Addis Ababa University

College of Development Studies

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FACTORS AFFECTING THE ADOPTION OF PROPERTY MANAGEMENT SYSTEMS IN STAR-RATED HOTELS IN ADDIS ABABA

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A thesis proposal submitted to the School of Graduate Studies of Addis Ababa University to show the final work in partial fulfillment of the requirements for the Award of the Degree of Master of Arts in Tourism Development and Management

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Declaration

I, hereby, declare that this Thesis proposal entitled "*Factors affecting the adoption of Property Management Systems in star-rated hotels in Addis Ababa*" is my original work prepared under the guidance of my advisor Ephrem Assefa (Ph.D.). This thesis has been submitted to show the flow of the final work of my Thesis required in partial fulfillment for the award of Master of Arts Degree in Tourism Development and Management and it has not been previously submitted to any college or university. I also confirm that all the sources of materials to be used in this study are properly acknowledged.

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Addis Ababa University, College of Development Studies, Center for Environment and Development, Graduate Program of Tourism Development and Management MA thesis

This is to certify that the thesis carried out by Wondrad Debebe Sharew with the topic: "*Factors affecting the adoption of Property Management Systems in star-rated hotels in Addis Ababa*", is submitted in partial fulfillment of the requirements of the Degree of Master of Tourism Development and Management complies with the regulations of Addis Ababa University and meets the accepted standards with respect to originality and quality.

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Abstract:

This thesis research aims to investigate the factors influencing the adoption of Property Management Systems (PMS) in star-rated hotels in Addis Ababa. The study examined how features of the hotel (HF), managers' attitudes (MA), perceived usefulness (PU), and perceived ease of use (EU) affected PMS adoption. The study employed a quantitative research approach to gather data from a sample of 105 star-rated hotels in Addis Ababa. A structured questionnaire has been used to collect data on study variables. Descriptive statistics was used to describe the perception of respondents towards PMS adoption and the factors affecting it. Moreover, logistic regression analysis was used to determine the significance of each independent variable on the dependent variable. The result indicated that these factors accounted for 74.4% of the decision in PMS adoption. Managers attitudes, hotel features, perceived usefulness, and ease of use were all found to have positively affected PMS adoption; in the order of their relative significance. The findings of this research would contribute to the existing body of knowledge on the adoption of property management system (PMS) in the hospitality industry, particularly in the context of star-rated hotels in Addis Ababa. The results provide valuable insights for hotel managers, policymakers, and software developers on the key factors that influence the successful implementation of PMS in hotels.

Keywords: Property management system, hotel features, managers' attitude, perceived usefulness, ease of use.

CHAPTER-ONE

1. INTRODUCTION

1.1 Background of the study

The hospitality industry has witnessed significant changes in recent years due to the rapid advancement of property management systems. Property Management Systems have provided hotels with opportunities to enhance their operations and improve customer experiences. However, the adoption of property management systems varies among hotels, and understanding the factors that influence their adoption is crucial for successful implementation (Sigala, 2015).

Addis Ababa, the capital city of Ethiopia, is a major hub for tourism and business travel. The city's star-rated hotels play a crucial role in attracting and accommodating visitors, making them an ideal setting for studying the adoption of property management systems in the hospitality industry. Despite the importance of property management systems adoption, there is a lack of research specifically focused on developing countries such as Ethiopia (Tadesse, 2018)

Property management systems (PMS) have significantly transformed the hospitality industry, enhancing guest experience, streamlining operations, and increasing efficiency. The major property management systems applied by hospitality businesses are customer relationship management systems, front desk and room management, revenue management, central reservation system (Sabre, Amadeus hospitality, Oracle hospitality, Travel Click), Mobile Applications, and Internet of Things.

Customer relationship management systems allow hotel businesses to manage customer interactions and data throughout the guest lifecycle. Central reservation systems enable guests to make reservations, check availability, and manage their bookings through a digital platform. The central reservation system is a hospitality property management system that allows hospitality businesses to manage their online and offline reservations, room inventory, and rates. Mobile applications provide check-in and check-out, room service requests, loyalty program management, and personalized recommendations. Internet of Things allows

hospitality businesses to connect various devices and systems to gather real-time data and automate processes.

By understanding property management systems and the factors that influence technology adoption, hotel managers can make informed decisions regarding technology implementation strategies. Policymakers can also use these insights to develop policies and initiatives that promote the successful integration of property management systems in the hotel industry.

The study focuses on the factors influencing the adoption of property management systems in star-rated hotels in Addis Ababa. The theoretical support for the importance of access to affordable and reliable internet and infrastructure comes from the work of Law and Buhalis (2010) and Sigala (2017).

Law and Buhalis (2010) emphasize the crucial role of technological infrastructure in enabling the implementation of property management systems in the hospitality industry. Their work highlights the necessity of having the necessary internet and infrastructure in place for successful adoption and utilization of digital solutions in hotels.

Sigala's (2015) research emphasizes the significance of connectivity and technological infrastructure in delivering personalized and seamless experiences to hotel guests. This theoretical support underscores the idea that access to affordable and reliable internet and infrastructure is essential for meeting the demands of modern travelers and enhancing the overall guest experience.

Additionally, the theoretical support emphasizes the potential benefits of access to affordable and reliable internet and infrastructure for seamless integration of digital technologies in improving operational efficiency and reducing costs. This suggests that having robust technological infrastructure in place can streamline operations, improve communication, and reduce manual processes, leading to cost savings and enhanced productivity (Melville, N. P., Kraemer, K., & Gurbaxani, V.2004).

1.2 Statement of the problem

The hospitality industry of Ethiopia, specifically in Addis Ababa, is experiencing rapid technological advancements, yet there is limited understanding of the factors affecting the adoption of property management systems in star-rated hotels. This research aims to identify

and analyze the key factors affecting the adoption of property management systems in star-rated hotels in Addis Ababa, Ethiopia (Kassahun & Tadesse, 2020).

Despite the growing importance of property management systems in the global hospitality industry, there is a lack of comprehensive research on the specific challenges and opportunities for the adoption of property management systems in star-rated hotels in Addis Ababa, Ethiopia (Tadele & Gebre 2017). This study seeks to address this gap by examining the factors that impact the adoption of property management systems in the context of star-rated hotels in Addis Ababa.

The adoption of property management systems (PMS) in star-rated hotels in Addis Ababa has become increasingly critical in the hospitality industry. However, despite the potential benefits of PMS adoption, there is a lack of comprehensive understanding regarding the factors that influence its adoption within this specific context. This gap in knowledge raises the key technological, organizational, and environmental factors that influence the adoption of property management systems in star-rated hotels in Addis Ababa.

The potential challenges and barriers faced by star-rated hotels in Addis Ababa in adopting property management system (PMS), and how do these obstacles affect the adoption process to interplay with each other and impact the decision-making process of hotel management in adopting property management system (PMS) is an area where this study focuses.

It is also important to investigate the potential benefits and competitive advantages associated with the successful adoption of property management system (PMS) in star-rated hotels in Addis Ababa and the outcomes contribute to the overall performance of the hotels.

The aforementioned problem statement is supported by existing scholarly literature. For example, a study by Kim and Pan (2017) on "The Adoption of Property Management Systems in the Hospitality Industry" highlighted the significance of technological factors such as system compatibility and ease of use in influencing PMS adoption. Similarly, research by Li and Lin (2019) emphasized the organizational factors such as management support and staff training as critical determinants for successful property management system (PMS) implementation in hotels.

Furthermore, studies by Gao et al. (2018) and Chen et al. (2020) shed light on the environmental factors, including industry competition and regulatory requirements, which play a pivotal role in shaping the decision-making process for property management system (PMS) adoption in the hospitality sector. These scholarly works collectively underscore the complexity of factors influencing property management system (PMS) adoption, providing a strong foundation for investigating the specific context of star-rated hotels in Addis Ababa.

In summary, the problem statement for this thesis research aligns with existing scholarly literature and addresses crucial gaps in understanding the multifaceted factors affecting the adoption of property management systems in star-rated hotels in Addis Ababa

1.3 Research questions

This study aims to investigate the factors affecting the adoption of property management systems in star-rated hotels in Addis Ababa. The following research questions were guide the study

1 What specific features do star-rated hotels have in adopting property management systems in Addis Ababa?
2 To what extent ease of use affect the adoption of property management systems in star-rated hotels in Addis Ababa?
3 Does perceived usefulness influence the adoption of property management systems in star-rated hotels in Addis Ababa?
4 How does hotel managers' attitude affect adopting property management systems in star-rated hotels in Addis Ababa?

1.4 Research Objective

1.4.1 General Objective

The general objective of the study was to investigate the factors affecting property management systems adoption by star-rated hotels in Addis Ababa.

1.4.2 Specific Objectives

1 To examine the effect of features of star-rated hotels on the adoption of PMS in Addis Ababa.
2 To determine the effect of ease of use on the adoption of PMS in star-rated hotels in Addis Ababa
3 To investigate the effect of perceived usefulness on the adoption of PMS in star-rated
4 To determine the effect of managers' perceptions on the adoption of PMS by star-rated hotels in Addis Ababa

1.5 Research Hypotheses

In this research, the following hypotheses were made:
H1: Variety of features in star-rated hotels in Addis Ababa have significant and positive impact in adopting PMS.
H2: Perceived ease of use has positive and significant effect in the adoption of PMS in star-rated hotels in Addis Ababa.
H3: Perceived usefulness has significant and positive influence in the adoption of PMS in star-rated hotels in Addis Ababa.
H4: Attitudes of hotel managers has significant and direct impact in adopting PMS in star-rated hotels in Addis Ababa.

1.6 Significance of the study

The study of factors affecting the adoption of property management systems in star-rated hotels in Addis Ababa is significant for at least four reasons. First, it can provide insights into the potential economic benefits of such technologies, including increased efficiency, cost savings, and improve customer satisfaction, which can contribute to the growth of the hospitality industry in the city. Second, it can help identify the property management systems that are most effective in improving the competitiveness of star-rated hotels, allowing hoteliers to make informed decisions about where to invest in technology to stay ahead of the competition. Third, the study can shed light on how property management systems can enhance the overall customer experience in star-rated hotels, leading to improved booking

processes, personalized services, and streamlined communication with guests and employees. Forth, the study can serve as a foundation for future research on the adoption of property management systems in the hospitality industry, providing a framework for further exploration and analysis of this important topic.

The results of this research have practical implications for hotel managers and policymakers. By understanding the factors that affect technology adoption, hotel managers can make informed decisions regarding technology implementation strategies. Policymakers can also use these insights to develop policies and initiatives that promote the successful integration of property management systems in the hotel industry.

The findings of this research would contribute to the existing literature on technology adoption in the hospitality industry, particularly in the context of developing countries. By filling the gap in research on technology adoption in Ethiopia, this study would provide insights into the unique challenges and opportunities faced by star-rated hotels in Addis Ababa.

In brief, this study provided valuable insights into the challenges and opportunities presented by the digital era in hotel management, helping hotel managers in Addis Ababa make informed decisions and implement effective strategies to thrive in the age of information.

1.7 Scope of the study

Conceptually, the study is delimited to examine the factors that influence the adoption of property management systems by star-rated hotels in Addis Ababa. The study aimed to determine the adoption of property management systems by star-rated hotels in Addis Ababa, examining factors such as specific features of hotels, perceived ease of use, perceived usefulness, and managers' attitudes. The study considered various aspects such as the potential levels of property management systems adoption, the influences on adoption, and the impacts of adoption on competitiveness and sustainability. Geographically, the research was delimited to star-rated hotels in Addis Ababa, and did not encompass other types of accommodation establishments in the city or outside the city. Methodologically, the study utilized a combination of qualitative and quantitative research methods to gather data and analyze the key factors that influence the decision to adopt property management systems in star-rated hotels in Addis Ababa. As far as the unit of analysis is concerned, this study

gathered data from hotel establishments and hence organization is the appropriate unit of analysis in this study

1.8 Limitations of the study

Limitations in a thesis study are important to acknowledge as they provide transparency about the scope and potential constraints of the research. In the context of "Factors Affecting the Adoption of Property Management Systems in star-rated hotels in Addis Ababa," some potential limitations such as sample size and generalizability which the study may be limited by the sample size of hotels included in the research. It was not be feasible to include all star-rated hotels in Addis Ababa, which could affect the generalizability of the findings to the entire population of such hotels.

Time constraints and access to information were part of the limitations in conducting the study. Conducting comprehensive interviews, surveys, and observations within a limited timeframe may restrict the richness of the data obtained. Likewise, access to proprietary information about PMS adoption and internal decision-making processes within star-rated hotels was restricted, impacting the depth of understanding of certain factors influencing adoption.

1.9 Organization of the study

Organization of the study is composed of five chapters. The first chapter deals with introduction to the study which consists of the backgrounds of the study, statement of the problem, research question, objectives of the study, significance of the study, scope and limitations of the study, organization of the study, and definitions of key terms. The second chapter consists of the review of related literatures divided into theoretical review, empirical review, and conceptual framework and research hypotheses sections. The third chapter deals with the research design and methodology. The fourth chapter is about data presentation, analysis and interpretation. Finally, the fifth chapter presents summary, conclusion and recommendation based on the study findings.

1.10 List of acronyms and operational definitions

1.9.1. List of Acronyms

AI	Artificial Intelligence
CFA:	Confirmatory Factor Analysis
CNET	Computer Network
CRS	Central Reservation Systems
ETAM	Enhanced Technology Acceptance Model
IDS	Internet Distribution System
IT	Information Technology
NFC	Near Frequency Communication
RBV	Resource-Based View
RFID	Radio Frequency Identification
PMS	Property Management Systems
TAM	Technology Acceptance Model
UTAUT	Unified Theory of Acceptance and Use of Technology
WTO	World Tourism Organization

1.9.2. Operational definitions of terms

1. **Customer Relationship Management(CRM):** A strategy used by hotels to manage interactions with customers to improve customer satisfaction (Molinillo et al., 2018)
2. **Hotel Feature (HF)**: A hotel's unique attributes, amenities, and services (Okumus, Altinay, and Arasli 2005)
3. .**Managerial Attitude (MA)**: Feelings, beliefs, and thoughts that managers have about their work roles and the organization (Robbins and Judge; 2013)
4. **Perceived usefulness (PU) :**The degree to which a person believes that using a particular system would enhance his or her job performance (Fred D. Davis; 1989)

5. **Perceived ease of use (EU)**:the degree to which a person believes that using a particular system would be free of effort(Fred D. Davis;1989)

6. **Property Management Systems (PMS)**: A software system used by hotels to manage operational tasks (Gupta & Sharma, 2018).

