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Assessing Revenue Managers' Level of Trust in Information Systems: An Exploratory Study of Las Vegas Casino Resorts

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ASSESSING REVENUE MANAGERS' LEVEL OF TRUST IN INFORMATION
SYSTEMS: AN EXPLORATORY STUDY OF LAS VEGAS CASINO RESORTS

by

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Bachelor of Science
Saginaw Valley State University, University Center, MI
2007

A thesis submitted in particular fulfillment
of the requirement for the

Master of Science -- Hotel Administration

**William F. Harrah College of Hotel Administration
The Graduate College**

**University of Nevada, Las Vegas
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THE GRADUATE COLLEGE

We recommend the thesis prepared under our supervision by

Landon Shores

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An Exploratory Study of Las Vegas Casino Resorts**

is approved in partial fulfillment of the requirements for the degree of

Master of Science - Hotel Administration

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ABSTRACT

Assessing Revenue Managers Level of Trust in Information Systems: An Exploratory Study of Las Vegas Casino Resorts

by

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Dr. Mehmet Erdem, Examination Committee Chair
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This study examined revenue managers' level of trust in their revenue management system (RMS) at Las Vegas casino resorts. The study utilized an e-mail interview to measure revenue managers' attitudes about their RMS's degree of reliability and dependability, the degree to which they trust their RMS's pricing recommendations, and if a revenue manager's level of trust in technology had any effect on their likelihood of trusting their RMS.

The study invited 11 property and corporate revenue managers from Las Vegas casino resorts to participate in an e-mail interview, with nine revenue managers agreeing to participate. The main findings of the study related to instances in which the RMS is generally unreliable and when pricing recommendations provided by the RMS are less than optimal. Revenue managers generally find their RMS to be unreliable when there is incorrect labeling of business types, drastic changes in trends, unusual demand due to events and offers, and fluctuation in year to year consumer demand. In addition, the study found that revenue managers tend to override RMS pricing recommendations when the revenue manager has knowledge of a group not filling their block, the system fails to see a large percentage of bookings, pricing opportunity for dates the system isn't aware of

yet, days in which trends don't help, the pricing recommendations seem far off, the system generally over predicting the occupancy result, and no price elasticity.

Key words: Revenue management system (RMS), revenue manager, Las Vegas, casino resorts, demand forecasting, pricing recommendations, decision support systems.

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CHAPTER 1

Introduction

Trust plays a vital role in many Information Systems (IS) enabled situations. In the human context, trust is commonly defined as one party relying or not relying on another because of their characteristics and past behavior (McKnight, Choudhury, & Kacmar, 2002). Similarly, trust in Information Technology (IT) involves accepting the fact that the user is dependent upon the system and that it may or may not complete a desired task (Vance, Elie-dit-Cosaque, & Straub, 2008). Numerous studies have found trust in technology to be a key component of group interaction and commercial relationships, such as in the use of IS (Hoehle, Huff, & Goode 2012). These studies have found trust to exist in two forms; initial trust and knowledge based trust. Initial trust occurs before a user has a chance to test a new technology and is based solely on faith that the technology will work, while knowledge based trust allows the user to use past experiences to make an informed decision about whether or not a person, system or technology produces the desired results (McKnight, Carter, Thatcher, & Clay, 2011). In addition, knowledge based trust is built upon a sturdier foundation and not likely to erode as easily (Robert Jr., Dennis, & Hung, 2009). While many researchers have looked at the role that trust plays in how individuals trust those who input information into the system, few have looked at the role that an individual's level of trust in technology affects their intentions to fully utilize it (McKnight, Carter, Thatcher, & Clay, 2011). To be able to effectively determine what leads an individual to trust a particular technology, it is necessary to determine in what situations they generally place faith in the technology versus situations in which they tend to be leery of the its capabilities, and to what degree.

It has been found that information overload increases recommendation agent (RA) use, indicating that users perceive recommendation agents to be more useful and trustworthy when faced with these scenarios (Aljukhadar, Senecal, & Daoust,2010). However, since RAs imitate human characteristics and interact with users in human-like ways, these studies have measured trust using scales which rely on trust-in-people scales, not trust in technology scales (Francis, 2010). By focusing on what persuades individuals to trust attributes of IS technology, the reasons for IT acceptance and post adoption behavior can be examined.

The degree of vulnerability to IS is related to how much trust the user must place in the system and the risk that they are taking by assuming it will work correctly. For this reason, the study aims to determine why revenue managers place trust in their revenue management systems and in which instances revenue managers generally override system recommendations. If it can be discovered why pricing recommendations are accepted or ignored, then changes could be made to the system to make it more effective and utilized to its full potential. If a technology is found to be generally unreliable, it can be assumed that the user will cease to place trust in it (Vance et al., 2008). For example, an employee must trust that her/his iPhone or Blackberry will successfully deliver e-mails and keep the user interconnected with the rest of her/his organization. If her/his device fails to deliver the level of dependability and support the user desires, then the device will lose the user's trust and its use is often discontinued

Problem Statement

Driving revenue is a top concern of hotel property's IT departments, according to a 2012 study of hotel executives (Erdem, Schrier, Cobanoglu, & Nusair, 2012).

Investment in IT helps hotels streamline processes that support all functional departments. By increasing total investment in a property's IT budget, it can allow hotels to launch themselves ahead of their competition by differentiating capabilities that drive bottom line profits. Of hotel property executives surveyed, 75% said they implemented some sort of revenue management system, but 30% of these executives failed to agree that their property was properly using their revenue management tools (Erdem, Schrier, Coboanoglu, & Nusair, 2012). One of the main keys to driving revenues is investment in revenue management systems. Therefore, it is of the utmost importance that revenue managers trust these systems, which their hotel operators spend substantial capital implementing. Other studies have examined the relation between technology-enabled information system integration (ISI), which is a mechanism for information sharing in an alliance, and partner trust, in the context of how the system's information is used for control and coordination purposes (Nicolaou, Sedatole, & Lankton, 2011). Their findings show that trust is only inhibited when the technology is being used to control or limit the power of the user; trust in technology was found to increase when the information system was used for coordination amongst users. This indicates that the users of technology could be encouraged to adopt the technology if they felt that it expanded their decision making skills; by the system not telling them what to do, but allowing them to share information and make a more informed decision. In a study examining trust on e-commerce and online banking systems, it was found that customers who exhibited continuous trust of the system, as opposed to simply initial trust, were much more likely to continue to fully utilize the technology (Hoehle et al., 2012).

Purpose of the Study

Given the importance of forecast accuracy, and the aforementioned investment and perceived importance in RM systems, the purpose of the study is to explore the IT related beliefs of users of decision support systems. Specifically, the goal of the study is to determine if the factors associated with trust in IT apply to RM systems. In addition, the study seeks to explore why revenue managers opt to override system recommendations and the frequency of occurrences when revenue managers override the system. Various Las Vegas gaming companies which operate casino resorts will be the focus of this study.

Research Questions

- 1: In what instances do revenue managers at casino resorts trust that their RMS is reliable and dependable?
- 2: What are the leading reasons why revenue managers at casino resorts opt to override pricing recommendations provided by their RMS?
- 3: Does an individual's propensity to trust in general technology have an impact on trust in their organization's RMS?

Importance of the Study

The findings of this exploratory study could provide benefits to organizations who utilize revenue management systems and other decision support systems, since the success of their implementation and overall effectiveness are dependent upon decision makers who trust and accept the recommendations of the system. Since firms invest substantial capital in implementing revenue management technologies, understanding the underlying factors which influence decision makers' judgment and trust towards the

information provided by the technology should be a top priority for organizations, and thus, the topic of this research.

