study's first phase. This was measured by statements and items where respondents were requested to indicate their level of agreement with the CFs statements and items using a 7-point Likert scale (1= Not at all important to 7= Extremely important).

The other independent variable is the level of RM strategy implementation. This was measured using 12 key revenue management components: hotel operating environment analysis, RM culture, demand forecasting, benchmarking, segmentation, budgeting, pricing, distribution channels, controlling reservation and sales limits, and evaluation. These components were consistent with the RM functions indicated by Guillet and Ibrahim (2015) and Talon-Ballestero et al. (2014), as the key components of revenue management strategy. However, as there is no study recording how components are measured to indicate level of RM strategy implementation three levels (nearly, moderately, and fully implemented) were adopted to classify levels of RM strategy implementation by hotels. To achieve this, respondents were asked to indicate all RM strategy components their hotel conducts from the list of 12 key components of RM practice. For equal distribution of the levels, each component indicated an 8.33% level of RM application. The levels of RM strategy application were then classed as a range: "1-4 components" (Nearly implemented), "5-8 components" (moderately implemented), and "9-12 components" (fully implemented). The last independent variable was implementation approaches.

In assessing the hotel revenue management strategy implementation approach, respondents were required to indicate their RM strategy approach based on the Altin (2017) typology (1) "in-house," (2) "centralized," (3) "corporate outsourcing," (4) "third-party outsourcing," and (5) "mixed method"). Specifically, respondents were required to choose (only one) their hotel's RM approach from a choice of five descriptions depicting each of the five types of RM strategy approaches. To the researcher's knowledge, Altin's typology is the only empirically tested categorization of RM strategy implementation approaches.

Control Variables

Considering that factors other than those stated as independent variables are likely to influence RM effectiveness within the hotel context, control variables related to hotel characteristics were considered. This would ensure a high internal validity as well as make it easier and convenient to reproduce the research in the future. The study included control variables based on country, hotel location, affiliation, and type of service. From a management perspective, business operations vary across different countries thus it is imperative to consider the effects of country associated attributes on the strategy effectiveness (Sánchez-Péreza et l., 2019). From the hotel management research point of view, research has shown that the hotel prices can be influenced by the quality signals in each country, which in turn impacts on the hotel performance (Abrate et al., 2011). Besides this, differences related to human resource, technology advancement, property management, economic performance, total number of inbound tourists, among others affect hotel pricing (Abrate et al., 2012; Baldassin et al., 2017; Lee, 2011; Pine & Philips, 2015).

Founded on this, the control variable country was based on the following assignment (1) "Australia," (2) "China," (3) "Dubai," (4) "Egypt," (5) "Ethiopia," (6) "Hong Kong," (7) "Kenya," (8) "Singapore," (9) "United Kingdom," and (10) "United States." Falk and Hagsten (2015)

ascertain that there are significant hotel prices differences between city or urban hotels and hotels located outside the urban areas. Thus, the hotel location was measured based on STR classification (1) "urban," (2) "suburban', (3) "airport," (4) "interstate/motorway," (5) "resort," and (6) "small metro/town." Additionally, research records differences in hotel rates and performance based on the affiliation of the hotel. It is often the case that larger and more luxurious hotels are owned by chains as opposed to smaller independent hotels, which enables them to charge higher rates than smaller companies (Israeli, 2002; Thrane, 2007). Hotel affiliation was measured as (1) "chain owned hotel', (2) "franchised" and (3) "independently owned."

The measure of service type was included because amenity availability affects hotel pricing, customer segment and implementation efforts (Kim et al., 2013; Pine & Philips, 2005; Zhang et al., 2011). Typically, as full-service hotels offer more amenities, they attract more higher paying customers and a diverse customer segment which necessitates implementation of the RM practices compared to the limited-service hotels. Hotel service type was measured based on (1) "Full-service" and (2) "Limited service" hotels. All control variables are nominal variables.

3.7.3 Statistical Analysis

This study employed multiple regression, a statistical technique to analyze the relationship between dependent and multiple independent variables (McClave et al., 2018). The equation represents the multiple regression

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 \ldots\ldots\ldots\ldots \beta_p X_{p} + \epsilon$$

Where Y is the predicted or expected value of the dependent variable, X_1 through X_p are p distinct independent or predictor variables, β_0 is the value of Y when all of the independent variables (X_1 through X_p) are equal to zero, β_1 through β_p are the estimated regression coefficients.

This study proposed to examine three models, as shown below:

Model 1: Effect of critical factors on the Level of RM strategy implementation

$Y = \beta_0 + \beta_1 * critical\ factors + \beta_2 * CVs + \mathcal{E}$, where Y represents **RM strategy effectiveness (financial and nonfinancial aspects)**
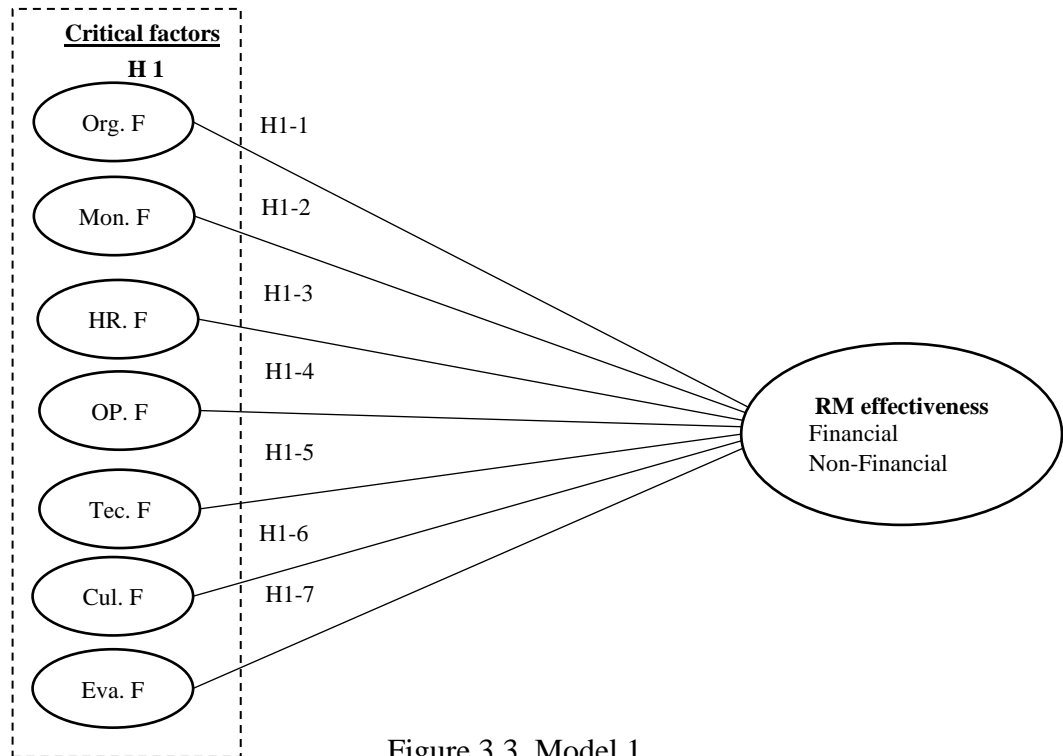
Figure 3.3. Model 1

Notes: OR. F= organizational factor, Mon. F= monitoring factor, HR. F = human-resource factor, OP. F= operational factor, Tec. F= technological factor, Cul.F = total revenue management culture factor, and Eva.F = evaluation factor

Model 2: The moderating effect of RM approaches on the relationship between critical factors, and RM strategy effectiveness

$Y = \beta_0 + \beta_1 * CFs + \beta_2 * RM\ approach + \beta_3 * (CFs * RM\ approaches) + \beta_4 * CVs + \mathcal{E}$, where Y represents **Revenue management strategy effectiveness (financial and nonfinancial aspects)**
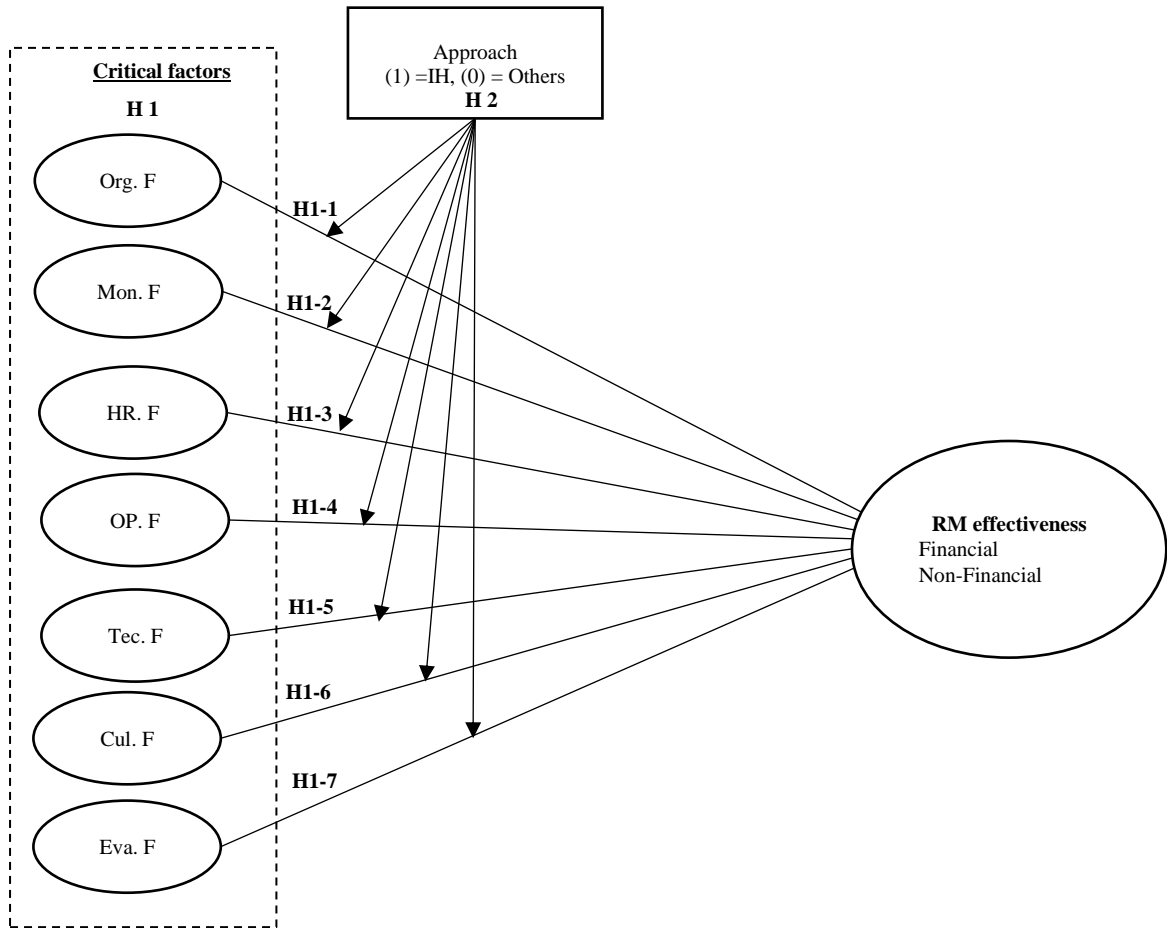
Figure 3.4. Model 2

Notes: OR. F= organizational factor, Mon. F= monitoring factor, HR. F = human-resource factor, OP. F= operational factor, Tec. F= technological factor, Cul. F = total revenue management culture factor, Eva. F = evaluation factor, IH = In-house, Others (centralized, corporate outsourcing, third-party outsourcing, mixed).

Model 3: The moderating effect of RM implementation level on the relationship between critical factors and RM strategy effectiveness

$Y = \beta_0 + \beta_1*CFs + \beta_2*RM\ implementation\ level + \beta_3* (CFs* RM\ implementation\ level) + \beta_4* CVs + \mathcal{E},$ where Y represents *Revenue management strategy effectiveness (financial and nonfinancial aspects)*
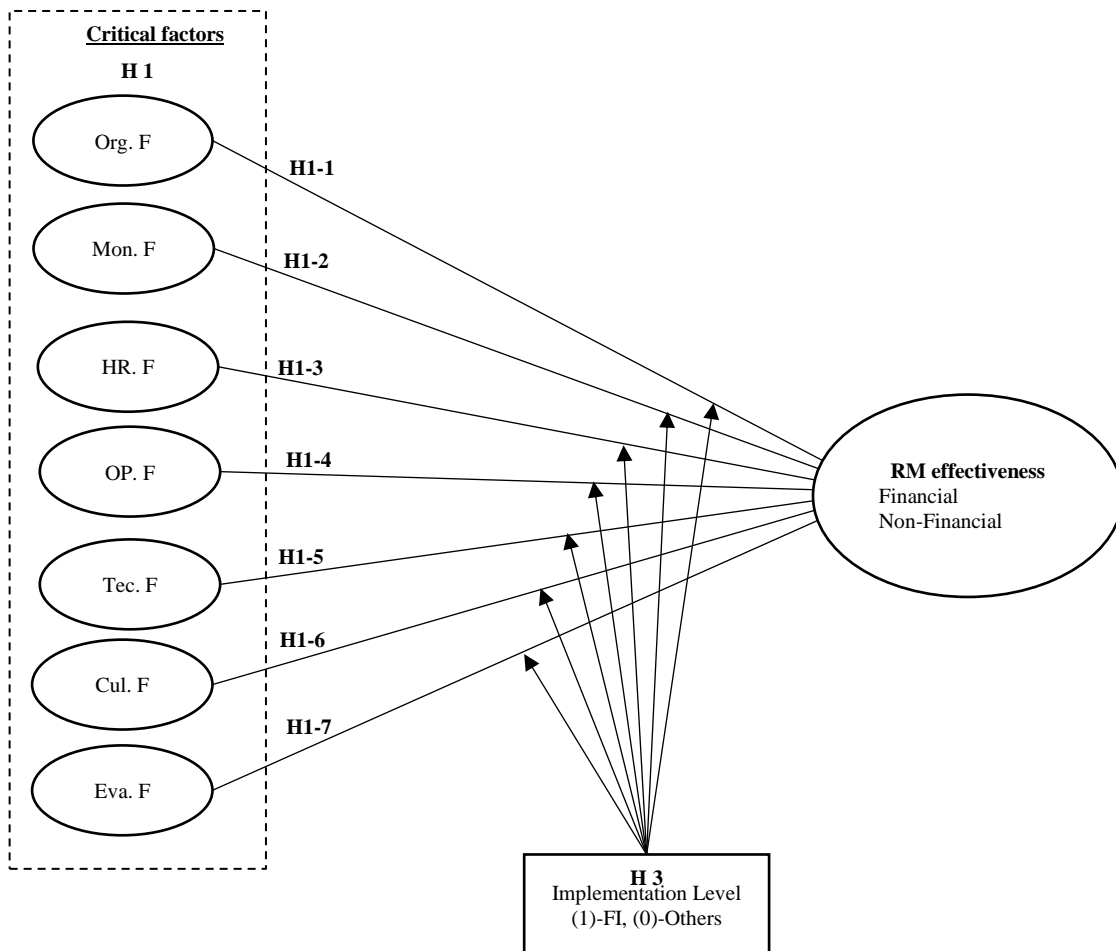
Figure 3.5. Model 3

Notes: OR. F= organizational factor, Mon. F= monitoring factor, HR. F = human-resource factor, OP. F= operational factor, Tec. F= technological factor, Cul. F = total revenue management culture factor, Eva. F = evaluation factor, FI = Fully Implemented, Others (Nearly, moderately).

3.8 Summary of chapter

This chapter presents all the methodological issues pertaining to the study. In the first section, the chapter discussed the research philosophy and design that the study utilized, which involves pragmatic and mixed methods. The second part presents the critical factors identification and modeling of the interrelationships. The last part presents the model development and data analysis.

CHAPTER FOUR: DATA ANALYSIS (PHASE I)

4.0 Introduction

This chapter presents the findings of the study. Identifying and understanding the critical factors for revenue management strategy implementation (Objective (1a) and (1b)) resulted in two types of findings. The first part describes the findings of the systematic literature review to identify the critical factors as documented in the literature. The second part reports the findings from the experts' review using the Fuzzy Delphi Technique and Fuzzy Analytic Network Process (FANP). The third part presents the proposed revenue management strategy implementation framework using the Modified Total Interpretative model (m-TISM). This presentation demonstrates the interrelationship between the identified critical factors (Objective 2).

4.1 Identification of critical factors for revenue management strategy implementation

The study adopted a five-step research methodology approach, as presented in the following and Figure 4.1.

Step1: Identification and development of the initial constructs of the critical factors

The identification and development of the initial constructs of the critical factors of this study were explained and discussed in sections. This step involved an extensive literature review of previous and existing studies based on generic and industry-specific perspectives (strategic management, hotel industry) viewpoints.

Step 2a: Development of unstructured and semi-structured schedules for expert opinion

Based on the identified constructs from the literature review, an initial set of items was generated and verified through expert interviews. This step ensured that only items relevant to revenue management strategy implementation were retained.

Step 2b: Fuzzy Delphi method - Establishment of potential constructs of critical factors

Following identifying the initial construct indicators of the critical factor, a fuzzy Delphi Method was used to verify the critical factors most relevant to revenue management strategy implementation based on experts' consensus.

Step 3: Identification of the critical factors for revenue management strategy implementation in the hotel

The Fuzzy Analytic Hierarchy Process was used to calculate and rank the most critical factors based on the experts' consensus.

Step 4: Establishment of relationship among the identified critical factors

A semi-structured survey was designed to define the relationships among the ranked critical factors.

Step 5: Validation of the relationship between critical factors and revenue management strategy effectiveness

The modified total interpretive structural model modeled a revenue management strategy implementation framework.
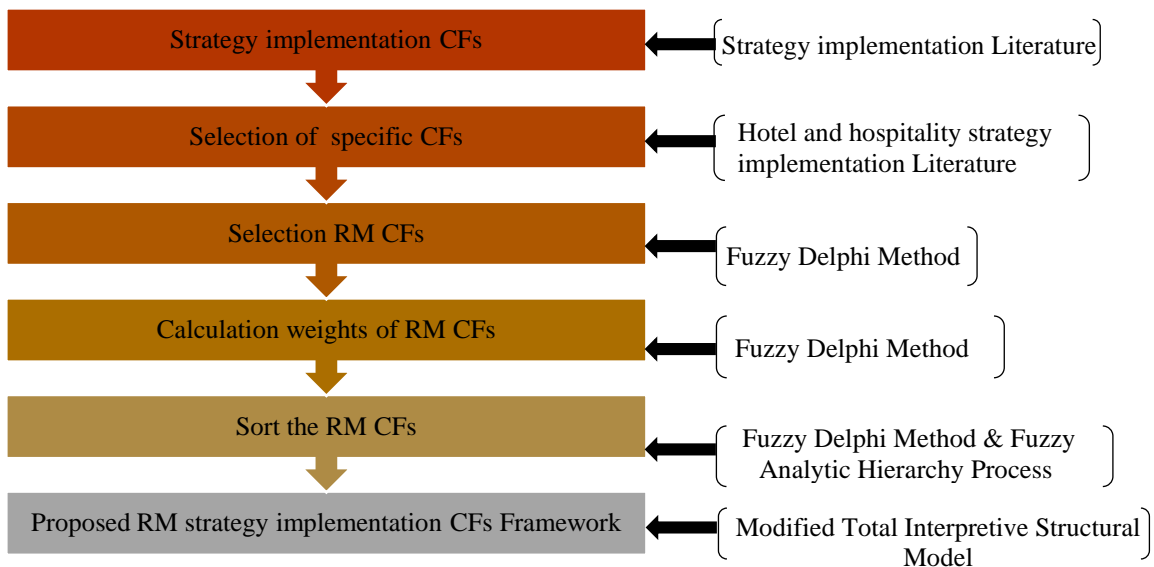
Figure 4.1: The schematic research methodology (Source: Researcher's elaboration)

4.1.1 Systematic Literature Review

      To identify the critical factors for revenue management strategy implementation, a systematic literature review (SLR) was deployed using the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) approach adapted from Moher et al. (2009) (See Fig. 4.1). The PRISMA approach is an effective critical appraisal technique for evidence-based reporting standards. This study's systematic review entailed a comprehensive and coherent search to identify the critical factors for strategy implementation. Protocols (text analysis) for reporting the methodology and inclusion criteria were developed in advance. The articles were searched from Google Scholar, Scopus, Web of Science, EBSCO Host, and ProQuest. Five search terms within the title, abstract, and keywords were used to scrutinize existing literature on critical factors for strategy implementation ("effective strategy implementation," OR "revenue management strategy implementation," OR "yield management critical factors," OR "critical factors for revenue management implementation," OR "hotel strategy implementation critical factors") as shown in Table 4.1. A total of 212 articles were crawled.

Table 4.1: Search Boundaries and Keyword Search

Search boundaries	Google Scholar, Scopus, Web of Science, EBSCO Host, and ProQuest
Keyword search	"Effective strategy implementation," OR "revenue management strategy implementation," OR "yield management critical factors," OR "critical factors for revenue management implementation," OR "hotel strategy implementation critical factors"
Source:	Researcher's illustration

The inclusion and exclusion criteria, Table 4.2, were set based on language and literature type. Based on the inclusion criteria, only articles written in English were reviewed. Academic rigorous literature, including peer-reviewed/indexed journals and articles, book chapters, and conference proceedings, were considered the inclusion criteria. Additionally, published theses, industry reports, and articles published in magazines were included despite being considered less rigorous from an academic perspective as they are believed to contain variable practical contributions.

Table 4.2: Inclusion and exclusion criteria

Inclusion	Exclusion
Peer-reviewed journals, book chapters, industry reports, conference proceedings	Non-English
	Non-indexed journals
Source: Researcher's illustration	

The title, abstracts, keywords, journal name, authors' name, and year of publication were searched and recorded in an Excel spreadsheet. Two rounds of data screening were done to ensure that the records fit the inclusion criteria. From the review of 212, 31 duplicates were excluded, and 11 articles were excluded for not fitting the inclusion criteria. Therefore, 172 articles were finally included.

4.1.2 Identification of existing critical factors for the Implementation of Strategies in the hospitality industry

The review of the 172 articles revealed 20 critical factors for successfully implementing strategies in the hospitality industry. These include F1) strategy goals and policies, F2) department structure, F3) top management commitment, F4) strategy focus, F5) revenue management culture, F6) strategy knowledge, F7) employee commitment and involvement, F8) training, F9)

communication, F10) implementation of strategy, F11) leadership, F12), Employee relations, F13) revenue management monitoring, F14) revenue management strategy process design, F15) revenue management measures, F16) Benchmarking, F17) approach to revenue management strategy implementation, F18) customer focus and satisfaction, F19) process management, and F20) revenue management technology, as shown in Table 4.3.
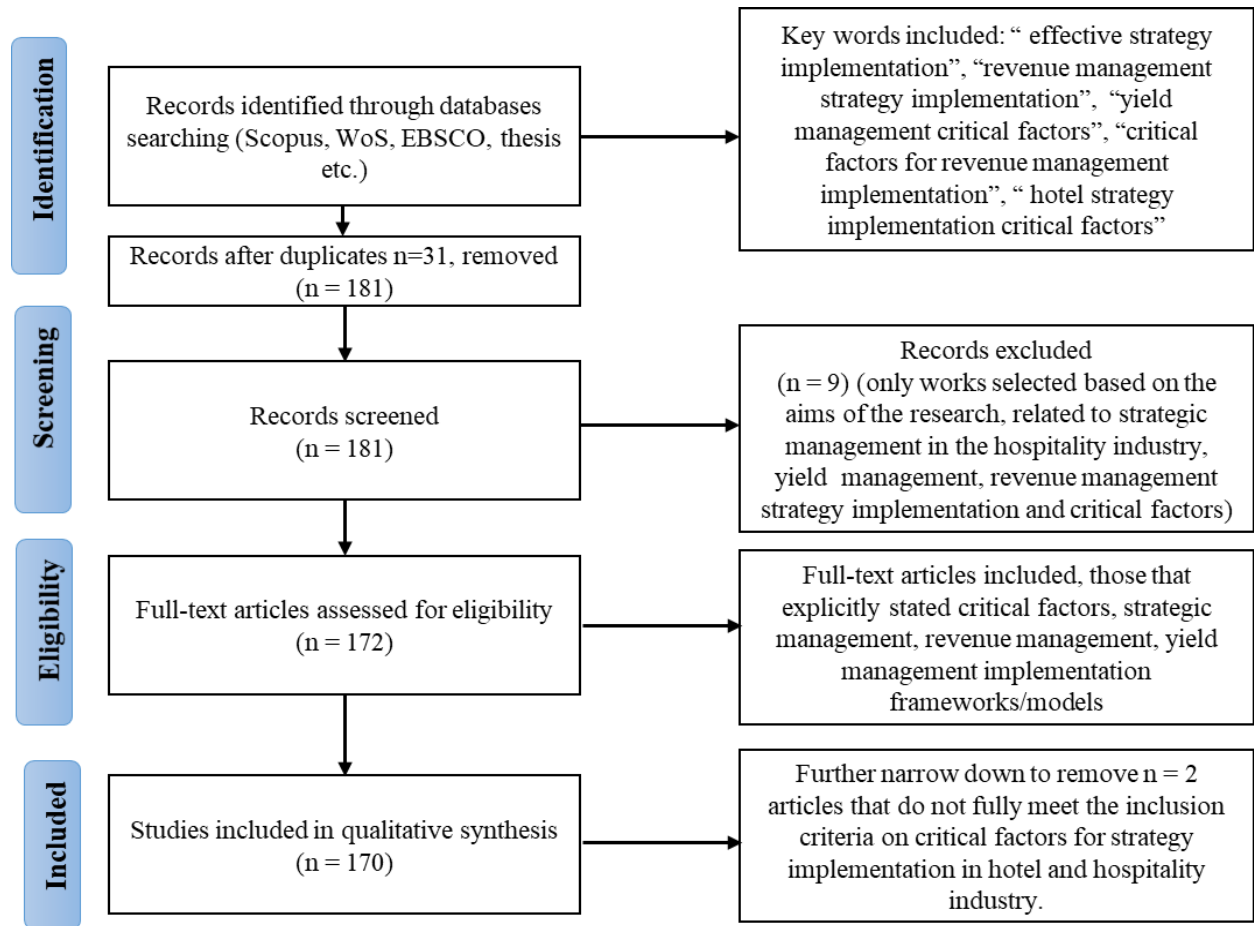
Figure 4.2: A summary of the SLR Process Using the PRISMA Method.

Table 4.3: Critical factors identified from the literature.

Author(s) (year)	Critical factor
Avinal, 2006; Ivanov & Zhechev, 2012; Lieberman, 2003	F1) Revenue Management strategy goals and policies
Jones, 1999; Kimes, 2011; 2016; Queenan et al., 2011	F2) Revenue Management department structure
Avinal, 2006; Hansen & Eringa, 1998	F3) Top management commitment
Queenan et al., 2011	F4) Revenue Management strategy focus
Brotherton & Turner, 2001; Hansen & Eringa, 1998; Jones & Hamilton, 1992	F5) Revenue management Culture
Cetin et al., 2016; Donaghy et al., 1997; Jones, 1999; Noone et al., 2017	F6) Revenue Management Knowledge
Cetin et al., 2016; Hansen & Eringa, 1998; Norman & Mayer, 1997	F7) Employee commitment/involvement
Brotherton & Turner, 2001; Hansen & Eringa, 1998; Queenan et al., 2011	F8) Employee Training
Hansen & Eringa, 1998; Jones & Hamilton, 1992	F9) Communication
Abad, 2019; Emeksiz et al., 2006; Farrell & Whelan-Ryan, 1998; Ivanov & Zhechev, 2012	F10) Implementation of Revenue Management strategy
Lieberman, 2003; Brotherton & Mooney, 1992	F11) Revenue Management leadership
Brotherton & Turner, 2001; MacVicar & Rodger, 1996	F12) Employee relations
Kimes, 1999; Okumus, 2004; Talón-Ballestero et al., 2014; Tranter et al., 2009	F13) Revenue management monitoring
Peco-Torres et al., 2021	F14) Revenue management strategy process design
Enz et al., 2001; Varini & Murph, 2006; Younes & Kett, 2003	F15) Revenue management measures
Upchurch et al., 2002; Tranter et al., 2009	F16) Benchmarking
Altin, 2017; Altin et al., 2017	F17) Approach to Revenue management strategy Implementation
Abad et al., 2019; Lieberman, 1993; Talón-Ballestero et al., 2014; Tranter et al., 2009	F18) Customer focus and satisfaction
Rodríguez-Algeciras & Talón-Ballestero, 2017	F19) Process management
Griffin, 1995; Luciani, 1999; Queenan et al., 2011; Sigala et al., 2001	F20) Revenue management technology

4.2 Expert review

Expert opinion was sought to identify the specific critical factors for implementing the revenue management strategy in the hotel industry. According to Stehr and Grundman (2011), experts have extensive knowledge and expertise in the topic under exploration. Following the critical factors identified from the systematic literature review, a Fuzzy Delphi Method (FDM) was adopted to assist in verifying these elements. Subsequently, a draft of the proposed critical factors and protocol for open-ended interviews for the FDM round one was prepared. The participants of FDM in this phase were revenue management academics and revenue managers since the research area of interest was on revenue management strategy implementation. This round allowed for identifying other critical factors of revenue management strategy implementation that may not have been captured from the literature review. Five interviews were conducted, each lasting one hour and one and a half hours. Following the interviews, three new critical factors for revenue management operations emanated. These included; F21) data accuracy and integrity, F22) revenue management team readiness, and F23) revenue management system quality, making up 23 critical factors.

The results from the first round were subjected to another verification round for greater rigor. Semi-structured interviews were prepared for FDM round two and were first piloted to test and adjust the questions appropriately to eliminate potential procedural problems. Ten experts participated in the pilot. Following the refinement of the questionnaires, the interview protocols were set for round two. A semi-structured questionnaire was distributed to different experts to obtain a consensus. They were given a choice for an interview or to respond through an online survey tool, "Questionpro," for their convenience.

As the selection of experts should consider a combination of expertise and knowledge reflecting the full scope of the subject area, experts for this study were drawn from academia and industry. The expert filtration criteria were based on the number of years of working with revenue management strategy (minimum three years), revenue management expertise level, and extent of involvement in the revenue management strategy implementation process. 31 experts responded (12 via interviews and 19 via online survey), which was a sufficient number according to Saaty and Özdemir (2014) and Rowe and Wright (2001) who recommend six to 20 participants for FDM depending on the topic. Tables 4.4 and 4.5 summarize the Fuzzy Delphi Technique's Phases and the selected experts' backgrounds, respectively.

Table 4.4: Fuzzy Delphi Technique

Phase	Total expert	Instrument design
Phase 1: **Development of survey**	Five experts	Pilot A structured interview (Open-ended questions)
Phase 2: **Establishment of a survey instrument**	Ten experts	Survey Semi-structured interview (Open and close-ended questions)
Phase 3: **Obtaining consensus**	31 experts	Survey instrument (7-Likert scale semi-structured interviews and questionnaire)

Table 4.5: Experts' Demographic Information

Variable	Category	Frequency	Percentage
Gender			
	Male	25	54.3
	Female	21	45.7
Age			
	30-39	19	41.3
	40-49	17	37
	50-59	6	13
	60 or older	4	8.7
Expertise			
	General or assistant managers	7	15.2
	Director or Revenue Manager	11	23.9
	Director or Sales/marketing manager	3	6.5
	Director or front office manager	3	6.5
	Director or Customer relationship manager	3	6.5
	Revenue manager Consultant	4	8.7
	Revenue management software developer	3	6.5
	Revenue Management academic/researcher	12	26.2
Length of service			
	4-6 years	30	65.2
	7-9 years	16	34.8

4.3 Fuzzy Delphi Method

The step-by-step Fuzzy Delphi Method was followed:

Step one: To determine the importance of the elements and items to be included as critical factors, experts were asked to rate each element on a 7-point Likert scale between highly unimportant and highly important.

Step two: The experts assigned weights to the criteria to determine the elements and items' significance. The seven variables to choose from the Likert were "Highly unimportant," "Low importance," "Slightly important," "Neutral," "Moderately important," "Very important," and "Highly important."

Step three entailed obtaining the average rating based on fuzzy analysis. To calculate fuzzy numbers, the data collected from the experts were transferred to an FDM database template.

This study used a Microsoft Excel software template Mohd Jamil et al. (2017) developed to analyze the data. A 7-point fuzzy scale was used to replace the 7-point Likert scale values indicated by the respondents. Table 4.6 shows the level of agreement between the 7-point scale and its fuzzy scale. A higher point indicated a higher level of importance.

Table 4.6: Seven-Point Scale and the Fuzzy Scale

Agreement Level	Linguistic variable	Fuzzy scale		
1	Highly unimportant	0	0	0.1
2	Low importance	0	0.1	0.3
3	Slightly important	0.1	0.3	0.5
4	Neutral	0.3	0.5	0.7
5	Moderately important	0.5	0.7	0.9
6	Very important	0.7	0.9	1
7	Highly important	0.9	1	1

Step five: The next step entailed identifying the threshold value. To obtain this threshold value (d), the fuzzy scale was used to calculate the fuzzy number and mean value obtained, after which the threshold (d) was calculated. This study set a threshold (d) of ≤ 0.2 to verify the items' acceptance as recommended by (Cheng & Lin, 2002; Mahmoudi et al., 2017). Items below the set threshold were not included in the further analysis, as shown in Table 4.8.

Step six: The overall group consensus was assessed to assess the experts' consensus further. According to Chu and Hwang (2008), the recommended overall group consensus should be more than 75%. Ten items failed to meet this threshold and were eliminated, as shown in Table 4.7.

Step seven: Finally, a defuzzification process was performed to identify the highest valued elements based on experts' consensus. The Fuzzy Score (A) – cut value $\alpha \geq 0.5$.

Table 4.7: Analysis of Expert Consensus

Item		Conditions of Triangular Fuzzy Numbers		Condition of Defuzzification	
		Threshold Value, d	Percentage of Experts Groups Consensus, %	Fuzzy Score (A)	Experts Consensus
F1	Revenue management strategy goals and policies	0.174	83.5%	0.855	Accepted
F2	Revenue management department structure	0.196	75.2%	0.844	Accepted
F3	Top management commitment	0.182	75.7%	0.794	Accepted
F4	**Revenue management strategy focus**	**0.217**	**62.2%**	**0.639**	**Rejected**
F5	Revenue management culture	0.200	76.5%	0.825	Accepted
F6	**Revenue management knowledge**	**0.204**	**71.3%**	**0.833**	**Rejected**
F7	**Employee commitment/involvement**	**0.206**	**74.3%**	**0.816**	**Rejected**
F8	Employee training	0.200	80.9%	0.786	Accepted
F9	Communication	0.183	75.2%	0.820	Accepted
F10	Implementation of revenue management strategy	0.180	80.4%	0.789	Accepted
F11	**Revenue management leadership**	**0.283**	**43.9%**	**0.813**	**Rejected**
F12	**Employee relations**	**0.287**	**37.8%**	**0.821**	**Rejected**
F13	Revenue management monitoring	0.174	75.7%	0.834	Accepted
F14	Revenue management strategy process design	0.190	83.0%	0.818	Accepted
F15	**Revenue management measures**	**0.208**	**71.7%**	**0.776**	**Rejected**
F16	**Benchmarking**	**0.224**	**71.7%**	**0.823**	**Rejected**
F17	**Approach to revenue management strategy implementation**	**0.240**	**58.7%**	**0.760**	**Rejected**
F18	**Customer focus and satisfaction**	**0.249**	**65.2%**	**0.847**	**Rejected**
F19	Process management	0.192	78.3%	0.806	Accepted
F20	**Revenue management technology**	**0.221**	**68.3%**	**0.812**	**Rejected**
F21	Data accuracy and integrity	0.195	77.3%	0.816	Accepted
F22	Revenue management team readiness	0.188	78.6%	0.790	Accepted
F23	Revenue management system quality	0.194	80.4%	0.817	Accepted

Table 4.7 summarizes the experts' consensus and the rejected items. From the Table, ten items were rejected for failing to meet the set threshold (d) criteria of ≤ 0.2 and 75% and above group consensus. Based on this, items F4 (revenue management strategy focus), F6 (revenue management knowledge), F7(employee commitment/involvement), F11 (revenue management leadership), F12 (employee relations), F15 (revenue management measures), F16 (Benchmarking), F17 (approach to revenue management strategy implementation), F18 (customer focus and satisfaction) and F20 (revenue management technology). The remaining 13 constructs were defuzzified and ranked in priority, as shown in Table 4.8.

Table 4.8: Items Position by Priority

Conditions of Triangular Fuzzy Numbers			Condition of Defuzzification	
Sorted by priority	Item	Threshold Value, d	Percentage of Experts Groups Consensus, %	Fuzzy Score (A)
1.	**F1**) Revenue management strategy goals and policies	0.174	83.5%	0.855
2.	**F2**) Revenue management department structure	0.196	75.2%	0.844
3.	**F13**) Revenue management monitoring	0.174	75.7%	0.834
4.	**F5**) Revenue management culture	0.200	76.5%	0.825
5.	**F9**) Communication	0.183	75.2%	0.820
6.	**F14**) Revenue management strategy process design	0.190	83.0%	0.818
7.	**F23**) Revenue management system quality	0.194	80.4%	0.817
8.	**F21**) Data accuracy and integrity	0.195	77.3%	0.816
9.	**F19**) Process management	0.192	78.3%	0.806
10.	**F3**) Top management commitment	0.182	75.7%	0.794
11.	**F22**) Revenue management team readiness	0.188	78.6%	0.790
12.	**F10**) Implementation of revenue management strategy	0.180	80.4%	0.789
13.	**F8**) Employee training	0.200	80.9%	0.786

4.4 Fuzzy Analytic Network Process

The Fuzzy Analytic Network Process (FANP) was employed to verify the identified factors. A total of 15 experts of revenue managers, academicians, and consultants were invited to participate in the survey. A questionnaire was designed using the factors and subfactors identified by the experts through the Fuzzy Delphi technique; the structure model is illustrated in Figure 4.3.
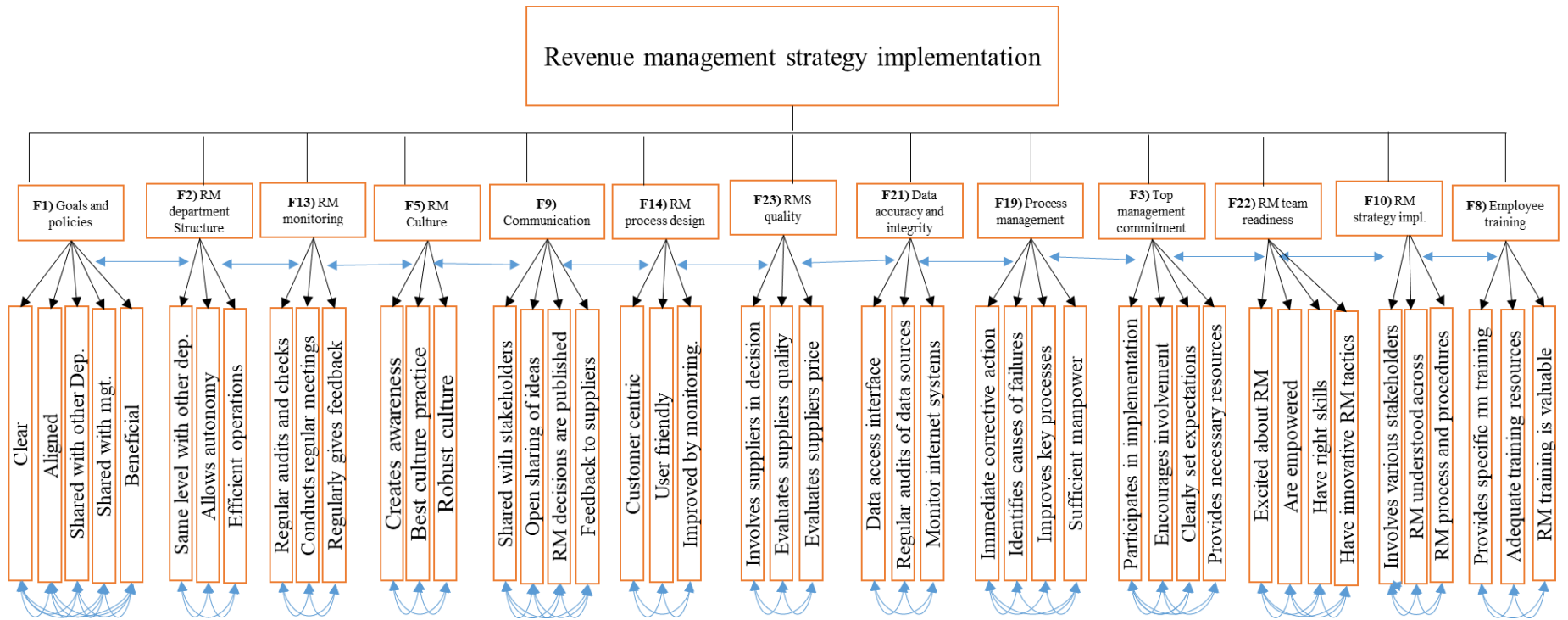
Figure 4.3: Proposed ANP Model for Revenue management strategy implementation in the hotel industry

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The FANP was employed to determine the relative priorities of the critical factors for implementing the revenue management strategy. A pairwise comparison of the factors was conducted based on experts' opinions. Experts were asked to pairwise match each factor and subfactor without considering interdependencies. For example, "Based on your experience, please compare and rate RM goals and objective and organizational structure, which are important for revenue management strategy implementation." The fuzzy scale of importance is used to measure the relative weights, as illustrated in Table 4.9.

Table 4.9: Membership function of the linguistic scales

Linguistic Scale	Intensity of importance	Triangular Fuzzy Scale	Reciprocal fuzzy
Of low importance	1	(1, 1, 1)	(1,1,1)
Intermediate values of importance	2	(1, 1, 2)	(1/3, 1/2, 1)
Moderately important	3	(1, 2, 3)	(1/4, 1/3, ½)
Intermediate values of importance	4	(2, 3, 4)	(1/5, 1/4, 1/3)
More important	5	(3, 4, 5)	(1/6, 1/5, 1/4)
Intermediate values of importance	6	(4, 5, 6)	(1/7, 1/6, 1/5)
Strongly important	7	(5, 6, 7)	(1/8, 1/7, 1/6)
Intermediate values of importance	8	(7, 8, 9)	(1/9, 1/8, 1/7)
Extremely important	9	(9, 9, 9)	(1/9, 1/9, 1/9)

A Pairwise comparison matrices were then developed using a fuzzy scale as demonstrated in Table 4.10.