7. **Star-rated Hotels**: Hotels that have been officially rated and categorized based on the quality of their services and facilities (Burgess et al., 2010).

CHAPTER-TWO

1. REVIEW OF RELATED LITERATURE

This section of the thesis discusses the conceptual, theoretical and empirical literature related to property management system (PMS) and the factors affecting the adoption of PMS in the hotel sector.

2.1 . Conceptual Review

2. 1.1. Background of hotel digital technologies

Digital technologies in star-rated hotels began in the late 20th century with computerized reservation systems and property management systems. In the 1990s, hotels adopted online booking platforms to reach a wider audience. Customer relationship management systems in the early 2000s allowed hotels to personalize marketing and services, while mobile technology in the mid-2000s led to mobile check-in and keyless entry systems, providing added convenience and efficiency (O'Connor, P., 2016).

In recent years, the integration of smart technology has become increasingly prevalent in star-rated hotels. This includes in-room automation systems that allow guests to control lighting, temperature, and entertainment devices through mobile applications or voice commands. Additionally, digital concierge services have been implemented to provide personalized recommendations and assistance to guests during their stay (.Xie, K. L., & Mattila, A. S., 2020).

The development of digital technologies in star-rated hotels has been driven by a desire to enhance guest experiences, improve operational efficiency, and stay competitive in an increasingly digital world. As technology continues to advance, hotels will need to adapt and innovate to meet the changing needs and expectations of their guests (Tadesse, B., & Yitayih, T., 2018).

2. 1.2. The concept of property management system (PMS)

A property management system (PMS) is a software application used by hotels to manage their day-to-day operations, including reservations, check-ins, check-outs, revenue management, guest history and billing. It helps hotels streamline their operations and provide better guest experiences (Xie et al., 2017). It is also defined as "a set of application programs that directly relate to hotel front office and back office activities e.g. revenue management, reservation management, room and rate assignment, check-in & out management, guest accounting, folio management, account settlement and room status management (Kasavana & Cahill, 2003, p.4).

2. 1.3. Smart Room System

Smart room technologies (keys) are property management systems that allow guests to access their rooms using their smartphones or key cards with Radio Frequency Identification (RFID) or Near Frequency Communication (NFC) technology as well as in-room automation and control systems for lighting, temperature, and entertainment. This enhances convenience for guests and improves security for the hotel. (Kwoket al, 2019).

2. 1.4. Mobile application system

Many hotels have developed mobile applications that allow guests to book rooms, check-in and out, access hotel services, and provide feedback, enhancing guest engagement and convenience (Gretzel, U., et al :2015).

2. 1.5. Guest relationship management systems

Guest relationship management (GRM) systems are used by hospitality businesses to collect and analyze guest data in order to personalize their experiences and improve guest satisfaction. These systems help hotels build long-term relationships with their guests. (Sigala: 2017)

To coin together, the integration of property management system in the hospitality industry has significantly transformed the way hospitality businesses operate and interact with their customers. By leveraging various types of property management systems, hospitality

establishments can enhance customer experience, improve operational efficiency, and gain a competitive edge in the market.

2. 1.6. Adoption of property management systems in star rated hotels

The development of property management systems (PMS) in star-rated hotels in Addis Ababa, Ethiopia, can be seen as following a similar trajectory to that of the global hotel industry. With the advent of computerized reservation systems and property management systems in the late 20th century, hotels in Addis Ababa were able to streamline their operations and improve efficiency in managing guest bookings and room inventory (Sigala, M.:2015).

As the internet became more widely accessible in Ethiopia in the 2000s, star-rated hotels in Addis Ababa began adopting online booking platforms and websites to reach a broader audience of potential guests. This allowed them to directly connect with travelers and accept reservations without the need for third-party travel agents (Buhalis, D., & Law, R.:2008)

By same token, the introduction of customer relationship management systems in the early 2000s, enabled hotels in Addis Ababa to collect and analyze guest data to personalize their marketing and services, similar to global trends.

Studies on the adoption of property management systems in the hotel industry in Ethiopia are limited, but there is a growing recognition of the importance of embracing property management systems to enhance guest experiences and improve operational efficiency in the Ethiopian hospitality sector. The work of scholars such as Sigala and Buhalis and Amaranggana, who emphasize the need for hotels to adopt innovative technologies to meet the evolving demands of modern travelers, can also be applied to the context of star-rated hotels in Addis Ababa.

In brief, the historical development of property management system in star-rated hotels in Addis Ababa has been driven by a desire to enhance guest experiences, improve operational efficiency, and stay competitive in an increasingly digital world.

2. 1.7. Perceived benefits of property management system

Several studies have shown that perceived benefits, such as improved efficiency, revenue management, inventory management, and enhanced customer experience, are key drivers of technology adoption in the hospitality industry. For example, a study by Buhalis and Law (2008) found that perceived benefits, including increased revenue and improved customer satisfaction, were significant factors influencing the adoption of technology in hotels.

Additionally, the research by Wang et al. (2017) demonstrated that perceived benefits, such as improved operational performance and competitive advantage, were positively associated with technology adoption in the hotel industry. Similarly, a study by Xiang et al. (2015) highlighted the importance of perceived benefits, such as increased productivity and better decision-making, in driving technology adoption in hotels.

Service improvement and competitive advantage through property management system have become increasingly important for star-rated hotels in today's digital age. Property management system has the potential to transform the way hotels operate and deliver services to their guests, leading to improved efficiency, time and cost savings, and enhanced customer experiences. This paper aims to explore the role of property management system in driving service innovation and creating competitive advantage for star-rated hotels, with a focus on scholarly support.

Property management system has enabled star-rated hotels to improve their service offerings in various ways. For example, the use of data analytics and Artificial Intelligence (AI) allows hotels to gain valuable insights into guest behavior and preferences, enabling them to personalize their services and provide a superior guest experience. This level of personalization can lead to higher guest satisfaction and loyalty, ultimately giving star-rated hotels a competitive edge in the market (Sigala, M.:2015)

Furthermore, property management systems have facilitated the development of new service delivery channels for star-rated hotels, such as mobile apps and online platforms. These channels not only provide convenience for guests but also allow hotels to reach a wider

audience and expand their market reach. This expansion can lead to increased revenue and market share, further strengthening a hotel's competitive position.

Studies show that property management systems can drive service innovation and create competitive advantage for star-rated hotels. Sigala (2015) found that property management system has a significant impact on hotel performance and guest satisfaction. Similarly, a study by Xiang et al. (2015) highlighted the importance of digital innovation in enhancing the guest experience and improving hotel competitiveness.

2. 1.8. Background of hotel development in Addis Ababa

The development of hotels in Addis Ababa can be traced back to the early 20th century when the city started to attract more international visitors due to its strategic location as the political and diplomatic capital of Ethiopia. The first modern hotel in the city has been the Etege Taitu Hotel which was established in 1907 and quickly became a popular destination for foreign dignitaries and travelers. This historical development of hotels in Addis Ababa, the capital city of Ethiopia, reflects the country's growth in tourism and hospitality over the years (Abegaz, 2014).

The development of hotels in Addis Ababa has been driven by a combination of factors, including government support for the tourism industry, increased investment in infrastructure and transportation, and a growing demand for high-quality accommodation from both domestic and international travelers (Teshome: 2015)

2. 1.9. Development of star-rated hotels in Addis Ababa

The concept of star-rated hotels in Addis Ababa can be traced back to the early 20th century when the city started to attract international visitors and diplomats. The first modern hotels in the city were established to cater to the growing demand for accommodation among travelers. The Imperial Hotel, built in the 1930s, was one of the earliest luxury hotels in Addis Ababa, hosting prominent guests and dignitaries (Berhanu & Getachew: 2017)

In the following decades, Addis Ababa witnessed a significant expansion in the hotel industry, with the establishment of more star-rated hotels to meet the increasing demand from tourists,

business travelers, and government officials. International hotel chains started entering the market, bringing modern amenities and services to cater to a diverse clientele (Tadesse, B.: 2014).

The development of star-rated hotels in Addis Ababa has been guided by quality standards and classification systems to ensure consistency in service delivery and guest satisfaction. The Ethiopian Ministry of Culture and Tourism, along with international bodies such as the World Tourism Organization (WTO), have played a role in setting criteria for star ratings and accreditation of hotels (Alemayehu & Tadesse,:2019)

Today, Addis Ababa boasts a diverse range of star-rated hotels catering to different market segments, from luxury boutique hotels to international chains and business-oriented properties. The city's hotel industry continues to evolve, adapting to changing trends in tourism and hospitality while maintaining high standards of service quality (Tekalign & Desta: 2020)

Generally, the historical development of star-rated hotels in Addis Ababa reflects the city's transformation into a key hub for tourism and business in East Africa. Scholarly studies have examined various aspects of this development, including the impact of star ratings on hotel performance, customer satisfaction, and challenges facing the industry

2. 1.10. Highlights on hotel property management systems

Property management systems in star-rated hotels began in the late 20th century with computerized reservation systems and property management systems. In the 1990s, hotels adopted online booking platforms to reach a wider audience. Customer relationship management systems in the early 2000s allowed hotels to personalize marketing and services, while mobile technology in the mid-2000s led to mobile check-in and keyless entry systems, providing added convenience and efficiency (O'Connor, 2016).

In recent years, the integration of smart technology has become increasingly prevalent in star-rated hotels. This includes in-room automation systems that allow guests to control lighting, temperature, and entertainment devices through mobile applications or voice commands.

Additionally, digital concierge services have been implemented to provide personalized recommendations and assistance to guests during their stay (.Xie, & Mattila: 2020)

Researches indicate the notion that property management systems have had a profound impact on the hotel industry. A study by Buhalis and Amaranggana (2014) emphasize the need for hotels to adopt innovative technologies to meet the evolving demands of modern travelers.

The development of property management systems in star-rated hotels has been driven by a desire to enhance guest experiences, improve operational efficiency, and stay competitive in an increasingly digital world. As technology continues to advance, hotels will need to adapt and innovate to meet the changing needs and expectations of their guests (Tadesse &Yitayih: 2018).

2. 1.11. Major hotel property management systems

Property management systems have significantly transformed the hospitality industry, enhancing guest experience, streamlining operations, and increasing efficiency. There are several major hotel property management systems that are widely used in the hospitality industry. Some of the most popular property management systems include.

2. 1.11.1. Oracle hospitality opera

Oracle hospitality opera is a comprehensive property management system that is used by many large hotel chains around the world. It offers a range of features including reservations management, guest profiles, and reporting tools. Oracle Hospitality Opera is known for its scalability and flexibility, making it suitable for hotels of all sizes (Hayes & Ninemeier: 2009)

2. 1.11.2. Amadeus hospitality service optimization system

Amadeus hospitality service optimization system is a cloud-based property management system that focuses on optimizing hotel operations and guest experiences. It offers features such as real-time analytics, task management, and mobile capabilities. Amadeus hospitality service optimization system is designed to help hotels improve efficiency and enhance guest satisfaction (Kasavana & Brooks: 2005).

2. 1.11.3. Central reservation system

The central reservation system is hospitality property management system software that allows hospitality businesses manage their online and offline reservations, room inventory, and rates (Liu, Z.:2018). Lin's Study (2018) categorized Sabre and Travel Click as hospitality property management systems that offer a range of solutions to the hospitality industry, including hotel central reservation systems (CRS), property management systems , distribution and marketing services. These technologies optimize hotel operations, enhance guest experiences, and drive revenue through innovative technology and data-driven insights (Hasan, M. R., & Islam, M. A.:2019).

2. 1.11.4. Internet distribution system (IDS Next) property management system

An IDS hotel property management system is a software solution designed specifically for the hospitality industry to efficiently manage various aspects of hotel operations. These systems typically offer features such as reservation management, check-in/check-out processes, room assignment, billing and invoicing, guest profiles, housekeeping management, and reporting and analytics (Yazdani & Aziz :2015).

2. 1.11.5. CNET software technologies property management system

CNET' hotel property management system is a leading provider of innovative technology solutions for the hospitality industry, including their comprehensive hotel property management system in Ethiopia. It is designed to streamline operations, enhance guest experiences, and increase revenue for hotels of all sizes. The system offers a wide range of features, including reservation management, room inventory control, guest profile tracking, billing and invoicing, and reporting and analytics tools (Grand View Research, Inc.:2021)

2.2 .Theoretical Review

Theories of technology adoption are a key area of study in the field of technology and innovation management. These theories and frameworks provide valuable insights into the factors affecting the adoption of property management systems in hotels. This study drew upon these theories to develop hypotheses and analyze the impact of various driving factors

on property management systems adoption in star-rated hotels in Addis Ababa .These theories have been widely researched and applied across various industries and contexts to understand the factors affecting the adoption of property management systems by individuals, hotels, and societies. They provide valuable frameworks for understanding the complexities of technology adoption and can inform strategies for successful implementation and utilization of new technologies.

The study examines factors influencing the adoption of property management systems in star-rated hotels in Addis Ababa. It uses the Technology Acceptance Model (TAM) to understand how hotel staff perceives the usefulness and ease of use of these systems (Davis, F. D.:1989)**.** The following are some of technology adoption theories are**.**

2. 2.1. Technology Acceptance Model (TAM)

Technology Acceptance Model (TAM) theorizes that perceived usefulness and perceived ease of use are the main determinants of an individual's intention to use a technology. This model has been developed by Davis F. D. (1989) and widely used to understand and predict the adoption of various technologies, such as information systems and digital tools.

2. 2.2. Enhanced Technology Acceptance Model (ETAM)

The Enhanced Technology Acceptance Model (ETAM) is an extension of the original Technology Acceptance Model (TAM), which focuses on perceived usefulness and ease of use as key determinants of user acceptance and usage behavior, recognizing that technology acceptance is a complex process (Davis, F. D., Bagozzi, R. P., & Warshaw, P. R., 1989).
Wu and Wang's (2005) study used the Theory of Planned Behavior (ETAM) to understand technology acceptance in mobile data services. They found perceived usefulness, ease of use, and social influence significantly predict users' adoption intentions.

2. 2.3. The Unified Theory of Acceptance and Use of Technology (UTAUT)

Developed by Venkatesh et al. in 2003, The Unified Theory of Acceptance and Use of Technology (UTAUT), is a widely recognized framework for understanding technology acceptance and use. It has been proven to predict users' intentions to use technology and has

been applied to various domains, including healthcare, education, and e-commerce. Its focus on performance expectancy, effort expectancy, social influence, and facilitating conditions has enduring influence (Venkatesh et al, 2012).This theory integrates several existing theories of technology adoption to create a comprehensive model. It identifies performance expectancy, effort expectancy, social influence, and facilitating conditions as key determinants of technology acceptance and use.