Definition of Terms

Artificial Intelligence (AI): Area of computer science dealing with the intelligence of machines and robots (Bahrammirzaee, 2010).

Demand Forecasting: Estimating the quantity of a product or service that consumers will purchase (Anderson & Xie, 2010).

Demand factor: The ratio of demand over capacity for a booking class (McGill & Van Ryzin, 1999).

Decision Support System: Information System (IS) used to assist in decision-making activities (Respi'cio, 2010).

Displacement cost: In revenue management, the opportunity cost of a booking includes all future revenues that may be lost if the booking is accepted (McGill & Van Ryzin, 1999).

Dynamic models: Forecasting models which account for future possible booking decisions in assessing current decisions (McGill & Van Ryzin, 1999).

Information Systems (IS): Interaction of information technology and people's activities that support operations, management, and decision making (McKnight et al., 2011).

Information Technology (IT): Use of computers and telecommunications equipment to store, retrieve, transmit, and manipulate data (McKnight et al., 2011).

IT artifacts: hardware or software that enables tasks (Vance, Elie-di-Cosaque, & Straub, 2008).

Markdown models: determine the right price path for inventory clearance for a given amount of inventory (Quante et al., 2009).

Price Optimization Models: Mathematical programs that calculate how demand varies at different price levels then combines that data with information on costs and inventory levels to recommend prices that will improve profits (Anderson & Xie, 2010).

RevPAR: Revenue per available room, calculated by multiplying a property's average daily room rate by their occupancy rate (Anderson & Xie, 2010).

Revenue Management: Controlling the availability and pricing of goods or services in different market segments, with the goal of maximizing expected revenues or profits (Anderson & Xie, 2010).

Revenue Management System (RMS): Decision support system, such as an Excel spreadsheet, commercial revenue management software, or custom made software used for revenue management decisions at the corporate or property level.

Segment control: A level of room inventory control that accounts for the revenue value of room segments (McGill & Van Ryzin, 1999).

Situational Normality: The view that a system is favorable because it presents a situation which is normal or well-ordered (McKnight et al., 2011).

Structural Assurance: Belief that success is likely because circumstantial conditions like regulations and guarantees are in place (McKnight et al., 2011).

Theory of Planned Behavior (TPB): According to this theory, behavior is caused by a behavioral intention, which is determined by both behavioral attitude, subjective norm and perceived behavioral control (Pavlou & Fygenson, 2006).

Trust: Reflects beliefs that the other party has suitable attributes for performing as expected in a specific situation (McKnight et al., 2011).

Trusting stance: The view that regardless of whether a system is reliable or not, the trustor will obtain better outcomes by dealing with the system as though it were trustworthy (McKnight et al., 2011).

Yield management: Original term used for what is now more commonly called revenue management (McGill & Van Ryzin, 1999).

CHAPTER 2

Literature Review

Overview

Since the purpose of the study is to establish if the factors which cause users to trust IS also apply to revenue management systems, the first section will examine some of the theories as to why individuals are trusting of technology, while others are inherently skeptical of its purported benefits. The subsequent sections explore the ever increasing role that information systems IS and information technology IT have on information enabled situations and the relationship of trust and user cynicism in IS.

Trust in Information Systems

Many studies have found that trust plays a vital role in helping users overcome feelings of risk in the use and acceptance of new technology (Li, Hess, & Valacich, 2008). The influence of trust on a user's intention fully utilize technology has been studied in areas such as e-commerce, online marketplaces and recommendation agents (RAs), which has concluded that in order to understand why an individual decides to fully adopt a new technology, one must first understand the concept of how initial trust in the IS is formed. In general, trust in human relationships is composed of three aspects; competence, integrity, and benevolence (Pavlou & Fygenson, 2006). Competence can be defined as a trustee's ability to perform as expected for the trustor, but in a technology context, this term is most often associated with functionality, meaning that the system has built in features which aid in completing a task. Integrity is the perception of the trustor that the trustee will honor its obligations. Benevolence is the belief that the trustee will not act opportunistically, given the chance. Since the system has no free will to act

outside of its programmed instructions, this term is often used interchangeably with helpfulness, since most IS have some sort of help function built into them (McKnight, Carter, Thatcher, & Clay, 2011).

The Theory of Planned Behavior (TPB) is one of the most influential theories in explaining and predicting behavior, and it has been shown to predict a wide range of behaviors (Pavlou & Fygenson, 2006). According to this theory, behavior is caused by a behavioral intention, which is determined by both behavioral attitude, subjective norm and perceived behavioral control. Behavioral attitude refers to an individual's evaluation of performing a behavior; subjective norm looks at the individual's perception of how others who he/she values as important peers view the specific behavior; perceived behavioral control is an individual's perception of how easy or difficult or easy it would be to carry out an activity. It should be noted that perceived behavioral control differs from behavioral attitude in that perceived behavioral control means a system user exhibits a degree of control over the performance of a behavior, but does not denote that the behavior will produce a given outcome.

In order to place trust in a TPB-based model, it must be defined with respect to a behavior through a specific time frame, action, context or target (Pavlov & Fygenson, 2006). For revenue managers, the target of trust is the revenue management system, the action is accepting or rejecting the price recommendation made by the system, the context is the competitor's price set and the time frame is the window when the pricing recommendation is valid.

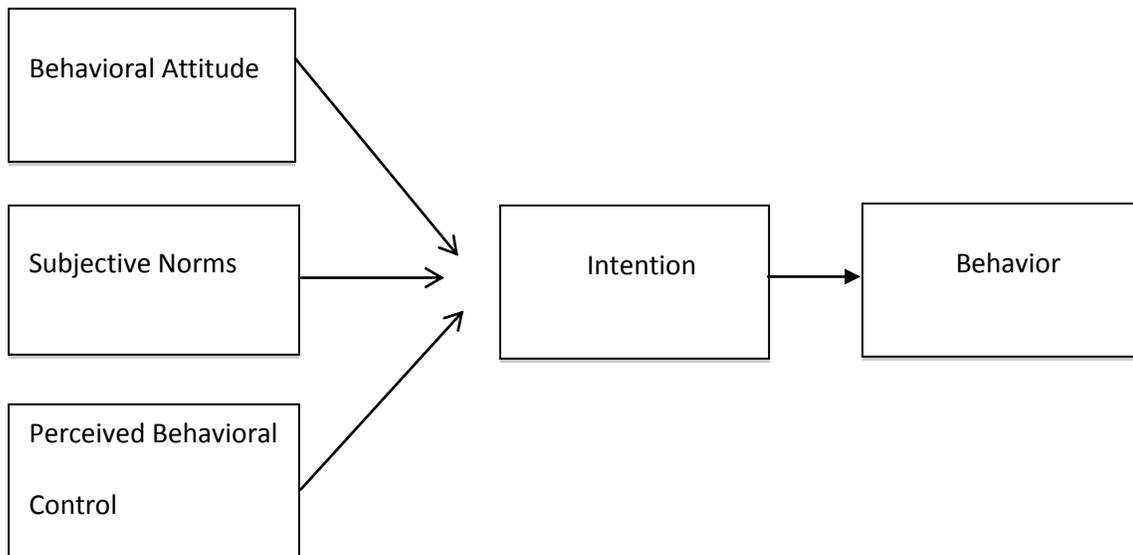


Figure 1. Theory of Planned Behavior. Adapted from “Understanding and Predicting Electronic Commerce Adoption: An Extension of the Theory of Planned Behavior,” by P.A. Pavlou and M. Fygenson, 2006, *MIS Quarterly*, 30, p. 115.