Table 4.10: Example of Pairwise comparison matrices

	Goals			RMS quality			Structure			Data accuracy			Culture			Weights
F1) Goals	1	1	1	0.3	0.3	0.5	0.3	0.5	1	0.3	0.5	1	0.3	0.5	1	0.155
F23) RMS quality	0.3	0.3	0.5	1	1	1	0.3	0.5	1	1	1	1	0.3	0.3	0.5	0.131
F2) Structure	0.3	0.5	1	1	1	1	1	1	1	0.3	0.5	1	0.3	0.5	1	0.137
F21) Data accuracy	0.3	0.5	1	1	1	1	0.3	0.5	1	1	1	1	1	1	1	0.094
F5) Culture	0.3	0.5	1	0.3	0.3	0.5	0.3	0.5	1	1	1	1	1	1	1	0.107

4.5 Modified Total Interpretative structural modeling (Strategic Analysis)

Following the FANP methodology, 13 critical factors are included for further strategic analysis. A Modified Total Interpretative Structural Modelling (m-TISM) was employed to analyze the interrelationships among the 13 critical factors to be considered while implementing a revenue management strategy in the hotel. The TISM model was preferred because it gives a hierarchy of relationships between elements (Rajan et al., 2021). It is elaborated further in the Modified Total Interpretative Structural Model, which explains how the elements are interrelated. The SmartISM software (Ahmad & Qahmash, 2021) was used for this analysis. This was achieved by asking a group of 15 experts to evaluate the influence of each factor on the others in succession, providing a rationale for their decisions. The steps of m-TISM were then followed, as explained in section 3.6.4. Table 4.11 illustrates the Structural Self-Interaction Matrix (SSIM). A reachability matrix with simultaneous transitivity checks was then derived, as demonstrated in Table 4.12.

This was followed by constructing the level partitioning iterations and final level partitions, as indicated in Tables 4.13 and 4.14, respectively. The analysis identified six levels of hierarchies, with the sixth level indicating the highest level of importance. The factors at this level were goals and policies and top management commitment depicting their vital role in an implementation process. They influence revenue management structures which lead to training and strategy implementation. Revenue management strategy monitoring is also at this level. The training leads to revenue management strategy process design and revenue management team readiness. Design is also influenced by strategy implementation and monitoring, and monitoring influences data accuracy and integrity. Data accuracy and integrity, revenue management design, and revenue management team readiness at the third level in the model lead to revenue management system advancement.

Finally, the revenue management system leads to the interrelated revenue management culture, communication, and process management. Revenue management strategy effectiveness (process management) is the outcome factor and thus forms the topmost level in the TISM model.

Table 4.11: Structural Self-Interaction Matrix (SSIM)

Variables	F1) Goals and policies	F23) RM system quality	F2) RM structure	F13) RM monitoring	F5) RM culture	F8) RM team training	F10) Strategy implementation process	F21) Data accuracy and integrity	F14) RM strategy design	F3) Top management commitment	F19) Process management	F9) Communication	F22) RM team readiness
F1) Goals and policies		V	V	O	V	V	V	V	V	X	V	V	V
F23) RM system quality			A	O	O	A	A	A	A	A	V	O	A
F2) RM structure				O	V	V	O	O	O	A	V	V	V
F13) RM monitoring					V	O	O	V	V	O	V	V	O
F5) RM culture						A	A	O	A	A	V	A	A
F8) RM team training							O	O	V	A	V	V	V
F10) Strategy implementation process								O	V	A	V	V	O
F21) Data accuracy and integrity									O	O	O	O	O
F14) RM strategy design										A	V	V	O
F3) Top management commitment											V	V	V
F19) Process management												V	A
F9) Communication													A
F22) RM team readiness													

Symbols to define relationships:

V → row variable influences corresponding column variable
A → row variable is influenced by the corresponding column variable
X → row and corresponding column variable influence each other
O → row and corresponding column variable have no relationship.

Table 4.12: Final Reachability Matrix (FRM)

Variables	F1) Goals and policies	F23) RM system quality	F2) RM structure	F13) RM monitoring	F5) RM culture	F8) RM team training	F10) Strategy implementation process	F21) Data accuracy and integrity	F14) RM strategy design	F3) Top management commitment	F19) Process Management	F9) Communication	F22) RM team readiness	Driving power
F1) Goals and policies	1	1	1	0	1	1	1	1	1	1	1	1	1	12
F23) RM system quality	0	1	0	0	1*	0	0	0	0	0	1	1*	0	4
F2) RM structure	0	1	1	0	1	1	0	0	1*	0	1	1	1	8
F13) RM monitoring	0	1*	0	1	1	0	0	1	1	0	1	1	0	7
F5) RM culture	0	0	0	0	1	0	0	0	0	0	1	1*	0	3
F8) RM team training	0	1	0	0	1	1	0	0	1	0	1	1	1	7
F10) Strategy implementation process	0	1	0	0	1	0	1	0	1	0	1	1	0	6
F21) Data accuracy and integrity	0	1	0	0	1*	0	0	1	0	0	1*	1*	0	5
F14) RM strategy design	0	1	0	0	1	0	0	0	1	0	1	1	0	5
F3) Top management commitment	1	1	1	0	1	1	1	1*	1	1	1	1	1	12
F19) Process management	0	0	0	0	1*	0	0	0	0	0	1	1	0	3

F9) Communication	0	0	0	0	1	0	0	0	0	0	1*	1	0	3
F22) RM team readiness	0	1	0	0	1	0	0	0	0	0	1	1	1	5
Dependence Power	2	10	3	1	13	4	3	4	7	2	13	13	5	

Table 4.13: Level Partitioning Iterations

Elements	Reachability Set R	Antecedent Set A	Intersection Set	Level
F1	1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13,	1, 10,	1, 10,	
F23	2, 5, 11, 12,	1, 2, 3, 4, 6, 7, 8, 9, 10, 13,	2,	
F2	2, 3, 5, 6, 9, 11, 12, 13,	1, 3, 10,	3,	
F13	2, 4, 5, 8, 9, 11, 12,	4,	4,	
F5	5, 11, 12,	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13,	5, 11, 12,	1
F8	2, 5, 6, 9, 11, 12, 13,	1, 3, 6, 10,	6,	
F10	2, 5, 7, 9, 11, 12,	1, 7, 10,	7,	
F21	2, 5, 8, 11, 12,	1, 4, 8, 10,	8,	
F14	2, 5, 9, 11, 12,	1, 3, 4, 6, 7, 9, 10,	9,	
F3	1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13,	1, 10,	1, 10,	
F19	5, 11, 12,	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13,	5, 11, 12,	1
F9	5, 11, 12,	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13,	5, 11, 12,	1

F22	2, 5, 11, 12, 13,	1, 3, 6, 10, 13,	13,	

Table 4.14: Level Partitioning (LP)

Elements (Mi)	Reachability Set R(Mi)	Antecedent Set A(Ni)	Intersection Set R(Mi)∩A(Ni)	Level
F1	1, 10,	1, 10,	1, 10,	6
F23	2,	1, 2, 3, 4, 6, 7, 8, 9, 10, 13,	2,	2
F2	3,	1, 3, 10,	3,	5
F13	4,	4,	4,	4
F5	5, 11, 12,	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13,	5, 11, 12,	1
F8	6,	1, 3, 6, 10,	6,	4
F10	7,	1, 7, 10,	7,	4
F21	8,	1, 4, 8, 10,	8,	3
F14	9,	1, 3, 4, 6, 7, 9, 10,	9,	3
F3	1, 10,	1, 10,	1, 10,	6
F19	5, 11, 12,	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13,	5, 11, 12,	1
F9	5, 11, 12,	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13,	5, 11, 12,	1
F22	13,	1, 3, 6, 10, 13,	13,	3

A digraph was constructed by arranging the elements per level partitioning and displaying interrelationships according to the reachability matrix, as seen in Figure 4.4. Subsequently, the digraph was transformed into a Total Interpretative Structural Modelling (TISM), as illustrated in Figure 4.5. The model consists of 19 direct links representing the confirmed and direct interaction between the factors. A further 11 transitive links emerged that denote the indirect relationships between the factors. In the end, 30 links emerged and were analyzed, interpreted, and validated based on the justification provided by experts and existing research.

4.5.1 Diagraph
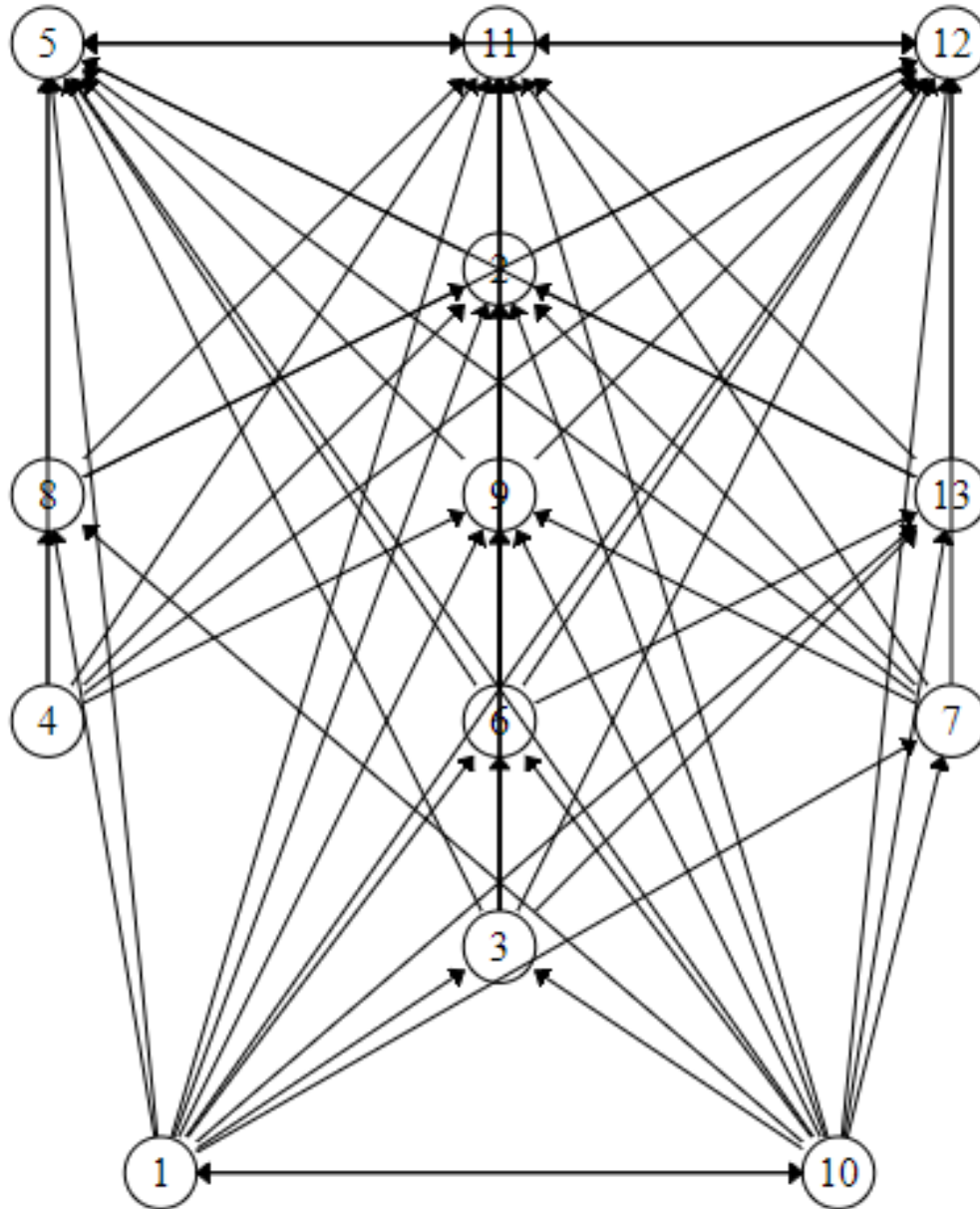
Figure 4.4: Diagraph displaying the interrelationships between the Critical Factors

4.5.2 Proposed Revenue management strategy implementation model
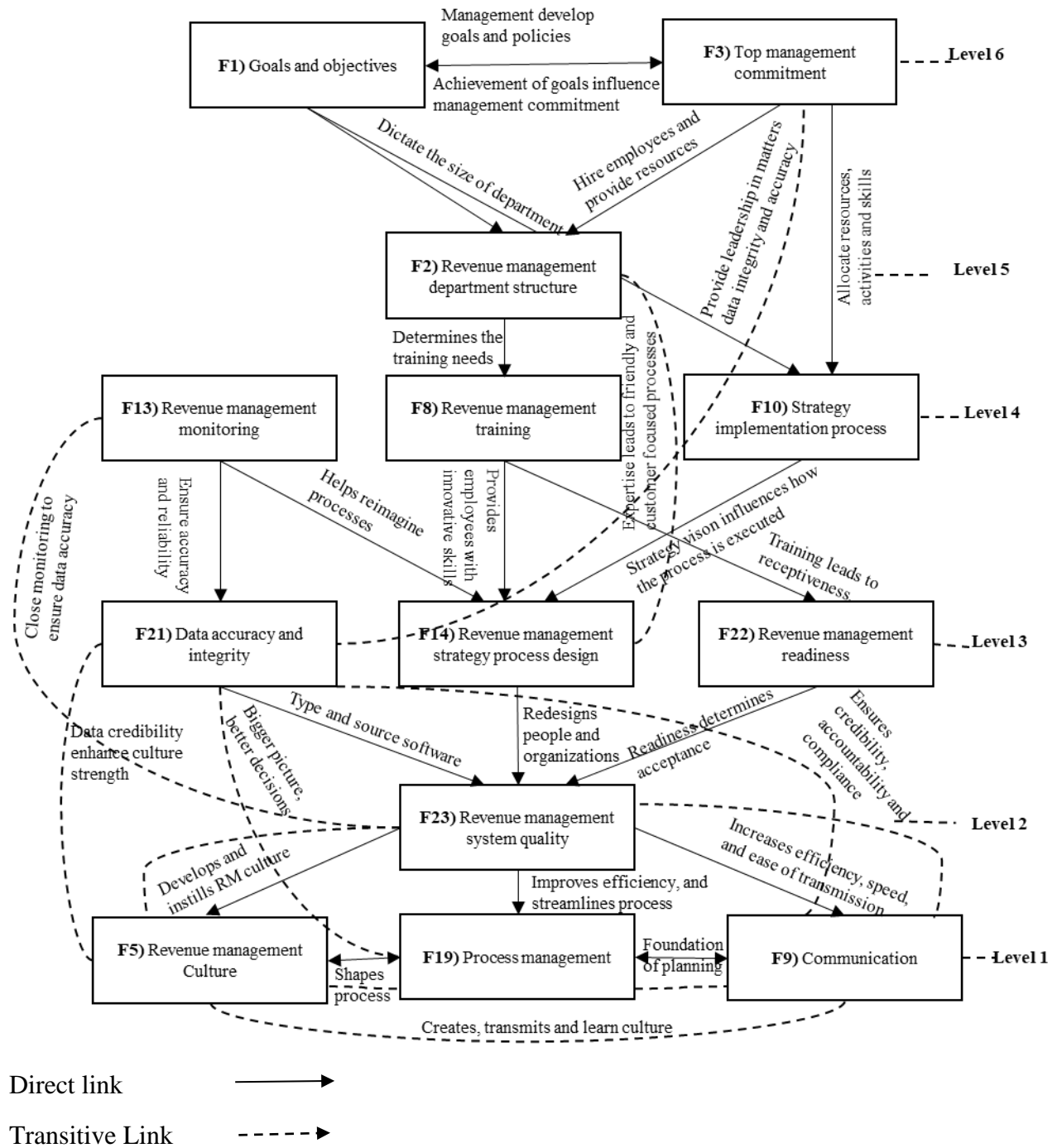
Figure 4. 5: Modified Total Interpretative structural model of the critical factors.

4.6 Classification of the CFs based on MICMAC analysis.

The critical factors were further classified, and their relationships were established based on the driver and dependence powers using MICMAC analysis, as shown in Figure 4.6. All 13 CFs were partitioned into four different quadrants, as explained in section 3.6.5. The independent quadrant consists of CFs with a high driver but low dependence power. CFs in this quadrant are the most significant as they have the strongest potential to drive the other CFs in the system. Five CFs (**F1)** strategy goals and policies, **F2)** revenue management department structure, **F13)** revenue management monitoring, **F8)** revenue management training, and **F3)** top management commitment) appeared in this quadrant. The linkage quadrant consists of CFs with both high driver and dependence power. Because of their weak robustness and strong influence, these CFs threaten the system and are undesirable. None of the CFs occurred in this quadrant.

The autonomous quadrant comprises of CFs with both low driver and dependence powers. These CFs have a weak interaction with the other CFs in the system and, thus, tend to be relatively robust and stable. In this study, three of the CFs (**F10)** strategy implementation process, **F21)** data accuracy and integrity, and **F22)** revenue management team readiness) were in this quadrant. Finally, the dependent quadrant contains CFs with low driver power but high dependence power. These CFs tend to be influenced by others and, therefore, could be enriched by refining the CFs that trigger them. Five CFs (**F23)** revenue management system quality, **F5)** revenue management culture, **F14)** revenue management strategy process design, **F19)** revenue management process management, and **F9)** communication) emerged in this quadrant.

4.6.1 MICMAC MAP

	CF
1	**F1)** Goals and policies
2	**F23)** RM system quality
3	**F2)** RM structure
4	**F13)** RM monitoring
5	**F5)** RM culture
6	**F8)** RM team training
7	**F10)** Strategy implementation process
8	**F21)** Data accuracy and integrity
9	**F14)** RM strategy process design
10	**F3)** Top management commitment
11	**F19)** Process management
12	**F9)** Communication
13	**F22)** RM team readiness

I-Autonomous Variables II-Dependent variables
III-Linkage variables IV-Independent Variables

Figure 4.6: Influence map by MICMAC analysis.

4.7 Summary

This chapter examines the findings of the study. It discussed the process of identifying the critical factors through a systematic literature review, experts' consensus using the fuzzy Delphi technique, and prioritization of the factors using the Fuzzy analytic network analysis. A proposed framework showing the interrelationship among Critical Factors for the revenue management strategy implementation using the Modified Total Interpretative model (m-TISM) is also presented. Thirty relationships (direct and transitive) emerge among the identified critical factors.

CHAPTER FIVE: DATA ANALYSIS (PHASE II)

5.0 Introduction

The chapter reviews the procedure for designing and validating the structured survey questionnaire, data screening and outlier identification process, and analysis of the profile of respondents, as well as examines data reliability and validity issues. Additionally, a factor analysis (principal component analysis) and the results of multiple regression are presented. The hypotheses are then tested, and the chapter ends with exploring multiple regression across various groups.

5.1 Questionnaire Design

A structured survey questionnaire was developed based on the constructs of critical factors identified by an extensive literature review of previous and existing studies and according to real-world experience (hotel academics and practitioners). The framework illustrated by Malhotra & Grover (1998) was used to formulate the measurement scales of this study. Using multi-item measurement, several indicators were included for each construct to reduce measurement errors and provide an accurate assessment of each construct. A pre-test was conducted to refine the items. Thirty doctoral students and ten industry and academic experts were involved. Market Xcel, a data collection company, was employed to collect data. Data were collected from 10 countries (four developing and six developed) between September 2022 and November 2022.

The questionnaire for this study was in English. The structured survey questionnaire for this study consists of five parts: The first section included screening questions on respondents' age, length of service in the hotel industry, presence of revenue management practices at the hotel, and knowledge and expertise of revenue management practices in the hotel industry. Only respondents who were over 18 years of age, had worked in the hotel industry for three years and above, whose current hotel they are working, applied revenue management practices, and had knowledge and

expertise of the revenue management strategy in the hotel industry. The second section comprised the critical factors and sub-factors from the literature, verified by experts. It included 12 factors and 60 sub-factors. Respondents were asked to indicate the perceived level of importance (NI= Not at all important, LI=Low importance, SI= Slightly important, N=Neutral, MI= Moderately important, VI= Very important, EI= Extremely important) they placed on each item.

The third section consisted of 12 revenue management components examining the extent of revenue management implementation. Respondents were asked to select all (1=Yes, 2=No) the functions their current hotel conducts. The third section contained five approaches (1=In-house, 2=Centralized, 3=Corporate outsourcing, 4=Third-party, 5=Mixed approach) to revenue management strategy implementation where respondents were asked to check (applied) the approach that their hotel employed.

The fourth section comprises the financial and non-financial indicators of revenue management performance. Respondents were asked to indicate their performance (MW= Much worse, SW=Somewhat worse, W=Worse, S= Same, MDB=Moderately better, B=Better, MB=much better). over the past year (1st January 2021-31st December 2021) relative to their competitors. The final section of the questionnaire covered the property and respondents' socio-demographics. Property attributes included property type, class, location, and service type. Respondents, attributes included gender, age, education level, respondent's current role, and respondent's number of years working with the revenue management function.

A pilot study was conducted using respondents from each of the ten countries (N= 200). The appropriate revision was done, and the corrected questionnaire was rolled-out for the main survey.

5.2 Data screening

Three screening questions related to work experience, revenue management adoption, and revenue management expertise were applied. First, the default hotel work experience required for a respondent was at least three years. Therefore, if a respondent's work experience in the hotel industry was less than three years, s/he was excluded. Second, the respondent's hotel must have implemented revenue management strategy practices. This is because revenue management strategy practices are the core of the study investigation. Therefore, cases were omitted where respondents' hotels did not adopt revenue management practices. Third, only respondents with revenue management knowledge/expertise were considered for the study. Considering the sensitivity of revenue management function in the hotel industry, ensuring that only staff who deal with revenue management are targeted was key. Hence, cases that did not meet this criterion were exempted.

5.3 Missing Data and Outliers

Researchers have stressed the importance of examining missing or incomplete data in multivariate analysis. This can affect the sample size and study outcome (Mertler & Vannatta, 2016). This study had no concerns about missing data as the survey platform was designed with a "force response" function, forcing respondents to answer all questions. Descriptive and box plot analyses were conducted in SPSS to detect any outliers.

Only two questionnaires were identified as outliers, i.e., indicated that they did not practice any revenue management component and were excluded. A final sample of 683 responses was used for further analysis.

5.4 Analysis of Respondents

The demographic characteristics of the respondents and respondent firms were analyzed based on responses collected on the survey questions in section **V** of the structured questionnaire. The personal and organizational attributes are summarized in Tables 5.1 and 5.2. Five socio-demographic attributes, including gender, age, educational level, current role at the hotel, and years of service in the revenue management function, were assessed. Results of the analysis show that most of the respondents (59.4%) were male. Most respondents were in their thirties (52.6%), followed by those in their forties (23.9%). The educational level statistics indicate that the highest percentage (42.8%) of respondents had a Bachelor's degree, and about 18% had either a graduate degree or associate/diploma/certificate qualification. Regarding roles, a majority (42.6%) were revenue managers, followed by General managers (22.4%), and 17 % identified as sales and marketing managers. An exploration of the number of years worked in the revenue management role revealed that most of the respondents (46.7%) had five or fewer years of experience in this role, while roughly (40%) had up to 10 years, and only 2.3% had over 20 years' experience working in the revenue management function.

Table 5.1. Demographic attributes of respondents

Variable	Category	Frequency	Percent
Gender			
	Male	406	59.4
	Female	277	40.6
Age (years)			
	20s	122	17.9
	30-39	359	52.6
	40-49	163	23.9
	50-59	32	4.7
	60 or older	7	1.0
Highest level of education			
	High school graduate	0	0
	Some college, No degree	74	10.8
	Associate Degree/Certificate/ Diploma	124	18.2
	Bachelor's Degree	292	42.8
	Graduate Degree	128	18.7
	Professional Degree	65	9.5
Role at the hotel			
	General manager	153	22.4
	Revenue manager	291	42.6
	Sales and Marketing Manager	116	17.0
	Front office manager	83	12.2
	Reservation manager	40	5.8
Years of service in RM			
	>3 but≤ 5 years	319	46.7
	> 5 but ≤ 10 years	225	32.9
	> 10 but ≤ 15 years	88	12.9
	> 15 but ≤ 20 years	35	5.2
	> 20 years	16	2.3
Nationality			
	Australia	63	9.2
	China	83	12.2
	Dubai	82	12.1
	Egypt	72	10.5
	Ethiopia	33	4.8
	Hong Kong	69	10.1
	Kenya	72	10.5
	Singapore	64	9.4
	United Kingdom	76	11.1
	United states	69	10.1

Table 5.2. Demographic attributes of respondents per participating country

Country / Category	Australia (63)		China (83)		Dubai (82)		Egypt (72)		Ethiopia (33)		Hong Kong (69)		Kenya (72)		Singapore (64)		United Kingdom (76)		United States (69)	
Gender																				
	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%
Male	39	61.9%	45	54.2%	58	70.7%	44	61.1%	22	66.7%	30	43.5%	48	66.7%	45	70.3%	38	50.0%	37	53.6%
Female	24	38.1%	38	45.8%	24	29.3%	28	38.9%	11	33.3%	39	56.5%	24	33.3%	19	29.7%	38	50.0%	32	46.4%
Age (years)																				
20s	15	23.8%	10	12.0%	12	14.6%	13	18.1%	13	39.4%	4	5.8%	23	31.9%	8	12.5%	16	21.1%	8	11.6%
30-39	31	49.2%	53	63.9%	60	73.2%	31	43.1%	14	42.4%	46	66.7%	29	40.3%	28	43.8%	32	42.1%	35	50.7%
40-49	16	25.4%	16	19.3%	9	11.0%	24	33.3%	6	18.2%	13	18.8%	16	22.2%	20	31.3%	21	27.6%	22	31.9%
50-59	0	0%	4	4.8%	1	1.2%	3	4.1%	0	0%	5	7.2%	4	5.6%	5	7.8%	6	7.9%	4	5.8%
60 or older	1	1.6%	0	0%	0	0%	1	1.4%	0	0%	1	1.5%	0	0%	3	4.7%	1	1.3%	0	0%
Highest level of education																				
	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%
College, No degree	7	11.1%	4	4.8%	9	11.0%	12	16.7%	2	6.1%	8	11.6%	8	11.1%	6	9.4%	11	14.5%	7	10.1%
Certificate/ Diploma	12	19.0%	10	12.1%	14	17.1%	13	18.1%	6	18.2%	17	24.6%	13	18.1%	11	17.2%	18	23.6%	10	14.5%
Bachelor's Degree	24	38.1%	26	31.3%	38	46.3%	33	45.8%	15	45.4%	31	45.0%	30	41.7%	35	54.7%	30	39.5%	30	43.5%
Graduate Degree	12	19.0%	39	47.0%	7	8.5%	9	12.5%	8	24.2%	9	13.0%	14	19.4%	5	7.8%	12	15.8%	13	18.8%
Professional Degree	8	12.8%	4	4.8%	14	17.1%	5	6.9%	2	6.1%	4	5.8%	7	9.7%	7	10.9%	5	6.6%	9	13.1%

Country / Category	Australia (63)		China (83)		Dubai (82)		Egypt (72)		Ethiopia (33)		Hong Kong (69)		Kenya (72)		Singapore (64)		United Kingdom (76)		United States (69)	
Role at the hotel																					
	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%
General manager	16	25.4%	19	22.9%	15	18.3%	20	27.8%	4	12.2%	17	24.6%	19	26.4%	18	28.1%	15	19.7%	10	14.5%
Revenue manager	31	49.2%	36	43.4%	35	42.7%	35	48.7%	10	30.3%	27	39.2%	22	30.5%	20	31.3%	35	46.1%	40	58.0%
Sales &Mkt manager	11	17.5%	19	22.9%	13	15.8%	5	6.9%	7	21.2%	14	20.3%	12	16.7%	16	25.0%	13	17.1%	6	8.7%
Front office manager	3	4.7%	5	6.0%	14	17.1%	7	9.7%	9	27.2%	5	7.2%	13	18.1%	8	12.5%	9	11.8%	10	14.5%
Reservation manager	2	3.2%	4	4.8%	5	6.1%	5	6.9%	3	9.1%	6	8.7%	6	8.3%	2	3.1%	4	5.3%	3	4.3%
Years of service in RM																					
	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%
$\leq$ 5 years	30	47.6%	40	48.2%	40	48.8%	35	48.6%	22	66.7%	20	29.0%	52	72.2%	23	35.9%	30	39.5%	27	39.1%
> 5 but $\leq$ 10 years	21	33.3%	28	33.8%	32	39.0%	17	23.6%	6	18.1%	32	46.4%	9	12.5%	22	34.4%	29	38.1%	29	42.0%
> 10 but $\leq$ 15 years	7	11.1%	9	10.8%	7	8.5%	13	18.1%	2	6.1%	7	10.1%	9	12.5%	12	18.8%	12	15.8%	10	14.5%
> 15 but $\leq$ 20 years	1	1.6%	3	3.6%	3	3.7%	7	9.7%	1	3.0%	6	8.7%	1	1.4%	5	7.8%	5	6.6%	3	4.4%
> 20 years	4	6.4%	3	3.6%	0	0%	0	0%	2	6.1%	4	5.8%	1	1.4%	2	3.1%	0	0%	0	0%

F-Frequency %-Percentage

Concerning organization attributes, eight demographic information were investigated: property type, property class, property location, property service type, number of rooms, number of hotel properties in the company, hotel star level, and average daily room rate. Per the analysis, the hotel type was dominated by chain hotels (63.5%).

It was also observed that approximately (26.4%) and (22.8%) of the properties are luxury and upper upscale, respectively, and the least roughly (6%) are economy hotels. Furthermore, most properties (50.7%) are located in urban areas, followed by (21.5%) in suburban areas.

An overwhelming majority (87.3%) of the properties are full-service hotels. Of the properties, (29.6%) had below 100 rooms, and most properties (51.4%) had between 100 and 200 rooms. Regarding the number of hotel properties in the company, most properties (62.8%) have five or fewer units, followed by (29.6%) with between six and ten units. In addition, 4FFF1.5%) were rated four-star, followed by (34.8 %) with a five-star rating. About one-third (33.8) of the properties had an average daily rate of between $100 and $150, followed by $151-$200 (22.8%).

Table 5.3. Organizational Attributes of Respondent Hotels

Variable	Category	Frequency	Percent
Property type			
	Chain	434	63.5
	Independent	249	36.5
Property Class			
	Luxury	180	26.4
	Upper Upscale	156	22.8
	Upscale	138	20.2
	Upper Midscale	111	16.3
	Midscale	58	8.4
	Economy	40	5.9
Property Location			
	Urban	346	50.7
	Suburban	147	21.5
	Airport	66	9.7

	Interstate	50	7.3
	Resort	63	9.2
	Small Metro	11	1.6
Property service type			
	Full service	596	87.3
	Limited service	87	12.7
Hotel Size			
	≤ 100 rooms	202	29.6
	> 100 but ≤ 200 rooms	351	51.4
	> 200 but ≤ 300 rooms	108	15.8
	> 300 rooms	22	3.2
Number of units			
	≤ 5 units	429	62.8
	> 5 but ≤ 10 units	202	29.6
	> 10 but ≤ 15units	41	6.0
	> 15 units	11	1.6
Hotel Star level			
	Three	162	23.7
	Four	283	41.5
	Five	238	34.8
Hotel Average ADR			
	≤ $50	22	3.2
	> $50 but ≤ $100	138	20.2
	>$100 but ≤ $150	231	33.8
	>$150 but ≤ $200	156	22.8
	> $200	136	20.0

5.5 Purification of Items

The Corrected Item-Total Correlation and reliability tests were conducted to purify the items. A Corrected Item-Total Correlation Test (CITC) was conducted to determine which measurements would be retained or eliminated. As presented in Table 5.3, all the items were retained for further analysis. Next, a reliability test was conducted. Based on the results displayed in Table 5.3, no measurement item was eliminated by the reliability test because Cronbach's alpha (α) coefficient was above 0.9. Therefore the 60 items were retained for factor analysis.

Table 5.4. Summary of Results of the Reliability Test

	Number of Items of Measurement Indicator	Cronbach's α Coefficient	Range of Corrected Item-total Correlation
Critical factors	60	0.983	0.626 – 0.731

5.6 Exploratory Factor Analysis

An Exploratory Factor Analysis (EFA) with Principal Component Analysis (PCA) and varimax rotation was conducted for the 60 items under critical factors to identify the underlying dimensions reflecting different critical factors. An Exploratory Factor Analysis extracts important variables from a dataset containing many variables (Kaplan, 2004). The technique is particularly useful when dealing with multidimensional data. Additionally, where a PCA is used, it is best conducted using the varimax rotation method since it maximizes the sum of the variance of square loadings, which allows each variable to be associated with only one factor (Manly and Alberto, 2016). Scholars have urged and suggested various thresholds for factor loading ranging from 0.2 to 0.5 based on the sample size (Blunch, 2008; Comrey & Lee, 1992; Hair et al., 2010; Stevens, 2002; Tabachnick & Fidell, 2001). Hair et al. (2010) recommend a factor loading of ≥ 0.5 or higher for newly developed items. Moreover, as a standard rule of thumb, only factors with eigenvalues of 1.0 or higher should be retained (Tabachnick & Fidell, 2001).

Only factors with communalities ≥ 0.5 and eigenvalue≥ 1.0 were retained in this study. In all, 26 items failed to meet the set criteria and were removed, while 34 items were retained for further analysis. An examination of the results revealed a Kaiser-Mayer-Olkin (KMO) measure of (0.980) and Bartlett's test of sphericity of 14602.777 (df = 561, p < 0.0001), which is above the 0.70 thresholds (Tabachnick & Fidell, 2001). This provided the ground for performing a EFA.

5.6.2 Seven-Factor Model of Critical Factors

Following a EFA, a seven-factor solution explaining 66.037% of the total variance was extracted, and their communalities ranged between 0.575 and 0.763, which indicated 57.5% to 76.3% of the variance in the particular dimensions. The Cronbach's alpha for each dimension ranged from 0.80 to 0.91, scoring significantly above the recommended threshold value of 0.70. This indicates that each dimension has a satisfactory internal consistency. The seven factors were labeled 1) "organizational," 2) "monitoring," 3) "human resources," 4) "operational," 5) "technological," 6) "culture," and 7) "evaluation."

As displayed in Table 5.4, component 1, "Organizational," explained 50.02% of the variance with a Cronbach's alpha rate of 0.91. The component had eight items associated with hotel goals and policies aligned with revenue management strategy implementation. Component 2, "Monitoring," had six items with a grand mean of 5.60 and depicted issues related to a systematic review of revenue management strategy implementation quality and progress. Component 3, "Human resource," had a reliability coefficient of 0.86 and had five items representing revenue management staff-related aspects. Component 4, "Operational," convey the characteristics of the revenue management strategy implementation processes. This component had four items, explained 2.51% of the variance, and had a grand mean of 5.59. "Technological" is component 5, related to the supply of revenue management systems. This component had an internal consistency of 0.83. Four items related to a hotel's common vision in implementing a revenue management strategy are described in component 6, labeled "culture." Finally, with three items and overall harmony of (grand mean = 5.60), a reliability coefficient of 0.80, and a variance explained of 2.18%, component 7, "Evaluation," had items related to gauging revenue management strategy performance and value.

Table 5.5. EFA results of Critical Factors (N=683)

Components and items	Communalities	Factor loadings	Mean
Component 1: *Organizational* *(Eigenvalue=17.01, Variance explained = 50.02%, Cronbach's α=.91, Grand mean=5.57)*			
Considers RM strategy as part of an overall strategic plan within the hotel	0.70	0.70	5.54
The hotel has SOPs for the RM strategy implementation process	0.67	0.69	5.63
Support RM strategy implementation benefit(s)	0.65	0.65	5.49
RM's strategy fits within the strategic vision of the hotel	0.66	0.64	5.51
Minimizes bureaucracy in RM strategy implementation	0.58	0.61	5.45
RM strategy goals are beneficial to the overall performance of the hotel	0.60	0.53	5.73
Creates awareness of RM strategy in all departments	0.60	0.53	5.61
The hotel implements a culture toward RM	0.58	0.52	5.61
Component 2: *Monitoring* *(Eigenvalue=1.16, Variance explained = 3.40%, Cronbach's α=.88, Grand mean=5.60)*			
Audits and checks the integrity of RM strategy data	0.76	0.71	5.61
Regularly gives feedback to improve the RM team's performance	0.64	0.61	5.75
Regularly monitors the RM strategy implementation processes' effectiveness	0.65	0.56	5.58
Engages in extensive RM strategy benchmarking	0.64	0.54	5.56
Conducts regular meetings to monitor the RM strategy	0.61	0.54	5.57
Hotel tracks trends in the implementation and utilization of RM strategy	0.62	0.51	5.54
Component 3: *Human resources* *(Eigenvalue=1.10, Variance explained = 3.23%, Cronbach's α=.86, Grand mean=5.60)*			
RM team is provided with resources to support the implementation process	0.65	0.64	5.59
RM team is composed of personnel with adequate skills	0.65	0.62	5.61
RM team is motivated to commit to effective RM strategy implementation	0.67	0.61	5.57
RM team works effectively with top management	0.66	0.58	5.63
RMteam is involved in the RM strategy decision-making process	0.58	0.53	5.59
Component 4: *Operational* *(Eigenvalue=0.85, Variance explained = 2.51%, Cronbach's α=.85, Grand mean=5.59)*			
RM processes are user friendly	0.72	0.71	5.64
RM processes are customer-centric	0.73	0.68	5.57
RM processes are aligned by setting tangible targets	0.69	0.68	5.52

RM processes are constantly improved by performance monitoring	0.70	0.64	5.64

Component 5: *Technological*
(Eigenvalue=0.81, Variance explained = 2.40%,
Cronbach's α=.83, Grand mean=5.54)

Involves suppliers in designing /redesigning process of the RM System	0.70	0.66	5.49
Evaluates RM system suppliers according to delivery performance	0.70	0.63	5.58
Evaluates RM system suppliers according to price	0.68	0.60	5.53
Evaluates RM system suppliers according to quality	0.68	0.50	5.56

Component 6: *Culture*
(Eigenvalue=0.78, Variance explained = 2.31%,
Cronbach's α=.81, Grand mean=5.56)

Personnel from all dep. in the hotel are involved in RM implementation	0.76	0.72	5.56
RM strategy is understood across all hotel departments	0.65	0.60	5.59
Various stakeholders are consulted during the RM implementation process	0.62	0.52	5.55
Various departments are involved in the RM decision-making process	0.61	0.51	5.52

Component 7: *Evaluation*
(Eigenvalue=0.74, Variance explained = 2.18%,
Cronbach's α=.80, Grand mean=5.60)

Compares actual RM strategy progress against set goals	0.71	0.66	5.58
Hotel evaluates the effectiveness of RM strategy performance measurements	0.65	0.53	5.61
Evaluates the RM strategy performance metrics as per hotel industry standards	0.68	0.51	5.61

5.7 Regression Analysis

5.7.1 Variable operationalization

The dependent variable (revenue management strategy effectiveness) is the combination of financial aspects measuring revenue management performance (RevPAR, TrevPAR, and GOOPAR) and non-financial aspects (customer retention, customer satisfaction, sales growth, employee performance, and overall quality and efficiency of the revenue management system). A 7-point Likert scale was used to measure these aspects of performance.

The independent variables include the critical factors components (organizational, monitoring, human resources, operational, technological, culture, and evaluation) derived from the principal component analysis. Mean factor scores were utilized in the regression.

5.7.2 Descriptive analysis

Table 5.5 represents the measure of the central tendency of the dependent and independent variables. For each variable of interest in this study, the values indicate that the distribution of responses is more or less normal. The Table shows that the mean score for the dependent variable revenue management strategy effectiveness (financial and non-financial performance) is 5.34, while the standard deviation is 1.01. This depicts that most of the hotels' revenue management performance (financial and non-financial) for 1st January 2021-31st December 2021 was moderately better than that of their competitors, thus, indicating that their revenue management strategy is effective. Similarly, the mean scores of the independent variables ranged between 5.53 and 5.60, portraying a higher agreement between the respondents on important critical factors. Meanwhile, the standard deviation of all the variables is 1.01 (organizational factor), 0.97 (monitoring factor), 0.99 (human resource factor), 1.13 (operational factor), 1.01 (technological factor), 0.98 (culture factor), and 1.01 (evaluation factor) indicating the acceptable spread of the data. Based on the descriptive statistics, each variable is normally distributed and appropriate for use in this study.

Table 5.6. Descriptive analysis of dependent and independent variables

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Revenue management effectiveness	683	2.00	7.00	5.3486	1.01068
Organizational factor	683	3.00	7.00	5.5714	1.01281
Monitoring factor	683	3.00	7.00	5.6030	0.97862
Human resource factor	683	2.00	7.00	5.5977	0.99894
Operational factor	683	1.00	7.00	5.5941	1.13230
Technological factor	683	2.00	7.00	5.5388	1.01273
Culture factor	683	2.00	7.00	5.5549	0.98936
Evaluation factor	683	2.00	7.00	5.6003	1.01383
Valid N (listwise)	683				

5.7.3 Control variables

Further, the effects of country, property type, property location, and property service type were controlled. *The country* was coded as 1- Australia, 2-China, 3- Dubai, 4-Egypt, 5-Ethiopia, 6-Hong Kong, 7-Kenya, 8- Singapore, 9- United Kingdom, and 10- United States. *Property type (Affiliation)* and *service type* were measured as a dichotomous 1-Chain hotel, 2- Independent hotels, and 1-Limited service, and 2- Full service, respectively; *location* was coded as 1-urban, 2-suburban, 3-airport, 4-interstate/motorway, 5-resort, and 6-small metro/town. These variables were entered into the regression equations and treated as controls.

5.8 Regression Diagnostics

5.8.1 Checking Multicollinearity and Singularity

An important aspect of regression is ensuring no multicollinearity among the variables. According to (Alin, 2010; Tabachnick & Fidell, 2001), multicollinearity in multiple regression is not good as it can interfere with the regression model. In a regression model, multicollinearity refers to the relationship among the independent variable. It is said to exist when the independent variables' correlation coefficient (r = ±) is higher than .80 (McClave et al., 2022). The coefficients in this study ranged from .645 to .794, meaning that the independent variables were independent. On the other hand, singularity arises when one independent variable is a combination of other independent variables and is said to exist when the correlation coefficient is (r= ±1.0), which was not violated in this study. As shown in Table 5.6, the absolute correlation value was within the acceptable ranges; therefore, all the variables were retained.