2. 2.4. Factors affecting the adoption of property management system

The adoption of property management systems in the hotel industry is influenced by a variety of factors. The adoption of property management system by star-rated hotels in Addis Ababa is affected by a variety of independent variables, including the features of star-rated hotels, attitudes and perceptions of managers, and technological infrastructure of the property management system (Kandampully, Zhang & Bilgihan:2015). The following section discusses seven major factors extracted from literature which are said to affect the adoption of property management system by hotels.

2.2.4.1. Features of hotels

The features of star-rated hotels, such as the size of the hotel, the number of rooms, and the facilities available, can impact the adoption of property management system. Larger hotels with more complex operations may be more likely to adopt property management system to streamline their processes and improve efficiency. Additionally, hotels that offer high-end amenities and services may be more inclined to invest in property management system to enhance the guest experience (Buhalis & Law 2008).

Features of hotels in the hospitality industry drive the adoption of property management systems in star-rated hotels. These systems enhance guest experience, streamline operations, and improve efficiency. Guests expect seamless and personalized experiences, leading to the need for digital solutions like mobile apps and self-check-in kiosks. Hotels also use property management systems in operations and management to optimize processes and gain a competitive edge. The rise of digital marketing and online reputation management also increases facilitate or deter on hotels to adopt these systems to maintain a positive online

presence and stand out from competitors. The features landscape and the uniqueness of rival hotels can drive the adoption of property management systems as hotels seek to keep pace with industry standards and remain competitive in the market (Sigala & Christou :2019).

2.2.4.2. Managers attitudes

Managers' attitudes play a significant role in the adoption of property management systems in the hotel industry. Academic studies have explored this topic and shed light on the various factors that influence managers' decision-making processes when it comes to adopting property management system**.**

The Technology Acceptance Model (TAM) posits that perceived usefulness and perceived ease of use are key determinants of users' attitudes towards technology adoption. When managers perceive PMS as useful in improving operational efficiency and guest satisfaction, and easy to use without much training, they are more likely to adopt it (Davis: 1989).

Managers' attitudes towards adoption of property management system are also influenced by the level of organizational support and available resources. When organizations provide adequate support, training, and resources for implementing property management system, managers are more inclined to adopt the system (Rogers: 2003).

Managers may exhibit resistance to property management system adoption if they perceive high levels of risk and uncertainty associated with the new technology. Factors such as data security concerns, potential disruptions in operations, and financial risks can impact managers' attitudes towards PMS adoption. (Chau & Hu: 2001).

The perceived characteristics of the innovation, such as compatibility with existing systems, complexity, and trainability, can influence managers' attitudes towards property management system adoption. Studies have shown that managers are more likely to adopt property management system that align with the organization's needs, are easy to integrate, and allow for trial periods (Rogers: 2003).

The availability of training programs and educational resources on property management system can positively impact managers' attitudes towards adoption. When managers are

provided with adequate training to understand the system's functionalities and benefits, they are more likely to embrace property management system (Venkatesh et al.: 2003).

In conclusion, managers' attitudes and perceptions are crucial in the adoption of property management systems in the hotel industry. By considering factors such as perceived usefulness, ease of use, organizational support, perceived risk, innovation characteristics, and training, hotel managers can make informed decisions that facilitate successful PMS adoption.

2.2.4.3. Perceived usefulness

Property management systems play a crucial role in the operations of hotels by integrating various functions such as reservations, guest check-in/out, room assignment, billing, and more. The perceived usefulness of property management system by hotels can be analyzed through the lens of the Technology Acceptance Model (TAM), which suggests that the perceived usefulness of a technology significantly influences its adoption and usage. Property management systems streamline hotel operations, automate routine tasks, and improve efficiency, leading to time and cost savings. Hotels perceive property management systems as useful for enhancing operational efficiency and reducing manual errors (Alonso et al., 2018).

Property management systems provide hotels with the ability to collect and analyze guest data, which can be used for personalized marketing, improving guest experiences, and making data-driven decisions. Hotels value property management system for their data management capabilities and reporting functionalities (Xiang et al.:2015).

Property management systems integration with other hotel systems such as online booking platforms, revenue management systems, and accounting software enhances connectivity and data flow within the hotel. Hotels perceive integrated property management system as useful for achieving seamless operations and enhancing guest satisfaction (Gupta et al.:2019).

Property management systems enable hotels to offer personalized services, manage guest preferences, and provide a seamless check-in/out experience. Hotels consider property management system useful for improving guest experiences and loyalty (Zhang et al., 2016).

Effective utilization of property management system can give hotels a competitive edge by improving operational efficiency, optimizing revenue management, and enhancing service

quality. Hotels view PMS as a tool for gaining a competitive advantage in the market (Gupta et al., 2019).

In conclusion, the perceived usefulness of property management systems by hotels is multifaceted, encompassing efficiency gains, data management capabilities, integration benefits, guest experience enhancement, and competitive advantages. By leveraging the functionalities of PMS, hotels can optimize their operations, enhance guest satisfaction, and stay competitive in the dynamic hospitality industry.

2.2.4.4. Perceived ease of use

The perceived ease of use of property management systems is a key factor in their adoption in star-rated hotels. Studies have shown that when staff find a system easy to use, they are more likely to adopt it. This ease of use is also a critical factor influencing users' attitudes towards technology and their subsequent performance. The Technology Acceptance Model (TAM) studies have highlighted the importance of user-friendly systems in promoting technology adoption. The evolution of the TAM over time has further highlighted the significance of perceived ease of use in shaping users' attitudes towards technology (Venkatesh, V., & Davis, F. D.:2000).

2.3 Empirical Review

There is a lack of empirical literature specifically focused on the factors affecting the adoption of property management systems in star-rated hotels in Addis Ababa. However, there are several studies that have examined the broader context of property management system adoption in the hospitality industry, which can provide valuable insights for hotels in Addis Ababa.

One study by Gretzel, Sigala, Xiang, and Koo (2015) explored the factors influencing the adoption of technology in the hospitality and tourism industry. The study identified factors such as perceived usefulness, ease of use, social influence, and facilitating conditions as key determinants of technology adoption. These findings can be applied to the context of star-rated hotels in Addis Ababa to understand the factors that may influence their adoption of property management systems.

Furthermore, a study by Li, Law, and Vu (2017) investigated the factors influencing the adoption of mobile technology in the hotel industry, emphasizing the importance of perceived usefulness, ease of use, and compatibility as key determinants. This research can provide insights into the specific factors that may drive the adoption of mobile technology in star-rated hotels in Addis Ababa.

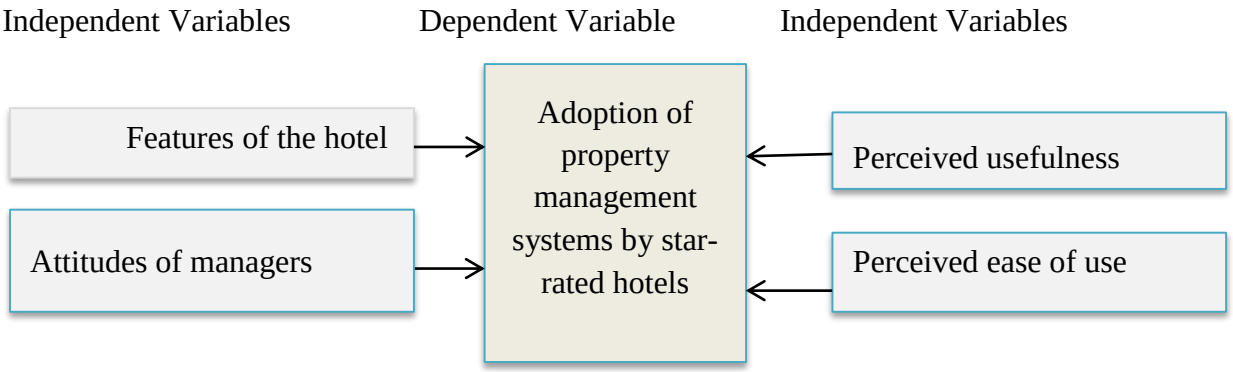
Up until now, research has been done on the variables influencing the adoption of property management systems in Addis Ababa's star-rated hotels. An analysis of the variables influencing the adoption of digital technologies in Addis Ababa's star-rated hotels, for instance, was conducted by Alemu et al. (2018). The study concentrated on elements that have a major impact on the adoption of property management systems in the hotel industry, including perceived utility, perceived ease of use, and organizational support.

Furthermore, a study by Gebre and Tekle (2021) investigated how consumer preferences and demand affected the uptake of property management system in Addis Ababa's star-rated hotels. Hotel adoption efforts are more likely to succeed when they successfully use property management system to meet customer expectations and improve the overall guest experience, according to the research.

2.4 Conceptual framework of the Study

The conceptual framework of the study presented on Figure-1 shows that the study variables are related to each other. In this study, the independent variables are features of the hotel, attitudes and perceptions of managers, perceived usefulness, and perceived ease of use whereas the dependent variable is adoption of property management system by star-rated hotels in Addis Ababa. The underneath conceptual framework is developed based on Technology Acceptance Model (TAM), The Enhanced Technology Acceptance Model (ETAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT).

Figure 1: Conceptual Framework of the Study



Source: Self Developed (2024)

2.4.1. Features of the hotel and adoption of property management system by hotels

The features of star-rated hotels, such as the size of the hotel, the number of rooms, and the facilities available, can impact the adoption of property management system. Larger hotels with more complex operations may be more likely to adopt property management system to streamline their processes and improve efficiency. Additionally, hotels that offer high-end amenities and services may be more inclined to invest in property management system to enhance the guest experience (Buhalis& Law, 2008). Based on the above information, the first hypothesis is stated as follows:

H1: Larger hotels are more likely to adopt PMS than smaller hotels in Addis Ababa

2.4.2. Perceived usefulness and adoption of property management system

The perceived usefulness and adoption of property management systems by hotels is a critical aspect that can significantly impact the success of the system implementation and overall operational efficiency. The perceived usefulness of property management system plays a crucial role in driving adoption and successful implementation in hotels. Hotels that recognize the value of PMS in improving operational efficiency, guest satisfaction, and overall performance are more likely to invest in the system, allocate resources for training and infrastructure development, and achieve positive outcomes (Wang et al., 2017). Based on the discussion above, perceived usefulness and adoption of PMS by hotels can be hypothesizes as follows;

H2: Hotels that recognize the value of PMS in improving operational efficiency, guest satisfaction, and overall performance are more likely to invest PMS in the system.

2.4.3. Perceived ease of use and adoption of property management system

The perceived ease of use of property management systems is a crucial factor that impacts the adoption and utilization of these systems in hotels. Hotels that prioritize user-friendly interfaces and provide adequate training to ensure seamless integration with existing systems can enhance employees' perception of system usability, leading to higher levels of adoption, operational efficiency, and guest satisfaction(Liang et al.; 2020). Based on the above discussions, the perceived ease of use and adoption of property management system by hotels can be hypothesized as follows;

H3: Hotels that prioritize user-friendly interfaces, provide adequate training to ensure seamless integration with existing systems experience higher levels of adoption compared to hotels that do not prioritize these factors in Addis Ababa

2.4.4. Attitudes of managers and adoption of property management system

Attitudes of managers also play a crucial role in the adoption of property management system. Managers who are open to innovation and see the potential benefits of property management system are more likely to implement it in their hotels. On the other hand, resistance to change and a lack of understanding of the benefits of property management system can hinder its adoption (Buhalis and Amaranggana, 2014).Based on the above discussion; the second hypothesis is stated as follows:

H4: Managers who are open to innovation and have positive attitude are more likely to adopt property management system than managers with negative attitude towards PMS

CHAPTER THREE

3. RESEARCH METHODOLOGY

The study aims to explore factors influencing the adoption of property management systems (PMS) in star-rated hotels in Addis Ababa. The research uses a quantitative approaches, including surveys, and observations, to provide insights into the decision-making process. The study uses a cross-sectional design to capture a snapshot of property management systems (PMS) adoption in Addis Ababa. Data sources include surveys, industry reports, academic journals, and government publications. A purposive sampling technique will be used to select star-rated hotels that have adopted property management system. Reliability and validity issues will be addressed through pre-testing and refinement of data collection instruments. Ethical considerations include obtaining informed consent, confidentiality, and privacy protection (Creswell, J. W.: 2014)

3.1 Research approach and design

This research wishes to explore the factors affecting the adoption of property management system in star-rated hotels in Addis Ababa. The study employed a mixed-methods approach, combining quantitative surveys and qualitative interviews with hotel managers. This approach will provide a comprehensive understanding of the factors affecting property management system adoption, as well as insights into the perspectives of both management and staff members (Tadesse, B., &Yitayih, T.:2018).

A mixed-methods approach combining qualitative and quantitative methods can provide a comprehensive understanding of the factors influencing the adoption of property management systems. Qualitative methods such as interviews and focus groups can help capture the perspectives and experiences of hotel managers and IT professionals, while quantitative methods such as surveys can quantify the extent of adoption and its impact on hotel performance (Creswell, J. W., & Creswell, J. D., 2017).

Furthermore, the use of surveys and interviews aligns with the recommendations of Bryman and Bell (2015) and Saunders et al. (2016) for conducting comprehensive research in the

social sciences. By utilizing both quantitative and qualitative methods, this study would provide valuable insights into the multifaceted nature of property management systems adoption in the hospitality industry.

The quantitative component of the study involves the use of a survey questionnaire to gather data from hotel managers, IT professionals, and other relevant staff members. The survey was designed to collect information on the current use of property management systems, perceived benefits and challenges to adoption, and the readiness of hotels to embrace technological innovations. The survey data was analyzed using statistical techniques to identify patterns and trends in technology adoption within the hospitality industry.

The qualitative component of the study used semi-structured interviews with key stakeholders in the hotel industry. These interviews were provided in-depth insights into the specific factors such as hotel features, managers' attitudes, usefulness and ease of use affecting the adoption of property management systems.

3.2 Population, Sample size and Sampling technique

3.2.1 Target Population

The study examines factors influencing property management system adoption in star-rated hotels in Addis Ababa, focusing on a diverse population of 141 hotels. The information on available star-rated hotels in Addis Ababa was found from Ministry of Tourism of Ethiopia, (2018). The study identifies the factors influencing the adoption of property management systems in star-rated hotels in Addis Ababa, focusing on hotel managers, and IT personnel. Hotel managers are crucial in decision-making and implementation, while IT personnel play a vital role in customization and maintenance, requiring technical expertise and support (Sigala, M. (2015).