Trust is vital for any information-enabled decision support system, especially revenue management systems, since the revenue managers must make a judgment call on whether a pricing recommendation is valid, credible, and accurate, or inappropriate in a given situation, opting to override the system and go with a gut instinct. Therefore, competence and integrity are the most relevant dimensions for getting information as they reflect the IS ability to provide credible information.

While many researchers focus on trust in IS and decision support systems as it relates to reasons for adopting or using a system, it is just as vital to gain a perspective of trust related to the post-adoption behavior of system users (Thatcher, McKnight, Baker, Arsal, & Roberts, 2011). Included in these behaviors are exploration of an IS or IT system, which infuse these systems into the organization’s culture and contribute to a business’s competitive advantage. Post-adoption systems can be categorized into two groups, routine and infusion. Information systems are considered routine when they are

no longer in the initial stages of implementation and become a regular fixture of an individual's routine, both by choice and by habit. When users engage in routine use of IS, organization's may capture a portion of the benefits offered by the system, but will fail to realize the systems full potential. Infusion is defined as a system user learning to utilize and IS system to its full potential and discovering new means of using IT to enhance work processes.

Another aspect of trust in IS is trust in Recommendations Agents (RAs) and other IT artifacts - hardware or software that enables tasks. While there have been many research studies which focus on trust in RAs, there has been little research in trust in IT artifacts. Of the research done on IT artifacts, it has been found that trust in organizational IS is heavily dependent upon the predictability, reliability and technical utility of the system (Vance, Elie-di-Cosaque, & Straub, 2008). McKnight, Carter, Thatcher and Clay (2011) examine trust in technology as it relates to the IT software artifact, regardless of its functionality. Their research team looked at how trust related to both IT acceptance and post adaption behavior, attempting to answer the questions of what is the nomological network surrounding trust in technology and what is the influence of trust on an individual's post adaption behaviors of technology. They establish two types of trust, initial and knowledge-based. Initial trust is present before an individual has an opportunity to try out a new technology, such as a revenue manager whose firm has just installed a new RMS, such as Rainmaker, without allowing the employees to pilot test it. Knowledge-based trust is established after the trustor has had adequate time and experience to test out the features of a new technology and feels comfortable with its abilities and degree of dependability. Knowledge based trust has a

much more solid foundation than initial trust, due to the repeated exposure and reassurances of the system's functionality for it to develop.

McKnight et al. (2011) created a research model to explain the phases of trust in technology, which leads to postadaption behaviors. The model begins with a propensity to trust, followed by institution-based trust, ultimately leading to a trusting belief in a specific technology. Propensity to trust is built upon two pillars; the first being a trusting stance, meaning that regardless of whether a system is reliable or not, the trustor will obtain better outcomes by dealing with the IS as if it were trustworthy, and the second is a general trust in technology, regardless of its specific purpose and functions. Once an individual has established a propensity to trust technology, they can move onto the next stage, institution based trust, which is founded upon an individual's perception that the environment in which they use their IS has proper safeguards and provides a certain degree of protection. It has been theorized that institution-based trust has a significant affects on both trusting beliefs and trusting intentions.

Information Enabled Situations

Today decision support systems and revenue management systems are crucial factors for the success of businesses in service industries (Guadix, Cortés, Onieva, Muñuzuri, 2010). Over the past few decades, revenue management systems have become utilized in a majority of hotel properties. It has been over 25 years since the first research was published describing revenue management practices in the hotel/lodging industry. In the time since, revenue management practices have evolved and become widespread amongst property operators across the U.S. and world (Anderson & Xie, 2010). This is why it is imperative to determine how property managers can maximize the potential of

these costly revenue management systems. Specifically, integrated casino resorts differ from hotels, in that their room rates are only one aspect of their revenue drivers. While room rates are a vital component of casino resorts total revenue, they must be weighed in comparison to a guest's total revenue potential from gaming, food and beverage and other ancillary expenditures (Bhandari, 2007). Revenue management has become one of the top priorities for hotel and lodging industries throughout the U.S. A 2010 survey representing 16,000 hotels found that 97% of participants stated that cost savings and revenue generating business goals were ranked first as the main drivers for technology initiatives (Erdem, Cobanoglu, Nusair, & Schrier, 2010).

Since driving revenues is a top priority for lodging industry executives, it would make sense that their money go into areas that fundamentally support these goals. If increasing revenues is a top priority for these organizations, they would logically invest substantial money in their revenue management systems. A 2012 lodging study, representing responses from 103 hotel executives, representing 20,693 hotel properties found that 9.3% of total IT dollars for hotel properties are devoted to revenue management systems (Erdem, 2013). The study looked at the mean and median of individual properties and corporate-wide averages, finding that at the corporate level, luxury resorts on average are spending \$3.9 million for their IT budgets, meaning that revenue management systems are costing them approximately \$363,000.

It has been reported that companies can often expect to see a three to eight percent increase in total revenue after implementation of a revenue management system, which translates to a 50 to 100% increase in bottom line profits (Skugge, 2007). Since there is great potential for casino resorts to experience gains such as these, it is imperative that

organizations maximize their systems to their full potential. However, there are many instances in which RMS are underutilized, such as the revenue manager not using the system in the correct manner, the revenue manager trying to get the system to solve a problem it was not designed to, or the system recommendations simply not being trusted by the revenue manager. For revenue management systems to be utilized to their full potential, it is vital that organizations implement performance metrics, which track revenues over long periods of time and allow organizations to detect where the department is weak where educational opportunities are provided. This will also allow organizations to indicate instances where forecast accuracy is less than stellar and promote practices which increase it.

Anderson and Xie (2010) explain that revenue management practices were originally developed for airlines, then later became refined for hotels, but there is still much that needs to be done to perfect these system for revenue managers of hotel/lodging properties. Avinal (2004) expands upon this point by emphasizing that advances in technology and computers will force revenue management system developers to pay close attention to the recommendations of property managers and eventual integrate all revenue management systems with property management systems. However, this is easier said than done, as there are often many obstacles in the way of efficient integration. The importance of linkage between revenue and property management systems is very complex because a singular event in one computer system can have serious effects on another. For example, during the check-out process, a hotel's property management system handles guest check-out, but when the customer checks out, the accounting system handles the money flow. All at the same time, the properties revenue

management system adjusts prices according to current prices, inventory and customer demand. If all three of these systems were to be interlinked and work synergistically, operation efficiency would increase and decrease operating costs.

The ever increasing growth of data collection in finance and revenue management means that employees must be effective in understanding and using data correctly, which will be aided by artificial intelligence (AI) (Zhong, Lou, & Yao., 2007). Since data is the source of human knowledge, revenue managers must be able to fully utilize this data, in order to maximize their revenue management systems. Specifically, revenue managers need to be able to use this data to achieve price optimization for their firms. In addition to achieving price optimization, revenue managers can turn this data into increased revenue by making strategic business decisions which allow firms to attract new customers, retain existing customers, and reduce the cost of doing business.

Just as Zhong et al. (2007) emphasizes the importance of AI in business, Bahrammirzaee (2010) explains that AI has been proven to be far superior to traditional statistical methods in dealing with problems in banking and finance. Bahrammirzaee (2010) explains that artificial neural networks are likely to be the future of revenue management systems for numerous industries, such as airlines, hotels, cruise lines, food and beverage, and the like. This is due to the fact that artificial neural networks are especially useful for decision-making and forecasting, making them ideal for revenue managers. It will be interesting to see how advanced artificial neural networks become, as the line between human judgment and computer analytics becomes increasingly blurred. It is quite amazing when one ponders the evolution of computers and their data processing and analytical abilities; from extremely elementary processing machines, as

they were in the 70s, to the complex abilities of these new artificial neural networks.