Additionally, Table 5.7 illustrates two other tests for the multicollinearity of predictive variables, the tolerance levels, and the Variance Inflation Factor (VIF). Authors have recommended various acceptable levels of tolerance. Tabachnick and Fidell (2001) recommend a value of 0.10 as the minimum tolerance level. Nonetheless, a minimum value of 0.20 and 0.25 have been recommended by Menard (1995) and Huber and Stephens (1993), respectively. The tolerance levels for the variables in this study ranged from 0.245 to 0.390, levels above the recommended minimum.

Table 5.7. Descriptive statistics and Correlation analysis (N=683)

Variable	Mean	S. D	RM eff.	Org.	Mon.	HR.	Ops.	Tech.	Cult.	Eval.	Country	P. T	P. Loc	P.S.T.
RM eff.	5.349	1.011	1											
Org.	5.571	1.013	.590***	1										
Mon.	5.603	.979	.615***	.781***	1									
HR	5.600	.999	.585***	.794***	.769***	1								
Ops	5.594	1.132	.533***	.718***	.709***	.674***	1							
Tech	5.539	1.012	.577***	.720***	.764***	.728***	.696***	1						
Cult.	5.555	0.990	.572***	.725***	.743***	.729***	.672***	.712***	1					
Eval	5.600	1.014	.559***	.722***	.767***	.721***	.645***	.712***	.702***	1				
Country	5.46	2.937	-.017	.054	.058	.071	.079**	.055	.103***	.062	1			
P. T.	1.98	0.866	-.040	.062	.046	.065	.072	.029	.036	.087**	.087**	1		
P. Loc	2.08	1.407	-.099***	-.139***	-.135***	-.116***	-.154***	-.109***	-.125***	-.099***	-.053	.040	1	
P.S.T.	1.13	0.334	-.236***	-.150***	-.169***	-.146***	-.079**	-.145***	-.152***	-.109***	-.005	.100***	.148***	1

***. Correlation is significant at the 0.01 level (2-tailed).
**. Correlation is significant at the 0.05 level (2-tailed).
Note: RM eff. (Revenue management effectiveness), Org. (organizational factor), Mon. (monitoring factors), HR (human resource factor), Ops. (Operational factor), Tech (technological factor), Cult. (Culture factor), Eval. (Evaluation factor), P.T -property type, P. Loc- Property location, P.S.T-Property service type

Further, VIF measures the degree to which multicollinearity has increased the variance of an estimated coefficient as it looks at the extent to which an explanatory variable can be explained by other variables (Pallant, 2007). The most recommended acceptable level of VIF in literature is a maximum value of 10 (Hair et al., 2010). From Table 5.7, the multicollinearity analysis assumption results indicated that all the VIF values were <10. Accordingly, there was no evidence of multicollinearity or concern about excessive influence between the predictive variables.

Table 5.8. Tolerance and Variance Inflation Factor (VIF)(N=683)

Coefficients [a]			
		Collinearity Statistics	
	Model	Tolerance	VIF
1	(Constant)		
	Organizational factor	.264	3.786
	Monitoring factor	.245	4.082
	Human resource factor	.279	3.581
	Operational factor	.390	2.563
	Technological factor	.320	3.125
	Culture factor	.340	2.942
	Evaluation factor	.336	2.978
a. Dependent Variable: REM			

5.9 Regression Models

A multiple regression equation can be applied to examine and predict the relationships between independent and dependent variables. In this study, separate models were set up concerning the study's hypothesis. The models are as follows.

Model one:
$Y = \beta_0 + \beta_1*$***Critical Factors*** $+ \beta_2*$ ***CVs*** $+ \mathcal{E},$ where *Y* represents ***RM performance,***
Critical factors *(**organizational, monitoring, human resource, operational, technological, culture, and evaluation***) and CVs (**Country, Property type, property location, and Property Service type**)*

Model two:

$Y = \beta_0 + \beta_1 * Critical\ Factors + \beta_2 * RM\ approach + \beta_3 * (CFs * RM\ approach) + \beta_4 * CVs + \mathcal{E}$, where *Y* represents ***RM performance***, Critical factors *(**organizational, monitoring, human resource, operational, technological, culture, and evaluation), the** approach is dummy variable where (**0=inhouse and 1= (centralized, corporate, Third-party outsourcing and mixed approach**) and *CVs* (**Country, Property type, property location, and Property Service type**)

Model three:

$Y = \beta_0 + \beta_1 * Critical\ Factors + \beta_2 * RM\ Level + \beta_3 * (CFs * RM\ Level) + \beta_4 * CVs + \mathcal{E}$, where *Y* represents ***RM performance***, Critical factors *(**organizational, monitoring, human resource, operational, technological, culture, and evaluation),** Level is dummy variable where (**0=Fully and 1= Others** and *CVs* (**Country, Property type, property location, and Property Service type**)

5.10 Multiple Regression Analysis

A multiple regression analysis was conducted to analyze relationships between the independent and the dependent variables. The analysis is critical for determining whether the independent variable impacts the dependent variable. The analysis is also performed to answer this study's objective and hypothesis and explore the extent to which the independent variables predict the dependent variable. The predictive variable for this study was critical factors ("1) organizational factor", "2) monitoring factor", 3) human resource factor", "4) operational factor", "5) technological factor", "6) culture factor", and "7) evaluation factor") and the outcome variables: -revenue management effectiveness (financial and non-financial performance).

The control variables included were country, property type, property location, and property service type. To determine the effect of the predictor variables on the effectiveness of the revenue management strategy at the hotel, a significance level of 0.10 and a 90% confidence interval were used.

Table 5.9. Model Summary of Multiple Regression Analysis

					Change Statistics					
Model	R	R^2	Adjusted R^2	Std. Error of the Estimate	R^2 Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.680[a]	.463	.454	.74692	.025	7.833	4	671	.000	1.822

Note 1: Predictors: (Constant), Property service type, Country, Operational factor, Property type, Property location, Evaluation factor, Culture factor, Technological factor, Human resource factor, Organizational factor, Monitoring factor

Note 2: Dependent Variable: Revenue management strategy effectiveness

As the model summarizes, the independent variables (critical factors) significantly predict revenue management strategy effectiveness. The model accounted for 46.3% of the variance in revenue management strategy effectiveness $F (11,671) = 52.519, p < .000)$, $R^2 = .463$, adjusted $R^2 = .454$, after controlling for four variables (country, property type, property location, property service type) based on literature review. This model's independent variables were statistically significant at $p < 0.10$.

Table 5.10. Model Summary of ANOVA

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	322.303	11	29.300	52.519	.000[b]
	Residual	374.348	671	.558		
	Total	696.651	682			

Note 1: Dependent Variable: Revenue management strategy effectiveness

Note 2: Predictors: (Constant), Property service type, Country, Operational factor, Property type, Property location, Evaluation factor, Culture factor, Technological factor, Human resource factor, Organizational factor, Monitoring factor

Table 5.10 presents the regression coefficient analysis for model one, including control variables. The regression coefficient analysis explains how changes in one or more independent variables affect the outcome (dependent variable). According to the results of the regression coefficient, as shown in Table 5.10, all independent variables used in this study were significant at a 10% level of significance and 90% confidence level. This indicated that the independent variables positively affected revenue management strategy effectiveness. Based on the Table 5.10, an examination of the coefficients reveals a significant and positive relationship with monitoring factor (coefficient = 0.176, t = 2.96, p = 0.003), human resource factor (coefficient = 0.107, t = 1.97, p = 0.050), culture factor (coefficient = 0.111, t = 2.23, p = 0.026), and a marginally and positive relationship with organizational factor (coefficient = 0.101, t = 1.83, p = 0.068), operational factor (coefficient = 0.069, t = 1.70, p = 0.089), technological factor (coefficient = 0.096, t = 1.93, p = 0.054), and evaluation factor (coefficient = 0.081, t = 1.66, p = 0.098). Meanwhile, control variables country (coefficient = -0.021, t = -2.16, p = 0.031), property type (coefficient = -0.073, t = -2.17, p = 0.030), and property service type (coefficient = -0.384, t = -4.33, p = 0.000), play a negative and significant relationship in the influence of critical factors on revenue management strategy effectiveness whereas property location has a positive but not statistically significant impact on revenue management strategy effectiveness (coefficient = 0.009, t = 0.44, p = 0.658).

From the model, the constant, which indicates the outcome of revenue management strategy implementation effectiveness when all factors remain constant, was 1.890. Specifically, a unit increase in organizational factors increases revenue management strategy effectiveness by 0.101 units. As the results revealed, the unit change in monitoring factors improved the revenue management strategy effectiveness by 0.176 from the existing position.

Table 5.11. Model Summary of the regression coefficient

	Model 1					
	Unstandardized Coefficients	Std. Error	Standardized Coefficients	t	Sig.	VIF
(Constant)	1.890	.236		8.020	.000	
Organizational factor	**.101**	**.055**	**.101**	**1.829***	**.068**	**3.799**
Monitoring factor	**.176**	**.059**	**.170**	**2.964*****	**.003**	**4.111**
Human resource factor	**.107**	**.054**	**.105**	**1.965****	**.050**	**3.586**
Operational factor	**.069**	**.041**	**.078**	**1.704***	**.089**	**2.607**
Technological factor	**.096**	**.050**	**.097**	**1.928***	**.054**	**3.138**
Culture factor	**.111**	**.050**	**.109**	**2.225****	**.026**	**2.969**
Evaluation factor	**.081**	**.049**	**.081**	**1.655***	**.098**	**3.002**
Country	-.021	.010	-.062	-2.157	.031	1.023
Property type	-.073	.034	-.062	-2.172	.030	1.034
Property Location	.009	.021	.013	.443	.658	1.050
Property service type	-.384	.089	-.127	-4.333	.000	1.071
R			**.680**			
R²			**.463**			
Adjusted R²			**.454**			
Dependent Variable: Revenue management strategy effectiveness						

$*p \leq 0.10, **p \leq 0.05, ***p \leq 0.01$

Revenue Management effectiveness $= 1.890 + 0.101X_1 + 0.176X_2 + 0.107X_3 + 0.069X_4 + 0.096X_5 + 0.111X_6 + 0.081X_7 - 0.021_{country} - 0.073_{property\ type} - 0.384_{property\ service\ type}$

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Again, improving human resource factors by one amount strengthened the revenue management performance by 0.107. Further, a unit increase in operational factors increases revenue management strategy effectiveness by 0.069. When the technological factors changed one unit, the revenue management strategy effectiveness improved by 0.096. The unit change in culture factors enhanced the expected output revenue management strategy effectiveness to surge by 0.111 units, and a unit increase in evaluation factors increases revenue management strategy effectiveness by 0.081 units. Therefore, it is evident that these critical factors positively impact the revenue management strategy effectiveness in the hotel. An assessment of the standardized coefficients reveals that monitoring factors (coefficient = 0.170, t = 2.96) has the most influence on the revenue management strategy performance, followed by culture factor (coefficient = 0.109, t = 2.23), human resource factor (coefficient = 0.105, t = 1.97), organizational factor (Coefficient = 0.101, t = 1.83), technological factor (coefficient = 0.097, t = 1.93), evaluation factors (coefficient = 0.081, t = 1.66), and operational factor (coefficient = 0.078, t = 1.70).

Model two predicted that the hotel employing a revenue management strategy approach (e.g., in-house vs. other approaches, including centralized, corporate outsourcing, third-party outsourcing, and a combination of these methods) would moderate the relationship between critical factors and revenue management strategy effectiveness. A mean-centered analysis was conducted to test the interaction to eliminate possible multicollinearity between the main effects and interactions of the effectiveness of the revenue management strategy. As Baron and Kenny (1986) outlined, a multiplicative cross-product term was created, and a multiple regression analysis was conducted. Seven moderation analyses were conducted, as shown in Table 5.11. The overall regression model was found to be significant F (19,663) = 31.720, $p < .000$), $R^2 = .476$.

Two interactions were found to be statistically significant; Operational factor (coefficient = -.215, $p < 0.05$); and culture factor (coefficient = .218, $p < 0.05$) had a significant moderating impact on the relationship between the critical factors and revenue management strategy effectiveness while all other variables did not have a significant relationship. This shows that an in-house revenue management strategy approach compared to other revenue management approaches (e.g., centralized, corporate outsourcing, third-party outsourcing, and a combination of any of these methods (mixed method)) compared to the inhouse strategy approach weakened the effect of the operational factor on revenue management effectiveness. However, it strengthened the effect of the cultural factor on revenue management effectiveness. In other words, the impact of the operational factor on revenue management effectiveness would be weaker in the in-house approach (1) than in other revenue management strategy approaches (0). However, the influence of the cultural factor on revenue management effectiveness would be stronger in in-house revenue management strategy approaches (1) than in the other approaches (0).

Table 5.12. Result of Multiple Regression for Model 2

	Coefficient	*t*-value	Sig.	VIF
(Constant)	1.947	8.197	.000	
Organizational factor	.090	1.620	.106	3.919
Monitoring factor	.197	3.308	.001	4.197
Human resources factor	.108	1.986	.047	3.688
Operational factor	.060	1.463	.144	2.631
Technological factor	.091	1.805	.072	3.243
Culture factor	.116	2.317	.021	3.052
Evaluation factor	.074	1.524	.128	3.033
Approach_Dummy	-.105	-1.795	.073	1.023
Organizational factor*Approach	-.023	-.203	.839	3.787
Monitoring factor*Approach	.166	1.369	.172	4.165
Human resource factor*Approach	-.095	-.827	.409	3.854
Operational factor*Approach	**-.215**	**-2.646*****	**.008**	**2.558**
Technological factor*Approach	.097	.907	.365	3.401
Culture factor*Approach	**.218**	**2.152****	**.032**	**2.971**
Evaluation factor*Approach	-.089	-.897	.370	2.989
Country	-.019	-1.893	.059	1.055
Property type	-.074	-2.219	.027	1.038
Property Location	.007	.318	.751	1.067
Property service type	-.360	-4.056	.000	1.086
R²			.476	
Adjusted R²			.461	

*p ≤ 0.10, **p ≤ 0.05, ***p ≤ 0.01

Model three predicted that the implementation level of revenue management strategy (e.g., fully implement (1) vs. moderately or nearly implement (0)) moderates the relationship between critical factors and revenue management strategy effectiveness—mean centering of the critical factors and implementation level, and a multiplicative cross product term done. A total of seven moderation analyses were conducted. The overall regression model was found to be significant F $(19,663) = 31.673, p < .000), R^2 = .476$. Three interactions were found to be statistically significant; technological factor (coefficient = -.274, p < 0.05), human resource factor (coefficient = .214, p < 0.01), and evaluation factor (coefficient = .170, p < 0.01), and the revenue management strategy effectiveness. However, it did not have any significant moderating effect on the relationship

between all other variables and the revenue management strategy effectiveness, as illustrated in Table 5.12.

This depicts that the relationship between technological factor and the revenue management strategy effectiveness would be weakened at the hotels that fully implemented their revenue management strategy than at the hotels that moderately or nearly implemented their revenue management strategy. Whereas the relationship between human resource and evaluation factors and the revenue management strategy effectiveness would be strengthened at the hotels that fully implemented their revenue management strategy than at the hotels that moderately or nearly implemented their revenue management strategy.

Table 5.13. Result of Multiple Regression for Model 3

	Coefficient	t-value	Sig.	VIF
(Constant)	2.008	7.646	.000	
Organizational factor	.115	1.973	.049	4.336
Monitoring factor	.165	2.651	.008	4.572
Human resources factor	.076	1.315	.189	4.145
Operational factor	.057	1.326	.185	2.930
Technological factor	.126	2.362	.018	3.641
Culture factor	.130	2.525	.012	3.200
Evaluation factor	.056	1.053	.293	3.547
Level_Dummy	-.099	-.538	.160	1.284
Organizational factor*Level	-.060	-.412	.591	3.463
Monitoring factor* Level	-.049	1.948	.680	3.762
Human resource factor* Level	**.214**	**1.184***	**.052**	**3.364**
Operational factor* Level	.097	-2.726	.237	2.596
Technological factor* Level	**-.274**	**-1.382*****	**.007**	**2.944**
Culture factors* Level	-.141	1.719	.167	2.695
Evaluation factor* Level	**.170**	**-1.407***	**.086**	**2.770**
Country	-.021	-2.184	.029	1.031
Property type	-.074	-2.212	.027	1.036
Property Location	.012	.595	.552	1.068
Property service type	-.390	-4.356	.000	1.106
R²				**.476**
Adjusted R²				**.461**

*p ≤ 0.10, ***p ≤ 0.01

5.11 Testing of Hypotheses

Three major hypotheses guided this study. Hypothesis 1 was, however, subdivided into seven sub-hypotheses based on the number of factors identified in the exploratory phase. Specifically, these sub-hypotheses examined the direct effects of critical factors on revenue management strategy effectiveness. Seven direct effects were examined, as shown in Figure 5.1. Additionally, two moderators of the hypothesized paths were examined. Multiple regression analysis was applied to test the hypotheses. The main variables, critical factors, approach, and implementation level were mean centered to avoid multicollinearity effects in the predictor, moderator variables, and interaction terms.

Hypotheses 1-1 to 1-7 relate to direct effect models. Testing hypothesis 1, the revenue management strategy effectiveness (financial and financial dimensions) is regressed on sub-hypotheses in which control variables were entered simultaneously. A significant ($p<0.10$) relationship between critical factors and revenue management strategy effectiveness is required to confirm the hypotheses, as indicated by its coefficient. Hypothesis 2 and 3 concern models of moderator effect. In testing model 2, the revenue management strategy effectiveness (financial and financial dimensions) was regressed on the seven sub-hypotheses, approach, and the product term representing the interaction between critical factors and revenue management strategy effectiveness. In step one, the control variables are entered; in step two, critical factors; in step three, approach and step four, the product term between critical factors and approach is added. In testing hypothesis 3, the revenue management strategy effectiveness (financial and financial dimensions) was regressed on the seven sub-hypotheses, the implementation level, and the product term representing the interaction between critical factors and the effectiveness of the revenue management strategy.

To confirm hypotheses 2 and 3, the interaction term should show a significant (p <0.10) relationship with the approach and implementation level. A simple slope analysis will be performed when the interaction is deduced to ensure an accurate interpretation of both interaction effects.
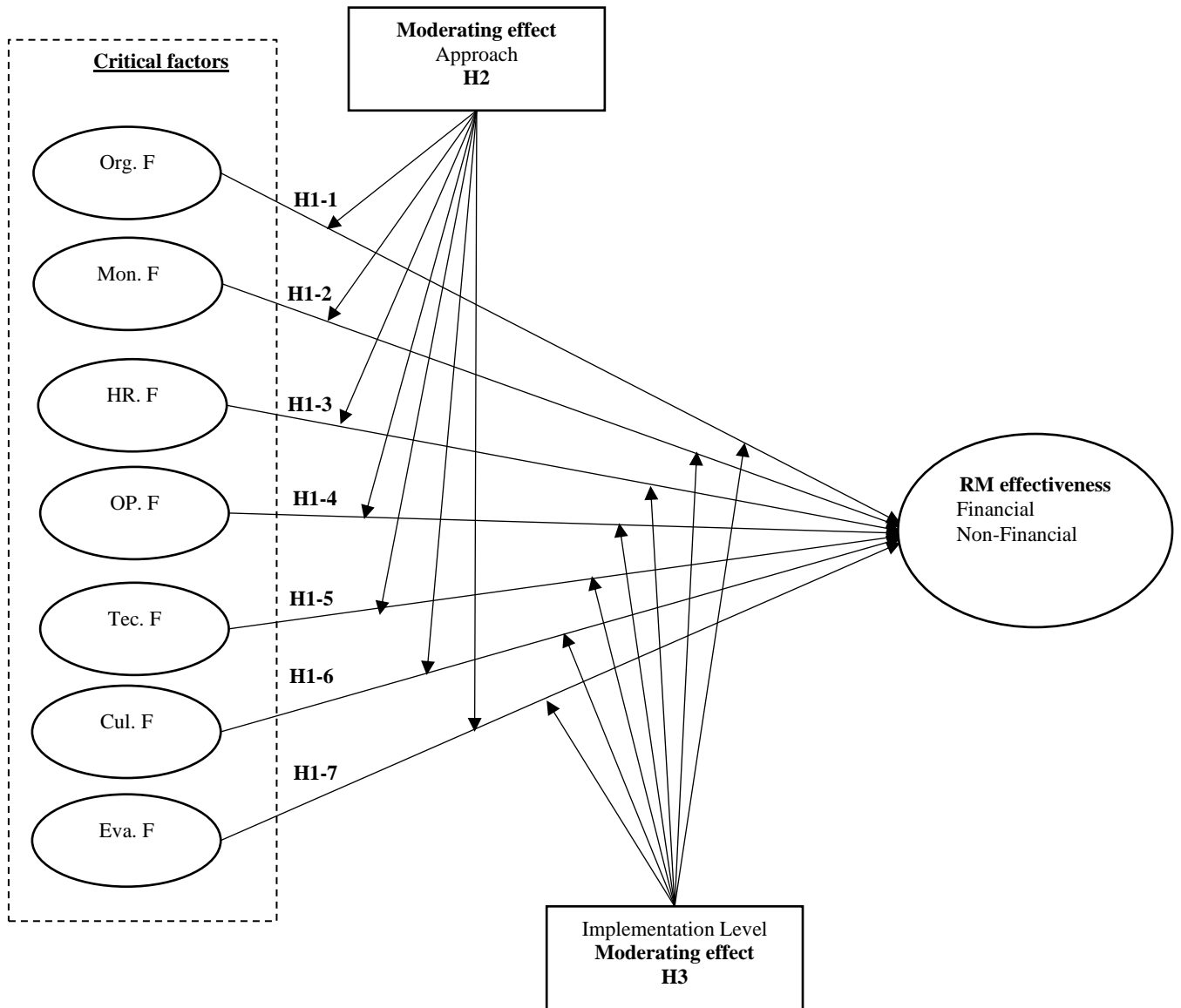
Figure 5.1. Hypothesized Relationships

5.11.1 Direct effects

The direct regression paths among the seven constructs were examined, and the results are presented in Table 5.13 and Figure 5.2. As can be observed, all paths were significant at either 0.1, 0.05, or 0.01 levels.

Hypothesis 1-1 hypothesizes that organizational factor will significantly affect revenue management strategy effectiveness. The results established that the relationship was marginally statistically significant (coefficient=0.10, t=1.83, p <0.10). This means that organizational factors have a degree of significant influence on the effective implementation and performance of the revenue management strategy. Therefore, hypothesis 1-1 is marginally statistically supported.

Hypothesis 1-2 postulated that the monitoring factor will significantly influence the effectiveness of the revenue management strategy. The outcome of the path coefficients from "monitoring factors" to "revenue management effectiveness" portrayed that the relationship was statistically significant (coefficient=0.18, t=2.96, p <0.05). Consequently, monitoring factors are fundamental for the effective implementation and performance of the revenue management strategy. Therefore, hypothesis 1-6 is statistically supported.

Hypothesis 1-3 postulates that the human resource factor will significantly influence the effectiveness of the revenue management strategy. The results of the relationship between "human resource management factors" to "revenue management effectiveness" showed that the relationship was statistically significant (coefficient=0.11, t=1.97 p <0.05). This means the human resource factor influences the revenue management strategy's effective implementation and performance. Hence, hypothesis 1-2 is statistically supported.

Hypothesis 1-4 proposes that operational factor will significantly influence revenue management strategy effectiveness. The outcome of the path between the two constructs was marginally statistically significant (coefficient=0. 07, t=1.704, p <0.10). Accordingly, operational factors have a degree of significant influence on the effective implementation and performance of the revenue management strategy. Therefore, hypothesis 1-3 is marginally statistically supported.

Hypothesis 1-5 posits that technological factor will significantly influence revenue management strategy effectiveness. An examination of the coefficient between "technological factors" and "revenue management effectiveness" revealed that the relationship of the path was somewhat statistically significant (coefficient=0.10, t=1.93, p <0.10). Thus, technological factors have a degree of significant influence on the effective implementation and performance of the revenue management strategy. Therefore, hypothesis 1-4 is marginally statistically supported.

Hypothesis 1-6 states that culture factor will significantly influence revenue management strategy effectiveness. The results of the path between the constructs denoted a statistically significant (coefficient=0.11, t=2.223, p <0.05) relationship. This implies that culture influences the effective implementation and performance of the revenue management strategy. Therefore, hypothesis 1-5 is statistically supported.

Hypothesis 1-7 proposes that the evaluation factor will significantly influence the effectiveness of the revenue management strategy. The hypothesis was verified by checking the path coefficient been "evaluation factors" and "revenue management effectiveness." The results revealed a faintly statistically significant relationship between the constructs (coefficient=0. 08, t=1.66, p <0.10). This suggests that evaluation factors significantly influence the effective implementation and performance of the revenue management strategy. Therefore, hypothesis 1- 7 is marginally statistically supported.

Table 5.14. Results of the direct relationships for the hypothesis testing

Hypothesis	Path		Coefficient	t-value	p-value	Decision
H1-1	Organizational factor $\longrightarrow$	Revenue management effectiveness	0.10	1.83*	0.068	**Accept**
H1-2	Monitoring factor $\longrightarrow$	Revenue management effectiveness	0.18	2.96***	0.003	**Accept**
H1-3	Human resource factor $\longrightarrow$	Revenue management effectiveness	0.11	1.97**	0.050	**Accept**
H1-4	Operational factor $\longrightarrow$	Revenue management effectiveness	0.07	1.70*	0.089	**Accept**
H1-5	Technological factor $\longrightarrow$	Revenue management effectiveness	0.10	1.93*	0.054	**Accept**
H1-6	Culture factor $\longrightarrow$	Revenue management effectiveness	0.11	2.23**	0.026	**Accept**
H1-7	Evaluation factor $\longrightarrow$	Revenue management effectiveness	0.08	1.66*	0.098	**Accept**

*p ≤ 0.10, **p ≤ 0.05, ***p ≤ 0.01

Critical factors

Org. F

Mon. F

HR. F

OP. F

Tec. F

Cul. F

Eva. F

H1-1: 0.10*

H1-2: 0.18***

H1-3: 0.11**

H1-4: 0.07*

H1-5: 0.10*

H1-6: 0.11**

H1-7: 0.08*

RM effectiveness
Financial
Non-Financial
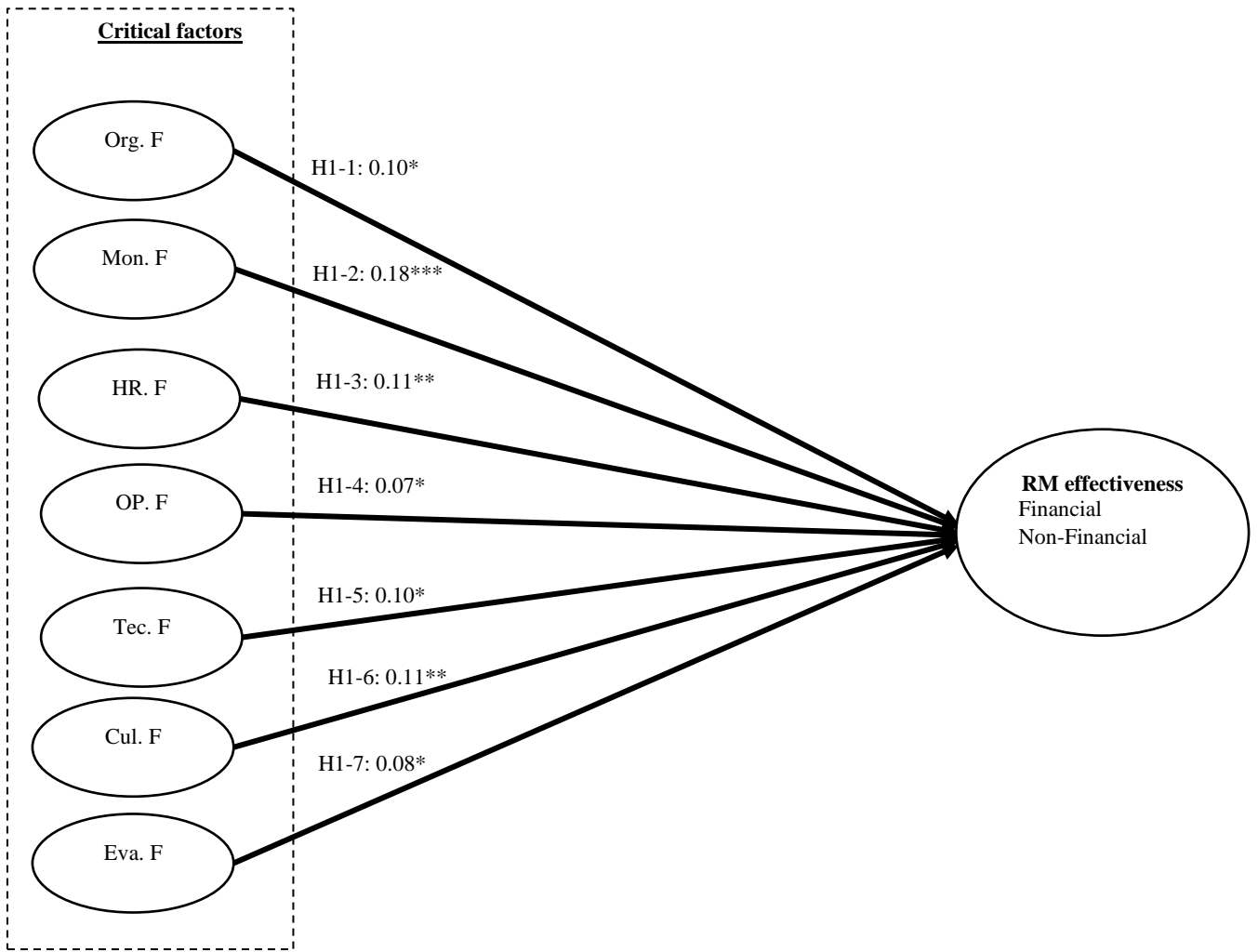
$*p \leq 0.10, **p \leq 0.05, ***p \leq 0.01$

Figure 5.2. Results of the direct relationships

5.11.2 Moderating effect

Hypothesis 2 hypothesizes that the revenue management strategic approach(es) will moderate the relationship between critical factors and the effectiveness of the revenue management strategy. The hypothesis was verified by examining the path coefficients between the "interaction (CFs *Approach)" and "revenue management effectiveness" paths. The results showed that two of the seven paths were statistically significant. The significant paths were from operational factor (coefficient=-.215, t=2.65, p <0.05) and culture factor (coefficient=.218, t=2.15, p <0.05). The results partially confirm hypothesis 2, as illustrated in Table 5.14 and Figure 5.3.

Table 5.15. Results of the moderating relationships for the hypothesis testing (Approach)

Hypothesis			*Coefficient*	t-value	p-value	Decision
Organizational factor*Approach	RME	→	-0.02	-0.20	0.839	Reject
Monitoring factor*Approach	RME	→	0.17	1.37	0.172	Reject
Human resource factor*Approach	RME	→	-0.10	-0.83	0.409	Reject
Operational factor*Approach	RME	→	-0.22	-2.65***	0.008	**Accept**
Technological factor*Approach	RME	→	0.10	0.91	0.365	Reject
Culture factor*Approach	RME	→	0.22	2.15**	0.032	**Accept**
Evaluation factor*Approach	RME	→	-0.09	-0.90	0.370	Reject

Note 1: RME; Revenue management effectiveness

Note2: *p $\leq$ 0.10, **p $\leq$ 0.05, ***p $\leq$ 0.01

Critical factors

Org. F
Mon. F
HR. F
OP. F
Tec. F
Cul. F
Eva. F

Moderator
Approach
(1) =In-house, (0) =others

H2

-0.02

0.17

-0.10

-0.22***

0.10

0.22**

-0.90

RM effectiveness
Financial
Non-Financial
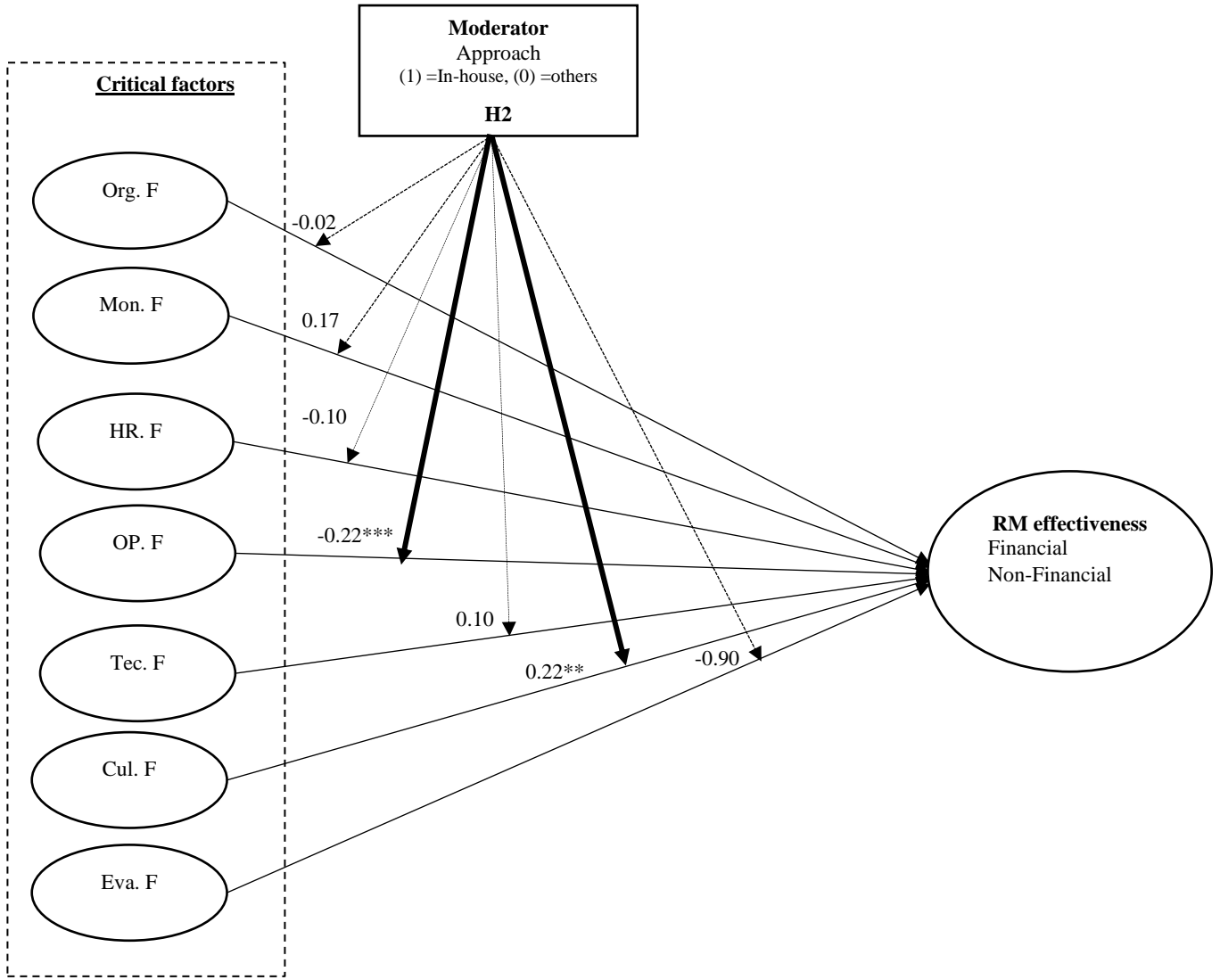
**p ≤ 0.05, ***p ≤ 0.01

Figure 5.3. Results of the moderating effect of the strategy approach

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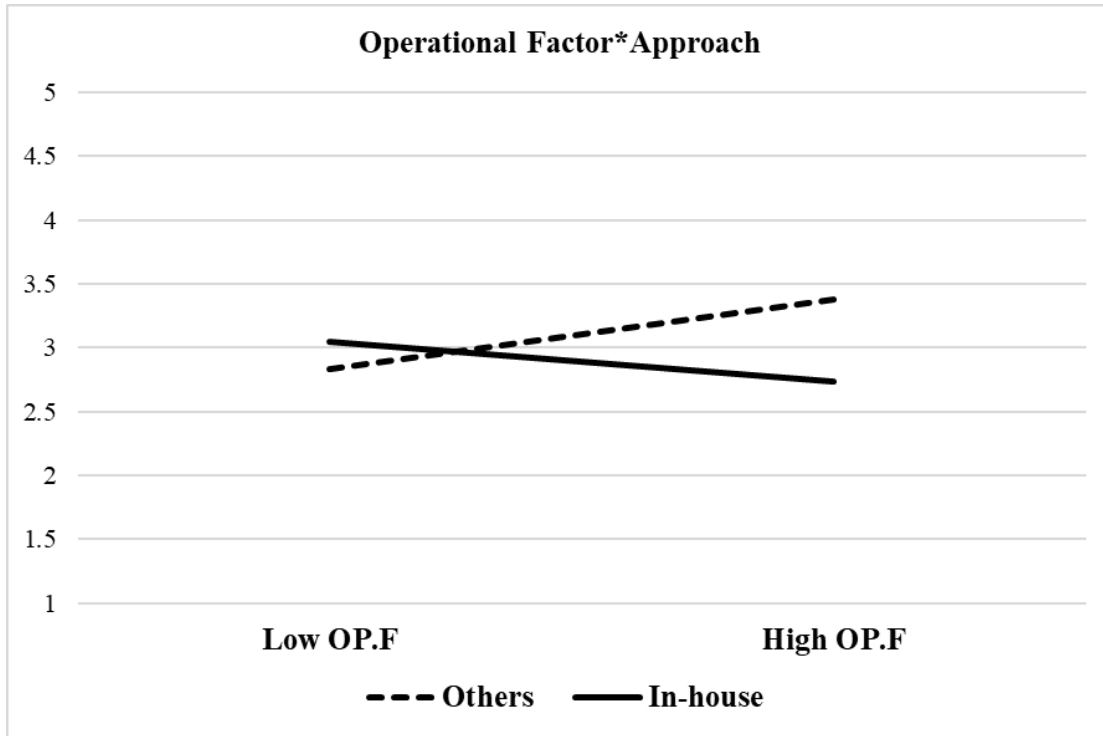
Figure 5.4. Plot of the moderator effect of approach on the relationship between the operational factor and revenue management strategy effectiveness
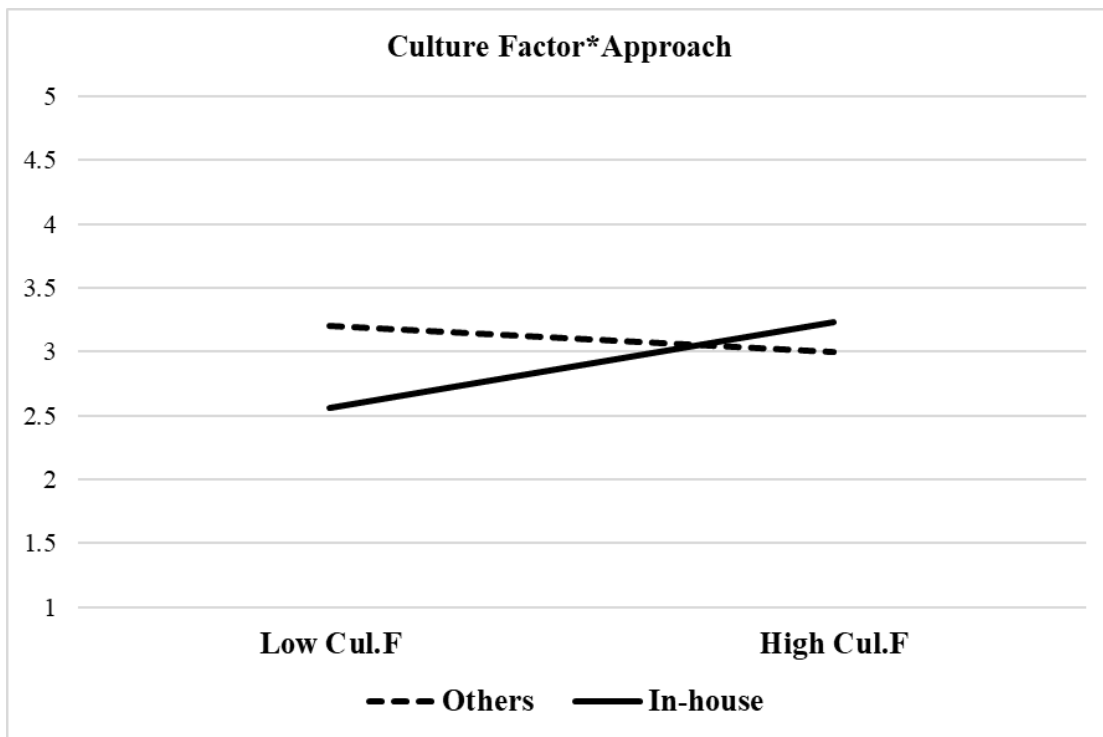
Figure 5.5. Plot of the moderator effect of approach on the relationship between culture factor and revenue management strategy effectiveness

Hypothesis 3 postulates that the implementation level of revenue management will moderate the relationship between critical factors and the effectiveness of the revenue management strategy. The hypothesis was verified by examining the path coefficients between the "interaction (CFs * Implementation level)" and "revenue management effectiveness" paths. The results showed that three of the seven paths were statistically significant. The significant paths were from human factor (coefficient=.214, t=1.95, p <0.1), technological factor (coefficient=-.274, t=2.73, p <0.05), and evaluation factor (coefficient=.170, t=1.72, p <0.10). The results partially confirm hypothesis 3, as shown in Table 5.15 and Figure 5.6.