3.2.2 Sample size determination

Sample size determination is a crucial aspect of research design, as it directly impacts the validity and generalizability of study findings. In the context of studying the factors affecting the adoption of property management systems in star-rated hotels in Addis Ababa, the sample

size is determined based on statistical considerations, research objectives, population characteristics, and practical constraints (Hair, J. F., et al. 2010).

The sample size is the number of star-rated hotels selected from the population to be included in the study. Sample size is determined based on Yamane's (1967) statistical formula to ensure the results are representative of the entire population. Statistically, sample size for the population of 208 hotels is calculated the formula:

$$n = \frac{N}{1 + N(e)^2}$$

Where:

n= size of sample

N=Population size

e= margin of error (0.05)

Assuming; the level of confidence: 95%, total population: 141 margin of error 5%, the sample size becomes 105. Accordingly, 105 hotels (represented by their managers) were able to participate in the study by filling the survey questionnaire.

3.2.3 Sampling technique

The sample size for the survey questionnaire was determined using a stratified random or proportional random or quota random sampling technique. The total number of star-rated hotels in Addis Ababa will be stratified based on their size (i.e., small, medium, large) and a proportional number of hotels were selected from each stratum to ensure representation. The sample size for the semi-structured interviews was determined based on the principle of theoretical saturation, where interviews will continue until no new information is obtained.

The use of stratified random sampling aligns with established research methodologies and ensures that the sample is representative of the population. According to Bryman and Bell (2015), stratified sampling is an effective technique for ensuring diversity within the sample. Additionally, the principle of data saturation in qualitative research, as advocated by Saunders et al. (2016), ensures that the sample size for the interviews is sufficient to capture a

comprehensive range of perspectives on the factors affecting technology adoption in star-rated hotels

Table-1: Stratified sample determination table

S.no	Star classification	Total population	Proportion	Sample size
1	One star	43	30. 5%	32
2	Two star	35	24.80%	26
3	Three star	34	24.10%	25
4	Four star	21	14.90%	16
5	Five star	8	5.70%	6
	Total	141	100%	105

Source**:** Own survey (2018)

3.3 Data sources and data collection method

The study explored factors affecting the adoption of property management systems in star-rated hotels in Addis Ababa .The data for the study on the factors affecting the adoption of property management systems in star-rated hotels in Addis Ababa will be collected from both primary and secondary sources. Primary data sources include surveys of managers, and observations. Secondary data sources include industry reports, academic journals, and government publications. Data collection methods include surveys, and on-site observations. On-site observations offer firsthand insights into system functionalities, user interactions, and operational challenges, while surveys gather information on managers' experiences, attitudes, and challenges (Wang, D., et al. 2019).

3.3.1 Primary data collection

The primary data for this study will be collected through a survey questionnaire. The survey questionnaire was administered to hotel managers in star-rated hotels in Addis Ababa. The questionnaire included items related to the factors affecting the adoption of property management systems, such as features of hotel, attitudes of managers, perceived usefulness, perceived ease of use, and supportive organizational culture of readiness. Additionally,

interviews and observations were conducted with key informants in the hospitality industry to gain in-depth insights into the factors affecting technology adoption in star-rated hotels.

3.3.2 Secondary data collection

The secondary data for this study was gathered from existing literature, including academic journals, books, industry reports, and relevant online sources. This secondary data was provided a comprehensive understanding of the current state of digital technology adoption in the hospitality industry, as well as insights into the factors influencing this adoption.

The use of both primary and secondary data sources aligns with established research methodologies. According to Bryman and Bell (2015), a combination of primary and secondary data sources can provide a more comprehensive understanding of the research topic. Additionally, Saunders et al. (2016) emphasize the importance of using multiple data collection methods to ensure the reliability and validity of the findings. By integrating both primary and secondary data sources, this study was to gather robust and comprehensive data on the factors affecting the adoption of property management systems in star-rated hotels in Addis Ababa

3.4 Reliability and validity of data collection instruments

Reliability and validity are crucial aspects of data collection instruments in any research study, including factors affecting the adoption of digital technologies in star-rated hotels in Addis Ababa. The following measures were taken to ensure the reliability and validity of the data collection instruments:

3.4.1 Reliability

To ensure the reliability of the survey questionnaire and interview guide, pilot testing was conducted with a small sample of participants. This helped to confirm the effectiveness of the questionnaires and avoided any ambiguities or inconsistencies in the questions and allowed for necessary revisions to be made. Additionally, the reliability of internal consistency was assessed using measures such as Cronbach's alpha for the survey questionnaire to ensure that the items within each construct are measuring the same underlying concept.

3.4.2 Validity

Content validity was ensured by having the survey questionnaire and interview guide reviewed by experts in the field of technology adoption and hospitality management to confirm that they adequately cover the factors influencing the adoption of digital technologies in star-rated hotels. Additionally, construct validity was assessed by examining the relationships between the measured constructs and their theoretical underpinnings, ensuring that the instruments are indeed capturing the intended factors.

Table2**:** Reliability of data collection instruments for the study variables

No.	Study Variable	Likert Scale measuring items	Cronbach alpha value (Reliability coefficient)	Reference Sources
1	Features of hotel (HF)	3	0.77	Yi-Shun Wang et al. 2014
2	Attitudes of managers (MA)	5	0.846	Abdul Ghan et al. 2019
3	Perceived Usefulness (PU)	6	0 .98	Davis, F. D. (1989).
4	Perceived Ease of Use (EU)	6	0 .94	Venkatesh, V., & Davis, F. D. (2000)

The measures taken to ensure reliability and validity of the data collection instruments align with established research methodologies. For instance, Hair et al. (2010) discuss the importance of pilot testing and internal consistency reliability assessment in ensuring the reliability of survey instruments. Additionally, DeVellis (2016) provides guidance on content validity and construct validity in research instrument development, supporting the approach taken in this study. By following these established practices, the study will be able to produce reliable and valid data for analysis.

Cronbach's alpha: Cronbach's alpha is a measure of internal consistency reliability between independent variables, and it is used to assess the reliability of the instrument in Likert scale. The value of Cornbrash's alpha ranges from zero to one (0-1) with higher values indicating greater internal consistency. To calculate Cronbach's alpha value, the researcher adapted proven data from other studies as indicated in Table 2 above where Likert Scale measurements were used.

3.5 Methods of Data Analysis

The data analysis for the research on the factors affecting the adoption of property management systems in star-rated hotels in Addis Ababa incorporated both quantitative and qualitative methods. The following methods were used to analyze the data collected from the study:

3.5.1 Descriptive Statistics

Descriptive statistics, such as frequencies, percentages, mean, and standard deviation were used to summarize and describe the demographic characteristics of the participants, as well as their level of adoption of digital technologies.

3.5.2 Content Analysis

Qualitative data from interviews and open-ended survey questions were analyzed using content analysis to identify recurring themes and patterns related to the factors influencing the adoption of property management systems.

3.5.3 Logistic Regression:

To predict the likelihood of a star-rated hotel adopting property management system based on various factors such as hotel size, location, and management practices

The methods of data analysis proposed for this research are grounded in established research methodologies and have been widely used in studies related to technology adoption and hospitality management. For example, Bryman (2016) discusses the use of descriptive in social research methods, while Creswell (2014) provides guidance on content analysis in qualitative research. Additionally, scholars such as Buhalis and O'Connor (2005) have employed quantitative and qualitative data analysis methods in their studies on technology adoption in the tourism and hospitality industry, providing further support for the chosen methods. These statistical tools will help in understanding the factors affecting the adoption of property management systems in star-rated hotels in Addis Ababa and provide valuable insights for the research study

3.6. Ethical Considerations

In conducting the research on the factors affecting the adoption of property management systems in star-rated hotels in Addis Ababa, ethical considerations will be paramount. The following ethical guidelines will be adhered to throughout the research process:

1. Informed Consent: All participants of hotel managers were fully informed about the purpose of the study, their role in it, and the potential risks and benefits of their participation. Informed consent will be obtained from each participant before they are involved in the study.

2. Confidentiality: The confidentiality of the participants will be strictly maintained. All data collected, including responses to questionnaires and interview transcripts, will be anonym and stored securely. Only the researchers involved in the study will have access to the raw data.

3. Privacy: Participants' privacy was respected at all times. Any personal information collected was used solely for the purpose of the research and was confidential to any third party.

4. Voluntary Participation: Participation in the study was entirely voluntary, and participants had the right to withdraw from the study at any time without facing any consequences.

5. Minimization of Harm: Every effort has been made to minimize any potential harm or discomfort to the participants. This includes ensuring that the questionnaire and interview questions are non-intrusive and do not cause any distress.

The ethical considerations for the research on the adoption of property management systems in star-rated hotels in Addis Ababa are based on established ethical guidelines for research involving human subjects. These guidelines are informed by scholarly literature on research ethics, such as those outlined by Bryman (2016) and Creswell (2014).

CHAPTER-FOUR

4. DATA ANALYSIS AND PRESENTATION

4.1 Introduction

In this chapter, the information gathered from star-rated hotel managers in Addis Ababa via questionnaires was provided. Frequency distribution data analysis was used to present background information about the hotels and their managers. Regarding the eight independent variables in this study, opinions from hotels using property management system versus non-property management system hotels were evaluated and compared using independent sample t-tests. Opinions obtained interviewing selected hotels was also to further understand the findings in the qualitative analyses.

The binary logistic regression model was utilized for the primary analysis in this study in order to accurately predict the likelihood of property management system adoption among hotels. A tabular presentation of the results was made.

4.1.1 Characteristics of the respondents

The managers of the hotels in Addis Ababa who made up the respondents' backgrounds were shown in Table 4.1. Out of the one hundred five (105) respondents to the survey, seventy four six (68.6%) were men and the remaining thirty one (31.4%) were women who worked as hotel managers. The bulk of hotels in Addis Ababa were discovered to be run by male managers, despite the perception that women in this field are encouraging.

The age distribution of managers was predominantly found in the category of 31-35 years where 66 (67.3%) were under this age group. Additionally, 22 (22.4%) of the total managers were under the age group of 26-30 years. Those below 26 years and above 35 years were 1 or 1% and 9 or 9.2% respectively.

Table above also depicted the work experience of the managers, where the majority 57 (54.3%) has 6-10 years of hotel management experience. Those with 11-15 years of service were found to constitute thirty three (21.9%) of the sample. There were about fourteen

(13.3%) of the managers with at most 5 years of service experience. There were only two (1.9%) of the respondents with 16-20 years of hotel management experience.

Table 4.1: Demographic characteristics of star rated hotel managers in Addis Ababa

		Frequency	Percent	Valid Percent
Gender	Male	72	68.6	68.6
	Female	33	31.4	31.4
Age	20-25 years	1	1.0	1.0
	26-30 years	22	21.0	22.4
	31-35 years	66	62.9	67.3
	36 and above years	9	8.6	9.2
	Total	98	93.3	100.0
	No Response	7	6.7	
Total		105	100.0	100.0
Education Level	2 Diploma	1	1.0	1.0
	3 BA/BSC	85	81.0	87.6
	4 MA/MSC	11	10.5	11.3
	Total	97	92.4	100.0
	No Response	8	7.6	
Total		105	100.0	100.0
Years of Experience	Less than 5	14	13.3	14.6
	6-10	57	54.3	59.4
	11-15	23	21.9	24.0
	16-20	2	1.9	2.1
	Total	96	91.4	100.0
	No Response	9	8.6	
Total		105	105	100.0

Source: Own survey (2024)

When it came to education, the vast majority of the respondents, eighty five (81%) had only completed their first degree and eleven (10.5%) were managers with a master's degree. Only two hotels were run by graduates with a diploma. Given the managers' varying educational backgrounds, the respondents can offer valuable insights into the study by drawing on their educational background and acquired knowledge and skills.

4.1.2 Profile of star rated hotels in Addis Ababa

The profiles of the sampled star-rated hotels are discussed in terms of firm age, firm size, ownership structure, research and development and occupancy rate. Among the surveyed star-rated hotels in Addis Ababa, 74 (70.5%) have a maximum of 50 rooms. The hotels with 51-100 rooms were 18 (17.1%). Relatively very few hotels have 101-150 rooms and above-150 rooms which account 9 (8.6%) and 4 (3.8 %) respectively.

As far as firm age is concerned, the study discovered that 51 (48.6%) hotels of the total had been in operation from six to ten years. Additionally, 18 (17.1%) hotels have been established and in operation in the last five years. Hotels that were 11–15 years old made up 4 (3.8%) of the total hotels, while those that lasted 16–20 years made up roughly 8 (4.8%). Hotels that had been in operation for more than 20 years were comparatively uncommon, making up 3 (2.9%) of the total hotels.

In terms of the ownership and management structure, the majority constituting 68 (64.8%) were owned and operated independently. Considerable number of hotels represented by 18 (17.1%) were found to have independent ownership, but the management was contracted by management contract. In contrast to the previous two group of hotels, about 13 (12.1%) of the hotels were owned and operated by chain.

Majority of the hotels consisting of 58 (55.2.6%) were engaged in research and development activities to improve their business performances. The annual occupancy rate of the hotels ranging 30-59% which account 55 (52.4%) is an indicator hotels star rated hotels conduct research and development. Considerably good number of hotels have lower than 30% occupancy rate that represented the performance of 44(41.9%) of the hotels and only 5(4.8%) of the hotels reported to have enjoyed more than 60% occupancy rate per annum.

Table 4.2: Profile of star rated the hotels understudy

		Frequency	Percent	Valid Percent
Hotel size (number of rooms)	up to 50	74	70.5%	70.5%
	51 to 100	18	17.1%	17.1%
	101-150	9	8.6%	8.6%
	above 150	4	3.8%	3.8%
otel age in years	up to 5	18	17.1%	17.1%
	6-10	51	48.6%	48.6%
	11-15	4	3.8%	3.8%
	16-20	5	4.8%	4.8%
	above 20	3	2.9%	2.9%
Ownership and management structure of the hotel:	1 Owned and operated independently	68	64.8%	68.0%
	2 Owned independently, and operated by a franchise agreement	1	1.0%	1.0%
	3 Owned independently, and operated by a management contract	18	17.1%	18.0%
	4 Owned, and operated by chain	13	12.4%	13.0%
	Total	100	95.2%	100.0%
	No Response	5	4.8%	
Do you conduct research and development (R&D)?	0 No	47	44.8%	44.8%
	1 Yes	58	55.2%	55.2%
The hotel's average occupancy rate per annum	1 <30%	44	41.9%	42.3%
	2 30-59%	55	52.4%	52.9%
	3 >=60%	5	4.8%	4.8%
	Total	104	99.0%	100.0%
	No Response	1	1.0%	
What type of property management system is being used by your hotel?	Opera PMS	14	23.3%	23.3%
	IDS Next PM	28	46.7%	46.7%
	Amadeus Delphi	1	1.7%	1.7%
	Mews PMS	1	1.7%	1.7%
	Protel PMS	2	3.3%	3.3%
	C-Net	11	18.3%	18.3%
	Cloud beds PMS	2	3.3%	3.3%
	Other...	1	1.7%	1.7%
	Total	60	100.0%	100.0%

Source: Own survey (2024)

Furthermore, of the total of surveyed hotels, 60 hotels (57.2%) implemented property management systems and the remaining 45 (42.8%) did not. With regard to the specific type of PMS adopted by the sampled hotels (n=60), the relative majority of the hotels 28(46.7%) adopted the IDS Next followed by Opera PMS 14 (23.3%) and C-Net 11 (18.3%) of the hotels. The remaining PMS software was used by very few numbers of hotels.