Ghazizadeh, Lee, and Boyle (2012) explain how the ever increasing prevalence of technology makes the human–technology relationship an increasingly important part of daily life, particularly due to technology’s automation of many tasks. In many cases, technology fundamentally changes an individual’s role in the workplace, making system performance progressively dependent on the dynamic of the computer/human relationship. Examples include control systems for cars, aircraft automation, algorithms that guide financial transactions as automated technologies that have a daily impact on people’s lives. By carrying out functions previously accomplished by humans, automation becomes a complement to completing tasks and meeting deadlines, but even with this being said, automation rarely substitutes for the human: Automation does not simply replace the person and perform the tasks once performed by the person. Instead, automation changes the task structure, introducing new tasks and responsibilities, such as monitoring the automation and coordinating activities with the automation.

In his study, Owaid (2012) defines and describes the essential components of any artificial intelligence program. First, the system must be able to mimic the behavior of humans. This means that the system must be able to appropriately use abduction, induction, deduction, analogical reasoning, and heuristic search, which are collectively referred to as soft computing. For the program to perform abduction, it must be able to recognize patterns, then have the ability to formulate various hypothesis based on these observations. Since the market scenarios faced by revenue managers may lead the system to generate numerous hypotheses, it must be able to effectively select which hypothesis is the most plausible. This is essential for revenue managers, who have the task of setting

the optimal price for goods and services, based on historical data. Induction means that the system must be able to discover new facts and patterns, based on previous facts and patterns. Deduction refers to the system's ability to reference past rules and applications for problems it has solved, and be able to apply these rules to future circumstances, knowing when to use certain rules for certain problems. Analogical reasoning refers to the system's ability to find relationships between the old system and a new system, in order to effectively solve future, unknown problems in the new system. Heuristic search occurs when the system utilizes a search technique to find the fastest solution to a problem, but not necessarily the optimal decision.

Owaid (2012) further explains that for any AI system to achieve the aforementioned objectives, it must have a solid knowledge-based system as its foundation. The knowledge base is dependent upon the way in which the knowledge is represented, for example, whether the system uses rule based, case based, frame based, or logic forms. Once a knowledge-based system has been created, the developers must create an inference engine and user interface, which are applicable to the knowledge base. This is a major concern in the field of revenue management, since the interface utilized by the system can make it either user friendly, and thus more likely to be fully optimized by the revenue manager, or difficult to communicate with, causing it to be neglected. Therefore, the interface design can be the difference between a revenue manager accepting the recommendation of the system and increasing the firm's profits, or rejecting what the system has to offer, costing the firm large sums of money and limiting the organization's competitive advantage.

A major concern in the field of revenue management is bridging the gap between the technology which is being developed and the revenue management systems which are available for organizations to implement. Due to this fact, Jain (2011) discusses the importance of open communication between AI developers and software engineers who create revenue management systems. Jain discusses the relationship between AI developers and software engineers, describing some of the problems with the communication between the two parties, and then suggesting some ways by which the gap can be bridged. He argues that revenue management system engineers need to actively engage AI developers, so the engineers can voice what their clients are in need of, and AI developers can integrate these needs in the research and development of future AI systems. If each party is willing to actively engage the other, there are limitless potential innovative products for revenue managers.

Trust and User Cynicism

As opposed to the active forms of resistance explored by most researchers, Selander and Hendfridsson (2012) focus on passive resistance. They define passive resistance as routine resistance, which influences the adoption of an IT system on a daily basis and over time. Specifically, the researchers focused on a form of passive resistance known as cynicism, which they define as cognitive distancing resistance. Cynicism promotes a negative attitude towards the IT implementation and questions implementers' reasons for advocating certain technologies. Their definition of passive resistance varies slightly from that of Joseph (2010) who defines it as a postponement of adoption of technology. Selander and Hendfridsson (2012) emphasize the importance of implementers paying close attention to passive forms of resistance, such as cynicism,

because they can have serious long-term detrimental effects on an organization, by creating a ripple effect with other employees.

The researchers set out to uncover the process by which user cynicism is introduced within an organization, as well as how cynicism is related to user resistance in IT implementation. To discover how cynicism emerges, they conducted a three-year longitudinal case study, accessing employees in a call center at an energy firm, which implemented a customer relationship management (CRM). The goal of the research was to discover what the root causes of resistance to the system were and specifically what caused users to exhibit cynicism towards it. To achieve these objectives, they utilized various methods of data collection, such as semi-structured interviews, observing employees at work, analyzing work documentation, and performing informal interviews. In addition, they analyzed data which was collected prior to the implementation of the CRM system and conducted extensive interviews with employees about their views of the company pre-CRM implementation. Their objective was to see if they could establish a stark contrast in the organizations behavioral culture, pre and post CRM implementation, which would allow for a clear perspective of CRM's long term effects.

They confirmed that resistance behavior is typically associated with perceived threats of the system, but also extended previous research on this issue, by including the element of user cynicism into their research model. They argue that user cynicism is a topic which needs to be further studied, particularly in organizations where new technology is introduced, because it explains resistance behaviors that cannot be attributed simply to perceived threats of new technology. They found that while in many instances user cynicism can have a detrimental effect on an organization; it can often be

beneficial to the individual resisting change, by providing a place of solace, where they can escape what they perceive to be incompetent management. Second, their results break with conventional wisdom in the user resistance literature, which typically characterizes passive resistance as something constant over time, discovering that the magnitude and frequency of the level resistance was dependent upon managers' reaction to resistance.

Their research found that every attempt to improve the situation by management was met with more of the same: distancing in various forms. This shows that employees don't need to exhibit active resistance to hurt the organization, as passive resistance was shown to cause a ripple effect with other employees and have detrimental effects on the organization. Their findings are similar to those of Timmons (2003) who observed what he referred to as "resistive compliance" amongst nurses who were adapting to a new IT program.

While Selander and Hendfridsson (2012) explained how and why user cynicism develops in response to technology implementation; they were only concerned with one type of IT implementation, CRM, which may not be applicable to other system types. To address this issue, Jiang and Muhanna (2000) studied reasons for user resistance to technology varies amongst system types; and whether strategies for promoting acceptance are equally effective across varying types. Specifically, the study looked at two types of systems, decision support systems (DSS) and transaction processing systems (TPS). Each system is typically resisted for different reasons, due to the fact that each has a fundamentally different purpose in organizations. Transaction processing systems are more operations oriented, dealing with keeping track of data which is used to assist with more routine questions. On the other hand, decision support systems are more interactive

computer-based systems, which play a pivotal organizational role, by assisting decision-makers in properly utilizing data to solve semi-structured and unstructured problems.

The results of the study suggest that there are differences for the reasons that users resist the implementation of DSS and TPS types. While there were some similarities in the reasons employees resist each system type, such as dissatisfaction with a change in the decision-making approach, there were many stark differences. For example, in the TPS type, loss of status, job insecurity and loss of power were significant reasons why employees resisted the implementation of new technologies, but were not applicable to DSS. This finding was no surprising, as the results were consistent with the literature relating to users' decision making and job content in a TPS. By contrast, in the DSS type, issues relating to power, social status, and job security were viewed by decision-makers as substantial factors.