Table 5.16. Results of the moderating relationships for the hypothesis testing (Level)

Hypothesis		*Coefficient*	t-value	p-value	Decision
Organizational factor*Implementation level	RME	-0.06	-0.54	0.591	Reject
Monitoring factor*Implementation level	RME	-0.05	-0.41	0.680	Reject
Human resource factor*Implementation level	RME	0.21	1.95**	0.052	**Accept**
Operational factor**Implementation level	RME	0.10	1.18	0.237	Reject
Technological factor*Implementation level	RME	-0.27	-2.73***	0.007	**Accept**
Culture factor*Implementation level	RME	-0.14	-1.38	0.167	Reject
Evaluation factor*Implementation level	RME	0.17	1.72*	0.086	**Accept**

Note 1: RME; Revenue management effectiveness

Note2: *p ≤ 0.10, **p ≤ 0.05, ***p ≤ 0.01

Critical factors

Org. F

Mon. F

HR. F

OP. F

Tec. F

Cul. F

Eva. F

-0.06

-0.05

0.21**

0.10

-0.27***

-0.14

0.17*

RM effectiveness
Financial
Non-Financial

Implementation Level
H3
Moderator
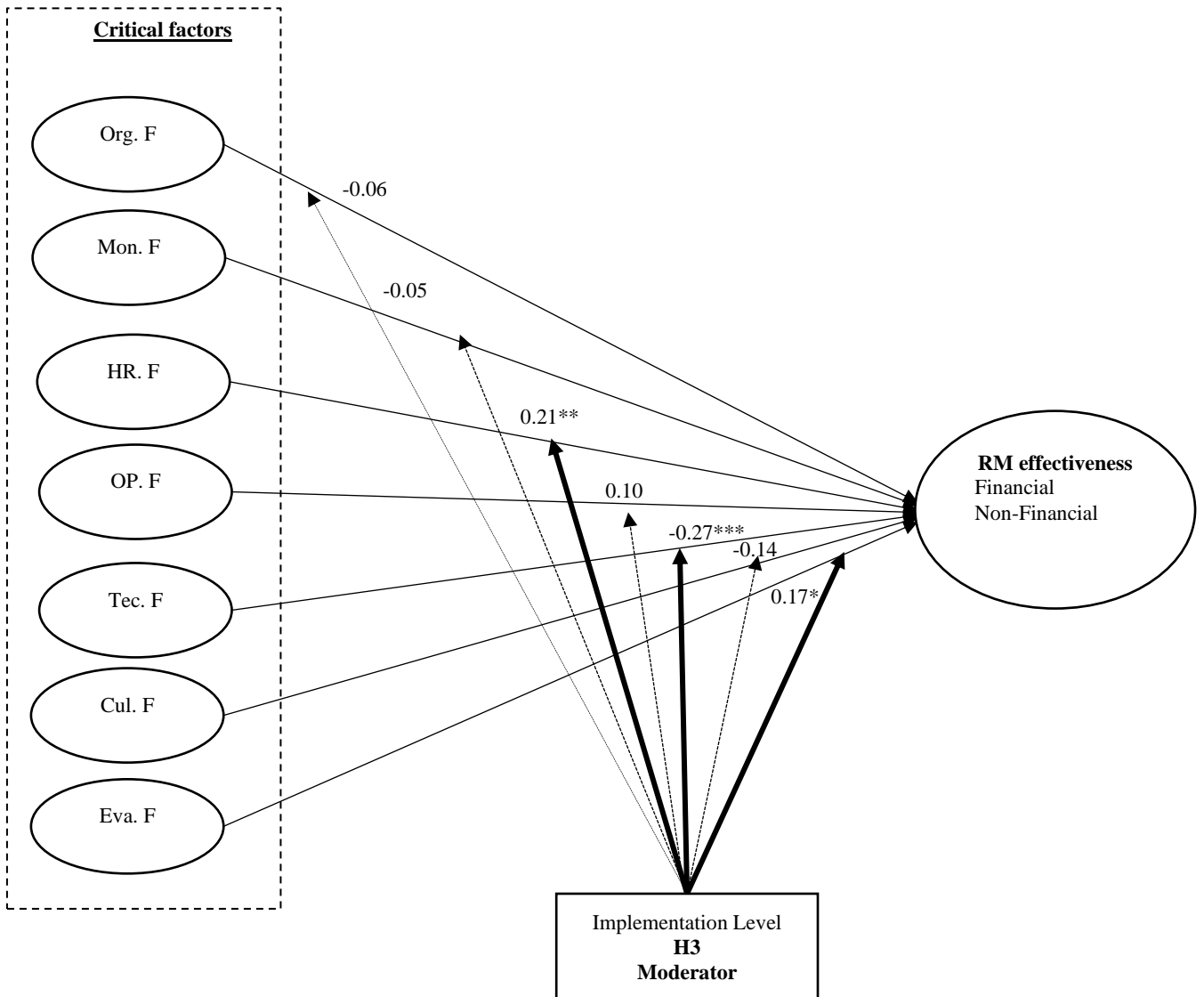
*p ≤ 0.10, **p ≤ 0.05, ***p ≤ 0.01

Figure 5.6. Results of the moderating effect of implementation level

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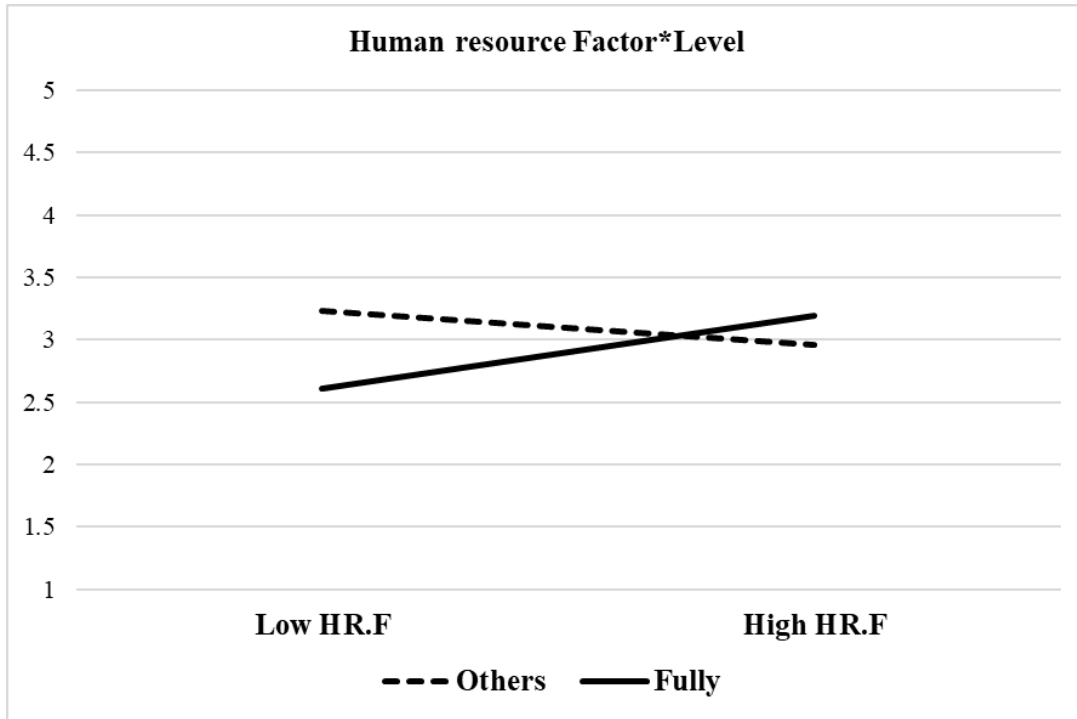
Figure 5.7. Plot of the moderator effect of level on the relationship between human resource factor and revenue management strategy effectiveness
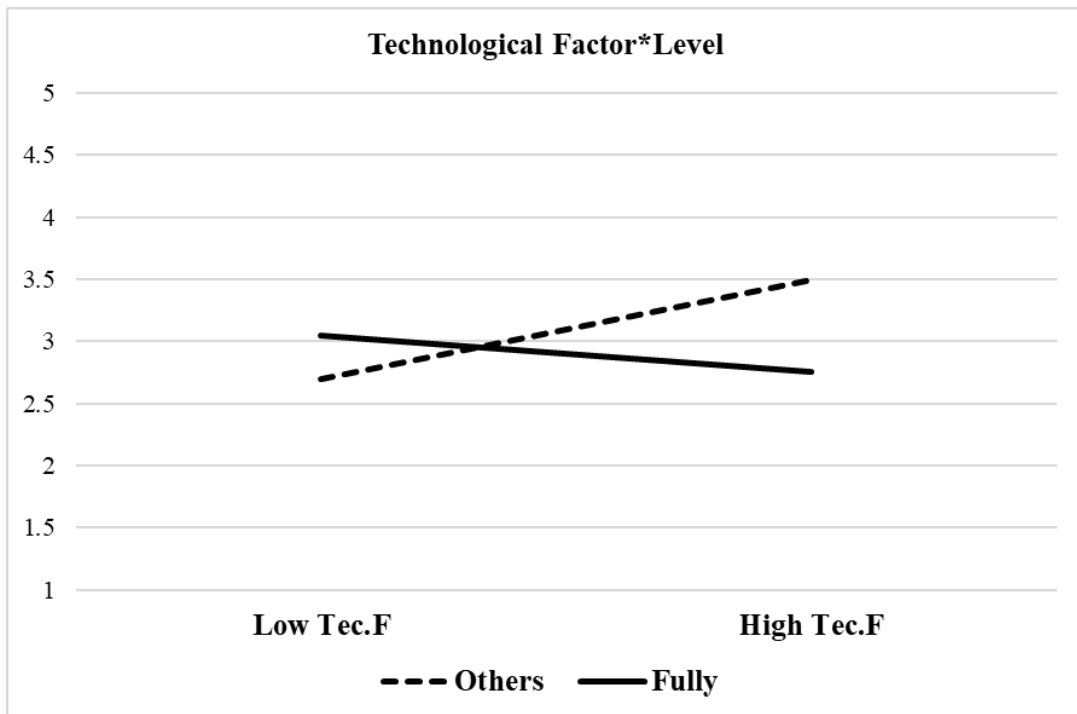
Figure 5.8. Plot of the moderator effect of level on the relationship between technological factors and revenue management strategy effectiveness
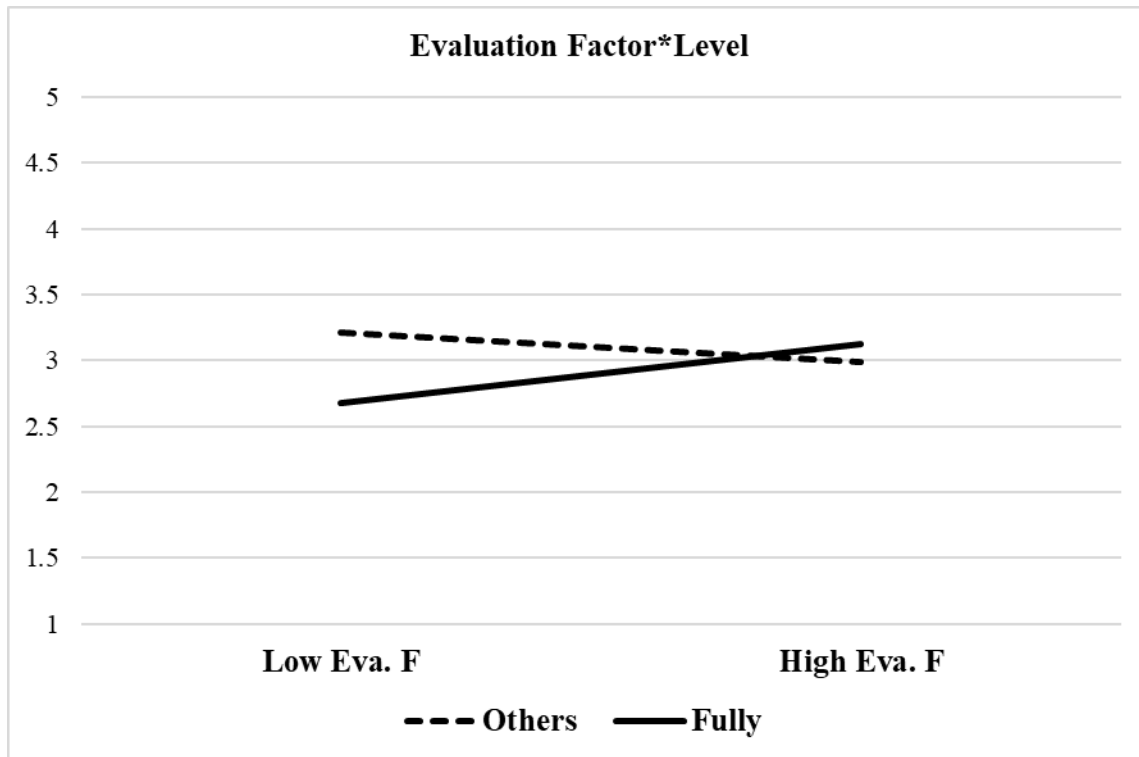
Figure 5.9. Plot of the moderator effect of level on the relationship between evaluation factor and revenue management strategy effectiveness

5.12 Split data

To further investigate the role of critical factors on revenue management's strategy effectiveness, another regression analysis was performed across two groups, i.e., country (developed versus developing), property location (urban versus others (suburban, airport, interstate/motorway, resort, small metro/town)), property service type (full-service and limited service), and property affiliation (chain versus independent).

5.12.1 Country: Developed versus Developing.

To examine the relationships between variables, a multiple regression was conducted. As shown in Table 5.16 a, similarities and differences existed across the two groups. An analysis of the results showed that regarding the developed countries, the model was found to be significant $F (10, 412) = 34.134, p < .000), R^2 = .453$.

The results showed that four of seven path coefficients were statistically significant. These significant paths were from organizational factor (coefficient=0.156, $t = 2.14$, $p<0.05$), monitoring factor (coefficient=0.193, $t= 2.48$, $p<0.05$), technological factor (coefficient=0.157, $t= 2.26$, $p<0.05$), and culture factor (coefficient=0.115, $t= 1.80$, $p<0.10$), as shown in Table 5.16.

Concerning the developing countries, the overall regression model was significant F (10, 249) = 24.542, $p < .000$), R^2 = .496. Out of the seven path coefficients, four were statistically significant, and those relationships were from human resource factor (coefficient=0.190, t= 2.06, $p<0.05$), operational factor (coefficient=0.128, $t= 2.20$, $p<0.05$), culture factor (coefficient=0.151, $t= 1.86$, $p<0.10$), and evaluation factor (coefficient=0.164, $t= 2.13$, $p<0.05$). Only the culture factor was significant in both groups.

Table 5.17. Regression results of developed versus developing countries

	Developed				Developing			
	Coefficient	Std. error	t-value	p-value	Coefficient	Std. error	t-value	p-value
(Constant)	1.725	.302	5.706	.000	1.897	.364	5.214	.000
Organizational factor	**.156****	**.073**	**2.136**	**.033**	.019	.086	.225	.822
Monitoring factor	**.193****	**.078**	**2.482**	**.013**	.092	.093	.985	.326
Human resource factor	.067	.069	.979	.328	**.190****	**.092**	**2.059**	**.041**
Operational factor	.024	.057	.415	.679	**.128****	**.058**	**2.203**	**.028**
Technological factor	**.157****	**.069**	**2.259**	**.024**	-.009	.076	-.123	.902
Culture factor	**.115***	**.064**	**1.804**	**.072**	**.151***	**.081**	**1.860**	**.064**
Evaluation factor	.026	.063	.408	.684	**.164****	**.077**	**2.128**	**.034**
Property type	-.059	.044	-1.346	.179	-.117	.051	-2.281	.023
Property Location	.020	.028	.725	.469	-.019	.031	-.601	.548
Property service type	-.426	.114	-3.736	.000	-.248	.143	-1.741	.083
R²	**.453**				**.496**			
Adjusted R²	**.440**				**.476**			

*p ≤ 0.10, **p ≤ 0.05, ***p ≤ 0.01

The moderating effects of the revenue management strategic approach on the relationship between the critical factors and revenue management strategy effectiveness were also conducted to identify any differences in the relationships based on the country. Regarding developed countries, the overall model was significant F $(18, 404)$ = 20.661, p < .000), R^2 = .479. Of the seven paths, three were statistically significant, i.e., monitoring factor (coefficient=0.276, SE= 0.161, p<0.10), operational factor (coefficient=-0.385, SE= 0.113, p≤0.001), and culture factor (coefficient=0.223, SE= 0.130, p<0.10). Regarding the developing countries, while the overall model was significant, F $(18, 241)$ = 13.809, p < .000), R^2 = .471, there was no significant moderated relationship, as depicted in Table 5.17. This indicates a difference in the moderated relationships of revenue management approach (in-house vs. other) in hotels in developed and developing countries.

Table 5.18. Moderation of strategic approach in developed versus developing countries

	Developed				Developing			
	Coefficient	Std. error	*t*-value	*p*-value	Coefficient	Std. error	*t*-value	*p*-value
(Constant)	1.821	.302	6.030	.000	1.974	.378	5.223	.000
Organizational factor	.155	.073	2.136	.033	-.013	.090	-.148	.883
Monitoring factor	.206	.078	2.645	.008	.116	.096	1.204	.230
Human resource factor	.076	.069	1.101	.272	.176	.096	1.825	.069
Operational factor	.016	.056	.291	.771	.131	.060	2.206	.028
Technological factor	.149	.069	2.142	.033	-.017	.080	-.214	.830
Culture factor	.115	.064	1.796	.073	.155	.084	1.844	.066
Evaluation factor	.017	.063	.272	.786	.175	.080	2.193	.029
Approach_Dummy	-.131	.077	-1.691	.092	-.040	.094	-.423	.673
Organizational factor *Approach	.043	.146	.297	.767	-.110	.180	-.611	.542
Monitoring factor*Approach	**.276***	**.161**	**1.712**	**.088**	-.077	.190	-.405	.686
Human resource factor*Approach	-.172	.144	-1.192	.234	.088	.202	.434	.665
Operational factor*Approach	**-.385***	**.113**	**-3.411**	**.001**	-.035	.118	-.294	.769
Technological factor*Approach	.154	.142	1.083	.280	.058	.172	.338	.736
Culture factor*Approach	**.223***	**.130**	**1.720**	**.086**	.283	.172	1.645	.101
Evaluation factor*Approach	-.120	.126	-.948	.344	-.046	.166	-.278	.781
Property type	-.065	.044	-1.481	.139	-.120	.052	-2.297	.022
Property Location	.017	.028	.593	.553	-.016	.032	-.514	.608
Property service type	-.409	.114	-3.590	.000	-.236	.145	-1.631	.104
R²	**.479**				**.508**			
Adjusted R²	**.456**				**.471**			

*p ≤ 0.10, **p ≤ 0.05, ***p ≤ 0.01

Similarly, the moderating effect of revenue management implementation level (fully implemented vs. partially or nearly implemented) on the relationship between critical factors and revenue management strategy effectiveness was conducted. With respect to the hotels located in developed countries, the overall model was found to be significant $F(18, 404) = 20.180$, $p < .000$), $R^2 = .473$. Further, four of the seven path relationships were significant.

These included; human resources factor (coefficient=0.289, SE= 0.139, p<0.05), operational factor (coefficient=0.236, SE= 0.115, p<0.05), technological factor (coefficient=-0.339, SE= 0.140, p<0.05), and culture factor (coefficient=-0.240, SE= 0.131, p<0.10).

Concerning hotels in developing countries, F (18, 241) = 14.233, p < .000), R^2 = .479. In this setting, two moderating effects on the relationship between technological factor (coefficient=-0.352, SE= 0.155, p<0.05) and evaluation factor (coefficient=-0.268, SE= 0.161, p<0.10) and revenue management strategy effectiveness were found to be significant, as shown in Table 5.18.

Table 5.19. Moderation of implementation level in developed versus developing countries

	Developed				Developing			
	Coefficient	Std. error	t-value	p-value	Coefficient	Std. error	t-value	p-value
(Constant)	1.797	.318	5.656	.000	2.125	.387	5.484	.000
Organizational factor	.197	.079	2.483	.013	.010	.090	.115	.909
Monitoring factor	.191	.085	2.253	.025	.062	.097	.638	.524
Human resource factor	.008	.075	.112	.911	.176	.098	1.800	.073
Operational factor	-.031	.066	-.464	.643	.153	.061	2.500	.013
Technological factor	.199	.076	2.631	.009	.038	.080	.479	.632
Culture factor	.151	.067	2.250	.025	.149	.085	1.763	.079
Evaluation factor	.015	.069	.215	.830	.119	.082	1.458	.146
Level_Dummy	-.020	.094	-.214	.831	-.173	.110	-1.569	.118
Organizational factor *Level	-.050	.148	-.335	.738	-.207	.183	-1.131	.259
Monitoring factor* Level	-.062	.157	-.397	.691	-.099	.206	-.480	.632
Human resource factor* Level	**.289***	**.139**	**2.077**	**.038**	.152	.192	.792	.429
Operational factor* Level	**.236****	**.115**	**2.045**	**.041**	.044	.141	.311	.756
Technological factor* Level	**-.339****	**.140**	**-2.411**	**.016**	**-.352****	**.155**	**-2.275**	**.024**
Culture factor* Level	**-.240***	**.131**	**-1.834**	**.067**	.129	.184	.704	.482
Evaluation factor* Level	**.128**	**.127**	**1.002**	**.317**	**.268***	**.161**	**1.667**	**.097**
Property type	-.067	.044	-1.526	.128	-.112	.052	-2.166	.031
Property Location	.019	.028	.670	.504	-.007	.032	-.233	.816
Property service type	-.431	.116	-3.719	.000	-.308	.147	-2.091	.038
R^2	**.473**				**.515**			
Adjusted R^2	**.450**				**.479**			

*p ≤ 0.10, **p ≤ 0.05, ***p ≤ 0.01

5.12.2 Property Location: Urban hotels versus others

For these particular groups, an analysis of the regression was conducted to identify the patterns in relationships across the two classes of hotel locations. As shown in Table 5.19, a difference existed across the two groups. An analysis of the results showed that regarding the hotels located in the urban the model was found to be significant F (10, 335) = 26.271, $p < .000$), $R^2 = .440$. The results showed that two of the seven path coefficients were statistically significant. These significant paths were from the human resource factor (coefficient=0.227, SE= 0.082, $p<0.01$) and culture factors (coefficient=0.169, SE= 0.075, $p<0.05$). Regarding hotels in other areas, the overall regression model was significant F (10, 326) = 28.246, $p < .000$), $R^2 = .464$. Three significant relationships were found in this group of hotels, including; monitoring factor (coefficient=0.231, SE= 0.082, $p<0.01$), technological factor (coefficient=0.108, SE= 0.064, $p<0.10$), and evaluation factor (coefficient=0.124, SE= 0.065, $p<0.10$)

Table 5.20. Regression results of Urban versus other locations

	Urban				Other			
	Coefficient	Std. error	t-value	p-value	Coefficient	Std. error	t-value	p-value
(Constant)	2.163	.356	6.070	.000	1.821	.311	5.857	.000
Organizational factor	.104	.084	1.247	.213	.102	.074	1.363	.174
Monitoring factor	.131	.088	1.484	.139	**.231*****	**.082**	**2.819**	**.005**
Human resource factor	**.227*****	**.082**	**2.754**	**.006**	.029	.073	.390	.696
Operational factor	.035	.062	.572	.568	.083	.055	1.504	.134
Technological factor	.054	.084	.645	.519	**.108***	**.064**	**1.677**	**.095**
Culture factor	**.169****	**.075**	**2.252**	**.025**	.073	.069	1.070	.285
Evaluation factor	-.004	.075	-.047	.962	**.124***	**.065**	**1.902**	**.058**
Country	-.013	.014	-.904	.366	-.028	.014	-1.992	.047
Property type	-.060	.045	-1.335	.183	-.089	.052	-1.703	.090
Property service type	-.524	.171	-3.063	.002	-.322	.107	-3.011	.003
R²	**.440**				**.464**			
Adjusted R²	**.423**				**.448**			

*p ≤ 0.10, **p ≤ 0.05, ***p ≤ 0.01

A regression analysis was also conducted to examine the moderating effect of the revenue management strategic approach on the relationship between the critical factors and revenue management strategy effectiveness on the hotel location. With respect to hotels located in urban areas, the overall model was significant $F(18, 327) = 15.273, p < .000$), $R^2 = .457$, as indicated in Table 5.20. Of the seven paths, only one was statistically significant, i.e., technological factor (coefficient= 0.322, SE=0.181, $p<0.10$). Similarly, concerning the economy hotels, the overall model was statistically significant $F(18, 318) = 17.050, p < .000$), $R^2 = .491$, with only operational factor showing a statistically significant relationship (coefficient=-0.376, SE= 0.110, $p\leq0.001$). This indicates a difference in the moderated relationships between luxury and economy hotels.

Table 5.21. Moderation of strategy approach in Urban versus other locations

	Urban				Others			
	Coefficient	Std. error	t-value	p-value	Coefficient	Std. error	t-value	p-value
(Constant)	2.246	.361	6.227	.000	1.893	.311	6.086	.000
Organizational factor	.084	.085	.983	.326	.106	.075	1.419	.157
Monitoring factor	.163	.090	1.815	.070	.236	.083	2.847	.005
Human resource factor	.201	.083	2.407	.017	.032	.075	.430	.667
Operational factor	.045	.062	.719	.473	.072	.055	1.324	.186
Technological factor	.035	.086	.407	.685	.114	.065	1.763	.079
Culture factor	.198	.077	2.590	.010	.070	.069	1.007	.315
Evaluation factor	-.014	.075	-.181	.857	.112	.065	1.708	.089
Approach_Dummy	-.116	.084	-1.380	.169	-.111	.086	-1.293	.197
Organizational factor *Approach	-.222	.173	-1.283	.200	.089	.150	.592	.554
Monitoring factor*Approach	-.057	.179	-.318	.751	.243	.173	1.400	.162
Human resource factor*Approach	-.086	.172	-.500	.617	-.057	.160	-.359	.720
Operational factor*Approach	.001	.124	.012	.991	**-.376**	**.110**	**-3.405*****	**.001**
Technological factor*Approach	**.322***	**.181**	**1.776**	**.077**	-.012	.139	-.085	.932
Culture factor*Approach	.194	.153	1.271	.205	.203	.141	1.441	.150
Evaluation factor*Approach	-.062	.151	-.412	.681	-.084	.134	-.626	.532
Country	-.013	.014	-.887	.376	-.024	.015	-1.634	.103
Property type	-.053	.045	-1.167	.244	-.105	.053	-1.996	.047
Property service type	-.532	.172	-3.086	.002	-.283	.107	-2.653	.008
R²	**.457**				**.491**			
Adjusted R²	**.427**				**.462**			

*p ≤ 0.10, ***p ≤ 0.01

Likewise, the moderating effect of revenue management implementation level (fully implemented vs. partially or nearly implemented) on the relationship between critical factors and

revenue management strategy effectiveness was conducted on hotels in urban and other areas. Regarding the urban hotels, the overall model was significant F $(18, 327) = 15.308$, $p < .000$), R^2 $= .457$. Only the technological factor (coefficient=-0.360, SE= 0.176, p<0.05) was significant in moderation. Regarding the moderating effect using the hotels located in other areas group, the overall model was significant F $(18, 318) = 16.389$, $p < .000$), $R^2 = .481$, and human resource factor (coefficient=-0.286, SE= 0.154, p<0.10) path was found to be significant as illustrated in Table 5.21. This depicts differences in the essential critical factors based on the hotel location.

Table 5.22. Moderation of implementation in Urban versus other locations

	Urban				Other			
	Coefficient	Std. error	t-value	p-value	Coefficient	Std. error	t-value	p-value
(Constant)	2.152	.374	5.756	.000	2.070	.335	6.183	.000
Organizational factor	.137	.087	1.573	.117	.098	.081	1.209	.228
Monitoring factor	.099	.091	1.080	.281	.225	.091	2.483	.014
Human resource factor	.192	.083	2.298	.022	-.045	.088	-.509	.611
Operational factor	.041	.064	.641	.522	.062	.063	.971	.332
Technological factor	.077	.085	.903	.367	.123	.073	1.687	.093
Culture factor	.171	.076	2.234	.026	.127	.079	1.614	.108
Evaluation factor	.010	.076	.138	.890	.124	.082	1.520	.129
Level_Dummy	.026	.103	.249	.803	-.206	.100	-2.051	.041
Organizational factor *Level	-.188	.169	-1.109	.268	-.019	.152	-.124	.902
Monitoring factor* Level	-.105	.198	-.532	.595	-.015	.165	-.091	.927
Human resource factor* Level	.251	.179	1.397	.163	**.286***	**.154**	**1.851**	**.065**
Operational factor* Level	.176	.143	1.228	.220	.040	.112	.360	.719
Technological factor* Level	**-.360****	**.176**	**-2.049**	**.041**	-.201	.132	-1.527	.128
Culture factor* Level	-.078	.181	-.432	.666	-.153	.140	-1.091	.276
Evaluation factor* Level	.229	.165	1.387	.166	.028	.142	.197	.844
Property type	-.016	.014	-1.162	.246	-.028	.014	-2.015	.045
Property Location	-.068	.045	-1.496	.136	-.099	.053	-1.887	.060
Property service type	-.551	.172	-3.200	.002	-.287	.110	-2.600	.010
R²	**.457**				**.481**			
Adjusted R²	**.427**				**.452**			

$*p \leq 0.10$, $***p \leq 0.01$

5.12.3 Property service type: Full-service hotels versus limited-service hotels

Another regression analysis was conducted between full-service and limited-service types of hotels. As shown in Table 5.22, differences and similarities existed across the two groups. An analysis of the results showed that, regarding hotels offering full-service, the overall model was

significant F (10, 585) = 49.827, $p < .000$), R^2 = .460. The results showed that four of seven path

coefficients were statistically significant. These significant paths were from organizational factor

(coefficient=0.179, SE= 0.059, $p<0.001$), monitoring factor (coefficient=0.176, SE= 0.063,

$p<0.001$), human resource factor (coefficient=0.136, SE=0.058, $p<0.05$), and technological

factors (coefficient=0.120, SE= 0.055, $p<0.05$). For the limited-service hotels, the overall

regression model was significant F (10, 76) = 4.960, $p < .000$), R^2 = .395. Out of the seven path

coefficients, two were statistically significant, and those relationships were from the operational

factor (coefficient= 0.247, SE= 0.136, $p<0.10$) and culture factor (coefficient=0.321, SE= 0.142,

$p<0.05$).

Table 5.23. Regression results of Full-service versus Limited-service hotels

	Full-service				Limited-service			
	Coefficient	Std. error	t-value	p-value	Coefficient	Std. error	t-value	p-value
(Constant)	1.321	.218	6.051	.000	1.931	.591	3.268	.002
Organizational factor	**.179*****	**.059**	**3.036**	**.003**	-.258	.164	-1.579	.118
Monitoring factor	**.176*****	**.063**	**2.797**	**.005**	.171	.165	1.038	.303
Human resource factor	**.136****	**.058**	**2.364**	**.018**	.005	.158	.033	.974
Operational factor	.019	.043	.451	.652	**.247***	**.136**	**1.821**	**.073**
Technological factor	**.120****	**.055**	**2.163**	**.031**	.012	.121	.101	.920
Culture factor	.071	.054	1.325	.186	**.321****	**.142**	**2.264**	**.026**
Evaluation factor	.066	.052	1.265	.206	.069	.133	.519	.605
Country	-.013	.010	-1.260	.208	-.047	.028	-1.667	.100
Property type	-.075	.035	-2.170	.030	-.037	.121	-.302	.763
Property Location	.004	.022	.178	.859	.055	.063	.884	.379
R^2	**.460**				**.395**			
Adjusted R^2	**.451**				**.315**			

$*p \leq 0.10, **p \leq 0.05, ***p \leq 0.01$

A regression analysis was also carried out to examine the moderating effect of the revenue

management strategic approach (inhouse vs other) on the relationship between the critical factors

and revenue management strategy effectiveness on the hotel service type. With respect to full-

service hotels, the overall model was significant F (18, 577) = 28.658, p < .000), R^2 = .472. Of the

seven paths, two were statistically significant, i.e., operational factor (coefficient=-0.209, SE=

0.086, p<0.05), culture factor (coefficient=0.210, SE= 0.109, p<0.10). Correspondingly, concerning the limited-service hotels, the overall model was statistically significant F (18, 68) = 3.810, p < .000), R^2 = .502. Two relationships were also found to be significant, including operational factor (coefficient=-0.777, SE= 0.354, p<0.05) and culture approach (coefficient=0.933, SE= 0.402, p<0.05), as displayed in Table 5.23. This indicates similarities in the moderated relationships between full-service and limited-service hotels.

Table 5.24. Moderation of strategy approach on Full-service versus Limited-service hotels

	Full-service				Limited-service			
	Coefficient	Std. error	t-value	p-value	Coefficient	Std. error	t-value	p-value
(Constant)	1.351	.223	6.066	.000	2.459	.669	3.678	.000
Organizational factor	.174	.060	2.908	.004	-.236	.173	-1.369	.176
Monitoring factor	.190	.063	2.996	.003	.419	.180	2.334	.023
Human resource factor	.136	.058	2.345	.019	.021	.159	.133	.894
Operational factor	.009	.043	.215	.830	.471	.169	2.794	.007
Technological factor	.112	.056	1.996	.046	-.001	.124	-.012	.990
Culture factor	.088	.054	1.623	.105	.013	.180	.072	.942
Evaluation factor	.059	.053	1.118	.264	-.118	.152	-.781	.438
Approach_Dummy	-.067	.061	-1.095	.274	-.622	.230	-2.701	.009
Organizational factor *Approach	.060	.120	.501	.617	-.388	.368	-1.055	.295
Monitoring factor*Approach	.143	.129	1.108	.268	-.359	.386	-.930	.356
Human resource factor*Approach	-.125	.122	-1.028	.305	.093	.366	.253	.801
Operational factor*Approach	**-.209****	**.086**	**-2.418**	**.016**	**-.777****	**.354**	**-2.193**	**.032**
Technological factor*Approach	.109	.119	.918	.359	-.022	.262	-.085	.933
Culture factor*Approach	**.210***	**.109**	**1.929**	**.054**	**.933****	**.402**	**2.322**	**.023**
Evaluation factor*Approach	-.100	.106	-.944	.345	.502	.343	1.463	.148
Country	-.010	.011	-.953	.341	-.030	.034	-.881	.381
Property type	-.077	.035	-2.221	.027	-.074	.118	-.621	.536
Property Location	.001	.022	.055	.956	.026	.065	.408	.684
R^2	**.472**				**.502**			
Adjusted R^2	**.456**				**.370**			

$*p \leq 0.10, **p \leq 0.05$

The moderating effect of revenue management implementation level (fully implemented vs. partially or nearly implemented) on the relationship between critical factors and revenue management strategy effectiveness was conducted on full- and limited-service hotels. Regarding the full-service hotels, the overall model was significant F (18, 577) = 28.744, p < .000), R^2 = .473.

Of the seven interactions, two were statistically significant; human resources factors (coefficient=0.234, SE= 0.118, p<0.05) and technological factors (coefficient=-0.273, SE= 0.112, p<0.05). Likewise, regarding the moderating effect using the limited-service hotels, the overall model was significant F (18, 68) = 3.012, p < .000), R^2 = .410. Nevertheless, the moderation had no significant relationship, as presented in Table 5.24. This depicts differences in the most important critical factors based on the hotel service type.

Table 5.25. Moderation of implementation level on Full-service versus Limited-service hotels

	Full-service				Limited-service			
	Coefficient	Std. error	t-value	p-value	Coefficient	Std. error	t-value	p-value
(Constant)	1.433	.237	6.058	.000	1.990	.690	2.885	.005
Organizational factor	.200	.062	3.239	.001	-.431	.214	-2.015	.048
Monitoring factor	.157	.065	2.400	.017	.209	.208	1.005	.319
Human resource factor	.109	.061	1.787	.074	-.019	.193	-.097	.923
Operational factor	.004	.045	.081	.935	.245	.148	1.651	.103
Technological factor	.140	.058	2.410	.016	.105	.149	.706	.483
Culture factor	.091	.055	1.645	.100	.392	.167	2.353	.022
Evaluation factor	.051	.056	.914	.361	.064	.175	.367	.715
Level_Dummy	-.087	.075	-1.156	.248	-.166	.216	-.770	.444
Organizational factor *Level	-.084	.120	-.701	.483	.387	.355	1.090	.280
Monitoring factor* Level	-.018	.130	-.136	.892	-.054	.372	-.145	.885
Human resource factor* Level	**.234**[**]	**.118**	**1.986**	**.048**	.139	.337	.413	.681
Operational factor* Level	.114	.088	1.298	.195	-.021	.284	-.075	.941
Technological factor* Level	**-.273**[**]	**.112**	**-2.431**	**.015**	-.369	.268	-1.375	.174
Culture factor* Level	-.134	.112	-1.196	.232	-.289	.298	-.971	.335
Evaluation factor* Level	.144	.107	1.353	.177	.039	.308	.125	.901
Country	-.013	.010	-1.286	.199	-.043	.029	-1.471	.146
Property type	-.072	.034	-2.094	.037	-.063	.133	-.478	.634
Property Location	.007	.022	.336	.737	.073	.068	1.084	.282
R²	**.473**				**.444**			
Adjusted R²	**.456**				**.296**			

**p ≤ 0.05

5.12.4 Property affiliation: Chain hotels versus independent hotels.

Multiple regression was conducted across the chain affiliated hotels and independent affiliated hotels to assess the relationships between variables. An exploration of the results showed that apropos to the chain hotels, the overall model was significant $F (10,423) = 44.485, p < .000)$, $R^2 = .513$. The results showed that three of seven path coefficients were statistically significant. These significant paths were from organizational factor (coefficient=0.138, SE= 0.067, $p<0.05$), monitoring factor (coefficient=0.219, SE= 0.068, $p\leq0.001$), and culture factor (coefficient=0.107, SE= 0.057, $p<0.10$), as shown in Table 5.25. For the independent hotels, the model was found to be significant $F (10, 238) = 15.993, p < .000)$, $R^2 = .402$. Further, one relationship, technological factors (coefficient=0.215, SE= 0.087, $p<0.05$), was statistically significant.

Table 5.26. Regression results of Chain versus Independent hotels

	Chain				**Independent**			
	Coefficient	Std. error	t-value	p-value	Coefficient.	Std. error	t-value	p-value
(Constant)	1.689	.276	6.129	.000	1.819	.433	4.199	.000
Organizational factor	**.168****	**.067**	**2.504**	**.013**	-.015	.096	-.153	.879
Monitoring factor	**.219*****	**.068**	**3.231**	**.001**	.080	.119	.673	.502
Human resource factor	.096	.062	1.553	.121	.149	.108	1.379	.169
Operational factor	.071	.049	1.456	.146	.086	.074	1.164	.246
Technological factor	.032	.062	.516	.606	**.215****	**.087**	**2.470**	**.014**
Culture factor	**.107***	**.057**	**1.867**	**.063**	.091	.100	.915	.361
Evaluation factor	.075	.056	1.347	.179	.097	.097	.993	.322
Country	-.032	.012	-2.700	.007	.002	.018	.110	.912
Property Location	.009	.026	.342	.732	-.001	.037	-.029	.977
Property service type	-.374	.110	-3.408	.001	-.449	.150	-2.992	.003
R²	.513				.402			
Adjusted R²	.501				.377			

*p ≤ 0.10, **p ≤ 0.05, ***p ≤ 0.01

The moderating effect of the revenue management strategy approach (inhouse vs other) on the relationship between critical factors and revenue management strategy effectiveness was conducted on the chain and independent affiliated hotels. Regarding the chain hotels, the overall model was significant F (18, 415) = 26.032, p < .000), $R^2 = .530$.

Two of the seven interactions were statistically significant; operational factor (coefficient=-0.184, SE= 0.096, p<0.10) and culture factor (coefficient=0.207, SE= 0.115, p<0.10), as displayed in Table 5.26. Likewise, regarding the moderating effect using the independent hotels, the overall model was significant $F_{(18, 230)} = 9.409$, p < .000), $R^2 = .424$. In this instance, there was one significant relationship; operational factors (coefficient=-0.275, SE= 0.153, p<0.10) in moderation. The analysis shows that operational factors are significant in a chain and independent affiliated hotels. This means an in-house strategic approach had a similar moderating effect on the relationship between operational factor and revenue management strategy effectiveness in the chain and independent hotels.

Table 5.27. Moderation of strategy approach on Chain versus Independent Hotels

	Chain				Independent			
	Coefficient	Std. error	t-value	p-value	Coefficient	Std. error	t-value	p-value
(Constant)	1.778	.277	6.418	.000	1.729	.444	3.895	.000
Organizational factor	.163	.068	2.380	.018	-.051	.100	-.508	.612
Monitoring factor	.227	.068	3.333	.001	.112	.121	.931	.353
Human resource factor	.094	.063	1.491	.137	.171	.111	1.540	.125
Operational factor	.058	.049	1.182	.238	.084	.075	1.113	.267
Technological factor	.040	.062	.646	.519	.210	.092	2.297	.022
Culture factor	.116	.058	2.019	.044	.099	.103	.965	.336
Evaluation factor	.063	.056	1.121	.263	.081	.099	.811	.418
Approach_dummy	-.156	.070	-2.237	.026	.074	.111	.671	.503
Organizational factor*Approach	.092	.136	.676	.499	-.165	.209	-.789	.431
Monitoring factor*Approach	.145	.139	1.044	.297	.272	.247	1.102	.272
Human resource factor*Approach	-.126	.134	-.941	.347	-.129	.234	-.548	.584
Operational factor*Approach	**-.184***	**.096**	**-1.909**	**.057**	**-.275***	**.153**	**-1.792**	**.074**
Technological factor*Approach	.077	.130	.592	.554	.075	.199	.374	.709
Culture factor*Approach	**.207***	**.115**	**1.797**	**.073**	.299	.208	1.435	.153
Evaluation factor*Approach	-.081	.114	-.708	.480	-.209	.204	-1.021	.308
Country	-.028	.012	-2.352	.019	.006	.018	.314	.754
Property Location	.006	.026	.235	.814	.009	.039	.245	.807
Property service type	-.343	.109	-3.146	.002	-.459	.152	-3.013	.003
R^2	**.530**				**.424**			
Adjusted R^2	**.510**				**.379**			

*$p \leq 0.10$

To examine the moderating effect of revenue management implementation level on the relationship between the critical factors and revenue management strategy effectiveness on the chain and independent hotels, a regression analysis was also carried out. Concerning chain hotels, the overall model was significant $F (18, 415) = 25.618$, $p < .000$), $R^2 = .526$. Based on the results, only the human resource factor (coefficient=0.210, SE= 0.127, p<0.10) was statistically significant, as seen in Table 5.27. Similarly, with respect to the independent hotels, the overall model was statistically significant $F (18, 230) = 9.311$, $p < .000$), $R^2 = .422$. There were two significant moderating relationships; operational factor (coefficient=0.267, SE= 0.154, p<0.10) and technological factor (coefficient=-0.325, SE= 0.182, p<0.10). This indicates differences in the moderated impact on the relationship between a human resource, operational, and technological factors and the effectiveness of revenue management strategy in the chain and independent affiliated hotels.