4.2. PMS adoption by star-level, occupancy rate and room size

To assess the status of PMS adoption based on the Hotels' star-level, chi-square test was performed as in the table below:

Table 4.3: PMS adoption by star-level

		Does your hotel have a property management system?		Chi-Square Tests		
		0 No	1 Yes	Value	df	p-value
1 One Star	#	20	12	25.938	4	0.000
	%	62.5%	37.5%			
2 Two Star	#	17	9			
	%	65.4%	34.6%			
3 Three Star	#	7	18			
	%	28.0%	72.0%			
4 Four Star	#	1	15			
	%	6.3%	93.8%			
5 Five Star	#	0	6			
	%	0.0%	100.0%			

Source: Own survey (2024)

The chi-square test with chi-value = 25.938 and p-value=0.000< 0.05 indicated that hotel's star level and their PMS adoption were not independent. That is, the PMS adoption of star-level hotels was related to their star-level. As indicated in the table above, the percentage of hotels with PMS almost increased as the hotels star-level increased.

The adoption rate of star-one level was 37.5% while for star-two levels the rate of PMS adoption was 34.6%. In both star-one and star-two level hotels, majority was found to operate without PMS use. In contrary by the majority of star-three, star-four and star-five hotels they were found to have adopted PMS. However, the level of adoption was considerably different

among them. In star-three hotels 72% have already adopted PMS. The adoption of PMS has been nearly 94% in case of four-star hotels. In case of five-star hotels, all of them (100%) have adopted and used PMS in their hotel operations. The result indicated that the higher the star-level, the more probable for a hotel to have used PMS.

Overall, there were 60 (57.14%) star rated hotels in Addis Ababa with PMS use; while 45(47.86%) of the star rated hotels in Addis Ababa haven't used PMS.

Further analyses of the PMS adoption in the hotels were found higher for hotels with larger rooms. The average number of rooms (size of the hotels) with PMS adopted hotels were 60, compared to the size of not PMS adopted hotels with average number of room, which was 43.rooms. Independent t-test result (t-value=2.012, df=103, p-value=0.047<0.05). The result, therefore, implied that most hotels with larger number of rooms will probably adopt PMS.

In relation with occupancy rate, very few of the star-rated hotels 5(4.76%) were only maintained over 60% occupancy rate. Whereas, 44(41.90%) were capable of maintaining the lowest occupancy rate, which was below 30% utilization of their available rooms. Relative majority of the star-rated hotels, 55(52.38%) were found to have utilized 30-60% of their rooms, which was a moderate level occupancy. The result further explained that lower number of hotels was found with relatively higher occupancy rate; while the proportion of PMS adoption was higher with higher occupancy rate. This result was supported by 80% (4 out of 5) of the hotels with 60% or more occupancy rate were found to have adopt PMS. Relatively lower portion of the hotels with 58% and 52% PMS adoption rate were found to have moderate level (30-60%) and low level (below 30%) occupancy rates, respectively. However, this result was not supported by the chi-square test result (chi-square value=1.506, df=2, p-value =0.471>0.05), which indicated no statistically significant dependence between occupancy rate and PMS adoption in star-rated hotels in Addis Ababa.

4.3. Assessment on factors on the adoption of PMS by star-rated hotels

The star-rated hotels were assessed for their characteristics with regard to the independent or factor variables of the study. As indicated in the table below, the four factors (namely HF,

MA, PUI and EU) in the star rated hotels were examined using one-way ANOVA to assess whether these characteristics were in difference depending on the star level of hotels..

The hotel features in one-star and two-star hotels were assessed with respective ratings of $\bar{X}$=3.28 and $\bar{X}$=3.04. This group of hotels seemed to have nearly moderate level hotel features. Whereas hotels with three or more star-level were found to have high level features assessed with $\bar{X}$=3.83, $\bar{X}$=4.02, and 3.92. The ANOVA test result with F-value =5.89 and p-value=0.000<0.05 indicated significant difference in the hotel features among star-rated hotels in Addis Ababa. This was identified that hotel features in one or two star hotels were inferior to that of three or more star level hotels.

Table 4.4: Factors of PMS adoption by star-rated hotel

Star category		HF	MA	PU	EU
1 One Star	Mean	3.28	4.07	4.23	4.21
	Std. Deviation	.92	.44	.49	.54
2 Two Star	Mean	3.04	4.21	4.35	4.21
	Std. Deviation	.83	.43	.35	.57
3 Three Star	Mean	3.83	4.39	4.23	4.27
	Std. Deviation	.76	.45	.47	.64
4 Four Star	Mean	4.02	4.41	4.46	4.40
	Std. Deviation	.67	.36	.43	.71
5 Five Star	Mean	3.92	4.48	4.42	4.92
	Std. Deviation	.20	.22	.33	.20
Total	Mean	3.50	4.26	4.30	4.29
	Std. Deviation	.87	.44	.44	.60
ANOVA test	F-value	5.89	3.24	1.07	2.12
	P-value	0.000	0.015	0.374	0.083

Source: own Survey (2024)

In terms of managers' attitude, star level hotel managers have positive and high level attitude towards the use of PMS in their hotels. The ANOVA test result with F-value =3.24 and p-value=0.000<0.05, however, indicated significant difference in the attitude of managers towards PMS adoption. This was due to the relatively lower level rating of managers attitude in one-star hotels ($\bar{X}$=4.07) compared to the higher star level hotels with attitudes significantly above 4.0 level ranging from 4.21-4.48.

The star level hotels were found indifferent regarding the perceived usefulness (F-value= 1.07, p-value=0.374 >0.05) and ease of use of PMS (F-value= 2.12, p-value=0.083 >0.05). In cased of perceived usefulness of PMS, star-rated hotels were found to have anticipated high level PMS usefulness in the range of 4.23-4.46. Similarly, star-level hotel managers do believe high level ease of PMS use rated in the range of 4.21-4.92.

In general, star-rated hotels' managers were indifferent of their perceived PMS usefulness and perceived ease of using PMS. However, one-star and two star hotels were different in their hotel features and their managers' attitude towards PMS; which were inferior compared to three, four and five-star hotels.

4.4. Descriptive and variance analysis of study variable

The student researcher adopted a standard which is mostly used for interpreting attitudinal data (Anthony M. Wanjohi and Purity S., 2021). According to the standard, for data measured on five points Likert scale items, mean values are interpreted as follows: mean values from 1.0-2.4 (negative/ low attitude), 2.5-3.4 (neutral/moderate attitude) and 3.5-5.0 (positive/high attitude).

4.4.1. Features of hotel and adoption of property management system

The aggregate mean value of hotel features for PMS adopters ($\bar{X}$=4.12) is more than that of non-adopter ($\bar{X}$=3.00). The mean difference = 1.12 was significant (p-value =0.000<0.05) in the interval of 0.82-1.42. More specifically, hotels with property management system in use reported high level ($\bar{X}$=4.12) agreement that their financial capital was high enough compared to the industry average, whereas, non-adopters have only moderate level agreement ($\bar{X}$=3.00). The t-test result with MD =1.06, p-value=0.000< 0.05 indicated significant difference and superior financial status of adopters compared to non-adopters. This indicates that hotels with strong financial status are more likely to adopt PMS than those hotels with weak financial strength.

Table 4.5: Assessment of the features of star rated hotels in Addis Ababa

Hotel features	PMS Adopters (n=60)		PMS Non-Adopters (n=45)		t-test for Equality of Means					
	Mean	Std. Deviation	Mean	Std. Deviation	t-value	Df	p-value	Mean Difference	95% Confidence Interval of the Difference	
The financial capital of our hotel is high compared to the hotel industry in general.	4.12	0.76	3.00	0.77	7.41	103	.000	1.12	0.82	1.42
The human capital of our hotel is high compared to the hotel industry in general.	3.82	0.65	2.80	0.73	7.54	103	.000	1.02	0.75	1.28
The number of rooms in our hotel is high compared to the hotel industry in general.	3.93	0.86	2.71	0.94	6.91	103	.000	1.22	0.87	1.57
The type of facilities in my hotel are high compared to other hotels	4.13	0.83	2.82	0.86	7.87	103	.000	1.31	0.98	1.64
Aggregate value	4.00	0.62	2.83	0.69	9.04	103	.000	1.17	0.91	1.42

*Source**:** Own survey (2024)*

The human capital compared to the hotel industry average was agreed with $\bar{X}$=3.82 by property management system adopters, while non-adopters have moderately low level agreement ($\bar{X}$=2.80). similarly, hotels adopted property management system was found to have met at least the average industry standard with respect to number of rooms (3.93)and availability of facilities ($\bar{X}$=4.13). However, the non-adopters only have moderately low level status in terms of rooms ($\bar{X}$=2.71) and other facilities ($\bar{X}$=2.82). In both cases, the p-values=0.000<0.05 indicated significantly better status of PMS adopters compared to the facilities non-adopters have.

The overall hotel features for PMS adopters was ($\bar{X}$=4.00), which was high, and for non-adopters it was $\bar{X}$=2.83, nearly moderate. The t-test result with p-value =0.000< 0.05 indicated a superior feature in the hotels with property management system.

4.4.2. Managers attitude in the adoption of property management system

Table 4.6: Assessment of hotel manager's attitude towards property management system

Hotel managers' attitude towards PMS	PMS Adopters (n=60)		PMS Non-Adopters (n=45)		t-test for Equality of Means					
	Mean	Std. Deviation	Mean	Std. Deviation	t-value	df	p-value	Mean Difference	95% Confidence Interval of the Difference	
I feel working with property management system is a good idea.	4.17	0.53	3.76	0.65	3.59	103	.001	0.41	0.18	0.64
I feel positive towards the use of property management system	4.63	0.49	3.89	0.75	6.18	103	.000	0.74	0.51	0.98
I believe that property management system simplifies work in our hotel	4.65	0.48	3.98	0.72	5.72	103	.000	0.67	0.44	0.91
I believe that using property management system helps to increase work efficiency in our hotel.	4.13	0.34	3.98	0.58	1.71	103	.090	0.16	-0.02	0.34
I think using PMS in the future is a good idea for me and our hotel.	4.67	0.54	4.04	0.74	4.99	103	.000	0.62	0.37	0.87
For the most part, I support using property management systems.	4.63	0.52	3.91	0.67	6.23	103	.000	0.72	0.49	0.95
I think, I am open to try out new technologies	4.55	0.77	4.04	0.74	3.39	103	.001	0.51	0.21	0.80
Aggregate value	4.49	0.24	3.94	0.44	8.14	103	.000	0.55	0.41	0.68

Source: Own survey (2024)

The attitude of hotel managers was evaluated with seven statements. The aggregate mean value of hotel manager's attitude to adopt PMS for PMS adopters ($\bar{X}$=4.49) was significantly higher (MD=0.55, p-value = 0.000< 0.05) compared to managers from non-adopter hotels ($\bar{X}$=3.94).The results of the t-tests with p-values<0.05, indicated statistically significant difference among adopters and non-adopters hotel managers attitude towards property management system. The average rating by adopters for these statements ranges from 4.17-4.67.

The results indicated that, both adopters and non-adopters have positively high attitude towards PMS. However, the p-value and the confidence interval (CI) for moderate difference (MD) above the range of zero in each statement indicated that hotels adopted PMS have higher level positive attitude towards property management system than the managers from non-adopter hotels.

4.4.3. Usefulness of property management system

Table 4.7: Assessment of the usefulness of property management system

Perceived usefulness of property management system	PMS Adopters (n=60)		PMS Non-Adopters (n=45)		t-test for Equality of Means					
	Mean	Std. Deviation	Mean	Std. Deviation	t-value	df	p-value	Mean Difference	95% Confidence Interval of the Difference	
I believe that property management system makes work go more quickly in our hotel.	4.77	0.50	4.47	0.59	2.82	103	.006	0.30	0.09	0.51
I feel that productivity increases with the use of hotel property management systems in our hotel	4.75	0.54	4.27	0.84	3.59	103	.001	0.48	0.22	0.75
I believe that our hotel improves its decision-making and strategic plan for the future by implementing a property management system.	3.80	0.94	3.84	0.74	-0.26	103	.793	-0.04	-0.38	0.29
I perceive that our hotel performance increases with the adoption of property management systems in our hotel	4.14	0.86	3.96	0.80	1.09	102	.278	0.18	-0.15	0.51
I feel that our hotel's efficiency can be raised by implementing a property management system.	4.60	0.72	4.09	1.06	2.94	103	.004	0.51	0.17	0.86
I believe that using hotel property management systems simplifies tasks in our hotel	4.48	0.81	4.27	0.58	1.52	103	.131	0.22	-0.07	0.50
Aggregate value	4.42	0.38	4.15	0.46	3.33	103	.001	0.27	0.11	0.44

Source: Own survey (2024)

The usefulness of the PMS in hotels was not denied by the adopters and non-adopters. Both groups of hotels were found to have agreed significantly below the moderate level (even above level 4) agreement while voting the usefulness of property management system.

As shown in table 4.8 above, the aggregate mean value for the perceived usefulness of PMS for PMS adopters ($\bar{X}$=4.77) is a bit higher than that of non-adopters ($\bar{X}$=4.47). There was a statistically significant mean difference between PMS-adopters and non-adopters in terms of perceived usefulness (MD=0.24, p-value = 0.000< 0.05).

Item wise, PMS adopter and non-adopter also show difference in the degree of confidence that use of property management system increased productivity, which was rated with $\bar{X}$=4.75 versus the rating by non-adopters with $\bar{X}$=4.27. Improved decision making (M=3.80), increased performance ($\bar{X}$=4.14), and simplified tasks ($\bar{X}$=4.48) were the uses of PMS that non-adopters were also recognized with respective agreements of $\bar{X}$=3.84, $\bar{X}$=3.96, and $\bar{X}$=4.27. Efficiency gain (M=4.60) by property management system adopters, however, were

statistically significant compared to the perception of non-adopters ($\bar{X}$=4.09, p-value=0.001<0.05), although both groups recognized the benefits of property management system.