CHAPTER 3

Methodology

Overview

The study utilized an e-mail interview to investigate revenue managers' level of trust in their revenue management system (RMS) and if the factors associated with trust in Information Systems (IS) relate to trust in RMS. For the purposes of this study, RMS refer to any decision support system, such as an Excel spreadsheet, commercial revenue management software, or custom made software used for revenue management decisions at the corporate or property level. The study population consisted of top level revenue managers at major casino resorts in Las Vegas

Both closed-ended and open-ended questions were used in the e-mail interview to gather qualitative data about revenue managers' trust in their RMS, as well as their level of trust in general technology. Close ended questions were only used to obtain demographic information, to build a professional profile of the participants and for ascertaining the level of agreement with certain statements, via a Likert-scale. Since the purpose of the study is exploratory, the goal was to provide participants with as much opportunity as possible to express their views and opinions related to trust in RMS and technology in general. Thus, open-ended questions were the main tool used to gather information. Open-ended questions allow for many advantages, for both the researcher and research subject, such as the possibility of discovering organic insights and avoiding the bias that may result from suggesting responses to individuals (Reja, Manfreda, Hlebec, & Vehovar, 2003). However, open-ended questions can have disadvantages, such as larger item non-response. Questions in Likert-scale format were adopted from

relevant research literature and introduced during the e-mail interviews to generate additional data.

Validity

It has been reported that researchers are often prone to a strong “pro-innovation” bias when analyzing the results of a qualitative exploratory study and often become an advocate of their research, as opposed to an observer (Leonard-Barton, 1990). To prevent this bias, a third party observer was used to assist in the analysis of the e-mail interview results. In particular, the third party observer was an individual who is familiar with revenue management principles and practices, as well as a scholar who teaches and researchers the subject. It is of the utmost importance to pay close attention to both reliability and validity when analyzing interviews, which include a number of dimensions; construct validity, discriminate validity, internal validity, external validity, and reliability. When considering construct validity, it is important to establish that the interview questions adhere to the following guidelines: establish that predictions regarding relationships to other variables are confirmed, use multiple sources of evidence, determine if one construct can be differentiated from another, and seek a triangulation that will strengthen construct validity. Internal validity is important because it establishes the extent to which certain variables are tied to other variables.

For the purposes of this study, the research looked at the relationship between revenue managers trust in general technology, as it relates to their trust in decision support and revenue management systems. In addition, the research sought to pilot test questions related to participant’s demographic information (age, gender, education level, years of experience at casino resorts, etc.) and their level of trust in their organization’s

revenue management system for future possible research on this subject (Voss, Tsikriktsis, and Frohlich, 2002). When considering external validity, which relates to whether or not a study can be extrapolated beyond the immediate settings, it is important to realize that this study relates specifically to casino resorts, so it may be overzealous to conclude that the responses of revenue managers can apply to all those in the hotel/lodging industry in general, especially those that are non-gaming properties. The study sought to achieve optimal reliability by gathering as many participants as possible at Las Vegas casino resorts, sending out invitations to 11 senior level revenue managers at the corporate and property-level.

Questionnaire Development

A review of the literature was done to develop a set of relevant attributes for the survey. Attributes of revenue managers and IT managers were taken from previous surveys conducted by McKnight, Carter, Thatcher, and Clay (2011) and McKnight, Choudhury, and Kacmar (2002). The questionnaire aimed to effectively capture what revenue managers at casino resorts regarded as e reliable and dependable aspects of their RMS, the effectiveness of pricing recommendations offered by their RMS, the degree to which they trust technology in general, as well as their level of experience in these areas.

Variables

The e-mail interview consisted of two sections, with portions borrowed and modified from the survey of McKnight et al. (2011) and McKnight et al. (2002). The first section used close-ended questions together information pertaining to participants' age, gender, education, experience working at casino resorts, experience working in the hospitality industry, experience in revenue management, and number of years in their

current position. The second section utilized primarily open-ended questions to measure participants' attitudes towards trust in technology, beginning by measuring their trusting beliefs in a specific technology (revenue management system), pertaining to the system's reliability, functionality and helpfulness.

While the original studies from McKnight et al. (2011) and McKnight et al. (2002) used primarily Likert-scale questions to test participants level of agreement with statements about the functionality, helpfulness, and reliability of the MS Access or MS Excel program they used, their survey was adapted to utilize both Likert-scale and open ended questions for the e-mail interview. In addition, the survey was adapted to refer to revenue management systems, which can be off-the-shelf (by vendors), custom made (in-house), or customized by vendor. The opening question of the survey asked revenue managers to use a Likert-scale to rate how effective their company is at utilizing RM technologies. The first portion of open-ended questions in the e-mail interview dealt with Trusting Belief – Specific Technology – Reliability. Reliability suggests one expects a technology to work consistently and predictably, free of glitches, so the section asked participants to answer questions about their revenue management system's degree of reliability and dependability. The second portion, Trusting Belief – Specific Technology – Functionality, focused on whether the revenue managers expected a technology to have the capacity or capability to complete a required task. The third portion, Trusting Belief – Specific Technology – Helpfulness referred to features of the technology itself and the help function, as well as how accurate the decision maker perceives the pricing recommendations to be and how often they override the recommendation made by the system. These three beliefs are vital for understanding users' trust in a specific

technology because they illustrate the opinions that revenue managers have developed through repeated use of their RMS over time.

In addition, the questionnaire included sections which related to Situational Normality – Specific Technology, Faith in General – Specific Technology, Trusting Stance – General Technology. The Situational Normality – Specific Technology asks participants to elaborate on their level of comfort and confidence with their RMS. The Faith in General - Specific Technology asked participants to discuss why they believed their RMS are effective and what they are designed to do, as well as discuss which type of RMS (off-the-shelf, custom made in house, customized by vendor) they felt were effective, versus ineffective. The final portion, Trusting Stance – General Technology asked revenue managers to discuss their initial trust in technology in general, i.e. if they give technology the benefit of the doubt when they first use it. Portions of the questionnaire utilized a five-point Likert-scale to rate participants' agreement with a series of statements related to their level of trust in their organization's revenue management system (1 = Strongly Disagree, 2 = Agree, 3 = Neither Agree nor Disagree, 4 = Agree, 5= Strongly Agree).

Sample

The target population consisted of revenue managers who are at the corporate and property level of major Las Vegas casino resorts. These corporations are known to spend considerable amount of capital investing in state-of-the-art revenue management systems, so their revenue managers are possibly exposed to complex decision support aided situations. In addition, these corporations served as an ideal population to draw from, due to their large customer base, expansive international presence, and years' of experience of

revenue managers who served as the participants. The list of revenue managers' names and e-mail addresses were obtained through contacts within the organization, at both the corporate and property level. No direct reference is made to the participants in order to protect their identity and abide by the confidentiality agreement with the subjects.

Analysis of the Data

Once the e-mail interviews had been completed, they were documented and coded. The most often mentioned disadvantage of open-ended questions is the extensive coding needed before the actual analysis can take place (Reja et al., 2003). Despite these disadvantages, the potential benefits of using open-ended questions outweigh the drawbacks for this study, due to its exploratory nature and the need to pilot test certain questions for future research in this area. Upon completion and collection, the interviews were read thoroughly to allow for the documenting of ideas and insights that arose. The data were analyzed by an independent party to look for key words and phrases, which were coded into categories, following a three step process proposed by Strauss and Corbin (1990). The first step of the process involved open coding, where the data was fragmented by sentences, observations and ideas, regrouped into subcategories, which in turn were grouped as larger categories. Next, axial coding was used to link categories to each other in a rational matter (Rabinovich & Kacen, 2010). Lastly, selective coding was used to select core categories and themes and relate them to other categories. To form an audit trail, to show how the selection of analytical units was created, the word processing tool Microsoft Word's Insert Comment reviewing option was used (Chenail, 2012). This application allowed for the reviewer to highlight fragments of a transcript as small as a letter, but as large as the whole document.