Table 5.28. Moderation of implementation level on Chain versus Independent hotels

	Chain				Independent			
	Coefficient	Std. error	t-value	p-value	Coefficient	Std. error	t-value	p-value
(Constant)	1.844	.289	6.385	.000	1.938	.475	4.082	.000
Organizational factor	.161	.074	2.179	.030	.028	.102	.276	.783
Monitoring factor	.218	.072	3.009	.003	.053	.123	.430	.668
Human resource factor	.061	.068	.899	.369	.101	.112	.903	.367
Operational factor	.066	.051	1.286	.199	.047	.081	.577	.564
Technological factor	.048	.071	.683	.495	.250	.089	2.798	.006
Culture factor	.148	.060	2.460	.014	.098	.102	.967	.335
Evaluation factor	.043	.061	.702	.483	.120	.106	1.129	.260
Level_Dummy	-.150	.087	-1.720	.086	-.045	.124	-.365	.716
Organizational factor*Level	.010	.137	.076	.940	-.267	.201	-1.326	.186
Monitoring factor* Level	-.113	.140	-.811	.418	-.056	.248	-.227	.821
Human resource factor* Level	**.210***	**.127**	**1.654**	**.089**	.220	.223	.986	.325
Operational factor* Level	.040	.101	.394	.694	**.267***	**.154**	**1.732**	**.085**
Technological factor* Level	-.174	.128	-1.363	.174	**-.325***	**.182**	**-1.786**	**.075**
Culture factor* Level	-.173	.117	-1.488	.138	-.060	.224	-.267	.790
Evaluation factor* Level	.152	.113	1.337	.182	.191	.202	.947	.345
Country	-.033	.012	-2.806	.005	6.418E	.018	.004	.997
Property type	.014	.026	.549	.583	-.001	.037	-.024	.981
Property Location	-.363	.112	-3.253	.001	-.512	.155	-3.310	.001
R^2	**.526**				**.422**			
Adjusted R^2	**.506**				**.376**			

*$p \leq 0.10$

5.13 Summary

This chapter presented and explained the findings of the main study. It described the data screening and how the reliability and validity checks of the data were tested. The attributes of the respondents' hotels and respondents were also given. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy Test and Bartlett's Test of Sphericity were used to validate the appropriateness of the analysis. A factor analysis (principal component analysis) was performed based on these statistical tests. Consequently, seven components were revealed. A multiple regression analysis was performed on the relationship between critical factors and revenue management effectiveness. The regression results revealed that hypothesis one was fully supported, while the hypotheses of the two moderators (strategy approach and implementation level) were partially supported.

CHAPTER 6: DISCUSSION AND IMPLICATION

6.0 Introduction

Based on the data analysis reported and discussed in Chapters 4 and 5, significant statistical findings were obtained to investigate and predict the relationships between the critical factors for implementing revenue management strategy and effectiveness, which had different levels and degrees of significance. This chapter details the insights from non-statistical and statistical results concerning the critical factors identified for effectively implementing a revenue management strategy in the hotel industry. The theoretical and practical implications are also addressed. The discussion is based on five research objectives.

6.1 Model Assessment

This study examined the role of critical factors in revenue management strategy effectiveness. The study used constructs and items generated from a systematic literature review, validated by experts, and verified through Fuzzy Delphi Method and Fuzzy Analytic Network Process. A model of the interrelationship of the identified critical factors was then developed using the modified total interpretative structural modeling. Currently, a limited number of theories and models have been developed for evaluating the effective implementation of revenue management strategy. Drawing on the contingency theory, this study identifies the critical factors that influence the effective implementation of the revenue management strategy by hotels.

The Exploratory Factor Analysis (EFA), Cronbach's alpha coefficients, and correlation analysis, among other validity tests, revealed that the data fits the model and indicated suitability for further analysis. All the measurement indices were within the recommended range (Blunch, 2008; Kaplan, 2004; Hair et al., 2010; Tabachnick & Fidell, 2001). Accordingly, the EFA indicated a seven-factor model compatible with the data.

The analysis revealed that the seven identified critical factors (organizational, monitoring, human resource, operational, technological, cultural, and evaluation factors) accounted for 66 % of the total variance. A multiple regression analysis investigated the relationship between the critical factors and revenue management effectiveness. All seven factors showed a significant relationship with the revenue management strategy effectiveness when controlled for the country, property type, property location, and property service type.

Consequently, the findings suggest that several interrelated critical factors influence the implementation of an effective revenue management strategy. The moderating effects of the hotel's revenue management strategy approach and the implementation level on the relationship between the critical factors and revenue management effectiveness were also examined, and partial relationships were revealed. The identified critical factors, the interrelationships among the critical factors, the relationship between the critical factors and revenue management strategy effectiveness, the moderating role of the revenue management strategy approach the hotel employs, and the level of implementation are discussed in the subsequent sections.

6.2 Research objective 1: Identification of the critical factors for revenue management strategy implementation in the hotel industry.

6.2.1 Dimensionality of critical factors for RM strategy implementation in the hotel industry from Literature

Following an extensive examination of the literature on constructs of critical factors for strategy implementation from a generic, industry-specific (hotel), and business strategy-specific (revenue management) perspective, this study identified 20 critical factors for effective strategy implementation. These included: F1) strategy goals and policies, F2) department structure, F3) top management commitment, F4) strategy focus, F5) revenue management culture, F6) strategy knowledge, F7) employee commitment and involvement, F8) training, F9) communication, F10) implementation of strategy, F11) leadership, F12) employee relations, F13) revenue management monitoring, F14) revenue management strategy process design, F15) revenue management measures, F16) Benchmarking, F17) approach to revenue management strategy implementation, F18) customer focus and satisfaction, F19) process management, F20) revenue management technology. These generic factors formed the basis of initial constructs for possible critical factors subjected to further validation to identify the factors most relevant to revenue management strategy implementation.

6.2.2 Dimensionality of critical factors for RM strategy implementation in the Hotel Industry from Experts' (academia and Industry) Perspective

A qualitative, quantitative process was conducted to refine the 23 constructs and 115 items further for critical factors for revenue management strategy; a thorough and rigorous validation and filtering process of constructs and items was conducted through experts' opinions and Fuzzy analysis (Fuzzy Delphi and Fuzzy Analytic Network Process).

Both interviews and semi-structured questionnaires were employed to collect the experts' opinions, as described in section 3. The experts suggested three additional factors, including; F21) data accuracy and integrity, F22) revenue management team readiness, and F23) revenue management system quality, totaling 23 critical factors. The 23 factors were further analyzed and validated using the experts, and 13 critical factors specific to revenue management strategy implementation were identified. These included: **F1)** revenue management strategy goals and policies, **F2)** revenue management department structure, **F13)** revenue management monitoring, **F5)** revenue management culture, **F9)** communication, **F14)** revenue management strategy process design, **F23)** revenue management system quality, **F21)** data accuracy and integrity, **F19)** process management, **F3)** top management commitment, **F22)** revenue management team readiness, **F10)** implementation of revenue management strategy, **F8)** employee training. These constructs were identified as the most relevant critical factors for revenue management strategy implementation. To further verify the relevance of these factors in real situations, an online survey was conducted in revenue management practicing hotels.

6.2.3 Dimensionality of critical factors for RM strategy implementation in the hotel industry from hotels

A structured questionnaire was designed to verify the identified critical factors in a real hotel context. A pre-test, followed by a pilot survey, was conducted using academic staff and doctoral students to ensure clarity and comprehension of the 13 constructs and 60 items. An online survey was then carried out with personnel in charge of the revenue management function in hotels around the globe. A performance of EFA on the constructs and items revealed seven critical factor components for revenue management strategy implementation in the hotel industry.

These components were "1) organizational factor", "2) monitoring factor", "3) human resource factor", "4) operational factor", "5) technological factor", "6) culture factor", and "7) evaluation factor". Following is a detailed elaboration and discussion of the seven identified critical factors.

6.2.3.1 Organizational factor

Organizational factor encompasses all aspects that influence an organization's behavior and everyone's performance (Babbar et al., 2008; Donate & Guadamillas, 2011). This study identified organizational factor as a critical factor in the effective implementation and performance of the revenue management strategy in the hotel industry. For this study, it is noteworthy that organizational factors had the highest eigenvalue weightings and retained the highest number of indicators among the seven potential critical factors. According to the extant literature, some aspects of organizational factor include goals and policies, top management commitment and leadership, work patterns, culture, and communication (Law and Ngai, 2007; Li et al., 2008; Singh et al., 2020; Stumpf & London, 1981) aspects that were identified in this study.

Specifically, the dimension of an organizational factor in this study included eight items, i.e., the hotel considers revenue management strategy as part of an overall strategic plan within the hotel, the hotel has standard operating procedures for revenue management strategy implementation process, the top management supports the entire organization in understanding the benefit(s) of revenue management strategy implementation, the hotel employees understand how the revenue management strategy fits within the strategic vision of the hotel, the hotel minimizes hierarchical and bureaucratic procedures for effective revenue management strategy implementation, the hotel revenue management strategy goals are beneficial to the overall performance of the hotel, the hotel creates awareness of revenue management strategy in all

departments, and the hotel implements a culture towards revenue management strategy 'Best Practice.' The findings of this study are consistent with previous studies relating to strategy implementation (e.g., Köseoğlu et al., 2018, Okumus, 2001, O'Reilly et al., 2010).

6.2.3.2 Monitoring factor

According to (Enz, 2009), monitoring refers to the control process by which the involved personnel are provided with feedback at each stage of the implementation process. It entails tracking progress based on strategic goals, set milestones, and targets. Monitoring is a significant part of the strategy implementation process and is increasingly applied as part of managerial or operational practices (Okumus, 2004). The findings of this study support the reasoning that monitoring is a critical factor for hotel revenue management strategy implementation. However, unlike previous studies (Ivanov, 2014; Rodríguez-Algeciras & Talon-Ballestero, 2017) that identify monitoring as an amalgam of evaluation (monitoring and evaluation), this study identified monitoring as a factor independent of the evaluation. Thus, hotels seeking to implement the revenue management strategy effectively should be considered the autonomy of monitoring aspect. The autonomy of the strategy monitoring process is crucial for hotels seeking to implement a revenue management strategy successfully.

This factor was comprised of six dimensions including; the hotel audits and checks the integrity of revenue management strategy data, the hotel regularly gives feedback to improve the revenue management team's performance, the hotel regularly monitors the revenue management strategy implementation processes effectiveness, the hotel compares actual revenue management strategy implementation progress against set goals, the hotel conducts meetings to monitor the revenue management strategy implementation process, and the hotel tracks changing trends in the implementation and utilization of revenue management strategy.

The aspects identified in this study are similar to aspects of monitoring mentioned in previous studies (Gheni et al., 2017; Ika et al., 2012; Pinto & Slevin, 2006). Although this factor has been examined in previous studies, it has received little attention in revenue management strategy implementation research.

6.2.3.3 Human resource factor

Human resource is a business function that refers to the people aspect concerning the skills, resources, motivation, quality of employees, and decision-making, among others of staff involved in the strategy implementation process (Armstrong & Taylor, 2020; Stone et al., 2020). According to Aubke et al. (2014), people are the most important assets in the very organization. They are a key function in the operations of any business because it is through them that tasks are accomplished, and they have a strong effect on the success or failure of implementing the strategy (Beck et al., 2011; Cetin et al., 2016; Kimes, 2008). Previous studies have revealed that skilled, motivated staff are more receptive and committed to their assigned tasks (Meyer et al., 2004; Stone et al., 2020). Thus, revenue management strategists must ensure that staff affected and involved with the revenue management function understand the strategy and have adequate resources to carry out the implementation process.

In tandem with prior studies on human resource factors, the human resource factor in this study is composed of five dimensions including; the revenue management team is provided with all necessary resources to support the revenue management strategy implementation process, the revenue management team is composed of personnel with adequate skills (e.g., technical, analytical, creativity, managerial), the revenue management team is motivated to commit to effective revenue management strategy implementation, the revenue manager actively collaborates with managers from other departments, and the revenue management team is involved in revenue

management strategy decision-making process. This collaborates with studies by (Cetin et al., 2016; Donaghy et al., 1995; Lieberman, 2003; MacVicar & Rodger, 1996), who identify these dimensions as key for the human resource factor.

6.2.3.4 Operational factor

According to Okumus (2003), operational process factor describes those predominantly used and directly involved in the implementation process. Operational processes are also defined as activities and behaviors performed by people or machines to achieve results (Asif et al., 2009). The process affects strategy implementation activities and tasks (O'Connor & Frew, 2004). As such, they must be well managed and controlled to prevent the breakdown of the process. This study identified four operational process dimensions: revenue management processes are user-friendly, revenue management processes are customer-centric, revenue management processes are aligned by setting tangible targets, and revenue management processes are constantly improved by performance monitoring.

The findings of this study are in tandem with prior studies that emphasize the need for efficiency, friendliness, and customer focus in designing revenue management products and services (Gallego & Topaloglu, 2019; Lieberman, 2003; Noone et al., 2011).

6.2.3.5 Technological factor

Technological factor refers to knowledge, products, processes, and systems that organizations use as platforms to create and deliver value (Wang et al., 2015). A firm's technological ability enables them to implement strategies most appropriate to its goals. Existing literature shows that system suppliers play a key role in the designing, developing, and implementation of technology, therefore firms must ensure that they engage trusted system suppliers (Handfield et al., 1999; 2006; Humphreys et al., 2004; Quante et al., 2009).

The revenue management strategy requires a robust system for effective implementation. Research has found that revenue management suppliers significantly implement the revenue management strategy (Vinod, 2022; Zheng & Forgacs, 2017).

This study identified four dimensions related to revenue management system suppliers. These include; the hotel involving suppliers in designing /redesigning the process of the revenue management system, the hotel evaluating revenue management system suppliers according to delivery performance, the hotel evaluating revenue management system suppliers according to price, and the hotel evaluating revenue management system suppliers according to quality.

6.2.3.6 Total revenue management Culture

Culture is a set of shared values, behaviors, and expectations that guide the day-to-day activities of an organization (Jafari et al., 2008). To ensure successful revenue management implementation, it is generally agreed that a revenue management-friendly culture must be present or nurtured (Abad et al., 2019; Kuokkanen & Bouchon, 2021; Noone et al., 2017; Zheng & Forgacs, 2017). previous studies have underscored the need for and the benefit of having a revenue management culture. According to Rodríguez-Algeciras & Talon-Ballestero (2017), all hotel departments and employees should synergistically be involved in revenue management activities to promote a revenue management culture. A study by Noone et al. (2017) emphasizes the importance of a supportive revenue management culture and structure for effectively implementing the revenue management strategy.

The revenue management culture comprised four dimensions in line with the prior studies. These are: the hotel personnel from all departments in the hotel are involved in revenue management strategy implementation, the hotel revenue management strategy is understood across all hotel departments, the hotel's various stakeholders are consulted during the revenue

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management strategy implementation process, and the hotel various departments are involved in the revenue management decision-making process. Research has found that hotels that integrate a revenue management culture into their operations will likely have an effective revenue management strategy (de Bastos, 2022; El Haddad et al., 2008; Helmold & Helmold, 2020).

6.2.3.7 Evaluation factors

The evaluation factor refers to analyzing the strategy implementation process to assess how well the implementation process has been executed (Chiang et al., 2007). Scholars have asserted that the effective implementation of a strategy will be compromised if the assessment of the extent to which strategies fit the goals and objectives of the organization is not done (Anderson & Blair, 2004; Eguchi & Belobaba, 2004; Lieberman & Raskin, 2005; Rannou & Melli, 2003). However, previous literature has examined evaluation together as monitoring, but in this study, the two are identified as two distinct factors, depicting each factor's importance.

In this study, this factor was comprised of three dimensions including; the hotel engages in extensive revenue management strategy benchmarking, evaluates the effectiveness of revenue management strategy performance measurements, and continually monitors the revenue management strategy performance metrics per hotel industry standards. Prior studies have shown the importance of revenue management performance evaluation in ensuring the effective implementation of revenue management strategy (Chiang et al., 2007).

6.3 Research objective 2: Modelling the interrelationships among the identified critical factors for Revenue management strategy implementation in the hotel industry.

From the literature review and experts' opinions, 13 critical factors were identified. A total of 15 experts from industry and academia were consulted to develop a contextual relationship of different critical factors using the interpretative structural modeling (ISM) methodology explained in section 3.6.4. A MICMAC analysis was also drawn from responses.

The findings depict the important links and relationships between the critical revenue management strategy implementation factors. A total of 30 links emerged.

The digraph ISM model (Fig. 4.4) for revenue management critical factors shows that the most important elements that drive revenue management effectiveness are the organization's goals and policies and top management commitment. These factors were at the bottom, implying that they influence each other as well as other factors like department structures directly and most other factors indirectly. In contrast, any other factors cannot influence them. The findings of this study agree with prior research suggesting that each task conducted by an organization in the implementation process, from the lowest level to the highest, should be guided by the organization's goals (Pechlaner & Sauerwein, 2002; Peng & Littlejohn, 2001). In addition to developing goals and policies for the organization, top management directs various activities to be executed and how these goals are to be achieved (Dubey & Ali, 2014). This means management's goals must align with the organization's missions and be measurable to track progress. Hence, it can be concluded that organizational goals, policies, and top management commitment are critical factors that merit attention immediately.

These elements have a mutual relationship that complements each other and a direct relationship between revenue management department structure and strategy implementation. First, top management is responsible for formulating the goals and policies, while achieving these goals and policies would be substantially dependent on top management commitment. According to Meyer and Herscovitch (2001), in management, commitment refers to the explicit and implicit commitment to the missions and objectives of an organization. Top management is responsible for helping achieve organizational goals through and with other organization members as the highest decision-makers (Wheelen & Hunger, 2006).

Second, the organization's goals and policies are related to revenue management department structures. These goals and policies influence how the revenue management department will be structured in size and the activities to be performed. Changing goals and conditions lead to changes in organizational structures, such as changes in the number of employees as the organization expands or becomes leaner (Robbin et al., 2001). The (Society for Human Resource Management (SHRM), 2023) findings confirm that the chosen structure influences organizations' success in executing their strategy and objectives. Cadwallader et al. (2010) conclude that alignment between structures and processes is essential to successfully implementing strategy in a company. Further, coordination of activities and leveraging firm skills and capabilities should be the cornerstones of aligning the organization's structure with strategic objectives (Elbanna & Fadol, 2016).

Goals and policies also influence the revenue management strategy implementation process; this can be understood as the revenue management goals and policies set by the hotel affect the revenue management strategy implementation process in that policies align actions, set boundaries, set employee and managers expectations, allocation of resources and create an effective organizational culture, aspects necessary for effective strategy implementation. Köseoglu et al. (2020) assert that every organization's success rests on its capacity to implement decisions and execute goals and policies efficiently and consistently.

Third, top management commitment has a relationship with revenue management department structures. This can be construed as top management having the responsibility of deciding how the structure of the revenue management department. They choose the strategic approach to adopt for the execution of the department's activities, whether in-house, centralized, corporate, third-party outsourcing, or hybrid (Altin, 2017).

As well as deciding how many employees to hire and recruiting the best employees for the position, they also decide on the number of employees to hire (Atkinson, 2006; Neilson et al., 2008). Additionally, top management influenced the revenue management strategy implementation process. This can be understood as management having the responsibility of allocating the activities, skills, and resources needed for the execution of the strategy. As scholars indicate, the commitment of top management to revenue management strategy implementation is very important because it influences the success of those activities (El Haddad, 2015; Hansen & Eringa, 1998; Lieberman, 2003; Noone et al., 2003; Okumus, 2004).

Besides these direct relationships, a transitive link emerged between top management commitment and data quality and accuracy. This finding aligns with previous research, which indicates that top management is responsible for ensuring that only quality data that is accurate and reliable is used for revenue management decision-making. Accordingly, effective leadership is essential to maintaining high levels of data integrity. The top management's responsibility is to ensure data integrity by assigning competent people to complete tasks, providing sound and reliable resources, and maintaining facilities and operating environments that are appropriately designed and maintained (Becker & Wald, 2010). Besides these, top management provides leadership in data integrity and accuracy, encouraging behavior geared towards data integrity when setting goals and constantly monitoring the data quality (Egan & Haynes, 2019; McGilvray, 2021; Wishlinski, 2006). Based on the links that emerged from goals and policies and top management commitment, we can infer that these two factors are multidimensional and designed towards achieving overall organizational prosperity developed from the organization's mission, goals and policies, and business processes. They are thus at the helm of effective strategy implementation.

At the next level, the revenue management department structure directly influences the revenue management strategy implementation process and revenue management training. First, revenue management structure influences the implementation of the revenue management strategy in that an organization's structure determines workflows and allows individuals and groups to collaborate within their functions (Meso & Smith, 2000; Simons, 2005). Additionally, the successful implementation of a strategy is dependent on the competencies and expertise of the people involved in the strategy implementation process (Ke & Wei, 2008; SHRM, 2023). Hence, the structure of the revenue management department in terms of numbers, skills, and expertise in revenue management strategy will highly impact the revenue management strategy implementation process.

A study by Cetin et al. (2016) concluded that staff dealing with revenue management functions in the hotel should possess knowledge, skills, and abilities to execute the revenue management strategy effectively. This suggests that the expertise of the revenue management department impacts the revenue management strategy implementation process. Further, Rothaermel (2016) acknowledges that organizational structure plays a critical role during the implementation process as structures determine how a firm distributes its resources and manages its individuals and teams.

Similarly, the revenue management department structure directly influences revenue management training. The revenue management department determines the training needs of the staff involved with the revenue management function based on the existing competencies and required skills (Varini & Burgess, 2010). This is supported by Helmond and Helmond (2020), who indicated that revenue management departments determine the knowledge, skills, abilities, attitudes, and behaviors necessary for successful revenue management performance and

communicate that information to human resources to address training needs appropriately. Hence the revenue management department structure impacts the training needs of the revenue management department. Once again, the revenue management department structure is indirectly linked with the design of the revenue management strategy. This can be deduced as the better the structure of the revenue management training owing to proper alignment and training, the easier it will be to design and execute the revenue management strategy process by ensuring they are friendly and customer-centric (Hienerth et al., 2011; Williams & Williams, 2010)

On the fourth level, revenue management training, revenue management strategy implementation process, and revenue management monitoring emerged. First, revenue management training is directly linked with the revenue management strategy design. This can be interpreted as when the revenue management team has the appropriate training and can design revenue management strategy processes that align with the market's needs. According to Zaki (2022), training with a strategic focus provides employees with the innovative skills and tools they need to design and implement revenue management strategies that are effective and efficient. Second, revenue management training has a direct influence on revenue management readiness. Research has shown that implementing a revenue management strategy may trigger drastic organizational changes that must be handled carefully (Altin et al., 2017).

As such, the more knowledge and skill imparted to the revenue management team, the more receptive they will be to the changes brought by implementing the revenue management strategy. This is akin to the findings of a study by Cox (2018); employees with sufficient revenue management training enter the workforce empowered to make strategic revenue management decisions and ready to ensure that the revenue management goals are achieved.

Additionally, according to El Haddad (2015), employees are more likely to buy into a revenue management strategy when they realize the benefits the hotel draws from it.

The revenue management strategy implementation process directly influences revenue management process design. The implementation process requires the organization of activities, allocation of resources, and skills which impact how the revenue management strategy process will be designed. By clearly stating the strategic mission and offering guidelines and processes to the stakeholders involved in the implementation process, the revenue management process can be more strategically aligned and constantly improved for effective implementation (Harmon, 2003; Kaplan & Norton, 2004; Mazambani, 2015; O'Reilly et al., 2010; Sigala et al., 2001).

Hence, revenue management strategy impacts the way the revenue management strategy process is designed. Equally, revenue management strategy monitoring affects revenue management process design. Effective revenue management strategies are geared toward generating and sustaining customer-centric processes (Lentz et al., 2022). Thus, designers must identify the levers that drive execution, reduce costs, and optimize business operations to develop effective strategies (MacCormack et al., 2012; Schläfke et al., 2012). As a result of constantly monitoring the revenue management strategy, operating environment strategists can identify new challenges and trigger symbiotic solutions by reimagining processes collaboratively (Guillet & Mohammed, 2015).

Revenue management monitoring also influences data accuracy and integrity in that the hotel's data has to be quality, measurable, and well-monitored. Thus, measuring, evaluating, and enhancing data quality is important to meet business goals. Hotel revenue management strategy monitoring improves data consistency, timeliness, and accuracy (Cetin et al., 2016; Cross et al., 2009; Emeksiz et al., 2006; Upchurch et al., 2002).

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Moreover, in his work, Vinod (2004) discusses the importance of data quality in ensuring accuracy and reliability, as poor-quality data can cause mistakes in decision-making, wasted resources, and legal ramifications. There is a transitive link between revenue management monitoring and technology. Revenue management information obtained from digital technology is used to inform decision-making. Close data monitoring is key to maintaining data accuracy (Koupriouchina et al., 2014; Vinod, 2004; Xu et al., 2019).

The next level of data quality and accuracy, revenue management process design, and revenue management readiness influence revenue management technology. First, data accuracy and integrity shape revenue management technology in that the quality of data the hotel wants dictates the type and source of software a firm integrates. Revenue management data is stored and analyzed through a revenue management system (RMS), a technology-based warehouse (Antonio et al., 2019; Ramos et al., 2015). Therefore, the accuracy and reliability of the data stored in the data warehouse must be assured and appropriate for its use (Baker & Collier, 2003; Kimes, 2016; Noone et al., 2003). Data accuracy and technology availability affect business intelligence, forecasting, budgeting, and other critical organizational processes (Emeksiz et al., 2006; Okumus, 2004). Hence, revenue management system vendors play an important role in ensuring that the RMS software is rightful based on the property type and needs.

Similarly, revenue management process design influences the technology infrastructure. Process design allows an organization to align its resource allocation, structure, and strategy with its business behavior, whereas technology redesigns the nature of people and organizations (Battleson et al., 2016; Beer et al., 2005; Gulledge & Sommer, 2002; Quante et al., 2009). Hence, the revenue management process determines the revenue management infrastructure. Revenue management readiness also influences revenue management technology.

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Previous research indicates that acceptance is critical for successfully implementing the technology (El Haddad et al., 2008; Lockyer, 2007; Okumus, 2004). Based on this assertion, the readiness of the hotel to adopt the revenue management strategy will influence the revenue management system adoption (Alrawadieh et al., 2021; Lam & Law, 2019). Aspects such as the user's intention for the revenue management strategy system will determine its usefulness and ease of use (Gefen & Straub, 2000; Lu et al., 2003; Morosan & Jeong, 2008). As such, if employees perceive the revenue management system as a tool to enhance their job performance and the ease of use of the revenue management system, they will embrace RMS more easily (Kharitonova, 2019; Mohsin, 2008).

Hence readiness determines technology acceptance. Transitive links emerged between data accuracy and communication, organizational culture, and process management. Data quality provides high precision and consistency, communicating credibility, accountability, and compliance to customers, thus enhancing their loyalty to the organization (Boritz, 2005; Marsh, 2005). Additionally, the accuracy and consistency of the hotel's information to predict demand are used to make decisions and inform operations; thus, they are keys for forecasting, demand analysis, and budgeting. Equally, data accuracy has a link with organizational culture; the higher the data accuracy and integrity, the stronger the organizational culture (Díaz et al., 2018).

In process management, the more accurate the data is, the easier it is for the organization to see the bigger picture and make better decisions (Cross et al., 2009; Marr, 2015; McAfee et al., 2012). Revenue management technology influences organizational culture, communication, and process management. The influence of revenue management technology on organizational culture is direct and transitive. The link is such that technology is the source of information required to make revenue management-related decisions.

Revenue management culture can be developed and ingrained in hotels with the help of technology. Thus, technology is a critical component for building connections between people and departments, thus enabling companies to put their values into action (Bespoke, 2018). There was a direct and transitive link between revenue management technology and communication, where technology serves as the mechanism through which valuable information is transmitted to the entire organization.

Using technology increases efficiency, speed, and ease of communication besides allowing for tracking and disseminating information related to revenue management strategy implementation (Hayes et al., 2021; Wang et al., 2015; Zaki, 2021). Equally, revenue management technology influences process management. According to Ku (2010), automation improves efficiency, lowers costs, and streamlines processes. Hence, an efficient revenue management strategy technology ensures that the revenue management strategy implementation process management is effective and beneficial to the hotel.

Finally, organizational culture, process management, and communication complement each other through direct and transitive links. The complementary relationship between culture and process is such that employees and managers share values and norms, and this shapes their attitude, behavior, everyday activities, and routines when it comes to performing work tasks, which therefore shapes business processes as well (Bushardt et al., 2011; Crittenden & Crittenden, 2008). In the same vein, the relationship between process management and communication is such that communication is the foundation for planning, thus helping managers to perform their jobs and responsibilities (Chukwuka, 2015; Dozier et al., 2013; Wheelen et al., 2017).

Similarly, communication relates to culture because passing along and preserving cultural characteristics over time would be impossible without communication between departments (Keyton, 2010; Nordby, 2020). Therefore, communication is how culture is formed, transmitted, and learned.

In summary, as observed from the model framework, the 13 critical factors are linked in different ways, directly or transitively. Management should stress several key areas for effectively implementing the revenue management strategy. Based on the findings, we can infer that the effective implementation of the revenue management strategy depends on interrelated factors guided by the hotel goals and policies and top management commitment and driven by various other factors leading to an efficient revenue management process and performance.

6.3.1 Influential Map by the MICMAC Analysis

The MICMAC analysis findings (Fig.4.6) complement the structure of the modified total interpretative structural modeling hierarchy by specifying the driving and dependency power of each critical factor. Corroboration of these findings is crucial to effectively create and enforce policies and actions to implement revenue management strategies. It is observed that two factors, namely goals and policies and top management commitment, are situated at the topmost level of the ISM hierarchy (Fig. 4.5) and have the highest driving power (Fig.4.6).

As such, the highest priority should be accorded to these two factors. This result agrees with the results of previous studies (Cross, 1997; Lieberman, 2003; Noone et al., 2003; Rizal et al., 2014), pointing out the critical role of goals and policies and top management commitment in the effective implementation of the revenue management strategy in the hotel industry. Regarding the effect of the factor revenue management department structure, priority should be given to it as it is located on the second level and the high driving power.

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From the analysis, Revenue management department structures can apply direct and transitive influence on three factors, namely (RM training, RM strategy implementation processes, and RM process design). This implies that decision-makers must be intentionally strategic when designing the RM department structure as it can potentially drive other factors (Crystal, 2007; Egan & Haynes, 2019; Wang et al., 2015; Xu et al., 2019).

Revenue management strategy monitoring and revenue management team training factors in the third highest level were also placed in the high driving power quadrant. Both factors can directly influence RM strategy process design besides data accuracy and integrity and revenue management for monitoring and training, respectively. This infers that decision-makers should accord a level of importance to these factors. The MICMAC analysis highlights the strategy implementation process, data accuracy and integrity, and revenue management team readiness as the autonomous variables. These factors have less driving and less dependency powers. These factors are relatively detached from the network and have few powerful connections, as the three directly link to revenue management technology only. Their weak interaction with other factors tends to make them relatively robust and stable, and they are not likely to change their initial status even if other critical factors are modified. This means that management can put less effort into these factors and preferentially channel their resources and strategies to critical factors in other quadrants.

Furthermore, it was found that there are five dependent factors; revenue management technology, revenue management culture, revenue management strategy design, process management, and communication. Dependent factors have a high dependency but low driving power, meaning they can be enhanced if powerful factors such as (goals and policies, top management commitment, and implementation process) are sufficiently addressed.

For example, the performance of revenue management strategy design is largely determined by monitoring, training, and implementation process, which are meanwhile determined by top management commitment (Ivanov, 2014; Koupriouchina et al., 2014; Schwartz et al., 2021). As such, the hotel must be able to integrate this consideration at the strategy formulation or adoption stage to guarantee an effective strategy implementation.

Revenue management culture, process management, and communication had the highest degree of dependence power; thus, building a strong revenue management culture, holistic and resilient process management, and stable communication is of great significance to the effective implementation of the revenue management strategy (Helmold & Helmold, 2020; Varini et al., 2012; Zheng & Forgacs, 2017).

6.4 Research objective 3: Examination of the effects of critical factors on revenue management strategy effectiveness in the hotel Industry.

Seven sub-hypotheses were tested to determine the influence of critical factors on revenue management strategy effectiveness in the hotel industry. The purpose was to enhance understanding of the multidimensionality of critical factors on strategy effectiveness. The results revealed that "1) organizational factor", "2) monitoring factor", "3) human resource factor", "4) operational factor", "5) technological factor", "6) culture factor", and "7) evaluation factor" significantly and positively influenced revenue management strategy effectiveness within the hotel context.

H1-1, hypothesized as "organizational factor significantly affects revenue management strategy effectiveness," was supported to some extent (coefficient=0.101, SE=0.055, $p<0.10$). The results resonate with the previous studies that identified that strategy alignment with the company's overall strategic plan and goals (Kathuria et al., 2007; Peng & LittelJohn, 2001; Singh et al., 2020;

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Srivastava, 2017; Teo & Ang, 1999) influence the effective implementation of the strategy. RM involves a long-term decision-making process based on the hotels' vision, mission, and goals (Brlečić Valčić & Bagarić, 2017; Cetin et al., 2016; Talón-Ballestero & González-Serrano, 2013). Goal alignment is characterized by an understanding of the hotel's vision and purpose and strategically formulating the RM strategy that is geared towards achieving the goals considering the dynamic environment in which the hotel operates and the needs of key stakeholders (Abrate & Viglia, 2016; Noone et al., 2017).

Scholars (Alrawadieh et al., 2021; Altin, 2017; Cross et al., 2009; Sigala et al., 2001; Siguaw et al., 2000) found that aligning revenue management strategy to the overall strategic plans and goals of the hotel positively impacted the effective implementation of the revenue management strategy. Further, if the overall strategic plan is clear and understood, it would impact the adoption and outcome of the revenue management strategy (Viglia et al., 2021), while failure to align the RM strategy to the hotel's overall goals will likely lead to failure of the RM strategy execution.

Further, Shah (2005) has argued that top management commitment is an important factor in implementing a strategy effectively. Management commitment refers to the involvement and support of managers in the implementation process (Tzempelikos, 2015), and insufficient management commitment to the implementation process yields multiple challenges and leads to the failure of well-designed strategies (Bourne et al., 2002). Top management support is an important enabler for revenue management strategy implementation because it encourages revenue management usage and improves performance (Okumus, 2004). Moreover, top management provides the revenue management strategy with the necessary resources, including capital funds and qualified personnel, and minimizes resistance from within the organization. The hotel's top management must fully commit to effectively implementing the revenue management strategy.

Similarly, Xu et al. (2019) found that employee understanding and commitment to revenue management strategy enhances the ease of implementation because employees are the executors of the strategy. Further, to ensure successful revenue management implementation, it is generally agreed that a revenue management-friendly culture must be present or nurtured (Kimes, 2008). Therefore, hotels aiming at effectively implementing the revenue management strategy should satisfy the abovementioned aspects of organizational factor.

Further analysis was conducted to identify any differences and similarities between different contexts. The results revealed that organizational factor significantly affects the effectiveness of revenue management strategy (coefficient=0.156, SE=0.073, p<0.05) for hotels in developed countries. However, findings from developing countries did not support the hypothesis. The reason for the difference between the context can be attributed to the fact that hotels located in developing countries may be more familiar with the revenue management execution policy compared to hotels in developing countries where the strategy is in its infancy; thus, policies are yet to be fully developed (Ivanov et al., 2021; Ivanov & Ayas, 2017).

Similarly, organizational factor significantly affects revenue management strategy effectiveness (coefficient=0.168, SE=0.067, $p<0.05$) for chain-affiliated hotels compared to independent hotels. This is credited to the fact that chain hotels have superior developed revenue management strategy thus have better-developed revenue management policies and culture (Crossan, 2014) compared to their independent hotels' counterparts.

The type of service revealed a difference too, where organizational factor significantly affects revenue management strategy effectiveness (coefficient=0.179, SE=0.059, $p<0.01$) for full-service hotels compared to limited-service hotels. This is attributed to full-service hotels being more aware of and needing the revenue management function because of the various activities

they are involved in and the type of clientele that they attract, thus increasing the role of the hotel revenue manager, particularly in the full-service hotels (Ferguson & Smith, 2014). In summary, organizational factor significantly influence revenue management strategy effectiveness for hotels in developing countries, chain affiliated and full-service hotels.

H1-2, postulated as "monitoring factors significantly affects revenue management strategy effectiveness," was supported (coefficient=0.176, SE=0.059, $p<0.01$). Keeping track of the implementation process is integral to ensuring effective strategy implementation (Vinod, 2004). Monitoring allows strategists to determine whether the planned actions are being accomplished in the anticipated timeframe and to address delays or implementation issues, such as underestimating resources (Ivanov & Zhechev, 2012). Previous studies identified the role of monitoring in enhancing revenue management strategy implementation (Ivanov, 2014; Koupriouchina et al., 2014; Schwartz et al., 2017; Vinod, 2004; Wang et al., 2015). Schwartz et al. (2017) emphasize the need for continuous monitoring of revenue management performance. Based on Ivanov and Zhechev (2012), revenue management strategy implementation should be monitored across all process stages. Additionally, strategists should search for opportunities to improve every stage of the implementation process.

This study corroborates the findings of prior research that indicated that monitoring is an important factor for effective revenue management implementation. Nonetheless, in the current study, the monitoring function is independent, unlike previous studies that do not distinguish between monitoring and evaluation functions. Within the revenue management context, this thesis shows that monitoring the various components of the revenue management strategy is key to establishing an effective revenue management strategy in the hotel (Kimes, 2008; Schwartz et al., 2017; Wang et al., 2015).

According to Cetin et al. (2016), understanding trends and careful benchmarking allow hotels to take advantage of opportunities to capture a wider customer base by designing appropriate products and services, deploying favorable rates, and using the right distribution channels. Vinod (2004) asserts that the quality of data, the accuracy of models, and the return on investment of the revenue management strategy must be measured regularly.

Moreover, scholars insist that revenue managers should monitor revenue management strategy outcomes, as they influence short-term and long-term managerial decisions, like compensation levels, investment decisions, and resource allocation (Schwartz et al., 2017). Another monitoring aspect is strategic problem-solving, the cornerstone of effective management. In managing the RM function, revenue managers are responsible for managing their decision-making process and ensuring that the entire RM team effectively utilizes their problem-solving skills. Apt problem-solving skills are key in ensuring that solutions for challenges that arise in the implementation process are availed swiftly (Aubke et al., 2014; Beck et al., 2014). This implies that revenue management system developers must develop revenue management systems that offer the possibilities for more agile decision-making including monitoring tools (Wang et al., 2015).

To promote clarity, an analysis of the various contexts was further conducted. The results revealed that the monitoring factor significantly affects the effectiveness of revenue management strategy (coefficient=0.193, SE=0.078, $p<0.05$) for hotels in developed countries but not developing countries. The monitoring factor also significantly influenced revenue management strategy effectiveness in chain-affiliated hotels (coefficient=0.219, SE=0.068, $p \leq 0.001$) and full-service hotels (coefficient=0.176, SE=0.063, $p<0.01$) but not independent hotels and limited-service hotels respectively.

The results can be explained by the sense that the better the development of revenue management in the hotels in developed countries, chain affiliated and full-service, the more significant the monitoring will be (Ivanov, 2014; Willie et al., 2015).

H1-3 suggested as the "human resources factor significantly affects revenue management strategy effectiveness" was supported (coefficient=0.107, SE=0.054, p≤0.05). Akin to existing literature (Beck et al., 2011; Cetin et al., 2016; Mohsin, 2008; Zarraga-Oberty & Bonache, 2007), people play a key role in the implementation process of any strategy as they are the executors of the tasks and activities carried out. Ivančić et al. (2021) identify people, their perspectives, their characters, and their motivations as the starting point of effective revenue management strategy implementation. A study by Kimes (2008) identified human resource management support as a critical issue in the revenue management function. This is backed by Selmi and Dornier (2011), who found the human factor critical in implementing an effective yield management system. The more the hotel considers the staff involved with the revenue management function in terms of skills, resources, motivation, and decision-making, the more likely the revenue management staff will be committed and supportive of the strategy implementation process.

Based on Lieberman's (2003) study, it is clear that revenue management specialists need specific knowledge, training, and resources to fulfill their duties efficiently and effectively. Accordingly, this study indicates that the active support of staff involvement and a focus on the revenue management function will result in a better understanding and commitment to its implementation. Skugge (2004) states that a direct correlation exists between a revenue manager's education level, training frequency, and work output quality. The higher the training level and frequency, the better the efficiency. The dynamic environment in which hotels operate further emphasizes and demands the need for frequent training.

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As technology advances, customer trends change, and competitors strive to gain competitive advantage, holding regular training programs for the RM team is key to ensuring effectiveness (Rodríguez-Algeciras & Talon-Ballestero, 2017). In the RM setting, a poorly trained employee will be prone to making errors and poor decisions, thus leading to poor performance in the RM department (Aubke et al., 2014; Cross et al., 2009; Poulston, 2008). Skugge (2004) avers that having effective revenue managers and staff is one of the key reasons why some hotels enjoy greater success than others. Employee competencies through proper training and education thus play a crucial role in facilitating organizational goal achievement through effective strategy implementation (Jones & Hamilton, 1992; Lieberman, 1993; Kimes, 2002). To this end, RM staff must have exhaustive knowledge of RM strategy to succeed (Chiang et al., 2007; Donaghy et al., 1995).

Besides training, employee motivation encourages employees to participate in RM strategy activities. Motivation involves providing morale to the RM team by providing necessary resources to perform the tasks, mentoring employees, recognizing employees through incentives and rewards, and providing necessary support such as training. As Xu et al. (2019) posit, motivated employees reciprocate with higher morale, reduced turnover, and increased productivity. Additionally, employee commitment to fulfilling tasks has been rated a critical aspect of effective strategy implementation (Hughes & Rog, 2008; Ramlall, 2004). Employee commitment refers to the willingness of employees to put in much effort and work with sincerity, dedication, and in cooperation with others (Wong et al., 2017). According to Shum et al. (2008), employee commitment is key because employees implement the strategies. Hansen and Eringa (1998) posit that employee commitment is a function of involvement, and no computerized system (RMS) can succeed without involving a wide range of skilled personnel.