4.4.4. Ease of using property management system

Table 4.8: Assessment of the ease of using property management system

Ease of use of property management system	PMS Adopters (n=60)		PMS Non-Adopters (n=45)		t-test for Equality of Means					
	Mean	Std. Deviation	Mean	Std. Deviation	t-value	Df	p-value	Mean Difference	95% Confidence Interval of the Difference	
I think it is easy to complete my daily tasks with the Property Management System.	4.67	0.51	4.11	0.53	5.42	103	.000	0.56	0.35	0.76
In my opinion, the property management system is simple to operate and intuitive.	4.65	0.48	4.04	0.52	6.16	103	.000	0.61	0.41	0.80
It is comfortable to use the property management system's features and functionalities.	4.20	1.20	3.89	0.65	1.57	103	.120	0.31	-0.08	0.70
I think learning and using a property management system efficiently takes very little work.	4.38	0.87	3.98	0.58	2.71	103	.008	0.41	0.11	0.70
I perceive that it is easy to quickly adapt the property management system in our hotel operations.	4.63	0.52	3.69	0.60	8.65	103	.000	0.94	0.73	1.16
In my opinion, the property management system is accessible and convenient for carrying out tasks efficiently in our hotel.	4.68	0.47	4.07	0.72	5.31	103	.000	0.62	0.39	0.85
Aggregate value	4.54	0.64	3.96	0.34	5.46	103	.000	0.57	0.36	0.78

*Source**:** Own survey (2024)*

As elucidated in table 4.8 below, the aggregate mean value for the perceived ease of use of PMS for PMS adopters ($\bar{X}$=4.54) is a bit higher than that of non-adopters ($\bar{X}$=3.96). There was a statistically significant mean difference between PMS-adopters and non-adopters in terms of perceived ease of use (MD=0.57, p-value = 0.000< 0.05).

Similarly, both adopters and non-adopters were found to realize the ease of using property management system with high level agreements (p-value<0.05) to the remaining statements in the table. The ease of operating property management system (4.65), its comfort to use ($\bar{X}$=4.20), minimized tasks ($\bar{X}$=4.38), and property management system accessibility to conveniently and efficiently carryout tasks ($\bar{X}$=4.68) were very highly valued by adopters of PMS compared to non-adopters. And the respective assessments by non-adopters were recognized with high level ease of use but to lesser degree.

4.5. Binary (Logistic) regression for property management system adoption

4.5.1. Verifying logistic regression assumptions

Logistic Regression Assumptions were verified as follow:

Assumption 1: the dependent variable should be measured on a dichotomous scale. In this study, the assumption was automatically satisfied as the dependent variable (property management system adoption status of the hotels) was coded either adopters (1) or non-adopters (0).

Assumption 2: have one or more independent variables, which can be either continuous or categorical. In this study, there were eight independent variables all were continuous variables. Hence, the assumption was already satisfied.

Assumption 3: This assumption requires having independence of observations and the dependent variable should have mutually exclusive and exhaustive categories. The observations in this study were obtained from different hotels that operated independently. Thus, the observations cannot be said dependent of one hotel to the other. The dependent variable can be responded either “yes” for PMS adoption, or “no” for not adopting property management system in the hotels. These two responses are the only possible response given by the hotels, and the responses are completely mutually exclusive and non-overlapping.

Assumption 4: There needs to be a linear relationship between any continuous independent variables and the logit transformation of the dependent variable. This was checked by using correlation analyses of Predicted dependent variable (saved as PRE1) with the independent

variables. As shown in table 4.11 below, this main assumption of the binary logistic regression was found to have been satisfied. Hence, the resulting equation will not suffer from the failure of unmet assumption.

Table 4.9: Relationship between the ODDS of property management system adoption and the predictor variables

	HF	MA	PU	**EU**
PRE_1 Predicted probability	.734**	.690**	.344**	.523**
**. Correlation is significant at the 0.01 level (2-tailed).				
*. Correlation is significant at the 0.05 level (2-tailed).				

Source: Own survey (2024)

4.5.2. Results of Binary Logistic Regression

4.5.2.1. Variance Explained

Table 4.10: Regression Model Summary

Model Summary			
Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	58.605a[a]	.0.554	0.744
a. Estimation terminated at iteration number 7 because parameter estimates changed by less than .001.			

Source: Own survey (2024)

The results of the logistic regression, as depicted in the following table, described how much variation in the dependent variable (PMS adoption) can be explained by the model. That is, how much the independent variables impacted the adoption of property management system in the hotels. The amount of variation explained (R^2) was calculated by two methods: the Cox& Snell R Square method identified that 65.9% of the adoption of PMS in hotels was influenced by the independent variables altogether. Whereas, the Nagelkerke R Square, in table below, estimated the explained variation with up to R^2=74.4%. Hence, the explained variation in property management system adoption based on the resulting logistic model was 74.4%.

The -2 Log likelihood measures how poorly the model predicts adoption or non-adoption of PMS. The smaller the value the more preferred the result is. In this analysis, the Initial -2 Log Likelihood was 143.411, and reduced to 58.605 that was a decrease by about 84.806 which indicated significant avoidance of wrong predictions.

4.5.2.2. Categorical Prediction

Table 4.11: Regression results of classification accuracy

Classification Table[a]					
			Predicted		
			Does your hotel have a property management system?		Percentage Correct
Observed			0 No	1 Yes	
Step 1	Does your hotel have a property management system?	0 No	38	7	84.4
		1 Yes	5	55	91.7
	Overall Percentage				88.6
a. The cut value is .500					

Source: Own survey (2024)

The binomial logistic regression estimated the probability of an event (adopting PMS) occurring. The Binomial regression was also used to predict whether cases can be correctly classified (predicted) using the independent variables. Thus, the following classification table was generated to assess the effectiveness of the predicted classification compared to the actual classification. The classification was made using probability of 0.5 as cut value.

The results from the table above included the following results about the logistic model:

- PAC (percentage accuracy in classification) is the cases correctly classified by the model is 88.6% accuracy of predicting adoption (or non-adoption) of PMS in the hotels.
- Sensitivity was the percentage of PMS adopters that were also correctly predicted as PMS adopters. This was 91.7%. That is 55 out of 60 cases of PMS adoption were correctly predicted.

- Specificity was about the percentage accuracy of correctly predicting non-adopters of PMS. This accuracy was 84.4% where 38 out of 45 cases of non-adopters were also correctly predicted as non-adopters in the model.
- The positive predictive value is the percentage of correctly predicted cases with the observed characteristic compared to the total number of cases predicted as having the characteristic. In our case, this is 100 x (55 ÷ (55 + 7)) which is 88.7%. That is, of all cases predicted as PMS adopters, 88.7% were correctly predicted.
- The negative predictive value is the percentage of correctly predicted cases without the observed characteristic compared to the total number of cases predicted as not having the characteristic. In our case, this is 100 x (38 ÷ (38 + 5)) which is 88.4%. That is, of all cases predicted as non-adopters of PMS, 88.4% were correctly predicted.

4.5.2.3. The variables in the equation

The table below presented the variables included in the model, their significance, and contribution of each variable to the model. The Wald statistic along with the respective p-value indicated the statistical significance of the variable included in the equation. A variable with p-value > 0.05 did not add significantly to the model, whereas, p-value below 0.05 level indicated the statistical significance of a variable in the model. From the table below all variables were statistically significant (p-values<0.05) indicating their significant contribution to the model, whereby the probability of PMS adoption can be predicted.

Based on the results in table 4.13, the logistic model (or logit model) that models the odds of adopting PMS in star-rated hotels as a linear combination of the four factors. The logistic regression model using the coefficients of the factor variables, Bs, is represented as follows:

$$ln\left(\frac{P}{1-P}\right) = c + \sum_{1}^{4} biX\, i$$

Where: P= the probability of PMS adoption in star-rated hotels

p/ (1-P) = is the odds of PMS adoption

X_i = represented HF, MA, PU and EU for i=1,2,3,4

b_i = the coefficient for factor variable X_i

c = the constant if all coefficients were zero

Thus, the log likelihood of PMS adoption in star rated hotels shall be represented as:

$$ln\left(\frac{P}{1-P}\right) = -30.98+1.63(HF) +3.69(MA)+ 0.68(PU)+1.62(EU)$$

Table 4.12: Predictor variables in the regression model

Variables in the Equation									
		B	S.E.	Wald	df	P-value.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1[a]	HF	1.63	0.46	12.26	1	0.000	5.08	2.05	12.63
	MA	3.69	1.30	8.08	1	0.004	40.11	3.15	511.34
	PU	0.68	0.96	0.50	1	0.481	1.97	0.30	13.00
	EU	1.62	0.65	6.24	1	0.012	5.07	1.42	18.10
	Constant	-30.98	6.51	22.61	1	0.000	0.00		
a. Variable(s) entered on step 1: HF, MA, PU, EU									

Source: Own survey (2024)

An equivalent formula below calculates the probability of adopting PMS in star-rated hotels.

$$P = \frac{e^{c+\sum_1^4 biXi}}{1+e^{c+\sum_1^4 biXi}} = \frac{e^{-30.98+1.63(HF) +3.69(MA)+ 0.68(PU)+1.62(EU)}}{1+e^{-30.98+1.63(HF) +3.69(MA)+ 0.68(PU)+1.62(EU)}}$$

Where: HF, MA, PU and EU are opinion of hotels' manager in a scale of 1 to 5.

Table 4.13, in addition, provided the contribution of each variable predicting PMS adoption using the model. The respective contribution of variables was indicated with Exp (B) value, based on one unit change in the respective variable while other independent variables were kept constant. A value of Exp (B) above 1 indicated positive contribution of the respective variable in predicting the odds of PMS adoption. While Exp(B) value below 1 indicated a negative impact of the variable. In the table above, values of EXP (B) with respect to each factors were above one, which indicated that all four factors were have direct effect in PMS adoption. That is, the higher the changes in each of the factors will have direct effect in the odds of PMS adoption.

However, there level of impact varies among them. The most contributing factor was management attitude with Beta=3.69 and Exp (B) =40.11. This indicated that, the odds of adopting PMS was found to get improved by at least 40 times as the hotel managers got more positive attitude towards PMS adoption in their hotels.

Hotel feature was the second most explanatory factors with Beta=1.63 and Exp (B) = 5.08. The result implied that the more in the hotels features the more the chance of PMS adoption. Specifically, the odds of adopting PMSin star-rated hotels of Addis Ababa will increased by 5.08 times as the unit improvement in the features available within the hotels..

Furthermore, perceived usefulness of using PMS was also positively affected the adoption of PMS by hotels in Addis Ababa. Perceived usefulness was accounted to improve the chance of adopting PMS in the hotels by 1.97 times.

Additionally, ease of use has caused a statistically significant positive effect on the adoption of PMS by hotels. Perceived ease of use improved the chance of adopting PMS in the hotels by about 5.07 times.

4.6. Summary of Interviewees responses

Interviewees were identified and participated from nine hotels by responding to guiding interview questions. These hotels are purposively selected to represent each star level from both PMS adopter and PMS non-adopter hotels. The hotels from one-star and two-star rated s were Concord hotel and Soramba hotel. These hotels are relatively smaller size with 25 and 87 number of rooms, where the former was not adopted PMS.

Interviewees (the managers) from these hotels expressed the challenges in adopting PMS in their hotels. Generally, both adopters and non-adopters believed the importance of using PMS but there were certain challenges. These interviewees indicated that lack of finance is a major factor for non-adoption of a complete ICT solution such as PMS. These respondents were from lower grade hotels ascertained their lack of financial strength due to high cost of ICT investment and maintenance. Another challenge for small hotels were that, they hotels are

required to employ new staff that has the skills and knowledge to use and administer the system, or provide training for existing staff. This is an additional expense for a small hotel:

The high price of telecommunication service is also another impediment of adopting PMS. The government imposed high tax on imported ICT equipment that makes ICTs unaffordable. Price plays a significant role in the adoption of ICT, and high price acts as a resistance factor for the adoption of ICT.

Despite such challenges, the manager from Soramba hotel believed that it is hard to think hotel service without support by ICT solutions. Moreover, the manager believed that the benefits are higher compared to the associated costs. As a result they have adopted PMS with the basic functionalities. One of the reason that this hotel adopted CENET PMS is that since his hotel reasonably high rooms which helped the hotel in managing their reservations, check-in, check-out as well their food and beverages sales transactions.

Small hotels, like concord hotel, believed that their business does not be affected much in the absence of PMS. They believed to adopt PMS in the future, but the cost-benefit analyses don't urge them to implement PMS immediately. In contrary, hotels such as Harmony hotel (four – star) and Radison blue hotel (five-star) with 100 and 114 room numbers, with variety of features they have and acknowledged that they said to desperately needed PMS system. These hotels believed that they had adequate financial and human resource to utilizer Opera PMS in their hotel operations. Higher star level hotels, including three-star Addis view hotel with only 18 rooms were said to have enough qualified staff to manage the technical parts of the PMS; while the other three-star hotel, Panorama hotel, had a challenge to make the system due to lack of skills employees although they adopted the CENT PMS.As result, this hotel was not effectively use the PMS despite its higher (66) room numbers. .

Higher star-rated hotels (four and five star hotels) believed their PMS are user-friendly that allows front desk staff organize and execute check-in, check-out, billing, and housekeeping tasks. It saved time with core operational processes, which can be quickly operated that doesn't require high level technical expertise. The advantages in PMS were reduced time and errors by automating payment workflows; work with reliable and credible payment partner.

These high star-rated hotels believe that having PMS is a requirement of the government system where their billing system are supposed to be integrated with the revenue authority.

In addition, interviewee from Radison Blue replied that PMS adoption is it corporate policy and strategically necessary to compete in the current hotels industry. Otherwise, there is a risk of losing clients leading to competitive disadvantage. Moreover, harmony hotel believed that having PMS creates a positive image to the hotels.

All the managers interviewed were in favor of application of ICT in general, and PMS in particular to the hotel industry. They all have positive attitude in adopting PMS in their hotels. Moreover, they believed that such systems will not be complex to operate by their businesses after they provided their employees basic training. In terms of the potential benefits, the advantages of PMS were associated with efficiency gains and improved productivity in operating hotels.