CHAPTER 4

Results

The results include demographic and professional profiles of the participants, as well as sections which detail responses provided for Likert- scale and open-ended questions used in the e-mail interviews. Data is represented in the form of written analysis, tables, charts, and graphs. Each question used in the interview is covered in-depth, in order to provide an thorough review of the opinions expressed by the participants, regarding an array of issues, related to the complex revenue management systems utilized by top casino resorts in Las Vegas. Specifically, the interviews were analyzed to provide answers to the main research questions: 1) In what instances do revenue managers at casino resorts trust that their revenue management system is reliable and dependable?; 2) What are the leading reasons why revenue managers at casino resorts opt to override pricing recommendations provided by their revenue management system?; 3) Does a revenue manager's propensity to trust in general technology have an impact on trust in their organization's revenue management system?

Description of the Participants

Key decision makers in revenue management at Las Vegas casino resorts were included in the study. These individuals were chosen because the study was designed to examine the perceptions of those who use technology to deal with complex capacity management issues. Casino resorts in Las Vegas are known to invest substantial capital in decision support systems and deal with complex revenue management issues, due to the sheer size of the properties. Participants in the study included corporate and property-level decision makers of leading casino resorts in Las Vegas. Of the 11 property and

corporate level RM experts who were invited to participate in the interviews, nine key decision makers accepted the invite and responded to the questions provided via an e-mail interview. The e-mail interviews were conducted between May 24, 2013 and July 3, 2013. In order to document the profile of the participants and pilot some questions for future research studies, a number of demographic and professional background questions were asked. To gain valuable insight into the pros and cons of the RMS utilized at today's top casino resorts, participants were given the opportunity to elaborate on views of their system's strengths, weaknesses, dependability, reliability, forecast accuracy, pricing recommendations and future capabilities.

Demographics

Demographic information was collected for nine key revenue management decision makers interviewed for the study. Information collected included age, gender, education, and professional title. The first question participants in the study were asked was about their age and this information was used to place them in groups based on the multi-generational age descriptions provided in the literature, to pilot test for any future research which may be done relating to these groups and level of trust in technology. These groups included Baby Boomers (1946-1964), Generation X (1965-1979), Generation Y (1980-2000) (Lancaster & Stillman, 2002). As illustrated in Table 1, only one (11.1%) of the participants was in the Generation Y age group. Given the years in experience required to attain the top level decision making positions, this was an expected outcome. The vast majority were in the Generation X demographic, which contained six (66.7%) of the participants. Two of the participants were in the Baby Boomer group (22.2%) and those 68 and over were not represented in the study.

Regarding gender, five (55.6%) of the participants were male and four (44.4%) were female. When asked about their level of education attained education level, six participants reported holding a bachelor's degree (75%), while two (25%) indicated having attained a master's degree. The ninth participant declined to indicate their level of education.

Although each participant was invited to the study due to their expertise in the field of revenue management and their level of responsibility in key revenue management decisions, the majority of participants had unique titles. Only two of the participants held the same professional title, that of a VP of Revenue Management. The other seven included: Corporate VP of Revenue Management and Distribution, Director of Revenue Management, Director of Hotel Operations, Regional Hotel Yield Manager (2), CEO, and former Director of Corporate Strategy and IT.

Table 1

Demographic Profile of Participants

Demographic	Total	%
Age		
18-33	1	11.1
34-48	6	66.7
49-67	2	22.2
68 and over	0	00.0
Gender		
Male	5	55.6
Female	4	44.4
Education		
High School	0	00.0
Some College	0	00.0
Associates Degree	0	00.0
Bachelor's Degree	6	66.7
Master's Degree	2	22.1
Terminal Degree: JD or Ph.D	0	00.0
NA	1	11.1
Title		
Corporate VP of Revenue Management and Distribution	1	11.1
Director of Revenue Management	1	11.1
Regional Hotel Yield Manager	1	11.1
VP of Revenue Management	2	22.1
Director of Strategy and IT	1	11.1
CEO	1	11.1
Director of Hotel Operations	1	11.1
Regional Hotel Yield Manager	1	11.1

Professional experience at a casino resort and experience using a RMS are detailed in Table 2. The participants collectively had 134 years' experience in the casino resort industry. All together they held 75 years of experience is managing or using RMS. All nine of the participants had at least five years' experience working at a casino resort; four had six to 10 years' experience; two had 11 to 15 years; two had 16 to 20; and one

had over 20 years. Regarding participants experience in a management role at a casino resort, two of the participants had five years or less; experience; three had six to 10 years' experience; two had 11 to 15 years, one had 16 to 20 years; one had more than 20 years' experience. When asked about the number of years in their current position, the vast majority (77.8%) stated that they had been in the position less than two years. The remaining 22.2% had held their current position for six to 10 years. While many of the revenue managers had five years or less in their current position, they had far more experience in the role of revenue manager during their careers. Only two of the participants had five years or less experience as a revenue manager; five had six to 10 years; one had 11 to 15 years; one had 16 to 20 years. Not surprisingly, when participants were asked how many years' experience they had using a RMS, their responses mirrored the answers provided when asked how much experience they had as a revenue manager; two had less than five years; five had six to 10 years; one had 11 to 15 years and one had 16 to 20 years; none of the participants had more than 20 years using a RMS.

Table 2

Professional profile of participants

Experience	Total	%
Years at casino resort		
0 to 5	0	00.0
6 to 10	4	44.4
11 to 15	2	22.2
16 to 20	2	22.2
More than 20	1	11.1
Years in management role at casino resort		
0 to 5	2	22.2
6 to 10	3	33.3
11 to 15	2	22.2
16 to 20	1	11.1
More than 20	1	11.1
Years in current position		
0 to 5	7	77.8
6 to 10	2	22.2
11 to 15	0	00.0
16 to 20	0	00.0
More than 20	0	00.0
Years in management position as RM		
0 to 5	2	22.1
6 to 10	5	55.5
11 to 15	1	11.1
16 to 20	1	11.1
More than 20	0	00.0
Number of years using RMS		
0 to 5	2	22.1
6 to 10	5	55.5
11 to 15	1	11.1
16 to 20	1	11.1
More than 20	0	00.0

RMS Effectiveness, Dependability and Capabilities

Participants were offered both open ended and structured questions. These also included the use of a 5-point Likert-scale on a set of statements where they were asked to

indicate their agreement. These questions were adopted from McKnight, Carter, Thatcher, and Clay (2011) and Pavlou and Fygenon (2006), which used validated scales and measurements to assess the perceptions of people towards technology.

When asked to rate their level of agreement with the statement, “My company utilizes revenue management (RM) technologies effectively,” using a five point Likert-scale, four indicated they “Strongly Agree”; three indicated “Agree”; one indicated “Neither Disagree or Agree”; and one indicated “Strongly Disagree” (Table 3). When asked to rate their level of agreement with the statement, “I feel my RMS is dependable”; four indicated they “Strongly Agree”; four indicated they “Agree”; and one indicated they “Neither disagree or agree”. As previously mentioned, several of the questions used in the interview were used in order to pilot test for future research. One such question asked participants to asked to rate their level of agreement with a statement related to Software as a service (SaaS), “I support moving our RM system (as well as other transactions/systems) to a cloud SaaS solution,” the participants were very mixed in their views. Three indicated they “Strongly Agree”; four indicated they “Neither Disagree or Agree”; one indicated they “Disagree”; one indicated they “Strongly Disagree” (Table 3).