Similarly, Rodríguez-Algeciras and Talon-Ballestero (2017) found employee commitment to the RM function to be a key element to successful RM practices. Finally, employee relations have also been shown to be relevant in achieving effectiveness. Taheri et al. (2020) summarized findings suggesting that organizational climate and employee satisfaction are closely related. This closeness leads to employee output, affecting the organization's overall performance. In the RM function context, employees must retain a good relationship because RM demands a great deal of teamwork because many interrelated functions must be fully coordinated to achieve the set goals (Aubke et al., 2014). Further, Hansen and Eringa (1998) assert that cooperation and communication between the RM department and other hotel departments are essential to the success and effectiveness of the RM. Additionally, Cameron (1994) and Singh (1998) concluded that averting negative human influence in strategic activities could mean the difference between a successful implementation and the curtailment of strategic activities.

Potential differences were further examined based on various contexts. Based on the country of location, human resource factors significantly influenced revenue management strategy effectiveness (coefficient=0.190, SE=0.092, $p<0.05$) for hotels in developing countries but not those in developed countries. This could be attributed to the reasoning that as a revenue management strategy is coming up in developing nations, there is a higher dependence on human resources as the backbone of establishing the strategy (Cetin et al., 2016; Queenan et al., 2011; Selmi & Dornier, 2011). The shortage in revenue management skilled workforce in developing nations lends higher significance to the people factor in revenue management strategy effectiveness.

Similarly, the human resource factor showed a significant influence on revenue management strategy effectiveness (coefficient=0.227, SE=0.082, $p<0.01$) for hotels located in urban areas but not for hotels located in other areas and also for full-service hotels (coefficient=0.136, SE=0.058, $p<0.05$) but not for limited-service hotels. This is attributable to many large hotels in the urban centers offering full service. As a result of this agglomeration, there is a greater level of competition, which necessitates a revenue management strategy to maximize profits and revenues (Vives et al., 2018); thus, enhanced skills and competencies in revenue management are needed.

H1-4 posited as "operational factor significantly affects revenue management strategy effectiveness" was somewhat supported (coefficient=0.069, SE= 0.041, $p<0.10$). This conclusion is in consonance with prior studies that found that robust operation of the revenue management processes (i.e. (segmentation, analysis, forecasting demand, and supply, application of various RM tools, and monitoring and evaluation of activities) (Ivanov, 2014), is essential in the effective implementation of the revenue management strategy.

Scholars Stoppel & Roth (2017) and Vinod (2008) assert that having revenue management processes that are friendly and customer-centered is instrumental in the success of the revenue management process. Again, it is important to align the revenue management process by setting tangible targets and continually monitoring the process to ensure that the revenue management strategy operates effectively (Abrate & Viglia, 2016; Kaplan & Norton, 2006; Van Grembergen et al., 2004). Hence, the findings of this study demonstrated that the ease of the operational factor influences the performance of the revenue management strategy.

Another aspect of operational factor is efficiency, characterized by speedy processing and delivery of information and services and length of stay control.

For instance, efficient delivery of services, such as reduced service times during lunch and dinner, can tremendously impact restaurant turnover during rush hours, thus increasing the number of covers served per hour. This helps improve the revenue per available seat hour at the restaurant and improves customer perception of quality and satisfaction (Kimes, 2004; Kimes & Wirtz, 2003; Noone et al., 2009; Thompson, 2010). The other key consideration is an efficient revenue management system that makes it easy to post and adjust prices across various distribution channels in real-time (Melis & Piga, 2017). This ensures that the most profitable customers can be captured based on the demand and supply at different times (Noone et al., 2011; Chiang et al., 2007; Xu et al., 2019). An efficient RM system also plays an important role in simplifying the algorithms, thus leading to more accurate forecasting.

Efficiency also ensures that information is transmitted quickly to the respective personnel within the RM department and across other integrated departments. The speedy processing of information ensures that any work processes do not stagnate, thus enhancing effectiveness (Wang & Brennan, 2014). Finally, efficiency through employing tactical practices such as rate fences and length-of-stay controls when selling rooms during high or low-demand seasons could help optimize revenues more comprehensively (Al-Shakhsheer et al., 2017; Guillet et al., 2014; Kimes & Wirtz, 2003).

Further analysis of the various contexts revealed that operational factors significantly influenced the effectiveness of revenue management strategy (coefficient=0.128, SE= 0.058, $p<0.05$) for hotels operating in developing countries but not those in developed countries. Additionally, operational factor significantly influenced the revenue management strategy effectiveness (coefficient=0.247, SE=0.136, $p<0.10$) in limited-service hotels but not in full-service hotels.

While this finding is surprising, it can be credited to the belief that as a revenue management strategy is in its infancy in these two contexts (developed countries and limited service), the robustness in the flow of each task and activity in the implementation process is very fundamental to the effective implementation of the strategy. However, the impact may be lesser in the contexts where revenue management is more established (developed countries and full-service hotels) since the flow of activities and tasks is more founded (Emeksiz et al., 2006; Ferguson & Smith, 2014; Maier, 2012; Zheng & Forgacs, 2017).

H1-5 speculated that "technological factor significantly affects revenue management strategy effectiveness." This hypothesis was marginally supported (coefficient=0.096, SE=0.050, $p<0.10$). The result was somewhat surprising, given that technology is essential in the execution of revenue management functions (Ivanov & Zhechev, 2012). According to Guadix et al. (2010), using revenue management software is essential for processing large databases, depicting the significance of a reliable revenue management technological infrastructure. The probable explanation of this result is that although technology is an essential aspect of the revenue management function, it relies heavily on human judgement; thus, the ultimate decision lies in the hands of the revenue management team (Emeksiz et al., 2006). Furthermore, revenue managers still perceive intuition as essential to revenue management decisions and distrust automated systems (Egan & Hayes, 2019). For this reason, revenue managers may not fully rely on technology to run the revenue management; thus, technology may not lead to a strong overall significant influence on effective revenue management strategy implementation.

Nonetheless, the current study's findings emphasize the importance of engaging credible revenue management system suppliers. Except for Philips (2021), there are measly studies focusing on engaging reliable revenue management system vendors.

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Based on the current study, the involvement of vendors in designing and redesigning the revenue management system and evaluating the vendors according to delivery performance, price, and quality have been highlighted as significant in effectively implementing the revenue management process. Binesh et al. (2021) point out that the key to achieving RM effectiveness is using quality RM data and RM software to design rates and forecast demand. This is echoed by Antonio et al. (2019) in their consideration of how the type of data collected affects the models derived for RM strategy decision-making. They concluded that without quality data, quality algorithms for forecasting demand could not be modeled, thus affecting the effectiveness of the output. Wrong or poor-quality data will result in ineffective results (Egan & Haynes, 2019).

The quality of the RM practice record retained by a hotel is also a powerful tool. This is because RM relies on historical information and the right data to make future decisions. Therefore, there should be well-structured data collection methods for effective RM, with quality data about guests purchasing behavior and patterns and performance of other hotels compared to your hotel (Antonio et al., 2019; Melis & Piga, 2017) aspects that are largely influenced by the quality of the revenue management system. A review of the influence based on different contexts revealed that technological factor significantly influenced revenue management strategy effectiveness (coefficient=0.157, SE= 0.069, $p<0.05$) for properties found in developed countries.

However, it did not significantly impact revenue management strategy effectiveness for properties found in developing countries. This is attributed to the fact that there is a higher technological advancement in developed rather than developing countries. It is also imperative to note that as the revenue management strategy eco-system becomes more sophisticated and established, it becomes more complex. Technology allows the processing of a huge amount of data to make sense of that complexity (Cross et al., 2009; Egan & Haynes, 2019).

An analysis of the impact of the location showed that technological factor further significantly influences revenue management strategy effectiveness for hotels located in areas other than urban (coefficient=0.108, SE=0.064, $p<0.10$). This could be ascribed to the growth of revenue management across hotels, no matter where they are located. While there is a high technology advancement in urban areas, the same may not be in other areas. However, automation has become a key aspect of the revenue management function; thus, more and more hotels are turning to technology to drive their revenue management strategy (Millili, 2022).

An analysis of affiliation indicated a significant effect of technological factor on revenue management effectiveness for independent hotels (coefficient=0.215, SE=0.087, $p<0.05$) and not for chain hotels. This could be credited to the notion that independent hotels are swiftly adopting revenue management technology as a critical means of helping them assimilate the revenue management function and compete favorably with global brands (Hotelier Staff, 2022).

It can be argued that smaller independent hotels need the technology even more since their limited volume means every pricing decision is crucial (Grier, 2023). This makes technology an important factor in revenue management strategy implementation. Further analysis showed that the technology factor significantly influenced the effectiveness of revenue management strategy (coefficient=0.120, SE=0.055, $p<0.05$) for full-service hotels but not limited-service hotels. This is because full-service hotels require automation to handle the various activities of running a full-service hotel.

H1-6 hypothesized as "total revenue management culture factor significantly affects revenue management strategy effectiveness" was supported (coefficient=0.111, SE=0.050, p<0.05). The relevance of creating a revenue management culture in the hotel has been cited by numerous revenue management researchers (Abad et al., 2019; Guillet & Chu, 2021; Kimes, 2008;

El Haddad, 2015; Noone et al., 2017; Wirtz et al., 2003). Over time, total revenue management has emerged as a hotel trend (Helmond & Helmond, 2020; Noone et al., 2017; Kimes, 2017; Zheng & Forgacs, 2017). Pertaining to the revenue management culture, Noone et al. (2017) established that hotels that have successful revenue management practices tend to have a working RM culture conducive to an understanding of the demand and supply dynamics within the hotel industry, information sharing, informed approach to problem-solving, a holistic approach to decision making and a strategic profit focus.

In contrast, hotels that lack a well-defined RM culture are likely to have constant conflicts within and between the different departments, may struggle to make informed decisions, have quick fixes, and segmented approach to problem-solving and misuse information. Such conditions lead to poor performance (El-Haddad et al., 2008; Zheng & Forgacs, 2017). The involvement of more revenue-generating departments besides hotel rooms, ensuring that the strategy is understood across all hotel departments, and consulting various stakeholders in the revenue management decision-making process signifies a culture of total revenue management in the hotel. Therefore, this study's outcome is in harmony with the burgeoning research on total revenue management as the predicted future of revenue management. Based on the study, considering the total revenue management culture positively influences the effective implementation of the revenue management strategy.

Further analysis based on the context showed that the total revenue management culture factor significantly affects revenue management strategy effectiveness in properties found in both developed (coefficient=0.115, SE=0.064, $p<0.10$) and developing countries (coefficient=0.151, SE=0.081, $p<0.10$). This shows that hotels across the globe are paying attention to the significance of assimilating the revenue management strategy across all the revenue-generating centers.

Additionally, an analysis of the location depicted that total revenue management culture influences revenue management strategy effectiveness for hotels in urban areas (coefficient=0.169, SE=0.075, p<0.05) compared to other areas.

This is accredited to larger hotels and higher competition in urban areas which necessitates those hotels in urban areas integrate the revenue management strategy across many revenue-generating centers to remain competitive (Heo, 2023). Additionally, total revenue management culture significantly influenced revenue management strategy effectiveness for chain hotels (coefficient=0.107, SE=0.057, p<0.10) but not independent hotels. This is attributed to the higher implementation of revenue management strategy in the chain hotel, which makes integrating the total revenue management culture more essential for them. Finally, as regards the type of service, total revenue management culture influenced revenue management strategy effectiveness for limited-service hotels (coefficient=0.321, SE=0.142, p<0.05) but not for full-service hotels, credited to limited-service hotels recognizing the need for an all-inclusive revenue management strategy in areas other than rooms to maximize revenue.

H1-7 conjectured as "evaluation factor significantly affects revenue management strategy effectiveness" was to a certain degree supported (coefficient=0.081, SE=0.049, p<0.10). This finding is expected because previous research considers evaluation an amalgam of monitoring (Ivanov, 2014; Ivanov & Zhechev, 2012). Measuring revenue management performance against the set goals positively contributes to the hotel's profitability (Lieberman, 2003; Noone et al., 2017; Wang et al., 2015). This study corroborates the findings of existing research (Burgess & Bryant, 2001; Jain & Bowman, 2005; Rannou & Melli, 2003; Vinod, 2004), which indicate that evaluation as an autonomous factor is important in establishing an effective revenue management strategy implementation.

Nonetheless, while hotels have made attempts to appraise their revenue management strategy performance, it has also been noted that they mainly concentrate on the financial performance aspects. Unfortunately, taking the financial aspect of the hotel alone, however, may provide misleading information, resulting in inadequate support for the hotel's needs. Therefore, hotels must include the non-financial aspects of the revenue management function, such as sales growth, service excellence, and innovation, to capture a holistic picture of hotel performance (de Peuter-Rutten, 2023).

As revenue management implementation involves a series of business decisions, hotels must evaluate revenue management's potential benefits and risks (Chiang et al., 2015). Evaluation entails measuring the performance of decisions to assess their effectiveness. For example, according to Choi and Kimes (2002), hotels need to determine the effects of distribution channels on their current revenue management practices. They emphasized the importance of proper distribution channel management through proactive management, aligning the right staff, using online travel agencies, and following a direct path to profit can minimize the gap between hotels, customers, and revenues.

This is because distribution channels are the lens through which customers see your hotel as they demonstrate what it offers to the target audience (Lee et al., 2013; O'Connor, 2016; Wang et al., 2015). Additionally, distribution channels drive hotel profits due to the advancement in technology, thus resulting in budding hotel data sources and channels. As such, a well-managed distribution channel increases customer reachability and results in an effective RM strategy (Ampountolas et al., 2019; 2021; Melián-González & Bulchand-Gidumal, 2016; Thakran & Verma, 2013).

Moreover, a hotel should evaluate revenue management performance by comparing actual and anticipated results. This helps determine the extent to which the revenue management strategy's objectives are being achieved (Cross et al., 2009). Maier (2012) alludes that evaluation helps hotels align their revenue streams to their sales and marketing strategy and goals.

For further clarity, an analysis of the different contexts revealed that evaluation factor influenced revenue management strategy effectiveness in properties found in developing countries (coefficient=0.164, SE=0.077, p<0.05) and located in areas other than urban (coefficient=0.124, SE=0.065, p<0.10). The finding could be credited to the development of revenue management in these areas, which drives the need for revenue managers to measure the expected versus actual performance of the revenue management strategy. An implication of the evaluation is a better understanding and implementation of the revenue management strategy in hotels in these contexts (Ivanov, 2014).

The relationship between critical factors dimensions and revenue management strategy effectiveness was generally supported. Dimensions of monitoring, human resource, and total revenue management culture were found to be stronger than organizational, operational, technological, and evaluation. Possible reasons for the somewhat significant critical factors may be attributed to context, in which the finding revealed certain differences in the significant factors based on the country where the property is located (developed versus developing), the location (urban versus other areas), affiliation (chain versus independent), and service type (full-service hotels versus limited-service hotels). These differences imply that revenue managers need to consider the impact of critical factors on effectively implementing the revenue management strategy in different contexts.

6.5 Research objective 4: Investigation of the moderating effects of the revenue management strategy approach on the relationships among critical factors and the effectiveness of revenue management strategy in the hotel Industry.

One of the major objectives of this research was to examine the moderating role of the revenue management strategy approach. The present study contributes to the hotel revenue management literature by including the strategic approach as a moderating variable between critical factors and revenue management strategy effectiveness. It was expected that using an in-house approach compared to other strategy approaches (centralized, corporate outsourcing, third-party outsourcing, and hybrid) would interact with critical factors to predict revenue management strategy effectiveness in such a way that the positive effects of using an in-house approach will be increased for hotels integrating the critical factors. In other words, as hotels integrate the critical factors, revenue management strategy effectiveness was predicted to improve more when an in-house approach is employed.

Surprisingly, the strategy approach moderated only two critical factors in the present study. Specifically, there was strong support for "operational factor" and "total revenue management culture" to "revenue management strategy effectiveness." In this case, for hotels that employ an in-house approach, integrating operational factor and total revenue management culture factors particularly significantly affects the revenue management strategy effectiveness. Considering the impact of these two factors is more important to improving revenue management strategy effectiveness for hotels using an in-house approach compared to using any other approaches. From the analysis, it can be deduced that integrating operational factors is particularly detrimental to the revenue management strategy effectiveness for hotels using an in-house approach. In general, operational factors are concerned with aspects directly involved in the implementation process.

These include operational planning, resource allocation, strategic and management control, communication and control, and feedback. It also includes the characteristics that define these factors, such as being friendly, customer-centric, tangible, and monitored. Research has found that the effective implementation of strategies requires sufficient material resources (Okumus, 2001), which makes integrating these aspects costly.

As operational factor is critical for revenue management strategy implementation, the cost implications for hotels using an in-house approach are likely high. This is attributable to an in-house approach requiring more resource allocation to support the revenue management function, including but not limited to technology infrastructure and skilled human resources, aspects that have high initial and maintenance costs (Farrell, 2012). This finding supports the research of Rheams (2004), who found that an in-house approach with a dedicated revenue management system is costly. Additionally, Farrell (2012) indicated a shortage of revenue management knowledge and skill, which increases costs. Thus, the operational factor costs involved in engaging in an in-house approach for the implementation of a revenue management strategy will diminish the effectiveness of the revenue management strategy.

In contrast, from the analysis of the total revenue management culture factor, it can be deduced that for hotels using an in-house approach, integrating this factor is beneficial to the revenue management strategy effectiveness. Conventionally, when hotels have highly integrated total revenue management culture factor, hotels using an in-house approach report higher levels of revenue management strategy effectiveness. This is because total revenue management targets the total value chain and all the activities; thus, aligning all departments and stakeholders towards a corporate culture becomes more beneficial to the performance of the revenue management strategy in the hotel (Helmond & Helmond, 2020).

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In support of this, other researchers have argued that a strategic customer-centric approach to demand creation and profit maximization is emerging in place of traditional room-centric revenue management (Noone et al. 2017). It can be construed that hotels using an in-house approach need to have their revenue management operational process well aligned in terms of ease of use, customer-focused, aligned to the set targets, and constantly monitored. However, they need to be aware of the cost implications detrimental to the effectiveness of the revenue management strategy. Additionally, they must have a revenue management culture focused on total revenue management, which requires higher collaboration with all departments and stakeholders, thus enhancing the revenue management strategy's effectiveness. This result implies that revenue management strategists must understand the impact of different critical factors on their chosen strategy and how this can influence its effectiveness.

An analysis of the moderating effect of the approach on the relationship between critical factors and revenue management strategy effectiveness based on different contexts was conducted to promote further understanding. The findings from the countries showed that developed countries supported a relationship between "monitoring factor," "operational factor," "total revenue management culture," and "revenue management strategy effectiveness." None of the critical factors were significant in the developing countries.

This depicts that these three factors are key considerations for effectively implementing the revenue strategy in properties in developed countries and using an in-house approach. This is attributed to the fact that an in-house approach requires more infrastructure and skilled personnel, which may not be easily available in developing countries and thus may have lesser application and impact.

Additionally, findings from the hotels' location exhibited that for hotels located in urban areas, there is a relationship between "technological factor" and "revenue management strategy effectiveness." In contrast, "operational factors" were significant for hotels in other areas. The difference could be attributed to the argument that urban hotels require more advanced automation for revenue management strategy to be effectively implemented, and technology would be significant where an in-house approach is employed.

An analysis of the affiliation revealed that chain hotels supported the relationship between "operational factor" and "total revenue management culture" and "revenue management strategy effectiveness," while independent hotels supported "operational factor" to "revenue management strategy effectiveness." This shows that proper flow of the processes is the key to effectively implementing the revenue management strategy where an in-house approach is used. Regarding the type of service, both full-service and limited-service hotels supported the relationship between "operational factor," "total revenue management culture," and "revenue management strategy effectiveness."

6.6 Research objective 5: Examination of the moderating effects of revenue management implementation level on the relationships among critical factors and revenue management strategy effectiveness in the hotel Industry.

The final objective of the current study was to examine the moderating effects of revenue management implementation level on the relationship between critical factors and revenue management strategy effectiveness. This is informed by the assertion that the revenue management strategy implementation level (i.e., fully, moderately, or nearly) plays a crucial role in the effect of critical factors on the effectiveness of the revenue management strategy.

More so, fully implementing a revenue management strategy compared to moderately or nearly will interact with critical factors to predict revenue management strategy effectiveness in such a way that the positive effects of fully implementing revenue management will enhance the relationship between critical factors and revenue management strategy effectiveness.

In the present study, the revenue management strategy implementation level moderated the relationship between three critical factors "human resource," "technological," "evaluation," and "revenue management strategy effectiveness." Hotels should emphasize these three factors' impact on fully implementing the revenue management strategy. Precisely, hotels with a fully implemented revenue management strategy report a significant positive influence on the relationship between human resource and evaluation factors on revenue management strategy effectiveness and a significant but negative influence on the relationship between technological factor and revenue management strategy effectiveness.

First, from the analysis, it can be inferred that the more hotels fully implement a revenue management strategy, the stronger the relationship between the effectiveness of the human resource management factor and revenue management strategy. Prior studies have implied that strategy effectiveness and performance are strongly influenced by the degree of strategy implementation (Mauri, 2016; Olson et al., 2005; Ortega, 2016). Furthermore, the literature also emphasizes how effective strategy implementation depends on effective human resource management practices and a skilled workforce (Barrick et al., 2015; Beck et al., 2011; Lieberman, 2003; Saad et al., 2021). Against this backdrop, the importance of human capital in achieving greater revenue management strategy performance and effectiveness has been highlighted in the literature (Chiang et a., 2007).

This result lends support to prior studies that revealed that sufficient and skilled expertise in hotel revenue management is considered a crucial element for fully integrating revenue management strategy effectively (Mohsin, 2008; Selmi & Dornier, 2011; Zarraga-Oberty & Bonache, 2007). By having skilled personnel and a sufficient number of people dealing with revenue management, hotels can skillfully and continually perform the revenue management function, thereby enhancing their effectiveness of the revenue management strategy implementation. This is consistent with human resource researchers' assertions that an organization's competitive advantage can be gained through human resources practices, thus leading to improved strategy effectiveness (Boxall, 2018; Diaz-Carrion et al., 2021). This implies that hotels should be eager to integrate and improve human resource practices for the sake of enhancing the full implementation of revenue management strategy as well as revenue management strategy effectiveness.

Second, based on the findings, it can be deduced that the more hotels implement a revenue management strategy, the better the relationship between the evaluation factor and the effectiveness of the revenue management strategy. Existing studies have hinted that gaining a competitive advantage and the performance of a strategy is highly affected by the level of strategy implementation (Atkinson, 2006; Beer & Eisenstat, 2000; Hbrebiniak, 2006). Research also highlights the role of strategy implementation on evaluation effectiveness (Lee & Puranam, 2016; Tawse & Tabesh, 2021). Accordingly, the importance and prominence of evaluation as part of the strategy implementation cannot be overlooked (Aladag et al., 2020; Tawse & Tabesh, 2021). In this age, hotels need to examine their actual performance against the set goals, and it appears that hotels that fully implement the revenue management strategy utilize more activities connected to evaluation, thus needing performance measurement (Farouk El Gayar et al., 2011).

This is especially true for hotels that implement and design their revenue management strategy around multiple revenue management components (e.g., demand forecasting, benchmarking, market segmentation, and inventory management, among others). The capability of the hotel to identify the effectiveness of a strategy, measure outcomes against set goals, and determine necessary changes, in general, are crucial for the effective implementation of the revenue management strategy (Chiang et al., 2007). Evaluation allows for the effective allocation of resources and better course correction when needed. Hence, the hotel that wishes to implement revenue management fully may benefit from devising policies and processes that will allow the evaluation factor to be integrated more fully and applied more effectively.

Third, regarding the technological factor, the findings show that as hotels continually fully implement the revenue management strategy, the relationship between the technological factor and revenue management strategy effectiveness worsens. While this is not the rational expectation as the revenue management system highly depends on the system (automation) (Chiang et al., 2007; Vinod, 2004), we can infer that the more hotels fully implement revenue management, the more advanced the technology infrastructure would be required. Advanced technological infrastructure tends to be costly and requires a more skilled workforce who are expensive to hire and maintain. This result is consistent with Mauri's (2012) and Cleophas and Frank (2011) asserting that specialized automated software contributes to the success of revenue management strategy; they tend to be very costly, especially for smaller establishments.

Kumar et al. (2003) allude to a similar finding that cost, complexity, investment of time and staff, and implications of modifications implement the enterprise system planning very expensive. They conclude that system planning implementation is costly due to the cost, complexity, time commitment, staff investment, and consequences of changes.

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This result implies that revenue management strategists must be strategic in selecting the revenue management system that will offer the most cost-benefit to the hotel in the long run by purchasing from quality vendors. It also implies that revenue management system vendors need to ensure that they provide quality and robust systems that allow the hotels to deal with all the essential revenue management functions from a single system.

Further analysis of the moderating role of the level of implementation on the relationship between critical factors and revenue management strategy effectiveness based on different contexts was conducted. An analysis of the countries revealed that properties in developed countries supported the relationship between the "human resource factor," "operational factor," "technological factor," "total revenue management culture," and "revenue management strategy effectiveness." This means that skilled human resources, smooth flow of activities, and automation are vital for hotels to effectively implement the revenue strategy in properties in developed countries and fully implement the revenue management strategy. Developing countries supported a relation between "technological factor," "evaluation factor," and "revenue management strategy effectiveness," depicting that automation and performance measurement affect the effective implementation of revenue management strategy for hotels in developing countries bidding to implement the strategy fully.

Regarding location, urban hotels supported the relationship between "technological factor" and "revenue management strategy effectiveness." In contrast, hotels in other areas supported the relationship between the "human resource factor" and "revenue management strategy effectiveness." This is in line with extant literature, which shows that having an advanced revenue management system is key in boosting the effectiveness of revenue management, specifically for hotels in urban areas.

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This is because most urban hotels tend to be large with many tasks and activities, thus requiring automation. Additionally, there is heightened competition for hotels in urban areas, thus increasing the need for technology (Millili,2022).

On the other hand, skilled human resources are more important for effective revenue management strategy for fully implementing revenue management strategy for hotels located in areas other than urban. Regarding hotel affiliation, chain hotels supported the relationship between the "human resource factor" and "revenue management strategy effectiveness." In contrast, independent hotels supported the relationship between the "operational factor," "technological factor," and "revenue management strategy effectiveness." Finally, regarding the hotel service types, full-service hotels supported the relationship between the "human resource factor," "technological factor," and "revenue management strategy effectiveness."

6.7 Contributions of the Study

The results of this study provide valuable contributions to current knowledge and thinking on revenue management and strategic management. It also presents practical contributions to the hotel industry and practitioners.

6.7.1 Academic contributions

First, this study contributes valuably to research on revenue management strategy implementation in the hotel industry. Significantly, this study augments the research on strategy implementation by underscoring the importance of critical factors in revenue management strategy implementation. Multiple scholars have called for more research on revenue management strategy implementation in the hotel industry to be conducted to address the lacuna in knowledge in this area (Abad et al., 2019; Aladag et al., 2020; Talón-Ballestero et al., 2014).

Despite this call, research examining the critical factors for revenue management strategy implementation and their impact on strategy effectiveness in the hotel industry is scarce.

Accordingly, the role of a hotel's revenue management strategy approaches in the implementation process is underexplored. Identifying, understanding, and incorporating critical factors for strategy implementation is vital for achieving an effective strategy and gaining a competitive advantage (Kumar et al., 2015). As a result, this study represents one of the earliest attempts to identify critical factors, specifically for implementing a hotel revenue management strategy. This is because most existing studies are too general and do not offer insight into effectively implementing the revenue management strategy. Thus, they lack the robustness to adequately illuminate the critical factors for implementing a hotel revenue management strategy.

Second, to identify the critical factors and measure the effective implementation of the revenue management strategy, it was necessary to develop multidimensional measurement dimensions and items. To achieve this, a Fuzzy Delphi Method was conducted, and a Fuzzy Analytic Network process was used to verify robustness and reliability. The process entailed a thorough literature review to generate the dimension and items from existing literature and a review from experts for refinement and validation. This process identified 13 critical factors for revenue management strategy implementation. An online survey was conducted in three, four- and five-star hotels in ten countries to validate the factors further. This procedure included; conducting pre-tests and pilot studies and collecting data. The instrument was tested on hotel staff in the revenue management function. An Exploratory Factor Analysis (EFA) was used to measure validity. The findings of the rigorous systematic process determined a seven-component structure of critical factors for revenue management strategy implementation.

To the author's knowledge, this study is the first attempt to use Fuzzy logic to determine the critical factors for revenue management strategy implementation.

Third, based on the analysis of the previous studies, the critical factors for strategy implementation were tentatively grouped into four, namely, "organizational," "human resource," "operational," and "technological" factors. However, this study identified seven components of critical success factors for revenue management strategy implementation. These are; "1) organizational factor", "2) monitoring factor", "3) human resource factor", "4) operational factor", "5) technological factor", "6) total revenue management culture factor", and "7) evaluation factor. The three additional factors 2) "monitoring," 6) "culture," and 7) "evaluation" have previously been considered as either part of the organizational factor (culture) and operational (monitoring and evaluation).

The split means that these factors are best considered autonomously in the revenue management strategy implementation context. While past research has examined some of these factors (Griffin, 1995; Hansen & Eringa, 1998; Jones & Hamilton, 1992), they have not been previously examined together within the hotel revenue management strategy implementation context. Therefore, the current finding contributes enormously to the hotel revenue management and strategic management literature. The study also corroborates the proposition that revenue management implementation critical factors are multifaceted and should be examined against this background.

Fourth, the interrelationships among identified critical factors are examined to understand how the critical factors are related and dependent on each other. A modified Total Interpretative Structural Modelling (m-TISM) was conducted and was used for theory building as its answers the "what," "why," and "how."

The process entailed an expert opinion, deriving a structural self-interaction matrix that indicates the influences among the critical factors, hierarchy-level partitioning, which helps in understanding the important critical factors at the different levels in the system and how the driving factors influence the dependent critical factors, a MICMAC analysis which allows us to visualize the driving powers and dependencies behind each critical factor by dividing them into quadrants, and a digraph which illustrates the interconnections between the critical factors based on the different levels of interactions. Both direct and transitive links are shown. Based on this analysis, a holistic model (Fig. 4.5) for the critical factors for revenue management strategy implementation was developed.

While several models and frameworks for the implementation of revenue management strategy have been proposed in the existing literature, this model is the first attempt to examine the interrelationships holistically and robustly among critical factors and explain how the factors influence each other. Therefore, this study builds on the existing literature by demonstrating that effective revenue management strategy implementation depends on understanding the interlink among the various factors, which factors depend on which, and which factors drive which. This allows strategists to understand the most influential factors and how they can be harnessed to ensure the successful implementation of a revenue management strategy.

Fifth, the relationship between the critical factors and the revenue management strategy effectiveness was examined. Critical factors have been proven to facilitate effective strategy implementation. Satisfactorily, all seven critical factors, including organizational, monitoring, human resources, operational, technological, total revenue management culture, and evaluation factors, effectively predicted positive performance on revenue management strategy effectiveness. Besides contributing to a better understanding of critical factors' influence on revenue management

strategy effectiveness, these findings offer comprehensive knowledge to the scholarship of revenue management and strategic management. Furthermore, previous research has paid little attention to holistic critical factors as predictors and revenue management strategy effectiveness as an outcome based on financial and non-financial aspects, as most studies focus on the financial aspects of revenue management performance. Therefore, the present study offers a broader perspective by examining the multidimensionality of critical factors for implementing revenue management strategy effectiveness.

Sixth, the moderating roles of the revenue management strategy approach and revenue management strategy implementation level were examined. No study has examined how the revenue management strategy approach and implementation level influence the relationship between critical factors and the effectiveness of the revenue management strategy. This study, therefore, builds on the existing research on revenue management strategy by demonstrating that the strategy approach (in-house, centralized, corporate outsourcing, third-party outsourcing, or hybrid) that a hotel chooses to use and revenue management strategy implementation level (full, partial, or nearly) both influence the relationship between critical factors for revenue management strategy implementation and revenue management strategy effectiveness. It also provides evidence of how the different factors interact with the approach and implementation level to enhance or diminish the relationship. This study reinforces the study (Altin, 2017) that argues the significance of the strategic approach to revenue management performance.

Seven, this study extends the propositions of the contingency theory, which indicates that there is no best way to execute; rather, execution is contingent upon the situations at hand.

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The study evidenced that different contexts (countries, property class, property affiliation, and property type) affect the relationship between critical factors and revenue management strategy effectiveness. Understanding which factors are key based on context is key to ensuring effective revenue management strategy implementation. This study first shows how different contexts influence relationships between revenue management strategy implementation critical factors and revenue management strategy effectiveness. It also highlights how the revenue management strategy approach and implementation level moderate this relationship based on context.

Lastly, methodologically, this study is unique in that it presents the first attempt to examine the revenue management strategy effectiveness using Fuzzy logic (Fuzzy Delphi, Fuzzy Analytic Network Process, and Fuzzy MICMAC) combined with modified Total Interpretative Structural Modelling and multiple regression analysis. The triangulation of the different data analysis methods reduces biases and lends more credibility to the findings. It also provides a different way of conducting and analyzing the data related to revenue management. Fuzzy logic is particularly helpful because it can handle big data that is now commonly used in revenue management research.

6.7.2 Practical contributions

This study offers insight and practical suggestions to hospitality and tourism stakeholders interested in optimizing revenue and profits by implementing a revenue management strategy. It is specifically intended for revenue managers, general managers, and hotel strategists to understand better the multifaceted nature of critical factors for implementing revenue management strategy. It also provides the stakeholders with the knowledge of the critical factors that influence revenue management strategy effectiveness, as well as the impact of revenue management strategy approach and implementation level on the relationship between critical factors and revenue management effectiveness.

This study has demonstrated seven critical factors that influence revenue management strategy effectiveness in the hotel industry. Each of these critical factors informs revenue management strategy implementation. Since this study was conducted in ten countries across seven continents, the practical implications can be suggested to stakeholders across a wide context of revenue management strategy. The practical implications of this study are as follows;

First, integrating organizational factor that provide direction and guidance on strategy implementation is vital. Aligning revenue management strategy to hotels' overall goals and policies, top management commitment to revenue management strategy, aligning revenue management strategy organization's culture and structure, and creating an environment where revenue management strategy succeeds has been shown to affect the efficiency of strategy implementation. This means the hotels' ability to leverage the benefits of the revenue management strategy will depend on structuring these factors. Therefore, this factor should not be overlooked as it has a high driving power and thus influences all other factors.

However, it is imperative to note that some contextual factors, such as operating in a developed country, being full-service hotels, and being chain hotels, should emphasize the organizational factor more. Hotel strategists should ensure that the revenue management strategy goal aligns fully with the hotel's vision. The hotel's top management should understand how the revenue management strategy works, allocate sufficient resources, create an autonomous revenue management function, and be committed to the strategy's success. Revenue managers should champion the revenue management strategy implementation process and ensure they form and foster a revenue management culture throughout the hotel.

Second, conducting regular monitoring is emerging as a critical factor that needs to be emphasized. A key note is that, previously, monitoring has often been tied to evaluation, i.e., "monitoring and evaluation"; however, it appears that each of these factors is unique and important autonomously and thus should be considered independently.

Hotels operating in developed countries, particularly in areas other than urban, full-service hotels, and chain-affiliated hotels, should pay extra attention to monitoring processes and performance of the revenue management strategy. It is important to keep track of the revenue management strategy through benchmarking, tracking the daily revenue management activities and revenue management development, regularly meeting and sharing with the revenue management team, auditing the data accuracy, and collecting regular feedback to ensure revenue management strategy implementation process effectiveness. Revenue managers should therefore ensure that they conduct regular audits and checks of the revenue management strategy performance to identify and correct errors before they can cause any adverse impacts.

Besides, monitoring the performance of different markets should be prioritized as it has been identified as one of the revenue management challenges. Revenue managers should also pay attention to the revenue management strategy approach that the hotel employs because it impacts the monitoring. For example, monitoring influences revenue management strategy effectiveness for hotels using an in-house approach and operating in a developed country. Revenue management system software developers can integrate the monitoring function separately from evaluation. This will allow revenue management strategy monitoring to be carried out more easily and effectively.

Third, hotels must concentrate on the human resource factor to effectively implement the revenue management strategy. It is acknowledged that employees form an integral part of any organization, as they are in charge of the actual execution of tasks and activities.

Getting the right workforce on board is the antidote to a successfully implemented revenue management strategy. The right people refer to individuals with the required competencies, knowledge, and skills. Enhancing the human resource through training, motivation, and involvement in decision-making and creating a conducive working environment is key for effective strategy implementation. Considering the complexity of the revenue management function and the lack of expertise in the human resource market, revenue managers must ensure that they acquire and retain a skilled workforce. Additionally, despite the current sophistication in the revenue management system, human judgement remains a crucial factor in managing revenue; thus, revenue management leadership must ensure that highly qualified human resources are hired.

The human resource factor is particularly sensitive in urban and full-service hotels in developing countries. Revenue managers in charge of properties in a developing country should solicit and hire a highly qualified revenue management workforce to remain competitive. On the other hand, revenue managers in charge of full-service hotels located in a developed country and areas other than urban areas should pay attention to the implementation level. This is because a higher level of implementation (full) has a better potential to enhance the revenue management strategy effectiveness, thus making the performance of the strategy more beneficial.

Fourth, all the revenue management processes and operations must be well managed. The operational factor ensures a smooth flow of each process and activity in the system. Operational factors are extremely important to developing countries' hotels that offer limited service. From the onset of the strategy adoption, revenue management strategists must ensure that the processes are clearly defined, tangible and measurable, and customer-focused. Top management and revenue managers must allocate sufficient resources and staff to manage the revenue management function.

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Additionally, revenue managers are responsible for ensuring that these processes are regularly improved through performance monitoring. Furthermore, revenue managers with operations in developed countries and located in areas other than urban should be aware of the influence of the approach on the performance of the revenue management strategy. For example, the study's findings show that an in-house approach can enhance the influence of operational factors and revenue management effectiveness. Such effects should not be overlooked and must be considered when choosing the approach to employ at the hotel to harness the full potential and benefits of having the strategy.

Fifth, technology plays a significant role in implementing and enhancing the revenue management strategy. The right infrastructure and software are key because a revenue management strategy requires a system to carry out various processes. This is particularly important for hotels located in a developing, offering full services, and are independently owned. Therefore, revenue management strategists must ensure that they acquire the right revenue management system based on the characteristics of the hotel (country, location, chain) and the needs of the hotel. They must evaluate the revenue management system developers based on the quality, delivery performance, and price to ensure they get the most appropriate system for their property. Besides, the strategists and managers should consider involving the revenue management system software developers in designing and redesigning the revenue management strategy. This would ensure they develop systems and software aligned to the hotels' needs.

Additionally, revenue management system developers should always seek feedback from the hotels on the system's performance and ensure that they are continuously improved to meet the ever-changing needs of the hotel.

Further, revenue managers in charge of the economy and independent-owned hotels should pay attention to the implementation level as they can negatively affect the technological factor and revenue management performance. This is because of the cost issues in acquiring and maintaining the technology infrastructure.

Sixth, there is a push toward adopting the total revenue management culture. This will entail implementing revenue management practices across all the revenue-generating centers in the hotel. Revenue management strategists, managers, and top management must endeavor to introduce the practices in each revenue-generating center to maximize revenue and optimize profits. This is particularly key in chain, urban, and limited-service hotels. Revenue managers are responsible for championing the revenue management practice in other departments by ensuring that managers and staff from other departments are involved in the decision-making process. They must also ensure that communication is clear and properly transmitted across all the relevant departments. Additionally, revenue managers managing properties in a developing country, economy, and chain hotels should choose the strategic approach to be employed strategically.

Seventh, hotels should pay attention to evaluating the revenue management strategy. Revenue managers should benchmark, evaluate the effectiveness of the revenue management strategy performance measurements, evaluate actual performance against the expected results, and set goals. Revenue management strategists should ensure that they evaluate the performance of the overall implementation process to determine how successful the strategy is.

Eight, a hotel's strategic revenue management approach significantly impacts the relationship between the critical factors and the effectiveness of the revenue management strategy.

For this reason, the revenue management strategists, revenue managers, and other decision-makers must ensure that they carefully select the strategy approach after carefully considering the pros and cons of each strategy versus the resource available and the property's needs.

Nine, the revenue management strategy's implementation level influences the revenue management strategy's effectiveness. Therefore, revenue managers and strategists should ensure that revenue management has been fully implemented within their establishment.

Ten, this study has proposed a framework (Fig. 4.5) that decision-makers can use revenue management strategy. The framework highlights the critical factors and their interrelationships, explaining how and why they are interrelated. Strategists and managers can apply this model to monitor which critical factors they have integrated, and which are missing. This would lead to better implementation of the strategy. Thus, the framework will guide existing hotels and be useful for new hotel openings that want to adopt revenue management.

Lastly, the extent of effectiveness of the critical factors for revenue management strategy implementation, the revenue management strategy approach, and the revenue management strategy implementation level on the revenue management strategy effectiveness were different based on the hotel background, including country (develop versus developing), location (urban versus other areas), type of service (full service versus limited service) and affiliation (chain versus independent). This knowledge can enable the revenue management strategy decision-makers to make the appropriate strategy based on the hotel's environment. Second, such an understanding will help the revenue, and top managers will allocate their limited resources appropriately. Third, revenue managers can leverage this information to help them champion the successful implementation of the strategy in their hotels.

Finally, investors who have invested in or want to enter the hotel industry can use this information to understand how different contexts will impact their businesses, allowing them to make more informed decisions about where to invest.

6.8 Summary

This chapter discusses the study's results by comparing them with earlier studies. It also presents the academic and practical contributions of the study. A novel contribution of this study is identifying the critical factors for revenue management strategy implementation from a broad context and developing a model for revenue management strategy implementation. Existing and new hotel ventures can apply this model to implement the revenue management strategy. Moreover, the predictive effect of the critical factors on revenue management strategy effectiveness is tested. This can be used in developing new theories for future research. It can also help revenue management strategists understand how critical factors interact in different contexts and how they affect the revenue management strategy's effectiveness. Practically, the study inspires the revenue management stakeholder to understand the critical aspects that influence the performance of the revenue management strategy and how each player contributes to this effectiveness. The following chapter concludes the research.

CHAPTER 7: CONCLUSION

7.0 Chapter Introduction

This chapter presents an overview of the critical factors for implementing a revenue management strategy and illustrates how the study's objectives were achieved. The chapter also highlights the study's limitations and suggests future research.