4.7. Discussion of Results

This study found that the individual attitudes of hotel's managers towards ICT adoption in the hotels had impacted the adoption of PMS in the star-rated hotels. The result aligns with Rahayu and Day (2015)'s study, which showed that hotelier's individual factors, such as innovativeness, IT experience, and IT ability, play a significant role in adopting technology. The positive effect of manager's attitude on PMS adoption was also supported by various researchers' works. Researchers have pointed out that the general manager's support plays a key role in influencing the adoption of innovative activities in the organizations (Tarhini et al., 2017), as it can be considered as a source of encouragement and motivation for employees. Particularly, individual characteristics of managers are considered to be a determinant factor of IT adoption (Rahayu & Day, 2015). Thus, the positive attitude toward IT can heavily influence the manager's decision to implement IT within a firm (Ozturk & Hancer, 2014; Tarhini et al., 2017). In this study, PMS adopted hotels' managers were found innovative as they have high level agreement to try out new technologies, and positive towards the use of PMS in hotels as the PMS use in the hotels simplifies work and increase work efficiency.

Evidence suggested that the general manager's characteristics, such as IT skills and openness toward change, are relevant in the development of all types of innovation (Jones, Simmons, Packham, Beynon-Davies, & Pickernell, 2014). Ramayah et al. (2016) stated that the deeper the CEO's IT knowledge and innovativeness, the greater the likelihood of website technology continuance. Rahayu and Day (2015) demonstrated that a manager's innovativeness, play a key role in adopting technology.

In this study, PMS adoption was related with size, occupancy rate and star-level of the hotels. Evidence indicates that a firm's propensity to adopt and use ICT is dependent on several factors, some of which are: type (grade) or size of hotel, firm location, age of hotel and scope of activities carried out by the hotel. In the hotel industry, the type (grade) or size of firm be it a budget hotel, guest house, one star or four stars determine its level of adoption of ICT tool (Shadev & Islam, 2005).

In these study small hotels, hotels with lower occupancy rate, and lower star level hotels were found less likely to adopt PMS. This was because the adoption of ICTs requires investment of resources that small hotels may have only scarce resources which in effect hinder them from adopting expensive information and communication technologies (Ghobakhloo, Hong, Sabouri & Zulkifli, 2012). In contrary, large hotels were inclined in the adoption of ICTs, taking potential risk in adopting ICTs. Similar findings in this research also identified that the adoption level of hotels were depended on their star-level. That is, the higher the star-level the more probable the hotels to adopt PMS. The finding was consistent with other scholars' findings.

The hotel features was the second most determining factor influencing PMS adoption. The more the available features in the hotel, the more likely will the hotels to adopt PMS. This result was consistent with the opinion that, luxury hotels which have a wide range of activities will turn to adopt ICT system than hotels with lesser range of activities (Nwakanma et al. 2014). Luxury hotels with high class customers may adopt ICT system in order to meet the demand of their customers and fast track their scope of activities. Generally, PMS adoption was higher in the three-star and above hotels. These category of hotels have different facilities

such as restaurants, spas, conference rooms are more likely to increase their need for property management software.

Other factors that were significantly influenced PMS adoption in star-rated hotels in Addis Ababa were perceived usefulness and perceived ease of use of PMS software. Empirical studies have found that perceived benefits have a significant impact on IT adoption. In fact, considering the benefits induced by IT adoption, most tourism firms, regardless of their size, have adopted and used IT tools in their businesses (Krizaj et al., 2014). Leung et al. (2015) stated that the willingness to adopt IT in hotels is affected by both perceived direct and indirect benefits. Therefore, benefits that hotels' managers perceive are relevant to the decision to adopt PMS solutions. Managers could perceive marketing benefits of using PMS as one of the most powerful promotional tools where, they can improve their image and provide a touch of modernity (Garrido-Moreno, Lockett, & Garcia-Morales, 2015). In addition managers anticipated high level performance improvement through PMS adoption. Melián-González and Bulchand-Gidumal (2016) illustrated how IT can improve employee productivity by reducing personal costs (e.g., online check-in) and making service interactions more available. In addition, hotels may anticipate competitive advantage through PMS adoption. Researchers have considered IT as an enabler to achieve the desired competitive advantages and as an important support for operational and strategic business decisions (Vratskikh, Al-Lozi, & Maqableh, 2016). In fact, ITs help hotels staying connected with their existing and potential customers, maintaining price leadership in the market and differentiating their products and services (Bertan, Bayram, Ozturk, & Benzergil, 2016).

Consistent with the previous findings, the results in this study also revealed that perceived usefulness/benefits had affect the process of PMS adoption in Addis Ababa star-rated hotels. That is, when managers anticipated variety of uses out of PMS, they wert more likely to adopt PMS solutions in their hotels. This result was in line with the findings by Leung et al. (2015), which proved that the willingness to adopt IT in hotels is affected by both perceived direct and perceived indirect benefits. Similarly, anticipating ease of use in PMS solutions will motivate managers to adopt it. Whereas, it is logical that PMS users possess the required level ICT use skills that will be improved through relevant training, which also implied acceptance

of PMS solutions that is the willingness to use PMS system, requires ease of use in the system. That is, ease of use in PMS will lead to the behavioral intension to adopt and use.

CHAPTER-FIVE

5. CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

Based on the research findings, it can be concluded that several factors significantly affected the adoption of property management systems by star-rated hotels in Addis Ababa. The attitudes of managers, features of the hotel, perceived usefulness, and perceived ease of use were all playing crucial roles in influencing the adoption of property management systems in star-rated hotels in Addis Ababa. That is, the probability of adopting PMS was depended on these factors. However, the factors were not found to have similar effect on PMS adoption.

Attitudes of hotel managers towards the adoption of property management systems were found the most crucial factor influencing PMS. Although both PMS adopters and non-adopters have positive attitude towards PMS adoption, the attitude of managers from PMS adopted hotels were much higher. Moreover, star-one and star-two hotels were relatively inferior in considering PMS compared to the managers from higher-star level hotels. Training and education programs focusing on the benefits and functionalities of these systems can help improve managers' attitudes and drive successful adoption within the hotels.

Features of the hotel also play a significant role in influencing the adoption of property management systems by star-rated hotels in Addis Ababa. Hotels that incorporate modern features and amenities aligned with the latest property management systems are more likely to attract guests and enhance their overall operational efficiency. It was found that PMS adopted hotels have higher level hotel features compared to hotels without PMS use. Therefore, it is highly likely that having more features in the hotel required adopting PMS. In this study, higher features are available in PMS adopted hotels.

Perceived usefulness of PMS was found with positive effect in PMS adoption. That is when hotels start to realize the benefits of PMS; they will start to implement PMS in their hotels. Similarly, ease of use features of PMS was also having positive effect on adopting PMS. In

this study, however, the perception of PMS adopted hotels and not-PMS adopted hotels were indifferent in their opinion of perceived usefulness and ease of use of PMS.

These four factors (HF, MA, PU, EU) altogether determine 74.4% of PMS adoption decisions in the hotels; and the logistic regression model using the coefficients in table 4, will have 88.6% accuracy of predicting adoption (or non-adoption) of PMS in the star-rated hotels in Addis Ababa.

In addition to these factors, the hotels with different star-levels were found different in their adoption of PMS. It was found that all five-star hotels have adopted PMS, while the majority of four-star and three-star hotels were also have PMS in use. Relatively fewer proportion of hotels from star-one and star-two hotels have adopted PMS. In general, the higher the star levels the higher the percentage of hotels with PMS.

5.2 Recommendations

PMS adoption in the hotels holds multitude advantages to all stakeholders interacting with the hotels' operation. Use of PMS in the hotels benefits the owners, managers and employees of the hotels. Similarly customers can benefit from such system while searching for services. Government institutions also benefit from hotels' use of PMS to maximize their impact at industry level. Hence, using PMS in the hotels is highly recommended even to small hotels as the opportunities of using PMS outweighs the costs in the implementation and maintenance of systems.

Based on the findings of this study, the researcher suggested the following recommendation to the star-level hotels:

- Features of the hotel: The study found that the hotel features has positive significant effect on PMS adoption. Therefore, hotel managers are recommended prioritize the incorporation of modern features and amenities that align with the latest property management systems to enhance their attractiveness to potential guests.

- Attitudes of managers: Hotel managers should undergo training and education on the benefits and functionalities of property management systems to improve their attitudes towards adoption.
- Perceived usefulness: The study found that perceived usefulness of using PMS positively affected the adoption of PMS by hotels in Addis Ababa. Hence, it is essential for hotels to demonstrate the practical benefits and advantages of property management systems to their staff and stakeholders to increase their perceived usefulness. Demonstrating the practical benefits and advantages of property management systems to employees and stakeholders is crucial for enhancing their perceived usefulness. Clear communication of the system's value proposition can increase acceptance and utilization within the organization.
- Perceived ease of use: The finding of the study indicated that ease of use has caused a statistically significant positive effect on the adoption of PMS by hotels. Based on this, hotel managers are recommended to provide adequate training and support to employees to ensure that they perceive property management systems as easy to use. Providing training and support to employees to ensure they perceive property management systems as easy to use is vital for successful adoption. User-friendly interfaces and comprehensive training programs can facilitate a smooth integration process.

This study provides a measurement model that may be useful for academics and researchers conducting further research into PMS adoption in the hotel industry, specifically in the case of Addis Ababa, Ethiopia. Although the study brought empirical evidence on the factors of PMS adoption in hotels, the study was not without its own limitations. In addition to the factors considered in this study, other external factors are worth included in similar future researches. These factors include: Intensity of competitiveness, Customer pressure, Suppliers pressure, and Government regulations. Additionally, other organizational and technological factors that may impact adoption of PMS could be considered in similar researches. Moreover, the sample was limited to managers' opinion where the participation of other senior employees sharing their experiences and attitudes were also important. Moreover, this study was delimited to star-rated hotels in Addis Ababa, and may not fully applied to the hotel industry outside Addis Ababa,

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Appendix-I: List of star-rated hotels in Addis Ababa (2016 E.C)

No	Name	Star	Rooms	Beds	Tele No	E-mail
1	SheratonAddisHotel	5	294	323	0115171717	reservationsaddisethiopia@luxurycollection.com
2	Capitalhotel &Spa	5	114	114	0930100714 0116672100	sales@capitalhotelandspa.com
3	Elilly Internationalhotel	5	155	163	0115587777 0911202904 0922728318	info@elillyhotel.com/info@elillyhotel.com
4	MarriottExecutive Hotel	5	108	128	0115184600	reservation@marriothotel.com
5	RadissonBlueHotel	5	114	128	0115157400/600 0115544412/13	info.addisababa@radissonblu.com
6	GoldenTulipHotel	5	90	115	0116183333 0116612828	gm@goldentulipaddisababa.com www.goldentulipaddisababa.com
7	GatefamHotel	5	115	130	0116673175 0935402055	info@getfamhotel.com reservation@getfamhotel.com
8	Hyatt Regency Hotel	5	188	200	0115171234	addisababa.regency@hyatt.com
9	Ethiopian Skylight Hotel	5	1024	1094	+251 11681 8181	reservation@ethiopianskylighthotel.com
10	Haile Grand Addis Ababa	5	116	222	+251 116 92 20 56/57/58	book@haileresorts.com
11	Ramada Addis Hotel	4	129	136	0116393939	info@ramadaaddis.com
12	Sapphire Addis Hotel	4	80	104	0116393907/6173710	marketing@sapphireaddishotel.com
13	Mado Hotel	4	50	N/A	N/A	N/A
14	Azzeman Hotel	4	120	144	0911800602	N/A
15	NegaBonger Hotel	4	160	172	0114708100	N/A
16	Best Western Plus Hotel	4	86	98	251116-671414/671130	N/A
17	Magnolia Hotel	4	36	54	011 6393777	
18	Grand Eliana Hotel	4	80	98	0111262600	0911144761
19	Debredamohotel	4	102	102	0115509828 0116612630	reservation@debredamohotel.com
20	DreamlinerHotel	4	96	110	0114674000-7	marketingmanager@dreamlinerhotel.com
21	Friendshiphotel	4	104	104	0116670201 0116670202	marketing@friendshiphotel.com.et
22	HarmonyHotel	4	150	176	0116183100 0116612389	info@harmonyhotelethiopia.com
23	IntercontinentalHotel	4	151	190	0115505066 0115180444	reservation@intercontinentaladdis.com
24	Jupiter Int'l Hotel(kazanchis)	4	12	112	0115527333	info@jupiterinternationalhotel.com
25	Jupiter Int.	4	40	52	0116616969	info@jupiterinternationalhotel.com

	Hotel(Bole)					
26	MomonaHotel	4	60	80	0116672201/07	reservation@momonahotel.com
27	Nazrahotel	4	24	27	0114674465 0114666676	Info@nazra hotel.com
28	Nexushotel	4	66	66	0111112345 01116670067	Info@nexusaddis.com
29	Saromariahotel	4	87	87	01116672167/75	reservation@saromariahotel.com stay@saromarihotel.com
30	SaremInternational Hotel	4	43	62	011262087/0911 518807	reservation@saremhotel.com
31	Washingtonhotel	4	70	85	0911855738 0116392183	info@washingtonaddis.com/reservations@ washingtonaddis.com
32	TegenGuest AccommodationHot el	4	32	64	0116182870 0116182871	info@tegenhotel.cominfo(at)tegenhotel.co m
33	Best Western Premier Dynasty	4	89	N/A	114174 100	reservations@bwpremieraddis.com
34	AYA Addis Hotel	4	120	N/A	251908824444	gm@ayaaadishotel.com
35	Sunland Hotel	3	72	90	0116-674596	N/A
36	Yadamzewud International Hotel	3	72	N/A	011265001/03/04 0111265017/10	N/A
37	Tirar Hotel	3	78	100	0115577150	N/A
38	The Mosaic Hotel	3	37	42	0116671188	N/A
39	AbyssiniaRenaissan ce Hotel	3	39	59	0116292485	info@abyssiniarenaissance.com
40	AddisRegencyHotel	3	33	41	0913141583 0111550000	info@addisregency.com
41	AddisViewHotel	3	18	23	0111249766	addisview@ethionet.et
42	AddissiniaHotel	3	60	60	0911511569 0116623634	info@addissiniahotel.comreservation@addi ssiniahotel.com
43	Aphrodite Hotel	3	52	52	0912502256 0115522228	marketing@aphroditeaddis.com/info@aphr oditeaddis.com
44	AraratHotel	3	94	116	0116461166	info@ararathotelethiopia.com
45	BeerGardenInn	3	32	36	0116182595 0116182591	info@beergardeninn.com
46	Caravanhotel	3	37	37	0911522744 0116612297	caravanhotel@caravanaddis.comwwwcarva naddis.com
47	CrownHotel	3	71	110	0114391430/31/ 44/45/46	Info@crownhoteladdis.com/booking@crow nhoteladdis.com
48	Cyancity hotel	3	40	45	0911207900 0911517901	info@cyancityhoteladdis.com
49	EmbiltaHotel	3	39	49	0112758787/56/ 57, 0922444612 0911219421	info@embilta-hotel.com/embiltahotel@yahoo.com