Table 3

Opinions of RMS related to effectiveness, dependability and SaaS capabilities

Likert scale	Total	%
My company utilizes revenue management (RM) technologies effectively:		
Strongly Agree	4	44.4
Agree	3	33.3
Neither disagree or agree	1	11.1
Disagree	0	00.0
Strongly Disagree	1	11.1
I feel my RMS is dependable		
Strongly Agree	4	44.4
Agree	4	11.1
Neither disagree or agree	1	11.1
Disagree	0	00.0
Strongly Disagree	0	00.0
I support moving our RM system (as well as other transaction/systems) to a cloud SaaS solution.		
Strongly Agree	3	33.3
Agree	0	00.0
Neither disagree or agree	4	44.4
Disagree	1	11.1
Strongly Disagree	1	11.1

Research Question 1

In what instances do revenue managers at casino resorts trust that their RMS is reliable and dependable?

Perceptions of RMS Reliability

The revenue managers were asked, “Generally speaking, do you feel your revenue / management system (RMS) is reliable? If not, in what instances is the system generally unreliable?” Eight of the nine participants stated that they felt their RMS was reliable, but to varying degrees, depending on several circumstances (Table 4). The general consensus

was that the system is capable of performing the tasks it is designed to do, but needs to be aided by human judgment to be fully effective. It was mentioned that human error can lead the system to be unreliable, in the sense that the revenue manager may be trying to get the system to do something that is was not designed to. As one participant stated, “Our revenue management system is reliable, however it requires great oversight to ensure that the inputs and outputs are accurate. What makes a system generally unreliable is the incorrect labeling of business types from the PMS to the RMS and a lack of system management from the RM team.” Another stated that they felt their revenue management systems were 75% reliable, with the 25% of instances when the system was unreliable being attributed to market conditions that a computer cannot see, feel, or make changes against. This was the consensus amongst others, who stated that unpredictable factors such as drastic changes in trends, unusual demand due to special events, and promotional offers have a detrimental effect on the system’s ability to provide accurate forecasts.

Table 4

Synopsis of comments offered on RMS reliability

Perception of reliability	Total
Found system to be reliable:	
Yes	8
No	1
Situations when unreliable	
Incorrect labeling of business types	
Drastic change in trends	
Unusual demand due to events and offers	
Factors from year to year affecting demand	
RM expecting system to do something not programmed	

Perceived Occurrences of RMS Failure

Since the reliability of any technology is very important to a user's intention to continually use it, the participants were asked, "What about the RMS you currently utilize at your organization? Are there instances in which your RMS fails you?" The responses are detailed in Table 5. Seven of the nine participants stated that there were certain circumstances in which they feel their RMS tends to fail them. The main issue expressed was not system failure, but failure on the part of the revenue manager inputting important data. Since decision makers use RMS to determine their best available rate (BAR) prices and hurdle rates, forecasting can fail when incorrectly assigning data to the wrong business types and failure to assign dates as special events. Specifically, one revenue manager stated concerns over the systems inability to predict short term demand and business levels of competing non-gaming hotels. Another voiced concerns about the system's ability to monitor lengthy periods of time in a short window, since information can only be analyzed once a day. The basic take away was that if the wrong information is loaded into the system to begin with, the system is going to fail to produce accurate forecasts. Another concern that was raised was that for properties receiving new RMS system there was a lack of history the system contained, as well as a lack of information sharing between the RMS and PMS, which renders the system ineffective for the revenue manager.

Table 5

Synopsis of perceived RMS failures

Perceptions of failures	Total
Found instances of RMS failures:	
Yes	7
No	2
Instances of failure	
RM incorrectly assigning data to wrong business types	
RM failing to label certain dates as special events	
A day when no trend can be predicted	
Predicting short term demand	
Tracking competing non-gaming properties	
Monitoring lengthy periods in short window	

Perceived Instances of RMS Malfunctions

The revenue managers were asked, “Does your RMS ever malfunction on you? If so, what instances seem to be the most common?” From the majority of the participants, the consensus was that the system *generally* doesn’t malfunction on them, but in rare instances, it would have certain issues. The only malfunctions reported were with backup issues or the platforms they sit on being down. One stated that on occasion the system would not process overnight results, but that was rare and fixable. Another stated that their company does not utilize a commercial RMS, but rather a spreadsheet, so they never encountered any malfunctions. A synopsis of these views is highlighted in Table 6.

Table 6

Synopsis of opinions on occurrences of RMS malfunction

Perception of malfunctions	Total
Found instances of RMS malfunction	
Yes	5
No	3
Instances of malfunction	
Processing overnight results	
System outages	
Backup issues	
Platform being down	

Perceived RMS Functionality

Participants were asked, “Does your RMS provide the functionality you require to successfully carry out your duties? If not, what functions does it lack?” Three of the participants stated that their RMS provides the functionality they require and does not lack any functions needed to carry out their duties, with no elaboration. Another stated that the system provides the functionality to successfully carry out the duties of the position, but lacked the ability to identify the full value of a customer, as related to the amount of revenue they spend on ancillary revenues. Only one of the participants stated explicitly that the system did not contain the functionality needed, stating, “No it doesn't. I have an owner that wants specific reports that this current system I have been given does not produces, and frankly cannot produce as it doesn't see all of my bookings.” Other concerns with the functionality of the RMS included failure to obtain accurate demand from competing non-gaming hotels (hindering cash rates), failure to maximize statistics on length of stay, difficulties determining actual profit per market segment, and the inability of any commercial RM system to determine price elasticity.

Table 7

Synopsis of desired RMS functionality

Perceptions of functionality	Total
Found RMS to deliver desired functionality:	
Yes	5
No	4
Functionality desired:	
Value of guest based on ancillary revenue	
Ability to see total bookings at property	
Demand from competing non-gaming hotels	
Statistics on length of stay	
Determining actual profit per market segment	
Price elasticity	

Perceptions of RMS Ability to Perform Desired Tasks

Since one of the most important aspects of any piece of technology is whether or not it successfully carries out the tasks it was designed to do (Vance, 2008), the decision makers were asked, “Does your RMS do what you want it to do? If not, what tasks is it unable to complete?” The participants’ responses are detailed in Table 8. Three of the participants stated simply that the system does what they want it to, without providing any elaboration. Three of the revenue managers stated that group displacement was their main concern, with one lamenting, “We are dependent on human interaction for the most part to limit occupancy segments. We also have some limitations in accepting group business after their cutoff date.” The two other revenue managers who shared this concern echoed by stating, “It needs better event handling and group displacement functions,” and “I don’t have the programming to analyze value of groups, including revenue displacement.” The two remaining voiced concerns about their RMS’s ability to collect information from their PMS, stating, “I would like the RMS to be able to receive

from the PMS the total spend of our guest, including ISD, in room entertainment, etc.”

The revenue manager who shared a common concern stated that they are unable to see everything that goes into the PMS, so the RMS doesn’t price effectively.

Table 8

Synopsis of RMS ability to complete desired tasks

<u>Perceptions of competency in desired tasks</u>	
Found RMS to be able to complete desired tasks	
Yes	3
No	6
Tasks unable to complete:	
Receive information from PMS about total spend of a guest	
See all information which goes into the PMS	
Yield individual room types and categories	
Event planning and group displacement functions	
Limit occupancy segments	
Accepting group business after their cutoff date	
Analyze value of groups	
Accepting group business after their cutoff date	

RMS Help Function

In order to gauge how much help is offered in resolving issues with the system, the participants were asked, “Does your RMS provide competence guidance through a help function?” Six of the participants stated that their RMS does provide a help function, with one elaborating that the corporate LMS team provides assistance with issues, as well as the Rainmaker support team, and that both work very well together. Of the three remaining participants, two said there system lacked a help function and one said they were not sure if one was built into the system.

Research Question 2

What are the leading reasons why revenue managers at casino resorts opt to override pricing recommendations provided by their RMS?