7.1 Overview of the Study

This study aimed to identify and validate the critical factors for revenue management strategy implementation in the hotel industry. It also sought to understand and model the interrelationship between the identified critical factors and test the predictive effects of the critical factors on revenue management strategy effectiveness. The moderating roles of the revenue management strategy approach and implementation level were also examined.

Chapter 1 introduced the study, provided the study purpose and background, and stated the research gaps, questions, and objectives. It also presented the rationale and organization of the study. The initial discussions in this chapter focused on the overview of the strategy implementation and critical factors within the broader strategic management context. Then they examined the implementation of the revenue management strategy. A link between critical factors and effective revenue management strategy implementation was discussed, extending this connection to the need to understand the impact of the revenue management strategy approach and revenue management implementation level on strategy effectiveness. While a budding body of literature examines the revenue management strategy implementation, most examine single factors (e.g., human, systems) of the revenue management strategy implementation, are conducted from a single context, and are not empirically tested.

As a result, these studies have incongruent conclusions regarding the critical factors for revenue management strategy implementation. Furthermore, a holistic and robust revenue management implementation model is lacking in the existing literature. To the best of the researcher's understanding, no study has examined the influence of critical factors on revenue management strategy effectiveness. To fill these gaps, five research questions were considered: (1) to identify the dimensionality of critical factors for revenue management strategy implementation in the hotel industry from (literature, experts (academia and industrial) perspectives, and hotel); (2) to model the interrelationship among the identified critical factors for revenue management strategy implementation in the hotel industry; (3) to examine the relationship between critical factors and revenue management strategy effectiveness in the Hotel Industry; (4) to investigate the moderating effects of revenue management strategy approach on the relationship among critical factors, and revenue management strategy effectiveness in the hotel Industry; (5) to examine the moderating effects of revenue management implementation level on the relationship among critical factors, and revenue management strategy effectiveness in the hotel Industry.

Chapter 2 provided a literature review on revenue management, specifically emphasizing critical factors for revenue management strategy implementation in the hotel industry. A discussion of the contingency theory was held as a basis for the study, followed by examining critical factors serving as a context for further discussion. Empirical works on conceptualizing the critical factor, including the taxonomy and past studies on critical factors for revenue management strategy implementation, highlighted the prevailing dimensionalities, and existing gaps were discussed. Strategic management as the study concept was also discussed, including elaborating on the concept and the progress of research in the hospitality industry.

A detailed review of the studies on the key topical area, revenue management in the hospitality industry, was further done. This included its conceptualization of revenue management as a strategy, approaches to revenue management strategy implementation, implementation level, current studies on revenue management strategy implementation, and limited empirical studies on revenue management strategy implementation. The outcome of the revenue management strategy implementation effectiveness and performance evaluation was also highlighted and discussed. Hypotheses and proposed models were developed in light of this comprehensive review.

Chapter 3 covered the methodological procedures of the study. All aspects relative to a robust research design, specifically research philosophy and paradigm, research design, population sampling techniques, data collection, data analysis, and interpretation, were discussed. The study was a sequential exploratory employing a mixed method conducted in two main phases. Phase one entailed validating critical factor constructs crawled from existing literature on critical factors for strategy implementation. Experts' opinion was engaged through the Fuzzy Delphi Method, followed by a Fuzzy Analytic Network Process for further verification. A model was then developed using a modified Total Interpretative structural modeling. Phase two entailed the verification of the constructs and items retained from phase one. First, a pre-test was conducted with academic experts and doctoral students to ensure each construct and item's content validity, understanding, and conciseness. Second, the reliability of the research instrument was evaluated through a pilot study. Finally, the main survey was conducted online, targeting hotel personnel responsible for revenue management functions. In the end, responses from 10 countries across seven continents were collected. Multiple regression was used for data analysis.

Chapter 4 was devoted to presenting the results of the first phase. Forty-six experts' opinions were collected to validate the construct and items for critical factor measurements. Generally, 13 of the 23 initial constructs satisfied the required threshold to be retained. The retained factors were strategy goals and objectives, revenue management technology, revenue management structure, data accuracy and integrity, organizational culture, revenue management team training, strategy implementation process, revenue management measures, revenue management strategy design, top management commitment, process management, communication, and revenue management team readiness. The results of the Fuzzy Delphi and Fuzzy Analytic Network process prioritized strategy goals and objectives and revenue management technology. At the same time, the MICMAC analysis revealed that strategic goals and policies and top management commitment have the highest driving power. At least 30 direct and indirect relationships among the 13 factors emerged from the modified Total Interpretative structural modeling analysis. This underlines the importance of understanding the critical factors and their influence on strategy implementation effectiveness.

Chapter 5 presents the results of the main survey. A total of 683 valid responses were used. The data satisfied all the recommended thresholds for conducting a principal component analysis. The seven extracted components were the organizational factor, monitoring factor, human resource factor, operational factor, technological factor, total revenue management culture factor, and evaluation factor. The results of the regression analysis revealed that all the factors were significant. Furthermore, the analysis showed that both the revenue management strategy approach and the implementation level partially moderate the influences of the relationship of the proposed model.

Chapter 6 discusses the study's results in line with each of the five research objectives and their corresponding implications and contribution. All relevant hypotheses and plausible explanations for the emerging relationships were discussed. The study successfully presented constructs and items appropriate to measure critical revenue management strategy implementation factors. The study proposed a model hotel that can be used in the revenue management strategy implementation process. Additionally, a hypothetical relationship was confirmed in verifying the identified critical factors.

The current chapter (Chapter 7), the final chapter, presents an overview of the study, a brief conclusion, study limitations, and recommendations for future research.

7.2 Summary of major findings

This study was set to address five objectives. First, to identify the dimensionality of critical factors for revenue management strategy implementation in the hotel industry from literature, experts, and hotels' perspective. Second, to model the interrelationship among the identified critical factors for revenue management strategy implementation in the hotel industry. Third, to examine the relationship between critical factors and revenue management strategy effectiveness in the hotel industry. Fourth, to investigate the moderating effects of the revenue management strategy approach on the relationship among critical factors and the effectiveness of revenue management strategy in the hotel Industry. Finally, to examine the moderating effects of revenue management implementation level on the relationship among critical factors and the effectiveness of revenue management strategy in the hotel industry. A summary of the major findings is as follows:

First, based on the literature and experts' reviews, this study identified 13 critical factors related to revenue management strategy implementation. While a survey of hotels globally identified seven components of the critical factors that emerged. These were 1) "organizational," 2) "monitoring," 3) "human resources," 4) "operational," 5) "technology," 6) "total revenue management culture," and 7) "evaluation factors." Based on the literature review, only four of these seven had been classed, including; 1) "organizational," 2) "human resource," 3) "operational," and 4) "technology" factors. The three supplementary factors, 2) "monitoring," 6) "culture," and 7) "evaluation," have previously been considered as either part of the organizational factor (culture) or operational (monitoring and evaluation). Accordingly, these factors are best considered independently in implementing a revenue management strategy.

Second, 30 interrelationships were identified among the identified critical factors. Of these, 19 were direct relationships, and 11 links were transitive. The most important critical factors were goals, policies, and top management commitment, eventually leading to proper process management. These relationships imply that revenue management strategists must consider how different factors relate to each other in the implementation process. Based on the MICMAC analysis, revenue managers can identify the driver factors such as top management commitment, autonomous factors such as data accuracy and integrity, and independent factors such as revenue management technology.

Third, critical factors have a significant positive relationship with the revenue management strategy effectiveness. However, the significance of the relationship is dependent on different contexts based on country (developed versus developing), location (urban versus other areas), affiliation (chain versus independent hotels), and service type (full-service versus limited-service hotels).

Fourth, the revenue management strategy approach a hotel chooses to use influences the relationship between the critical factors and revenue management strategy effectiveness. The in-house approach is particularly sensitive to technological factor and total revenue management culture. However, there are subtle differences based on the various contexts.

Fifth, the level of implementation of the revenue management strategy also impacts the relationship between critical factors and revenue management strategy effectiveness, specifically full implementation, compared to partial or moderate implementation. Different contexts, like the strategy approach, influence the relationships between critical factors and revenue management strategy effectiveness.

7.3 Limitations and Suggestions for future research

Ultimately, this study has contributed significant knowledge that revenue management strategists can use to improve performance. Nonetheless, the study has several inherent limitations that provide a basis for future research. First, we must define a measurement scale for important factors in revenue management strategies. This study used constructs and items from the literature on strategy implementation, as there is no developed scale for critical factors specifically for revenue management. Despite rigorous expert review and statistical analysis of the constructs and items before being tested on a sample, a measurement scale focused on revenue management still needs to be developed. Developing and testing similar or alternative revenue management-oriented relationships in other hotels is also feasible to confirm critical factors identified in this study. Additionally, because there is no existing scale to measure hotel RM strategy effectiveness, responses for RM strategy effectiveness were self-rated as performing better or worse compared to competitors. While this data provides priori understanding of revenue management

performance, it is inherently subjective and marred with biasness which could affect the reliability of the results.

Similarly, there is no scale/measure for revenue management strategy implementation level, thus the author devised a gauge for the level of RM strategy implementation (nearly, moderate, and fully) for this study which could also be biased. Hence, future research efforts should focus on developing a measurement scale and extending the measurements of the constructs to examine relationships between critical factors and other outcomes such as the extent of implementation, strategy approach, hotel performance, customer satisfaction, and retention.

The second limitation pertains to the sample used. First, it was necessary to conduct the data online due to geographical dispersion because the study targeted responses from hotels globally for a wider representation. Although an effort was made to ensure only the most suitable sample is engaged in an online survey by including screen questions specifying minimum years of working experience, adoption of revenue management strategy, having knowledge and expertise in revenue management in the hotel industry, the approach may have inherent flaws beyond the researchers' control that may be infiltrated by respondents who do not fully meet the criteria. Second, the study included all personnel who deal with the revenue management function in a hotel, even where they are not a revenue manager. This was necessitated by the fact that the revenue management in some hotels is spearheaded by staff in charge of other functions such as general managers, sales and marketing, customer relationship managers, front office staff, and reservations. While they may have the necessary knowledge and expertise to deal with the revenue management strategy function, they are also subject to biases based on the aspects most critical to their main responsibility. For example, customer relationship managers will likely edge towards aspects that draw and retain more customers into the hotel at the expense of the revenue in some

instances. Future studies should consider using other modes of collecting data, for example, field surveys, to ensure that only the most appropriate sample responds.

The third limitation relates to data. Considering the sensitivity of revenue management-related information, some respondents gave grossly inaccurate data, specifically where absolute numbers such as ADR were requested. This made it difficult to use the absolute data for analysis. As such, the study conclusions were based on subjective (Likert scale) data. Additionally, this study examined the outcome of the study (revenue management strategy effectiveness) based on their performance in the year 2021. This means that most hotels likely had dismal performance due to the impact of the Covid-19 pandemic. Therefore, it would be worthwhile if future studies could explore data from different sources, such as considering using secondary data from STR and the period probably post-pandemic.

Fourth, the study only examined the moderating roles of the revenue management strategy approach and implementation level. However, critical factors can potentially impact the strategic approach and implementation level, making these variables potential outcomes. Therefore, future studies can explore the relationships between the critical factors and strategy approach and critical factors and implementation. Strategy approach and implementation level can be examined as mediators while critical factors can also be examined as moderators.

Lastly, although the study was conducted across hotels globally, the generalization of the findings should be taken with caution. This is because of the limitations of respondents and the period the study was limited. Future researchers can test the model with revenue managers only and in a post-pandemic period.

APPENDICES

Appendix 1. A Summary of Multiple Regression and Hypotheses Testing (N = 683).

	Model 1 H1-1 to H1-7 (Direct)				Model 2 H2 (Moderation) Approach				Model 3 H3 (Moderation) Level				Hypotheses decision
	Coefficient	t	Sig.	VIF	Coefficient	t	Sig.	VIF	Coefficient	t	Sig.	VIF	
(Constant)	1.890	8.020	.000		1.947	8.197	.000		2.008	7.646	.000		
Organizational factor	**.101**	**1.829***	**.068**	**3.799**	.090	1.620	.106	3.919	.115	1.973	.049	4.336	**Accepted**
Monitoring factor	**.176**	**2.964*****	**.003**	**4.111**	.197	3.308	.001	4.197	.165	2.651	.008	4.572	**Accepted**
Human resource factor	**.107**	**1.965****	**.050**	**3.586**	.108	1.986	.047	3.688	.076	1.315	.189	4.145	**Accepted**
Operational factor	**.069**	**1.704***	**.089**	**2.607**	.060	1.463	.144	2.631	.057	1.326	.185	2.930	**Accepted**
Technological factor	**.096**	**1.928***	**.054**	**3.138**	.091	1.805	.072	3.243	.126	2.362	.018	3.641	**Accepted**
Culture factor	**.111**	**2.225****	**.026**	**2.969**	.116	2.317	.021	3.052	.130	2.525	.012	3.200	**Accepted**
Evaluation factor	**.081**	**1.655***	**.098**	**3.002**	.074	1.524	.128	3.033	.056	1.053	.293	3.547	**Accepted**
Approach_Dummy					-.105	-1.795	.073	1.023					
Organizational factor*Approach					-.023	-.203	.839	3.787					Rejected
Monitoring factor*Approach					.166	1.369	.172	4.165					Rejected
Human resource factor*Approach					-.095	-.827	.409	3.854					Rejected
Operational factor*Approach					**-.215**	**-2.646*****	**.008**	**2.558**					**Accepted**
Technological factor*Approach					.097	.907	.365	3.401					Rejected
Culture factor*Approach					**.218**	**2.152****	**.032**	**2.971**					**Accepted**
Evaluation factor*Approach					-.089	-.897	.370	2.989					Rejected

Level_Dummy									-.099	-.538	.160	1.284	
Organizational factor*Level									-.060	-.412	.591	3.463	Rejected
Monitoring factor* Level									-.049	1.948	.680	3.762	Rejected
Human resource factor* Level									**.214**	**1.184***	**.052**	**3.364**	**Accepted**
Operational factor* Level									.097	-2.726	.237	2.596	Rejected
Technological factor* Level									**-.274**	**-1.382*****	**.007**	**2.944**	**Accepted**
Culture factors* Level									-.141	1.719	.167	2.695	Rejected
Evaluation factor* Level									**.170**	**-1.407***	**.086**	**2.770**	**Accepted**
Country	-.021	.010	-.062	1.023	-2.157	-.019	.059	1.055	-.021	-2.184	.029	1.031	
Property type	-.073	.034	-.062	1.034	-2.172	-.074	.027	1.038	-.074	-2.212	.027	1.036	
Property Location	.009	.021	.013	1.050	.443	.007	.751	1.067	.012	.595	.552	1.068	
Property service type	-.384	.089	-.127	1.071	-4.333	-.360	.000	1.086	-.390	-4.356	.000	1.106	
R			**.680**				**.688**				**.690**			
R²			**.463**				**.474**				**.476**			
Adjusted R²			**.454**				**.459**				**.461**			
Dependent Variable: Revenue management strategy effectiveness													

*p ≤ 0.10, **p ≤ 0.05, ***p ≤ 0.01

Appendix 2. In-depth interview guide

Revenue Management Strategy Implementation Critical Factors

Introduction: Self-introduction, general affiliation, and research introduction

Purpose of the interview

Thank you very much for agreeing to take the time to discuss this topic. This conversation is on revenue management strategy in the hotel industry. I want to know more about the critical factors for implementing a revenue management strategy. Your knowledge and opinion about the topic are important to this study. This conversation will be tape-recorded, and I will take notes during the discussion. Be assured that the information collected will be used for academic research purposes only and will remain confidential.

Kindly note that in this study, critical factors are crucial in strategy implementation as they play a pivotal role in determining the success or failure of a decision.

Screening questions

- Do you have knowledge and expertise in revenue management strategy in the hotel industry?

- How long have you been involved in revenue management strategy functions in the hotel industry?

- What is your role and involvement with the revenue management strategy implementation in the hotel industry?

If participants satisfy the pre-requisites of these three criteria, the interview can proceed; otherwise, it will be terminated.

Overall view of the Revenue management strategy

- How would you define revenue management strategy in the hotel industry? What role does revenue management play in your hotel?

- Based on your overview, to what extent has the revenue management strategy been implemented in the hotel industry?

- What are the main impediments, challenges, and restrictions the hotel faces during revenue management strategy implementation?

Critical Factors for revenue management strategy implementation

- What critical factors can contribute to successfully implementing the revenue management strategy in the hotel industry? Kindly describe

- To what extent have the critical factors been integrated into the hotel industry? Kindly provide some examples.

- How do you measure the success and effectiveness of:
    a) the revenue management strategy implementation in the hotel?
    b) the critical factors for revenue management strategy implementation in the hotel?

- Do you have any other information regarding implementing the revenue management strategy that would benefit me? Please feel free to share

Appendix 3. Semi-structured item validation questionnaire

Dear Sir/Madam:

Revenue Management strategy implementation critical factors Questionnaire

The following are measurement items on critical factors in hotel revenue management strategy implementation. Kindly evaluate the appropriateness of the measurement items relative to the associated construct by choosing a suitable value on a scale of 1 (highly unimportant) to 7 (highly important). Additionally, suggestions to further improve the clarity and robustness of the items are welcome. Thank you.

Olive Nyaga, Ph.D. candidate
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Kindly note that in this study, critical factors are crucial in strategy implementation as they play a pivotal role in determining the success or failure of a decision.

Do you have knowledge and expertise in revenue management strategy in the hotel industry?

(1) Yes (2) No

Compared to others, my skill in revenue management is

(1) Novice (2) Advanced (3) Competent (4) Proficient (5) Expert

Do you think applying a revenue management strategy is important in the hotel?

(1) Not important (2) Neutral (3) Important

Do you think there are critical factors for implementing a revenue management strategy in hotels?

(1) Yes (2) No

I am/was involved in the implementation of the revenue management strategy in the hotel industry

(1) Not involved (2) to a slight degree (3) to a moderate degree (4) to a high degree

Part 1. The following are items in each of the critical factors' domains. Please rate each item on a scale of 1 (highly unimportant) to 7 (highly important) regarding how important you consider the item for evaluating revenue management (RM) strategy implementation success in the hotel industry.

1). RM strategy goals and objectives	Degree of applicability						
The basic goals of RM strategy are …….	Highly unimportant			Neutral		Highly important	
1. are clear	1	2	3	4	5	6	7
2. aligned with the general goals of the hotel	1	2	3	4	5	6	7
3. shared with other departments	1	2	3	4	5	6	7
4. shared by the top management	1	2	3	4	5	6	7
5. beneficial to the overall performance of the hotel	1	2	3	4	5	6	7
Suggestion:							

2). RM department structure	Degree of applicability						
The organizational hierarchy within the hotel……..	Highly unimportant			Neutral		Highly important	
1. allows the revenue manager to report to the right person	1	2	3	4	5	6	7
2. places the revenue manager at the same level as other departmental managers	1	2	3	4	5	6	7
3. allows autonomy to the RM department	1	2	3	4	5	6	7
4. facilitates a restructure of the RM department when required	1	2	3	4	5	6	7
5. helps the RM department operate efficiently.	1	2	3	4	5	6	7
Suggestion:							

3). Top management commitment	Degree of applicability						
The hotel's top management………	Highly unimportant			Neutral		Highly important	
1. actively participated in the RM adoption process	1	2	3	4	5	6	7
2. actively participates in the RM strategy implementation process	1	2	3	4	5	6	7
3. strongly encourages staff involvement and improvement in RM activities.	1	2	3	4	5	6	7
4. grants necessary authority and supports decisions concerning RM	1	2	3	4	5	6	7
5. recognizes the negative consequences of an ineffectively implemented RM strategy	1	2	3	4	5	6	7
Suggestion:							

4). RM strategy focus	Degree of applicability						
At the hotel………	Highly ← unimportant			Neutral	→		Highly important
1. only top management was involved while adopting the RM strategy	1	2	3	4	5	6	7
2. only the RM team was involved while adopting the RM strategy	1	2	3	4	5	6	7
3. various departments were involved while adopting the RM strategy	1	2	3	4	5	6	7
4. RM strategy is applied in rooms only	1	2	3	4	5	6	7
5. RM strategy is applied in various revenue-generating centers	1	2	3	4	5	6	7
Suggestion:							

5). Organizational Culture	Degree of applicability						
The hotel……………..	Highly ← unimportant			Neutral	→		Highly important
1. creates awareness of RM among employees	1	2	3	4	5	6	7
2. implements a culture towards RM strategy 'Best Practice.'	1	2	3	4	5	6	7
3. integrates ideas from other departments in RM strategy decision making	1	2	3	4	5	6	7
4. has a robust RM-oriented culture	1	2	3	4	5	6	7
5. has specific planning and schedule to support RM strategy	1	2	3	4	5	6	7
Suggestion:							

6). RM Knowledge	Degree of applicability						
The hotel……………	Highly ← unimportant			Neutral	→		Highly important
1. is aware of the RM strategy implementation requirements	1	2	3	4	5	6	7
2. RM team understands its role in strategy implementation	1	2	3	4	5	6	7
3. staff understand the RM function and support it to enhance the effectiveness	1	2	3	4	5	6	7
4. RM team understands the different RM tactics	1	2	3	4	5	6	7
5. Is aware of the changing trends in the implementation and usage of RM strategy	1	2	3	4	5	6	7
Suggestion:							

7). Employee commitment/involvement	Degree of applicability						
The hotel's employees……………..	Highly unimportant			Neutral			Highly important
1. understand what the RM strategy is and is not designed to do	1	2	3	4	5	6	7
2. are committed to RM strategy success	1	2	3	4	5	6	7
3. lower-level employees accept the RM strategy	1	2	3	4	5	6	7
4. share important information concerning the RM strategy implementation	1	2	3	4	5	6	7
5. are involved in the continuous improvement of the RM strategy implementation	1	2	3	4	5	6	7
Suggestion:							
8). RM team readiness	Degree of applicability						
In general RM team………	Highly unimportant			Neutral			Highly important
1. gets excited when a new RM tactic is introduced	1	2	3	4	5	6	7
2. is interested and supportive of innovative tactics and ideas	1	2	3	4	5	6	7
3. are/were involved in the development of the RM strategy	1	2	3	4	5	6	7
4. are empowered to carry out RM duties	1	2	3	4	5	6	7
5. includes personnel with adequate technical and managerial skills	1	2	3	4	5	6	7
Suggestion:							
9). Training	Degree of applicability						
The hotel …..	Highly unimportant			Neutral			Highly important
1. regards RM staff as valuable resources worth investing in education and training.	1	2	3	4	5	6	7
2. provides training in RM concepts and develops their competencies	1	2	3	4	5	6	7
3. provides training in technical and managerial skills to improve their competency	1	2	3	4	5	6	7
4. provides specific courses and training to enhance RM knowledge	1	2	3	4	5	6	7
5. arranges adequate resources for RM staff education and training.	1	2	3	4	5	6	7
Suggestion:							

10). Communication	Degree of applicability						
At the hotel….	**Highly** ⬅ **unimportant**			**Neutral** ➡		**Highly** **important**	
1. there is open communication concerning the RM strategy	1	2	3	4	5	6	7
2. decisions on RM application are published and distributed to important personnel	1	2	3	4	5	6	7
3. suppliers receive feedback on the acceptance or rejection of their input	1	2	3	4	5	6	7
4. all groups affected by the RM strategy know where to report any challenges	1	2	3	4	5	6	7
5. RM-related information is communicated to different departments	1	2	3	4	5	6	7
Suggestion:							

11). Employee relations	Degree of applicability						
At the hotel….	**Highly** ⬅ **unimportant**			**Neutral** ➡		**Highly** **important**	
1. employees from different departments utilize their knowledge and skills in implementing the RM strategy	1	2	3	4	5	6	7
2. employees can discuss RM operational issues in an open, frank, and constructive manner	1	2	3	4	5	6	7
3. employees from different departments maintain rapport with each other and are willing to share information	1	2	3	4	5	6	7
4. teamwork is facilitated to help solve problems across departments	1	2	3	4	5	6	7
5. teamwork has a positive effect on the performance of the RM department	1	2	3	4	5	6	7
Suggestion:							

12). Leadership	Degree of applicability						
The revenue manager……………..	**Highly** ⬅ **unimportant**			**Neutral** ➡		**Highly** **important**	
1. has the knowledge and experience required for the implementation of the RM strategy	1	2	3	4	5	6	7
2. is visible and involved in the implementation of the RM strategy	1	2	3	4	5	6	7
3. possesses the adequate skill to implement the RM strategy	1	2	3	4	5	6	7
4. has been granted sufficient authority by top management to perform required duties.	1	2	3	4	5	6	7
5. motivates the employees to implement the RM strategy	1	2	3	4	5	6	7
Suggestion:							

13). Data accuracy and integrity	Degree of applicability						
At the hotel…………..	Highly unimportant			Neutral			Highly important
1. we have a data access interface for our RM function	1	2	3	4	5	6	7
2. we use RM-related data from specialized sources	1	2	3	4	5	6	7
3. experts regularly audit and check the correctness of the RM data content	1	2	3	4	5	6	7
4. we utilize RM data expressed in acceptable metrics	1	2	3	4	5	6	7
5. we monitor internet systems to maintain consistency with property RM strategies.	1	2	3	4	5	6	7
Suggestion:							
14). Implementation of RM strategy	Degree of applicability						
At the hotel ……….	Highly unimportant			Neutral			Highly important
1. all stakeholders are consulted and involved during RM strategy implementation	1	2	3	4	5	6	7
2. RM strategy implementation is championed by one department in the hotel	1	2	3	4	5	6	7
3. RM strategy implementation is understood across all departments in our hotel	1	2	3	4	5	6	7
4. RM strategy is integrated across all revenue-generating centers in the hotel	1	2	3	4	5	6	7
5. RM strategy implementation guidelines and processes are easily available for all stakeholders	1	2	3	4	5	6	7
Suggestion:							
15). Approach to RM Strategy Implementation	Degree of applicability						
At the hotel….	Highly unimportant			Neutral			Highly important
1. RM strategy implementation is flexible	1	2	3	4	5	6	7
2. RM strategy is broken down and implemented in phases	1	2	3	4	5	6	7
3. we understand the different RM strategy implementation approaches	1	2	3	4	5	6	7
4. we choose the most suitable RM strategy implementation approach	1	2	3	4	5	6	7
5. we have enough resources to implement the RM strategy through the most effective approach	1	2	3	4	5	6	7
Suggestion:							

16). Customer focus and satisfaction	Degree of applicability						
The hotel……	Highly unimportant			Neutral			Highly important
1. scrutinizes the customers' trends in designing RM tactics	1	2	3	4	5	6	7
2. systematically and regularly measures customer satisfaction with RM practices	1	2	3	4	5	6	7
3. has a process for resolving RM-related customers complaints	1	2	3	4	5	6	7
4. builds on customer feedback to improve our current RM tactics	1	2	3	4	5	6	7
5. designs RM strategy to accomplish customers' needs	1	2	3	4	5	6	7
Suggestion:							
17). Revenue management system suppliers	Degree of applicability						
The hotel….	Highly unimportant			Neutral			Highly important
1. relies on a small number of high-quality suppliers.	1	2	3	4	5	6	7
2. establishes long-term relationships with suppliers	1	2	3	4	5	6	7
3. involves suppliers in our revenue management training.	1	2	3	4	5	6	7
4. evaluates suppliers according to quality, delivery performance, and price	1	2	3	4	5	6	7
5. actively involves suppliers in the designing /redesign process of the RMS	1	2	3	4	5	6	7
Suggestion:							
18). Monitoring and control measurements	Degree of applicability						
The hotel….	Highly unimportant			Neutral			Highly important
1. measures the effectiveness of RM training and its impact on the RM team.	1	2	3	4	5	6	7
2. regularly monitors the effectiveness of RM processes.	1	2	3	4	5	6	7
3. regularly compares actual RM strategy progress against set goals	1	2	3	4	5	6	7
4. shares results of RM reviews with other departments within the hotel	1	2	3	4	5	6	7
5. conducts regular meetings to monitor the RM progress and improve the feedback to the RM team	1	2	3	4	5	6	7
Suggestion:							

19). Benchmarking	Degree of applicability						
The hotel…...	Highly unimportant			Neutral			Highly important
1. has engaged in extensive RM strategy benchmarking	1	2	3	4	5	6	7
2. has improved our hotel's RM strategy through benchmarking	1	2	3	4	5	6	7
3. has used benchmarking to identify cutting-edge RM strategy techniques.	1	2	3	4	5	6	7
4. regularly meets the RM team to share new methods of applying the RM system	1	2	3	4	5	6	7
5. keeps track of RM developments related to the hotel industry.	1	2	3	4	5	6	7
Suggestion:							

20). RM Measures	Degree of applicability						
The hotel…...	Highly unimportant			Neutral			Highly important
1. has KPIs to measure RM success	1	2	3	4	5	6	7
2. has demarcated the RM process	1	2	3	4	5	6	7
3. continually enhances performance measurement tools	1	2	3	4	5	6	7
4. sets RM strategy expectations before implementation	1	2	3	4	5	6	7
5. RM metrics rightly measure the effectiveness of RM	1	2	3	4	5	6	7
Suggestion:							

21). RM strategy process design	Degree of applicability						
The RM processes at the hotel……	Highly unimportant			Neutral			Highly important
1. are customer-centric	1	2	3	4	5	6	7
2. are user friendly	1	2	3	4	5	6	7
3. are aligned by setting tangible and measurable targets	1	2	3	4	5	6	7
4. are constantly improved by the performance measurement tool	1	2	3	4	5	6	7
5. are constantly improved by interpreting relevant trends	1	2	3	4	5	6	7
Suggestion:							

22). Process management	Degree of applicability						
The hotel……….	Highly unimportant			Neutral			Highly important
1. identifies causes of RM strategy implementation process failure	1	2	3	4	5	6	7
2. takes immediate corrective actions when an RM problem is identified.	1	2	3	4	5	6	7
3. controls RM strategy implementation process using failure prevention tools	1	2	3	4	5	6	7
4. systematically improves key processes to achieve better performance in RM strategy implementation	1	2	3	4	5	6	7
5. has enough staffing to cater to RM process requirements	1	2	3	4	5	6	7
Suggestion:							
23). RM technology	Degree of applicability						
The hotel…...	Highly unimportant			Neutral			Highly important
1. RM software is effective	1	2	3	4	5	6	7
2. has implemented an effective RM system	1	2	3	4	5	6	7
3. RM information technology system meets our hotel needs	1	2	3	4	5	6	7
4. RM systems and PMS are integrated in real-time	1	2	3	4	5	6	7
5. IT support RM function sufficiently	1	2	3	4	5	6	7
Suggestion:							

Part 2: Future of Revenue Management

What factors will be critical for hotel revenue management success in 5 years?

………………………………………………………………………………………………………
………………………………………………………………………………………………………
………………………………………………………………………………………………………
………………………………………………………………………………………………………
………………………………………………………………………………………………………

Part 3: Sociodemographic characteristics. Please tick (✓) the appropriate response

1. What is your gender? ☐ Male ☐ Female ☐Other

2. What is your age? ☐ 20s or below ☐ 30-39 ☐ 40-49 ☐50-59 ☐60 or older

3. I work as the (please check the box that most accurately describes your position)

       ☐ General or assistant manager

       ☐ Director or Manager of Revenue management

       ☐ Director or Manager of Sales or Marketing

       ☐ Director or Manager of operations or rooms or front office

       ☐ Director or Manager of Customer Relationship Management

       ☐ Revenue management consultant

       ☐ Revenue management software developer

       ☐ Revenue management researcher

       ☐ Revenue management academic

4. I have been working with revenue management for -------------- years

…………………………………………. End……………………………………..

THANK YOU FOR BEING SO SUPPORTIVE

Appendix 4. Fuzzy Analytic Network Process Validation

Dear Madam/Sir,

I humbly invite you to participate in this academic research examining critical factors' importance in the hotel industry's revenue management (RM) strategy implementation. Your input in this study is very much appreciated. This questionnaire will be anonymous. Be assured that all responses will be kept confidential and be used for Research Purpose Only. Participation in this research is voluntary, and you can withdraw at any point during the study. If you are interested in getting more information about this research, please feel free to contact me.

Olive Nyaga, Ph.D. candidate
Email: olive.nyaga@

Kindly note that Critical factors are crucial in strategy implementation as they play a pivotal role in determining the success or failure of a decision.

Screening questions

a. Are you aware of critical revenue management strategy implementation factors?

1) strongly unaware 2) unaware 3) somewhat unaware 4) neutral

5) somewhat unaware 6) aware 7) strongly aware

b. How many years of experience in revenue management do you have?
1) < one year 2) one-two years 3) ≥ three years

If the respondents meet the criteria for the two questions, proceed with the survey; otherwise, end the survey.

SECTION I

The following questions present a comparison of the importance of 13 critical factors for revenue management strategy implementation in the hotel industry. Kindly indicate the level of importance of one factor compared to the other.

Question	Criteria	Importance of one main criterion over another									Criteria
		Of low importance (1)	Intermediate values of importance (2)	Moderately important (3)	Intermediate values of importance (4)	More important (5)	Intermediate values of importance (6)	Strongly important (7)	Intermediate values of importance (8)	Extremely important (9)	
With respect to: The overall goal											
How important are revenue management goals and policies compared to other criteria?											
a.	Goals & policies										Structure
b.	Goals & policies										Monitoring
c.	Goals & policies										Culture
d.	Goals & policies										Communication
e.	Goals & policies										Design
f.	Goals & policies										RMS quality
g.	Goals & policies										Data integrity
h.	Goals & policies										Process management
i.	Goals & policies										Top management
j.	Goals & policies										Team readiness
k.	Goals & policies										RM implementation
l.	Goals & policies										Training
How important is revenue management structure compared to other criteria?											
a.	Structure										Monitoring
b.	Structure										Culture
c.	Structure										Communication
d.	Structure										Design
e.	Structure										RMS quality
f.	Structure										Data integrity
g.	Structure										Process management
h.	Structure										Top management
i.	Structure										Team readiness
j.	Structure										RM implementation
k.	Structure										Training

Question	Criteria	Of low importance (1)	Intermediate values of importance (2)	Moderately important (3)	Intermediate values of importance (4)	More important (5)	Intermediate values of importance (6)	Strongly important (7)	Intermediate values of importance (8)	Extremely important (9)	Criteria
How important is revenue management monitoring compared to other criteria?											
a.	Monitoring										Culture
b.	Monitoring										Communication
c.	Monitoring										Design
d.	Monitoring										RMS quality
e.	Monitoring										Data integrity
f.	Monitoring										Process management
g.	Monitoring										Top management
h.	Monitoring										Team readiness
i.	Monitoring										RM implementation
j.	Monitoring										Training
How important is revenue management culture compared to other criteria?											
a.	Culture										Communication
b.	Culture										Design
c.	Culture										RMS quality
d.	Culture										Data integrity
e.	Culture										Process management
f.	Culture										Top management
g.	Culture										Team readiness
h.	Culture										RM implementation
i.	Culture										Training

Question	Criteria	Of low importance (1)	Intermediate values of importance (2)	Moderately important (3)	Intermediate values of importance (4)	More important (5)	Intermediate values of importance (6)	Strongly important (7)	Intermediate values of importance (8)	Extremely important (9)	Criteria
How important is communication in revenue management compared to other criteria?											
a.	Communication										Design
b.	Communication										RMS quality
c.	Communication										Data integrity
d.	Communication										Process management
e.	Communication										Top management
f.	Communication										Team readiness
g.	Communication										RM implementation
h.	Communication										Training
How important is revenue management process design compared to other criteria?											
a.	Design										RMS quality
b.	Design										Data integrity
c.	Design										Process management
d.	Design										Top management
e.	Design										Team readiness
f.	Design										RM implementation
g.	Design										Training
How important is revenue management system quality compared to other criteria?											
a.	RMS quality										Data integrity
b.	RMS quality										Process management
c.	RMS quality										Top management
d.	RMS quality										Team readiness
e.	RMS quality										RM implementation
f.	RMS quality										Training

Question	Criteria	Of low importance (1)	Intermediate values of importance (2)	Moderately important (3)	Intermediate values of importance (4)	More important (5)	Intermediate values of importance (6)	Strongly important (7)	Intermediate values of importance (8)	Extremely important (9)	Criteria
How important is revenue management data integrity compared to other criteria?											
a.	Data integrity										Process management
b.	Data integrity										Top management
c.	Data integrity										Team readiness
d.	Data integrity										RM implementation
e.	Data integrity										Training
How important is revenue management process management compared to other criteria?											
a.	Process management										Top management
b.	Process management										Team readiness
c.	Process management										RM implementation
d.	Process management										Training
How important is top management in revenue management compared to other criteria?											
a.	Top management										Team readiness
b.	Top management										RM implementation
c.	Top management										Training
How important is revenue management team readiness compared to other criteria?											
a.	Team readiness										RM implementation
b.	Team readiness										Training
How important is revenue management strategy implementation compared to another criterion?											
a.	RM implementation										Training

SECTION II

The following questions are designed to obtain demographical information about you

a) Gender

   Male (1) Female (2) Non-binary/third gender (3)

b) Age

   20s (1) 30-39 (2) 40-49 (3) 50-59 (4) 60 or older (5)

c) Highest level of education

   High school graduate (1)Some college (2) 4-year degree (3)

   Professional degree (4) Postgraduate degree (5)

d) Please indicate your current role

   General Manager (1)Revenue manager (2)Revenue management consultant (3)

   Revenue management academic (4)Other (please specify) (5) _____

THANK YOU FOR YOUR SUPPORT

Appendix 5. Interrelationship consensus for M-TISM

Dear Madam/Sir,

I invite you to participate in this academic research examining the **relationships between critical factors for revenue management (RM) strategy implementation in the hotel industry.** Your participation in this survey is crucial for developing this research that provides insights into how and why different critical factors influence/ enhance other factors. Your opinions are well appreciated. Be assured that all responses will be kept **confidential** and be used for **Research Purpose Only**.

If you are interested in getting more information about this research, please feel free to contact me.

Olive Nyaga, Ph.D. candidate
Email: olive.nyaga@

Kindly note, Critical factors refer to those factors that are crucial in strategy implementation as they play a pivotal role in determining the success or failure of a decision

Screening questions

c. Are you aware of critical revenue management strategy implementation factors?

1) strongly unaware 2) unaware 3) somewhat unaware 4) neutral

5) somewhat unaware 6) aware 7) strongly aware

d. How many years of experience in revenue management do you have?
2) < one year 2) one-two years 3) ≥ three years

If the respondents meet the criteria for the two questions, proceed with the survey; otherwise, end the survey.

SECTION I

The following questions are designed to understand the relationship between various critical factors.

Each statement has three parts.
a). indicate whether the factor influences/enhances the other factor
b). indicate the extent of influence
c). indicate how/why the factors influence the other.

Key: NI-No influence**, VL**= Very low Influence**, L**=Low influence**, H**= High influence**, VH**=Very high influence

Questions		Critical factor		Existence of relationship							How the variables influence/enhance
				Yes	No	NI	VL	L	H	VH	Reason
Relationship between revenue management goals and policies and factors											
a.	Goals & policies	to	Structure								
b.	Goals & policies	to	Monitoring								
c.	Goals & policies	to	Culture								
d.	Goals & policies	to	Communication								
e.	Goals & policies	to	Design								
f.	Goals & policies	to	RMS quality								
g.	Goals & policies	to	Data integrity								
h.	Goals & policies	to	Process management								
i.	Goals & policies	to	Top management								
j.	Goals & policies	to	Team readiness								
k.	Goals & policies	to	RM implementation								
l.	Goals & policies	to	Training								
Relationship between revenue management structure and other factors											
a.	Structure	to	Monitoring								
b.	Structure	to	Culture								
c.	Structure	to	Communication								
d.	Structure	to	Design								
e.	Structure	to	RMS quality								
f.	Structure	to	Data integrity								
g.	Structure	to	Process management								
h.	Structure	to	Top management								
i.	Structure	to	Team readiness								
j.	Structure	to	RM implementation								
k.	Structure	to	Training								

Questions		Critical factor		Existence of relationship							How the variables influence/enhance
				Yes	No	NI	VL	L	H	VH	Reason
Relationship between revenue management monitoring and other factors											
a.	Monitoring	to	Culture								
b.	Monitoring	to	Communication								
c.	Monitoring	to	Design								
d.	Monitoring	to	RMS quality								
e.	Monitoring	to	Data integrity								
f.	Monitoring	to	Process management								
g.	Monitoring	to	Top management								
h.	Monitoring	to	Team readiness								
i.	Monitoring	to	RM implementation								
j.	Monitoring	to	Training								
Relationship between revenue management culture and other factors											
a.	Culture	to	Communication								
b.	Culture	to	Design								
c.	Culture	to	RMS quality								
d.	Culture	to	Data integrity								
e.	Culture	to	Process management								
f.	Culture	to	Top management								
g.	Culture	to	Team readiness								
h.	Culture	to	RM implementation								
i.	Culture	to	Training								

Questions	Critical factor			Existence of relationship							How the variables influence/enhance
				Yes	No	NI	VL	L	H	VH	Reason
Relationship between Communication in revenue management practice and other factors											
a.	Communication	to	Design								
b.	Communication	to	RMS quality								
c.	Communication	to	Data integrity								
d.	Communication	to	Process management								
e.	Communication	to	Top management								
f.	Communication	to	Team readiness								
g.	Communication	to	RM implementation								
h.	Communication	to	Training								
Relationship between revenue management process design and other factors											
a.	Design	to	RMS quality								
b.	Design	to	Data integrity								
c.	Design	to	Process management								
d.	Design	to	Top management								
e.	Design	to	Team readiness								
f.	Design	to	RM implementation								
g.	Design	to	Training								
Relationship between revenue management system quality and other factors											
a.	RMS quality	to	Data integrity								
b.	RMS quality	to	Process management								
c.	RMS quality	to	Top management								
d.	RMS quality	to	Team readiness								
e.	RMS quality	to	RM implementation								
f.	RMS quality	to	Training								

Questions	Critical factor			Existence of relationship							How the variables influence/enhance
				Yes	No	NI	VL	L	H	VH	Reason
Relationship between revenue management data accuracy and other factors											
a.	Data integrity	to	Process management								
b.	Data integrity	to	Top management								
c.	Data integrity	to	Team readiness								
d.	Data integrity	to	RM implementation								
e.	Data integrity	to	Training								
Relationship between revenue management process management and other factors											
a.	Process management	to	Top management								
b.	Process management	to	Team readiness								
c.	Process management	to	RM implementation								
d.	Process management	to	Training								
Relationship between top management in revenue management and other factors											
a.	Top management	to	Team readiness								
b.	Top management	to	RM implementation								
c.	Top management	to	Training								
Relationship between revenue management team readiness and other factors											
a.	Team readiness	to	RM implementation								
b.	Team readiness	to	Training								
Relationship between revenue management strategy implementation and other factors											
a.	RM implementation		Training								

SECTION II

The following questions are designed to obtain demographical information about you

a) Gender

      Male (1) Female (2) Non-binary/third gender (3)

b) Age

      20s (1) 30-39 (2) 40-49 (3) 50-59 (4) 60 or older (5)

c) Highest level of education

        High school graduate (1)Some college (2) 4-year degree (3)

        Professional degree (4) Postgraduate degree (5)

d) Please indicate your current role

        General Manager (1)Revenue manager (2)Revenue management consultant (3)

        Revenue management academic (4)Other (please specify) (5) _____

THANK YOU FOR YOUR SUPPORT

Appendix 6. Pre-test questionnaire

Dear Sir/Madam:

Revenue Management strategy implementation critical factors Questionnaire

The measurement items will be used in a survey on critical factors in hotel revenue management strategy implementation. Revenue managers will be asked to respond to the questionnaire. Kindly evaluate the appropriateness of the measurement items relative to the associated construct by choosing a suitable value on a scale of 1 (highly unimportant) to 7 (highly important). Additionally, suggestions to further improve the clarity and robustness of the items are welcome. Thank you.