50	GlobalHotel	3	50	70	0114663906 0114664766	globalhotel@ethionet.et globalhoteladdisababa@gmail.com
51	HiltonAddisAbaba	3	360	400	0115170000 0115518400	reservation.addisababa@hilton.com
52	KalebHotel	3	64	84	0116622200	reservation@kalebhotel.com
53	King'sHotel	3	34	54	0113711300 0911699499	kingshotelethiopia.com
54	Monarchhotel	3	80	80	0116672480/22 0118637107	Info@monarchaddis.com
55	PanoramaHotel	3	65	85	0116616070 0911836692	panoramahotel@ethionet.et
56	Reliancehotel	3	31	38	0116672024 0116672002	info@reliancehotelapartment.com
57	Sidrahotel	3	26	31	0116617777 0116618888	info@sidrahotel.com
58	Seyonathotel	3	40	50	0911237070 0116629746/44	reservation@hotelsiyonat.com
59	Shitaye Suite Hotel	3	22	81	0966884400 / 0966882200	reservation@shitayesuitehotel.com
60	SoloTehotel	3	35	45	0116670021	info@solotehotel.com
61	SouthernAddisHotel	3	38	38	0116610505 0116610515	reservation@southernaddishotel.com
62	The Residencehotel	3	18	21	0115571025 0911503125	info@theresidenceaddis.com
63	TizezHaileHotel	3	44	44	0116392000-2	
65	TopTenhotel	3	48	56	0116464449	gmanager@toptenethiopia.com
66	Umma Hotel	3	33	45	0113728440	request@ummahotels.com
67	WassamarHotel	3	66	71	0116610055/59 0118950489	info@wassamarhotel.com
68	Check Inn Hotel	3	52	N/A	+251 90 75 77 777	INFO@CHECKINNHOTELETHIOPIA.COM
69	Zolainternational hotel	3	24	32	0116733333 0911243966	Hotelzola@yahoo.comZolahotel.net
70	AdotinaHotel	2	32	32	0114674101 0913146431	reservation@adottinahotel.com
71	AstaraHotel	2	45	51	0114160153 0911056912	Astarabusiness.plc@yahoo.comastaraaplc@yahhoo.com
72	Axum Hotel	2	60	72	0116613916	axum.d@ethionet.et/axum.n@ethionet.et
73	ChurchillHotel	2	53	53	0111568648	contactus@churchillhoteladdis.com
74	DamuHotel	2	20	20	0115509828	damuhotel@ethionet.et
75	DesalegneHotel-2	2	28	25	0116624524 0116183030	rooms@desalegnhotel.com/confrence@desalegnhotel.com
76	DessieHotel	2	32	42	0115576609	
77	DestinyAddisHotel	2	33	40	0115521795 0911202904	info@destinyaddis.com
78	EdnaAddisHotel	2	33	37	0115507003	reservation@ednaaddis.com

79	Empire Addis hotel	2	39	39	0116614524	info@empireaddis.com
80	GhionHotel	2	190	298	0115513222 0115510240	info@ghionhotel.com
81	HaimiApartmenthotel	2	28	28	0116181834/37	info@haimihotel.com
82	Homagehotel	2	20	25	0115516341/093 0033910	info@homagehotel.com /reservation@homagehotel.com
83	KZ Hotel	2	32	42	0116611206/7	kzhotel08@yahoo.com
84	Sabon Hotel	2	N/A	30	0116 393 535	N/A
85	KenenisaHotel	2	51	51	0911888468	stay@kenenisahotel.com
86	LobeliaHotel	2	31	35	01116673850/4/5	info@hotell0beliaaddis.com
87	LouveraHotel	2	12	16	011 618 7755	info@louvregrandhotel.com
88	PacificHotel	2	45	55	0116456371	reservation@pacifichotelet.com
89	QueenofSheba	2	32	56	0116615400	Queenshebahotel@ethionet.et
90	RasAmbaHotel	2	25	25	0111228080	N/A
91	SorambaHotel	2	87	87	0111565633	Sorambahotel@ethionet.et
92	TrinityHotel	2	21	27	0911620224	info@trinityaddis.com
93	Ye-Afoli Hotel	2	27	29	0116610203/9898	N/A
94	Blue Nest Hotel	2	37	39	0115570887/8/9/90	N/A
95	Yober Hotel	2	46	54	0116684301/02/03	N/A
96	Foyat Hotel	2	36	44	0116607096	N/A
97	Sheger Royal Hotel	2	27	30	0116392777	N/A
98	Miracl Hotel	2	36	48	0114700885	N/A
99	HeyDay Int'l Hotel	2	44	60	0115577150	N/A
100	Blue Sky Hotel	2	44	60	0116674743	N/A
101	Celest Hotel	2	28	39	0115575881/6610203	N/A
102	Becon Hotel	2	32	36	0114425226	N/A
103	Hera Addis Hotel	2	24	30	0114706109	N/A
104	Tewodros Belay Hotel	2	65	70	0118693060	N/A
105	Denver Hotel	2	32	37	0111263484	N/A
106	Adam'sHotel	1	30	36	0911161316	N/A
107	AG palacehotel	1	19	19	0911405885	agpalacehotel@gmail.com
108	Alexandria hotel	1	16	20	09103857	N/A
109	Atlas Int'lHotel	1	55	58	0116187432	atlashotel@ethionet.et
110	AwrarisHotel	1	23	26	0116614933-35 0116614952	awrarishotel@ethionet.et
111	BaskHotel	1	12	12	0116296000	N/A
112	Bell Vue Hotel	1	35	40	0116676700	N/A
113	Blue BirdHotel	1	44	44	0115528989	N/A
114	Bole Int'l Hotel	1	51	54	0116633840-44	boleinternationalhotel@ethionet.et
115	Ceasar'scourtHotel	1	16	16	0116189600	Ceasars@ethionet.et

116	ConcordHotel	1	25	28	0114654959	hotelconcord@ethionet.et
117	Corta Int'l Hotel	1	27	32	0115538604	rock40@yahoo.com
118	DimetriHotel	1	17	26	0116453307	info@dimetrihotel.com
119	ElisonHotel	1	26	32	0911412423	N/A
120	EmmadApartment Hotel	1	33	333	0116294129	Emmad.fnished@ethionet.et
121	EthiopiaHotel	1	110	151	0115517400 0115510134	ethhotel@ethionet.et
122	Filwuhahotel enterprise	1	57	57	0115519100 0913923535	N/A
123	HaikenHotel	1	104	119	0111567621 0911134882	haikenhotelreservation@gmail.com
124	HarambeHotel	1	48	80	0115514000	N/A
125	Hotelde France	1	14	14	0115547389	hoteldefrance@ethionet.et
126	JovaniHotel	1	18	20	0116187480	N/A
127	LalibelaHotel	1	36	46	0116614917	N/A
128	Lion D enHotel	1	20	20	0115547735	addis@theliondenhotel.com
129	MRHotel	1	12	12	N/A	N/A
130	NardanHotel	1	25	29	0116635831/16	N/A
131	ParamountHotel	1	27	27	0911686970	etparahotel@ethionet.et
132	SemienHotel	1	60	65	0911368219 0111551410	info@semienhotel.comwwwsemienhotel.com
133	SriSaiHotel	1	20	20	0115572747	N/A
134	StayEasyHotel	1	41	41	0116181919	N/A
135	Three Days Hotel	1	30	34	0116612583/82	info@3daysINT hotel.com
136	WabishebleHotel	1	94	133	0115517187	N/A
137	YilmaHotel	1	18	18	0113201269	N/A
138	YolyHotel	1	19	28	0116632828	contact@yolyhotel.com
139	Berlottue Hotel	1	39	45	N/A	N/A
140	C-Fun Addis Hotel	1	28	31	0116672268	N/A
141	Chuchu Hotel	1	30	37	0114661660	N/A

Source: Addis Ababa Culture, Arts & Tourism bureau

Appendix-II: Questionnaire and Interview

Addis Ababa University

College of Development Studies

Center for Environment and Development Studies

MA Program of Tourism Development and Management

Questionnaire to be filled by hotel managers

Dear Participant,

At Addis Ababa University, where I am an MA student, I am studying the variables that affect the adoption of property management system (PMS) by star-rated hotels in Addis Ababa. To that end, I am collecting data and I appreciate you taking part in my research project. Your input is much appreciated as it helps me comprehend the elements affecting the uptake of digital technology in Addis Ababa's star-rated hotels. Kindly respond to the following questions to the best of your knowledge and experience. I will only use all of the information you provide for the study purpose. There will be no disclosure of any kind to a third party. Please be noted that participation in this survey is fully voluntary based. Thank you for sparing some 10-15 minutes of your precious time to participate in this study.

Thank you so much.

Wondrad Debebe

Section 1: Demographic information

Instruction I: Please tick (√) your answer in the bracket below

1. Gender: Male [ ] Female [ ]
2. Age: A.) 20_25 year's B) 26--30 year's C) 31--35 year's D) 36 and above year's
3. Education level: High School [ ] Diploma [ ] BA/BSC] MA/MSC [ ] Other[ ]
4. Your experience in years: Less than 5[ ] 6-10[ ] 11-15[ ] 16-20[ ] 21-25[ ] 26-30[ ]
5. Star category: One star [ ] Two-star [ ] Three-star [ ] Four-star [ ] Five-star [ ]
6. Hotel size (number of rooms)_____
7. Hotel age: _____
8. Ownership and management structure of the hotel:
    - Owned and operated independently [ ]
    - Owned independently, and operated by a franchise agreement [ ]
    - Owned independently, and operated by a management contract [ ]
    - Owned, and operated by chain [ ]

Section II: Items related to factors affecting the adoption of PMS

Instruction II:-The following items indicate Factors Affecting the Adoption of Property Management Systems (PMS) in Star-rated hotels in Addis Ababa. Each item is to be responded by selecting the most appropriate response from the given alternatives scale**.** The ratings scales are abbreviated as, **SA=Strongly Agree, A=Agree, UD=Undecided, D=Disagree, SD-Strongly disagree.** Please respond by marking a tick (√) against the response you think most appropriate.

1	**Feature of the hotel**	**SD**	**D**	**UD**	**A**	**SA**
1.1	The capital of my hotel is high compared to the hotel industry in general.					
1.2	The human capital of our hotel is high compared to the hotel industry in general.					
1.3	The number of rooms in my hotel is high compared to the hotel industry in general.					
1.4	The type of facilities in my hotel are high compared to other hotels					

2	**Attitude**	**SD**	**D**	**UD**	**A**	**SA**
2.1	I feel working with property management system is a good idea.					
2.2	I feel positive towards the use of property management system					
2.3	I believe that property management system simplifies my work					
2.4	I believe that using property management system helps me increase work efficiency.					
2.5	I think using PMS in the future is a good idea for me.					
2.6	For the most part, I support using property management systems.					

3	**Perceived Usefulness**	**SD**	**D**	**UD**	**A**	**SA**
3.1	Property management system makes work go more quickly.					
3.2	Productivity increases with the use of hotel property management systems					
3.3	Your hotel can improve its decision-making and strategic plan for the future by implementing a property management system.					
3.4	Hotel output (work performance) increases with the adoption of property management systems					

3.5	Your hotel's efficiency can be raised by implementing a property management system.					
3.6	The Use of hotel property management systems simplifies tasks					

4	**Perceived ease of use**	**SD**	**D**	**UD**	**A**	**SA**
4.1	I think it easy to complete my daily tasks with the Property Management System.					
4.2	The property management system is, in my opinion, simple to operate and intuitive.					
4.3	It's comfortable to use the property management system's features and functionalities.					
4.4	I think learning and using a property management system efficiently takes very little work.					
4.5	I quickly adapt to using the property management system in my hotel operations.					
4.6	In my opinion, the property management system is accessible and convenient for carrying out tasks efficiently.					

III: Interview questions (selected hotels)

1) Hotel Features:

a) Can you describe the key features of your hotel that set it apart from others in Addis Ababa?

b) How do you ensure that your hotel's features meet the needs and expectations of your guests?

c) What role do you believe the hotel's features play in attracting and retaining customers?

2) Managers' Attitude:

a) How important do you think it is for hotel managers to have a positive attitude towards adopting new technologies, such as property management systems?

b) How do you, as a manager, view the potential benefits of implementing a property management system in your hotel?
c) What challenges do you anticipate in terms of changing attitudes towards adopting new technologies within your hotel?

3) Perceived Usefulness:

a) In your opinion, how useful do you believe a property management system would be for improving the overall efficiency and effectiveness of hotel operations?
b) How do you think a property management system could enhance the guest experience at your hotel?
c) What factors do you consider when evaluating the usefulness of new technologies for your hotel?

4) Ease of Use:

a) How important is ease of use when considering the adoption of a property management system in your hotel?
b) What steps have you taken to ensure that the implementation of new technologies, such as a property management system, is user-friendly for your staff?
c) How do you plan to address any potential challenges related to the ease of use of a property management system during the adoption process?

Any comment?

_____

_____

_____

Thank you very much!

Appendix III: Research Work Activity and Budget

Research Work Activities Schedule 2023-24

Activities	Nov.	Dec.	Jan	Feb.	March	April	May	June	July
Define research topic and objectives									
Conduct literature review									
Develop research methodology and data collection plan									
Collect and analyze data									
Write research findings and discussion									
Revise and finalize research paper									
Submit research paper for review									
Make revisions based on feedback									
Finalize research paper, defend and submit for publication									

Research Budget

To conduct the study with topic Factors Affecting the Adoption of Property Management Systems (PMS) in Star-rated Hotels in Addis Ababa.

Expenses	Amount
1 Personnel:	
• Researcher	30,000.00
• Data Analyst	10,000.00
• Surveyors:	30,000.00
• Administrative Support:	5,000.00
2 Materials and Supplies:	
• Printing and Stationery	8,000.00
• Software Licenses	10,000.00
• Data Storage and Backup	8,000.00
3 Transportation	12,000.00
4 Participant Incentives (Gifts & Entertainments)	20,000.00
5 Equipment:	
• Laptops/ Tablets	35,000.00
• Digital Voice Recorders	10,000.00
6 Data Collection and Analysis:	
• Survey Software Subscription	10,000.00
• Data Analysis Software	18,000.00
7 Miscellaneous Expenses	10,000.00
Total estimated budget	216,000.00 Birr