Olive Nyaga, Ph.D. candidate
School of Hotel and Tourism Management, The Hong Kong Polytechnic University
Email: olive.nyaga@

Kindly note that in this study, critical factors are crucial in strategy implementation as they play a pivotal role in determining the success or failure of a decision.

Screening questions

a) How many years have you worked in the hotel industry

Three years or longer (Please continue with the next question)

Less than three years (You may now discontinue this survey. Thank you)

b) Does your current property implement revenue management strategy practices?

Yes (Please continue the survey)

No (You may discontinue the survey. Thank you)

c) Do you have knowledge and expertise in revenue management strategy in the hotel industry?

Yes (Please continue the survey)

No (You may discontinue the survey)

SECTION I.   **The following statements describe critical factors for effective strategy implementation. Please indicate your perceived level of importance of each of the critical factors of revenue management strategy implementation in the hotel industry.**

Should you have any doubt about any statement, please circle Not Applicable (N/A) for that statement (1= Not at all important, 2= Slightly important, 3= Moderately important, 4= Very important, 5= Extremely important, N/A= Not applicable)

FACTOR								
(i).	**Revenue management goal and policy**	**Perceived level of importance**						
	The hotel….	**1**	**2**	**3**	**4**	**5**	**N/A**	
a.	supports the entire organization in understanding the benefit of revenue management strategy implementation							
b.	considers revenue management strategy part of an overall strategic plan within the hotel							
c.	employees understand how the revenue management strategy fits within the strategic vision of the hotel							
d.	has standard operating procedures for the revenue management strategy implementation process							
e.	revenue management strategy goals are beneficial to the overall performance of the hotel							
(ii).	**Organizational structure**	**Perceived level of importance**						
	The hotel…...	**1**	**2**	**3**	**4**	**5**	**N/A**	
a.	creates awareness of revenue management strategy in all departments							
b.	implements a culture towards revenue management strategy 'Best Practice.'							
c.	minimizes hierarchical and bureaucratic procedures for effective revenue management strategy implementation							
d.	organizational hierarchy allows autonomy to the revenue management department							
e.	involves a wide range of departments or functions in the revenue management strategy implementation process							
(iii).	**Revenue management Monitoring and evaluation**	**Perceived level of importance**						
	The hotel….…...	**1**	**2**	**3**	**4**	**5**	**N/A**	
a.	evaluates the effectiveness of revenue management strategy performance measurements							
b.	continually monitors the revenue management strategy performance metrics as per hotel industry standards							
c.	engages in extensive revenue management strategy benchmarking							

				Perceived level of importance					
d.	tracks changing trends in the implementation and utilization of revenue management strategy								
e.	regularly monitors the revenue management strategy implementation processes' effectiveness								
f.	compares actual revenue management strategy implementation progress against set goals								
g.	conducts meetings to monitor the revenue management strategy implementation process								
h.	audits and checks the integrity of revenue management strategy data								
i.	regularly gives feedback to improve the revenue management team's performance								
(iv).	**Revenue management strategy Culture**			**Perceived level of importance**					
	At the hotel…….	1	2	3	4	5	N/A		
a.	various departments are involved in the revenue management decision-making process								
b.	revenue management strategy is integrated across all revenue-generating centers								
c.	various stakeholders are consulted during the revenue management strategy implementation process								
d.	revenue management strategy is understood across all hotel departments								
e.	personnel from all departments in the hotel are involved in revenue management strategy implementation								
(v).	**Communication**			**Perceived level of importance**					
	At the hotel….	1	2	3	4	5	N/A		
a.	there is open communication concerning the RM strategy								
b.	decisions on RM application are published and distributed to important personnel								
c.	suppliers receive feedback on the acceptance or rejection of their input								
d.	all groups affected by the RM strategy know where to report any challenges								
e.	RM-related information is communicated to different departments.								
(vi).	**Revenue management processes**			**Perceived level of importance**					
	Revenue management processes…….	1	2	3	4	5	N/A		
a.	are user friendly								
b.	are aligned by setting tangible targets								
c.	are customer-centric								
d.	are constantly improved by performance monitoring								

(vii).	**Revenue management system quality**	**Perceived level of importance**					
	The hotel………	1	2	3	4	5	N/A
a.	integrates the revenue management systems and property management systems in real-time						
b.	has an efficient revenue management information system						
c.	evaluates revenue management system suppliers according to quality						
d.	evaluates revenue management system suppliers according to delivery performance						
e.	evaluates revenue management system suppliers according to price						
f.	involves suppliers in designing /redesigning the process of the revenue management system						
(viii).	**Data accuracy and integrity**	**Perceived level of importance**					
	The hotel……...	1	2	3	4	5	N/A
a.	has a data access interface for our RM function						
b.	uses RM-related data from specialized sources						
c.	experts regularly audit and check the correctness of the RM data content						
d.	utilizes RM data expressed in acceptable metrics						
e.	monitors internet systems to maintain consistency with property RM strategies.						
(ix).	**Process management**	**Perceived level of importance**					
	The hotel……….	1	2	3	4	5	N/A
a.	identifies causes of RM strategy implementation process failure						
b.	takes immediate corrective actions when an RM problem is identified.						
c.	controls RM strategy implementation process using failure prevention tools						
d.	systematically improves key processes to achieve better performance in RM strategy implementation						
e.	has enough staffing to cater to RM process requirements						
(x).	**Top management commitment to revenue management**	**Perceived level of importance**					
	The top management…...	1	2	3	4	5	N/A
a.	actively participates in the revenue management strategy implementation process						
b.	shares in the goals of revenue management strategy						
c.	is fully committed to revenue management strategy success						
d.	encourages employees towards involvement and utilization of the revenue management strategy						
e.	recognizes the negative consequences of an ineffectively implemented revenue management strategy						

		1	2	3	4	5	N/A
f.	The revenue manager actively collaborates with managers from other departments.						
(xi).	**Revenue management team readiness**	**Perceived level of importance**					
	The revenue management team……...	**1**	**2**	**3**	**4**	**5**	**N/A**
a.	gets excited when a new RM tactic is introduced						
b.	is interested and supportive of innovative tactics and ideas						
c.	are/were involved in the development of the RM strategy						
d.	are empowered to carry out RM duties						
e.	includes personnel with adequate technical and managerial skills						
(xii).	**Implementation of revenue management strategy**	**Perceived level of importance**					
	At the hotel ……….	**1**	**2**	**3**	**4**	**5**	**N/A**
a.	all stakeholders are consulted and involved during RM strategy implementation						
b.	RM strategy implementation is championed by one department in the hotel.						
c.	RM strategy implementation is understood across all departments in our hotel.						
d.	RM strategy is integrated across all revenue-generating centers in the hotel.						
e.	RM strategy implementation guidelines and processes are easily available to all stakeholders.						
(xiii).	**Employee training**	**Perceived level of importance**					
	The revenue management team……...	**1**	**2**	**3**	**4**	**5**	**N/A**
a.	is motivated to commit to effective revenue management strategy implementation						
b.	is composed of personnel with adequate skills (e.g., technical, analytical, creativity, managerial)						
c.	is provided with all necessary resources to support the revenue management strategy implementation process						
d.	is involved in revenue management strategy decision-making process						
e.	is provided with adequate information on revenue management-related principles through training						
f.	has a sufficient number of personnel to support the revenue management strategy implementation process						
g.	works effectively with top management						

SECTION II   **The following are components of revenue management strategy. Kindly check all the functions you believe are conducted by your property.**

Should you have any doubts about any component, please circle Not Applicable (N/A) for that component.

Revenue Management Component			
At our hotel we ……….	**Do**	**Do not**	**Don't know**
conduct an analysis of the operating environment			
create a revenue management culture			
conduct demand forecasting			
conduct market segmentation			
adjust prices depending on market demand changes			
conduct inventory management			
conduct distribution channel management			
control reservation and sales limits			
monitor and evaluate the rate structure			
account for revenue from all departments			
conduct benchmarks/competitor analysis			
assess the trend analysis report			

SECTION III The following are approaches to revenue management strategy implementation. Please tick the approach that your hotel employs

	Approaches to revenue management strategy implementation	Applied (√)
1.	In-house (Your hotel employs their own RM system and employees)	
2.	Centralized (Your hotel shares a more centralized RM operation with multiple properties)	
3.	Corporate outsourcing (Your hotel RM activities are managed from the corporate level)	
4.	Third-party (Your hotel outsources RM strategy activities to an outside vendor)	
5.	Mixed approach (a combination of two or more approaches above)	
6.	None of the above/I don't know	

SECTION IV   **The following questions are designed to obtain the revenue management strategy's performance effectiveness at your hotel.**

a). To what extent are the following metrics important for measuring revenue management performance? (1=Not important, 2= Least important, 3= Neutral, 4= Significantly important, 5= significantly important, N/A =Not applicable).

Key performance indicator	Perceived level of importance					
Financial	**1**	**2**	**3**	**4**	**5**	**N/A**
Average Daily Rate (ADR)						
Occupancy rate (OCC)						
Revenue per available room (RevPAR)						
Total revenue per available room (TrevPAR)						
Gross operating profit per available room (GOPPAR)						
Non-financial						
Customer retention						
Overall quality and efficiency of the RM system						
Sales growth						
Employee performance						
Customer satisfaction						

b). Indicate your hotel's performance over the last year (1st January 2021-31st December 2021) in the following performance indicators (indicate absolute values in USD $).

Key performance indicator	Value (USD)
What was the approximate monthly ADR for this property over the last year?	
What was the approximate monthly OCC for this property over the last year?	
What was this property's approximate monthly RevPAR (room revenue) over the last year?	
What was the approximate monthly RevPAR (room revenue) for this property over the last year	
What was this property's approximate monthly TrevPAR (revenue from rooms plus other sales, e.g., food and beverage) over the last year?	

Key performance indicator	Value (%)
Our property's revenue has increased (+) or decreased by (-) ---------% as a result of using revenue management strategy	-50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100
Our property's profit has increased (+) or decreased (-) by -----------% as a result of using revenue management strategy	-50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100
The customer retention rate for your property is approximately----%	-50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100
The sales growth rate for your property is approximately-----%	-50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100

The revenue management employee efficiency is approximately-------%	-50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100
The overall quality and efficiency of the RM system at your hotel is approximately-----%	-50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100

c). Please evaluate your hotel's revenue management strategy performance over the past year (1st January 2021-31st December 2021) in the following performance indicators relative to your competitors. (1= much worse, 2=worse, 3= same, 4=better, 5=much better, N/A not applicable).

Key performance indicator	Level of performance					
Financial	1	2	3	4	5	N/A
Relative to our competitors, our hotel's performance with respect to average daily rate (ADR) was						
Relative to our competitors, our hotel's performance with respect to occupancy rate (OCC) was						
Relative to our competitors, our hotel's performance with respect to revenue per available room (RevPAR) was						
Relative to our competitors, our hotel's performance with respect to total revenue per available room (TrevPAR) was						
Relative to our competitors, our hotel's performance with respect to gross operating profit per available room (GOPPAR) was						
Non-financial						
Relative to our competitors, our hotel's performance with respect to market share growth was						
Relative to our competitors, our hotel's performance with respect to the overall quality and efficiency of the revenue management system was						
Relative to our competitors, our hotel's performance with respect to Sales growth was						
Relative to our competitors, our hotel's performance with respect to customer satisfaction						
Relative to our competitors, our hotel's performance with respect to overall revenue management strategy effectiveness						

d). To what extent do you agree with the following statements about implementing the revenue management strategy in your hotel? (1= Strongly Disagree, 2=Disagree, 3= undecided, 4=Agree, 5=Strongly Agree, N/A not applicable).

		1	2	3	4	5	N/A
a)	The revenue management strategy implementation efforts at our hotel are generally considered a great success by all the concerned stakeholders.						
b)	Comparing the actual performance and a priori expectations, our hotel's revenue management strategy implementation activities are considered a success.						
c)	Our hotel's revenue management strategy implementation effort is an example of effective strategy implementation.						
d)	The revenue management strategy implementation approach used at our hotel is the most suitable						
e)	Overall, the revenue management strategy implementation at our hotel is effective						

SECTION V   **The following questions are designed to obtain demographical information about your hotel and you**

a). Demographical information about your hotel
(Please choose the answer that most accurately describes your property).
   a) This property is a

       ○ Chain   Franchise Independent   ○

   b) This property is classified as a

       ○ Luxury Upper Upscale Upscale   ○

       ○ Upper Midscale Midscale Economy   ○

   c) This property's location is

       ○ Urban Suburban Airport   ○

       ○ Interstate Resort Small metro   ○

   d) The service type for this property is

       ○ Full-service Limited service   ○

   e) There are approximately----------------------rooms on this property

   f) There are approximately ----------------------hotel properties (units) in the company.

   g) Has star level

       ☐ Three

       ☐ Four

☐ Five

h) Has the average daily room rate

☐ Under $50

☐ Between $50 and $99

☐ Between $100 and $149

☐ Between $150 and$199

☐ $200 and above

b). Demographical information about you

a) Gender: _____Male _____Female

b) Age: 20s_____30-39_____40-49_____50-59_____60 or older_____

c) Highest level of education

_____High School Graduate

_____Some College, No Degree

_____Associate Degree/Certificate/Diploma

_____Bachelor's Degree

_____Graduate Degree

_____Professional degree

d) Please indicate your role at the hotel

_____General manager

_____Revenue manager

_____Sales and Marketing manager

_____Front office manager

_____Reservation manager

_____Other (Specify)

e) Years of service in the role _____

If any, please provide your comments about the questionnaire and how to improve the clarity of the constructs and items.

THANK YOU FOR YOUR ASSISTANCE

Appendix 7. Pilot survey questionnaire

Dear Madam/Sir,

Thank you very much for taking the time to complete this questionnaire.

This study examines the **hotel industry's Critical Factors for revenue management (RM) strategy implementation**. Kindly indicate your opinion about the following statements. Your honest responses are important to this research and thus appreciated. This questionnaire will be anonymous. It will take about 10-15 minutes. Be assured that all responses will be kept **confidential** and be used for **Research Purpose Only**. Participation in this research is voluntary, and you can withdraw at any point during the study.

If you are interested in getting more information about this research, please feel free to contact me.

Olive Nyaga, Ph.D. candidate

Email: olive.nyaga@

By clicking the button below, you acknowledge the following:

- Your participation in this study is voluntary
- You are 18 years of age and above
- You are aware that you may choose to terminate your participation at any time

Kindly note that in this study:

• **Revenue Management (RM) strategy** *refers to the application of analytics that predicts consumer behavior to optimize price and product availability to maximize revenue growth in the hotel*

• **Critical factors** *refer to those factors that are crucial in strategy implementation as they play a pivotal role in determining the success or failure of a decision*

Screening questions

   d) How many years have you worked in the hotel industry?

          Three years or longer (Please continue with the next question)

          Less than three years (You may now discontinue this survey. Thank you)

   e) Does your current property implement revenue management strategy practices?

          Yes (Please continue the survey)

          No (You may discontinue the survey. Thank you)

   f) Do you have knowledge and expertise in revenue management strategy in the hotel industry?

          Yes (Please continue the survey)

          No (You may discontinue the survey)

SECTION I.

The following statements describe critical factors for effective strategy implementation. Please indicate your perceived level of importance of each of the critical factors of revenue management strategy implementation in the hotel industry. (NI= Not at all important, LI=Low importance, SI= Slightly important, N=Neutral, MI= Moderately important, VI= Very important, EI= Extremely important).

FACTOR								
(i).	**Revenue management goal and policy**	**Perceived level of importance**						
	The hotel….	**NI**	**LI**	**SI**	**N**	**MI**	**VI**	**EI**
a.	supports the entire organization in understanding the benefit of revenue management strategy implementation							
b.	considers revenue management strategy part of an overall strategic plan within the hotel							
c.	employees understand how the revenue management strategy fits within the strategic vision of the hotel							
d.	has standard operating procedures for the revenue management strategy implementation process							
e.	revenue management strategy goals are beneficial to the overall performance of the hotel							
(ii).	**Organizational structure**	**Perceived level of importance**						
	The hotel…...	**NI**	**LI**	**SI**	**N**	**MI**	**VI**	**EI**
a.	creates awareness of revenue management strategy in all departments							
b.	implements a culture towards revenue management strategy 'Best Practice.'							
c.	minimizes hierarchical and bureaucratic procedures for effective revenue management strategy implementation							
d.	organizational hierarchy allows autonomy to the revenue management department							
(iii).	**Revenue management Monitoring and evaluation**	**Perceived level of importance**						
	The hotel……...	**NI**	**LI**	**SI**	**N**	**MI**	**VI**	**EI**
a.	evaluates the effectiveness of revenue management strategy performance measurements							
b.	continually monitors the revenue management strategy performance metrics as per hotel industry standards							
c.	engages in extensive revenue management strategy benchmarking							
d.	tracks changing trends in the implementation and utilization of revenue management strategy							
e.	regularly monitors the revenue management strategy implementation processes' effectiveness							
f.	compares actual revenue management strategy implementation progress against set goals							

			NI	LI	SI	N	MI	VI	EI
g.	conducts meetings to monitor the revenue management strategy implementation process								
h.	audits and checks the integrity of revenue management strategy data								
i.	regularly gives feedback to improve the revenue management team's performance								
(iv).	**Revenue management strategy Culture**	**Perceived level of importance**							
	At the hotel…….	NI	LI	SI	N	MI	VI	EI
a.	various departments are involved in the revenue management decision-making process								
b.	revenue management strategy is integrated across all revenue-generating centers								
c.	various stakeholders are consulted during the revenue management strategy implementation process								
d.	revenue management strategy is understood across all hotel departments								
e.	personnel from all departments in the hotel are involved in revenue management strategy implementation								
(v).	**Communication**	**Perceived level of importance**							
	At the hotel….	NI	LI	SI	N	MI	VI	EI
a.	there is open communication concerning the RM strategy								
b.	decisions on RM application are published and distributed to important personnel								
c.	suppliers receive feedback on the acceptance or rejection of their input								
d.	all groups affected by the RM strategy know where to report any challenges								
e.	RM-related information is communicated to different departments.								
(vi).	**Revenue management processes**	**Perceived level of importance**							
	Revenue management processes…….	NI	LI	SI	N	MI	VI	EI
a.	are user friendly								
b.	are aligned by setting tangible targets								
c.	are customer-centric								
d.	are constantly improved by performance monitoring								
(vii).	**Revenue management system quality**	**Perceived level of importance**							
	The hotel………	NI	LI	SI	N	MI	VI	EI
a.	integrates the revenue management systems and property management systems in real-time								
b.	evaluates revenue management system suppliers according to quality								
c.	evaluates revenue management system suppliers according to delivery performance								

d.	evaluates revenue management system suppliers according to price							
e.	involves suppliers in designing /redesigning the process of the revenue management system							
(viii).	**Data accuracy and integrity**	**Perceived level of importance**						
	The hotel……...	**NI**	**LI**	**SI**	**N**	**MI**	**VI**	**EI**
a.	has a data access interface for our RM function							
b.	uses RM-related data from specialized sources							
c.	experts regularly audit and check the correctness of the RM data content							
d.	monitors internet systems to maintain consistency with property RM strategies.							
(ix).	**Process management**	**Perceived level of importance**						
	The hotel……….	**NI**	**LI**	**SI**	**N**	**MI**	**VI**	**EI**
a.	identifies causes of RM strategy implementation process failure							
b.	takes immediate corrective actions when an RM problem is identified.							
c.	controls RM strategy implementation process using failure prevention tools							
d.	systematically improves key processes to achieve better performance in RM strategy implementation							
(x).	**Top management commitment to revenue management**	**Perceived level of importance**						
	The top management…...	**NI**	**LI**	**SI**	**N**	**MI**	**VI**	**EI**
a.	actively participates in the revenue management strategy implementation process							
b.	is fully committed to revenue management strategy success							
c.	encourages employees towards involvement and utilization of the revenue management strategy							
d.	recognizes the negative consequences of an ineffectively implemented revenue management strategy							
e.	The revenue manager actively collaborates with managers from other departments.							
(xi).	**Revenue management team readiness**	**Perceived level of importance**						
	The revenue management team……...	**NI**	**LI**	**SI**	**N**	**MI**	**VI**	**EI**
a.	gets excited when a new RM tactic is introduced							
b.	is interested and supportive of innovative tactics and ideas							
c.	are/were involved in the development of the RM strategy							
d.	are empowered to carry out RM duties							
e.	includes personnel with adequate technical and managerial skills							

(xii).	**Implementation of revenue management strategy**	**Perceived level of importance**						
	At the hotel ……….	**NI**	**LI**	**SI**	**N**	**MI**	**VI**	**EI**
a.	all stakeholders are consulted and involved during RM strategy implementation							
b.	RM strategy implementation is championed by one department in the hotel.							
c.	RM strategy implementation is understood across all departments in our hotel.							
d.	RM strategy is integrated across all revenue-generating centers in the hotel.							
e.	RM strategy implementation guidelines and processes are easily available to all stakeholders.							
(xiii).	**Employee training**	**Perceived level of importance**						
	The revenue management team……...	**NI**	**LI**	**SI**	**N**	**MI**	**VI**	**EI**
a.	is motivated to commit to effective revenue management strategy implementation							
b.	is composed of personnel with adequate skills (e.g., technical, analytical, creativity, managerial)							
c.	is provided with all necessary resources to support the revenue management strategy implementation process							
d.	is involved in revenue management strategy decision-making process							
e.	works effectively with top management							

SECTION II

The following are components of revenue management strategy. Kindly check all the functions you believe are conducted by your property.

Revenue Management Component		
At our hotel we ……….	**Yes**	**No**
analyze the operating environment		
create a revenue management culture		
conduct demand forecasting		
conduct market segmentation		
adjust prices depending on market demand changes		
conduct inventory management		
conduct distribution channel management		
control reservation and sales limits		
monitor and evaluate the rate structure		
account for revenue from all departments		
conduct benchmarks/competitor analysis		
assess the trend analysis report		

SECTION III
The following are approaches to revenue management strategy implementation.
Please tick the one approach that your hotel employs

	Approaches to revenue management strategy implementation	Applied (√)
1.	In-house (Your hotel employs their own RM system and employees)	
2.	Centralized (Your hotel shares a more centralized RM operation with multiple properties)	
3.	Corporate outsourcing (Your hotel RM activities are managed from the corporate level)	
4.	Third-party (Your hotel outsources RM strategy activities to an outside vendor)	
5.	Mixed approach (a combination of two or more approaches above)	
6.	None of the above/I don't know	

SECTION IV

The following questions are designed to obtain the revenue management strategy's performance effectiveness at your hotel.

a). To what extent are the following metrics important for measuring revenue management performance? (NI= Not at all important, LI=Low importance, SI= Slightly important, N=Neutral, MI= Moderately important, VI= Very important, EI= Extremely important).

Key performance indicator	Perceived level of importance						
Financial	NI	LI	SI	N	MI	VI	EI
Average Daily Rate (ADR)							
Occupancy rate (OCC)							
Revenue per available room (RevPAR)							
Total revenue per available room (TRevPAR)							
Gross operating profit per available room (GOPPAR)							
Customer retention							
Overall quality and efficiency of the RM system							
Sales growth							
Employee performance							
Customer satisfaction							

b). Indicate your hotel's performance over the last year (1st January 2021-31st December 2021) in the following performance indicators (indicate absolute values in USD $).

Key performance indicator	Value (USD)
What was the approximate monthly ADR for this property over the last year?	
What was the approximate monthly OCC for this property over the last year?	
What was the approximate monthly RevPAR (room revenue) for this property over the last year	
What was the approximate monthly RevPAR (room revenue) for this property over the last year	
What was this property's approximate monthly TrevPAR (revenue from rooms plus other sales, e.g., food and beverage) over the last year?	

Key performance indicator	Value (%)
Our property's occupancy rate has increased (+) or decreased by (-) ---------% as a result of using the revenue management strategy	-50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100
Our property's revenue has increased (+) or decreased by (-) ---------% as a result of using revenue management strategy	-50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100
Our property's profit has increased (+) or decreased (-) by -----------% as a result of using revenue management strategy	-50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100
The customer retention rate for your property is approximately----%	-50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100
The sales growth rate for your property is approximately-----%	-50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100
The revenue management employee efficiency is approximately------%	-50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100
The overall quality and efficiency of the RM system at your hotel is approximately-----%	-50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100

c). Please evaluate your hotel's revenue management strategy performance over the past year (1st January 2021-31st December 2021) in the following performance indicators relative to your competitors. (MW= Much worse, SW=Somewhat worse, W=Worse, S= Same, MDB=Moderately better, B=Better, MB=much better).

Key performance indicator	Level of performance						
Financial	**MW**	**SW**	**W**	**S**	**MDB**	**B**	**MB**
Relative to our competitors, our hotel's average daily rate (ADR) was							
Relative to our competitors, our hotel's occupancy rate (OCC) was							
Relative to our competitors, our hotel's revenue per available room (RevPAR) was							
Relative to our competitors, our total revenue per available room (TRevPAR) was							

Relative to our competitors, our hotel's gross operating profit per available room (GOPPAR) was							
Relative to our competitors, our hotel's market share growth was							
Relative to our competitors, our hotel's overall quality and efficiency of revenue management system was							
Relative to our competitors, our hotel's sales growth was							
Relative to our competitors, our hotel's customer satisfaction							
Relative to our competitors, our hotel's overall revenue management strategy effectiveness							

d). To what extent do you agree with the following statements about implementing the revenue management strategy in your hotel? (SD= Strongly Disagree, D=Disagree, SD=Somewhat Disagree, U= undecided, SA=Somewhat, A=Agree, SA=Strongly Agree)

	SD	D	SWD	U	SWA	A	SA
The revenue management strategy implementation efforts at our hotel are generally considered a great success by all the concerned stakeholders.							
Comparing the actual performance and a priori expectations, our hotel's revenue management strategy implementation activities are considered a success.							
Our hotel's revenue management strategy implementation effort is an example of effective strategy implementation.							
The revenue management strategy implementation approach used at our hotel is the most suitable							
Overall, the revenue management strategy implementation at our hotel is effective							

SECTION V
The following questions are designed to obtain demographical information about your hotel and you
a). Demographical information about your hotel
(Please choose the answer that most accurately describes your property).

 a) This property is a
    ○ Chain   Franchise   Independent   ○
 b) This property is classified as a
    ○ Luxury   Upper Upscale   Up-scale   ○
    ○ Upper Midscale   Midscale   Economy ○
 c) This property's location is
    ○ Urban   Suburban   Airport   ○
    ○ Interstate   Resort   Small metro   ○

d) The service type for this property is
  ○ Full-service Limited service   ○
e) There are approximately----------------------rooms on this property
f) There are approximately----------------------hotel properties (units) in the company.
g) Has star level
  ☐ Three
  ☐ Four
  ☐ Five
h) Has the average daily room rate
  ☐ Under $50
  ☐ Between $50 and $99
  ☐ Between $100 and $149
  ☐ Between $150 and$199
  ☐ $200 and above

b). Demographic information about you
  f) Gender: _____Male _____Female
  g) Age: 20s_____30-39_____40-49_____50-59_____60 or older_____
  h) Highest level of education
    _____High School Graduate
    _____Some College, No Degree
    _____Associate Degree/Certificate/Diploma
    _____Bachelor's Degree
    _____Graduate Degree
    _____Professional degree
  i) Please indicate your role at the hotel
    _____General manager
    _____Revenue manager
    _____Sales and Marketing manager
    _____Front office manager
    _____Reservation manager
    _____Other (Specify)
  j) Years of service in the role _____

THANK YOU FOR YOUR SUPPORT

Appendix 8. Main Survey

Dear Madam/Sir:

I invite you to participate in this study on implementing the hotel industry's Critical Factors for revenue management (RM) strategy. Kindly indicate your opinion about the following statements. Your honest responses are important to this research and thus appreciated. Be assured that all responses will be kept **confidential** and be used for **Research Purpose Only**. Participation in this research is voluntary, and you can withdraw at any point during the study.

If you are interested in getting more information about this research, please feel free to contact me.

Olive Nyaga, Ph.D. candidate

Email: olive.nyaga@

By clicking the button below, you acknowledge the following:

- Your participation in this study is voluntary
- You are 18 years of age and above
- You are aware that you may choose to terminate your participation at any time

Kindly note that in this study:

• *Revenue Management (RM) strategy refers to the application of analytics that predicts consumer behavior to optimize price and product availability to maximize revenue growth in the hotel*

• *Critical factors refer to those factors that are crucial in strategy implementation as they play a pivotal role in determining the success or failure of a decision*

Screening questions

g) How many years have you worked in the hotel industry?

        Three years or longer (Please continue with the next question)

        Less than three years (You may now discontinue this survey. Thank you)

h) Does your current property implement revenue management strategy practices?

        Yes (Please continue the survey)

        No (You may discontinue the survey. Thank you)

i) Do you have knowledge and expertise in revenue management strategy in the hotel industry?

        Yes (Please continue the survey)

        No (You may discontinue the survey)

SECTION I.

The following statements describe critical factors for effective strategy implementation. Please indicate your perceived level of importance of each of the critical factors of revenue management strategy implementation in the hotel industry. (NI= Not at all important, LI=Low importance, SI= Slightly important, N=Neutral, MI= Moderately important, VI= Very important, EI= Extremely important).

	FACTOR							
(i).	**Revenue management goal and policy**	**Perceived level of importance**						
	The hotel….	NI	LI	SI	N	MI	VI	EI
a.	supports the entire organization in understanding the benefit of revenue management strategy implementation							
b.	considers revenue management strategy part of an overall strategic plan within the hotel							
c.	employees understand how the revenue management strategy fits within the strategic vision of the hotel							
d.	has standard operating procedures for the revenue management strategy implementation process							
e.	revenue management strategy goals are beneficial to the overall performance of the hotel							
(ii).	**Organizational structure**	**Perceived level of importance**						
	The hotel…...	NI	LI	SI	N	MI	VI	EI
a.	creates awareness of revenue management strategy in all departments							
b.	implements a culture towards revenue management strategy 'Best Practice.'							
c.	minimizes hierarchical and bureaucratic procedures for effective revenue management strategy implementation							
d.	organizational hierarchy allows autonomy to the revenue management department							
(iii).	**Revenue management Monitoring and evaluation**	**Perceived level of importance**						
	The hotel……...	NI	LI	SI	N	MI	VI	EI
a.	evaluates the effectiveness of revenue management strategy performance measurements							
b.	continually monitors the revenue management strategy performance metrics as per hotel industry standards							
c.	engages in extensive revenue management strategy benchmarking							
d.	tracks changing trends in the implementation and utilization of revenue management strategy							
e.	regularly monitors the revenue management strategy implementation processes' effectiveness							
f.	compares actual revenue management strategy implementation progress against set goals							

		Perceived level of importance						
g.	conducts meetings to monitor the revenue management strategy implementation process							
h.	audits and checks the integrity of revenue management strategy data							
i.	regularly gives feedback to improve the revenue management team's performance							
(iv).	**Revenue management strategy Culture**	**Perceived level of importance**						
	At the hotel…….	**NI**	**LI**	**SI**	**N**	**MI**	**VI**	**EI**
f.	various departments are involved in the revenue management decision-making process							
g.	revenue management strategy is integrated across all revenue-generating centers							
h.	various stakeholders are consulted during the revenue management strategy implementation process							
i.	revenue management strategy is understood across all hotel departments							
j.	personnel from all departments in the hotel are involved in revenue management strategy implementation							
(v).	**Communication**	**Perceived level of importance**						
	At the hotel….	**NI**	**LI**	**SI**	**N**	**MI**	**VI**	**EI**
a.	there is open communication concerning the RM strategy							
b.	decisions on RM application are published and distributed to important personnel							
c.	suppliers receive feedback on the acceptance or rejection of their input							
d.	all groups affected by the RM strategy know where to report any challenges							
e.	RM-related information is communicated to different departments.							
(vi).	**Revenue management processes**	**Perceived level of importance**						
	Revenue management processes…….	**NI**	**LI**	**SI**	**N**	**MI**	**VI**	**EI**
a.	are user friendly							
b.	are aligned by setting tangible targets							
c.	are customer-centric							
d.	are constantly improved by performance monitoring							
(vii).	**Revenue management system quality**	**Perceived level of importance**						
	The hotel………	**NI**	**LI**	**SI**	**N**	**MI**	**VI**	**EI**
a.	integrates the revenue management systems and property management systems in real-time							
b.	evaluates revenue management system suppliers according to quality							
c.	evaluates revenue management system suppliers according to delivery performance							

		NI	LI	SI	N	MI	VI	EI
d.	evaluates revenue management system suppliers according to price							
e.	involves suppliers in designing /redesigning the process of the revenue management system							
(viii).	**Data accuracy and integrity**	**Perceived level of importance**						
	The hotel……...	NI	LI	SI	N	MI	VI	EI
a.	has a data access interface for our RM function							
b.	uses RM-related data from specialized sources							
c.	experts regularly audit and check the correctness of the RM data content							
d.	monitors internet systems to maintain consistency with property RM strategies.							
(ix).	**Process management**	**Perceived level of importance**						
	The hotel………	NI	LI	SI	N	MI	VI	EI
a.	identifies causes of RM strategy implementation process failure							
b.	takes immediate corrective actions when an RM problem is identified.							
c.	controls RM strategy implementation process using failure prevention tools							
d.	systematically improves key processes to achieve better performance in RM strategy implementation							
(x).	**Top management commitment to revenue management**	**Perceived level of importance**						
	The top management…...	NI	LI	SI	N	MI	VI	EI
a.	actively participates in the revenue management strategy implementation process							
b.	is fully committed to revenue management strategy success							
c.	encourages employees towards involvement and utilization of the revenue management strategy							
d.	recognizes the negative consequences of an ineffectively implemented revenue management strategy							
e.	The revenue manager actively collaborates with managers from other departments.							
(xi).	**Revenue management team readiness**	**Perceived level of importance**						
	The revenue management team……...	NI	LI	SI	N	MI	VI	EI
a.	gets excited when a new RM tactic is introduced							
b.	is interested and supportive of innovative tactics and ideas							
c.	are/were involved in the development of the RM strategy							
d.	are empowered to carry out RM duties							
e.	includes personnel with adequate technical and managerial skills							

(xii).	**Implementation of revenue management strategy**	**Perceived level of importance**						
	At the hotel ………..	NI	LI	SI	N	MI	VI	EI
a.	all stakeholders are consulted and involved during RM strategy implementation							
b.	RM strategy implementation is championed by one department in the hotel.							
c.	RM strategy implementation is understood across all departments in our hotel.							
d.	RM strategy is integrated across all revenue-generating centers in the hotel.							
e.	RM strategy implementation guidelines and processes are easily available to all stakeholders.							
(xiii).	**Employee training**	**Perceived level of importance**						
	The revenue management team………..	NI	LI	SI	N	MI	VI	EI
a.	is motivated to commit to effective revenue management strategy implementation							
b.	is composed of personnel with adequate skills (e.g., technical, analytical, creativity, managerial)							
c.	is provided with all necessary resources to support the revenue management strategy implementation process							
d.	is involved in revenue management strategy decision-making process							
e.	works effectively with top management							

SECTION II

The following are components of revenue management strategy. Kindly check all the functions you believe are conducted by your property.

Revenue Management Component		
At our hotel we ……….	**Yes**	**No**
analyze the operating environment		
create a revenue management culture		
conduct demand forecasting		
conduct market segmentation		
adjust prices depending on market demand changes		
conduct inventory management		
conduct distribution channel management		
control reservation and sales limits		
monitor and evaluate the rate structure		
account for revenue from all departments		
conduct benchmarks/competitor analysis		
assess the trend analysis report		

SECTION III
The following are approaches to revenue management strategy implementation.
Please tick the one approach that your hotel employs

	Approaches to revenue management strategy implementation	Applied (√)
1.	In-house (Your hotel employs their own RM system and employees)	
2.	Centralized (Your hotel shares a more centralized RM operation with multiple properties)	
3.	Corporate outsourcing (Your hotel RM activities are managed from the corporate level)	
4.	Third-party (Your hotel outsources RM strategy activities to an outside vendor)	
5.	Mixed approach (a combination of two or more approaches above)	
6.	None of the above/I don't know	

SECTION IV

The following questions are designed to obtain the revenue management strategy's performance effectiveness at your hotel.

a). To what extent are the following metrics important for measuring revenue management performance? (NI= Not at all important, LI=Low importance, SI= Slightly important, N=Neutral, MI= Moderately important, VI= Very important, EI= Extremely important).

Key performance indicator	Perceived level of importance						
Financial	NI	LI	SI	N	MI	VI	EI
Average Daily Rate (ADR)							
Occupancy rate (OCC)							
Revenue per available room (RevPAR)							
Total revenue per available room (TRevPAR)							
Gross operating profit per available room (GOPPAR)							
Customer retention							
Overall quality and efficiency of the RM system							
Sales growth							
Employee performance							
Customer satisfaction							

b). Indicate your hotel's performance over the last year (1st January 2021-31st December 2021) in the following performance indicators (indicate absolute values in USD $).

Key performance indicator	Value (USD)
What was the approximate monthly ADR for this property over the last year?	
What was the approximate monthly RevPAR (room revenue) for this property over the last year	
What was this property's approximate monthly TrevPAR (revenue from rooms plus other sales, e.g., food and beverage) over the last year?	

Key performance indicator	Value (%)
Our property's occupancy rate has increased (+) or decreased by (-) ---------% as a result of using the revenue management strategy	-50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100
Our property's revenue has increased (+) or decreased by (-) ---------% as a result of using revenue management strategy	-50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100
Our property's profit has increased (+) or decreased (-) by -----------% as a result of using revenue management strategy	-50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100
The customer retention rate for your property is approximately----%	-50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100
The sales growth rate for your property is approximately-----%	-50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100
The revenue management employee efficiency is approximately-------%	-50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100
The overall quality and efficiency of the RM system at your hotel is approximately-----%	-50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100

c). Please evaluate your hotel's revenue management strategy performance over the past year (1st January 2021-31st December 2021) in the following performance indicators relative to your competitors. (MW= Much worse, SW=Somewhat worse, W=Worse, S= Same, MDB=Moderately better, B=Better, MB=much better).

Key performance indicator	Level of performance						
Financial	MW	SW	W	S	MDB	B	MB
Relative to our competitors, our hotel's average daily rate (ADR) was							
Relative to our competitors, our hotel's occupancy rate (OCC) was							
Relative to our competitors, our hotel's revenue per available room (RevPAR) was							
Relative to our competitors, our total revenue per available room (TRevPAR) was							
Relative to our competitors, our hotel's gross operating profit per available room (GOPPAR) was							
Relative to our competitors, our hotel's market share growth was							

Relative to our competitors, our hotel's overall quality and efficiency of revenue management system was						
Relative to our competitors, our hotel's sales growth was						
Relative to our competitors, our hotel's customer satisfaction						
Relative to our competitors, our hotel's overall revenue management strategy effectiveness						

d). To what extent do you agree with the following statements about implementing the revenue management strategy in your hotel? (SD= Strongly Disagree, D=Disagree, SD=Somewhat Disagree, U= undecided, SA=Somewhat, A=Agree, SA=Strongly Agree)

	SD	D	SWD	U	SWA	A	SA
The revenue management strategy implementation efforts at our hotel are generally considered a great success by all the concerned stakeholders.							
Comparing the actual performance and a priori expectations, our hotel's revenue management strategy implementation activities are considered a success.							
Our hotel's revenue management strategy implementation effort is an example of effective strategy implementation.							
The revenue management strategy implementation approach used at our hotel is the most suitable							
Overall, the revenue management strategy implementation at our hotel is effective							

SECTION V
The following questions are designed to obtain demographical information about your hotel and you
a). Demographical information about your hotel
(Please choose the answer that most accurately describes your property).

  a) This property is a
          O Chain   Franchise Independent   O
  b) This property is classified as a
          O Luxury Upper Upscale Up-scale   O
          O Upper Midscale Midscale Economy   O
  c) This property's location is
          O Urban Suburban Airport   O
          O Interstate Resort Small metro   O
  d) The service type for this property is
          O Full-service Limited service   O
  e) There are approximately----------------------rooms on this property
  f) There are approximately----------------------hotel properties (units) in the company.

g) Has star level
- ☐ Three
- ☐ Four
- ☐ Five

h) Has the average daily room rate
- ☐ Under $50
- ☐ Between $50 and $99
- ☐ Between $100 and $149
- ☐ Between $150 and$199
- ☐ $200 and above

b). Demographic information about you

k) Gender: _____Male _____Female

l) Age: 20s_____30-39_____40-49_____50-59_____60 or older_____

m) Highest level of education
_____High School Graduate
_____Some College, No Degree
_____Associate Degree/Certificate/Diploma
_____Bachelor's Degree
_____Graduate Degree
_____Professional degree

n) Please indicate your role at the hotel
_____General manager
_____Revenue manager
_____Sales and Marketing manager
_____Front office manager
_____Reservation manager
_____Other (Specify)

o) Years of service in the role _____

THANK YOU FOR YOUR SUPPORT

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