Effectiveness of RMS Pricing Recommendations

Due to the vital role that revenue managers play in forecasting and achieving price optimization for their casino resorts, they were asked, “Does your RMS generally provide sensible and effective pricing recommendations? For example, does it almost always accurately predict the room occupancy, or almost never accurately predict the room occupancy?” The consensus amongst all but two of the revenue managers was that their RMS was quite reliable, with two of the participants stating that the pricing recommendations provided were within +/- 3% to 5% accuracy of the optimal pricing point. One of the revenue managers, who agreed that their RMS provided effective pricing recommendations, provided insight as to why the system may fail to provide effective pricing, “The system is quite accurate, however changes in business strategy can significantly impact the room occupancy. For example, a last minute decision to lower prices through opaque channels can increase occupancy, so the system's occupancy forecast will be off. This is not a fault of the system, this is a result of a business decision that the system was not aware of.” The one dissenting revenue manager who stated that the system did not provide sensible pricing recommendations did not elaborate as to why.

Table 9

Synopsis of views of RMS pricing recommendations

Opinions of pricing recommendations	Total
Felt RMS provides sensible and effective pricing recommendations	
Yes	7
No	2
Instances when pricing recommendations are not effective:	
When change in business strategy affects room occupancy	
Low demand with a low booking window	

Frequency of System Override

When asked, “What percentage of the time do you estimate you override the systems pricing recommendations? (Override refers to making modifications and adjustments to the final recommendation provided by the decision support system being used),” the revenue managers expressed a large variation in the frequency in which they overrode the system. Four of the participants stated that they overrode the system 10% of the time or less. Two of the revenue managers were right in the middle, with one expressing an override frequency of 30% the other 50%. One of the revenue managers was at the extreme end of the spectrum, stating that they override the system 90%+ of the time, since the system they use does not include price elasticity and that the RMS price is more of a floor than a median price setting tool.

Occurrences of System Override

When asked, “What are the main reasons you generally override the system’s pricing recommendations?” the consensus amongst three of the revenue managers was that they override the system in instances when room demand is likely to increase for dates when a special event is to occur, which the system isn’t aware of. As one revenue

manager put it, “Pricing opportunity over dates the system isn't aware of yet...meaning demand has not accelerated, but we know of an event that will undoubtedly increase demand and warrant stronger pricing.” The remaining revenue managers all expressed varying reasons why they overrode the system, such as the system not seeing 30% of their bookings, the system over estimating the occupancy result on certain dates, rates become too high too soon, or lack of price elasticity.

Justifications for System Override

When asked, “When you override the system’s final recommendations, what is the main reason (i.e. experience, gut-feeling, discussion with others)? Please elaborate:” Two of the participants stated that they overrode the system based on a gut feel, due to extraneous data the system cannot see. Two expressed that it was based on experience of how the system sets prices based on a mixture of competitor rates, occupancy movement by market segment and current room blocks. One expressed that a decision to override the system was based on a mix of experience and a gut feeling, discussing specific factors which they considered before deciding to override the system’s final recommendation, “Most of my decisions were based on experience and gut feeling. You also have to be aware of how you are positioning your property to your customers. Do you want to be value based? Do you want to favor gamers over non gamers? Do you want to solely maximize revenue?”

Two of the participants offered very insightful information as to how they altered room prices based on market conditions, such a special events. They explained that how the system is generally more conservative with modifying the forecast further out. For example, the system will be less likely to make dramatic changes to the forecast further

out (90-120 days to arrival) when there is a spike in bookings. This is because further out there's greater uncertainty and you don't want your system making wild swings over a handful of bookings. That being said, if they know there is an event or concert and we anticipate the demand to be greater than what's being forecasted, we will override the system. Aside from special events, they also cited weather conditions as a reason to override the system. For example, if it rains the same day in Louisiana, they would drop their rate because they would expect a higher no-show factor.

Table 10

Synopsis of reasons for generally overriding the system's pricing recommendations

Top Reasons for Override
Knowledge of a group not filling their block
It doesn't see a large percentage of bookings
Pricing opportunity over dates the system isn't aware of yet
Days in which trends don't help
Pricing recommendation seems far off
It generally over predicted the occupancy result
No price elasticity
Rates may be too high too soon

Comfort Level Using RMS

The participants were asked asked, “Do you feel completely comfortable using an RMS? If not, why?” Eight of the revenue managers said they were completely comfortable using the system. As illustrated in Table 11, the dissenter was not happy with their revenue management system because it was too slow and cumbersome and didn't allow them to be as proactive as they want.

Table 11

Synopsis of revenue managers' level of comfort with RMS

Opinions offered on comfort level with RMS	Total
Felt comfortable using RMS	
Yes	8
No	1
Reason offered for feeling of discomfort	
System is too slow and cumbersome	

Confidence Level in RMS

When asked, “Do you feel completely confident using an RMS? If not, why?,” eight of the participants expressed that they have confidence in using an RMS. Of the eight who expressed confidence in their RMS, six simply replied, “Yes,” with no elaboration as to why. Two participants elaborated on their confidence in using a RMS, one stated that they had installed RMS at three different properties and felt that being on the ground level of the system’s implementation causes a much higher feeling of confidence in the system, as does having the right manager in place. The other expressed confidence in the system based on the competency of his staff in its effective utilization. The one revenue manager who expressed a lack of confidence in the system explained that they felt the software failed to effectively recommend the correct strategies because there are a lot of variables that change from time to time, which couldn’t be programmed into the system.

Table 12

Synopsis of revenue managers' level of confidence in RMS

Opinions offered on confidence in RMS	Total
Felt confident using RMS	
Yes	8
No	1
Reasons offered for no confidence	
Too many variable which cannot be input into the system	

Effectiveness of RMS Design

When asked, “Based on your use and exposure to existing decision support systems, do you believe that most RMS are effective at what they are designed to do? What types of RMS in particular do you feel are effective versus ineffective?,” six of the participants opted not to answer the first portion of the question, relating to whether or not they feel RMS are effective at what they are designed to do, and focused solely on what type of RMS they prefer. However, three of the study participants did express their feelings on the issue, with one stating, “Only new generation RM systems that are web based and can elaborate different data sources with agility are reliable,” and the another expressing the opinion, “Ones that effectively segment are the ones that are most useful.” The third expressed the opinion that RMS are reliable as long as they are properly configured and maintained, however, in most cases, one or both of those are not achieved.

Regarding the preferred type of RMS, five of the participants said they preferred RMS which were either off the shelf or customized by the vendor; only one said they preferred an in-house custom made. Two study participants elaborated on why vendor RMS are superior to in-house systems, with one explaining, “Vendor RMS systems offer

greater capabilities than a system made in-house (in my experience). The complex math behind the forecast and optimization tool is far greater than what a property could produce within excel,” and another explained, “From personal research, I would prefer a system customized by the vendor. Custom made supports only the market mix specific to that hotel, while an off the shelf is too generic and don't adequately account for gaming revenues.”

The lone revenue manager who stated that a custom made was ideal, expressed reservations about relying solely on the design of the system, stating, “Obviously a custom RMS is ideal because it can suit the specific business needs, however the most important thing is to get the forecast correct. This requires a high level of statistical expertise.”

Research Question 3

Does an individual's propensity to trust in general technology have a positive effect on trust in their organization's RMS?

General level of trust in new technology

Due to the high tech features built into RMS utilized by top casino resorts, participants were asked, “Do you typically trust a new technology until it gives you a reason not to? Why? Why not?” The responses are documented in Table 13: six of the study participants expressed that they typically trust new technology, three expressed distrust. Of those who expressed a general trust in technology, one elaborated that they trust a new technology that has been given positive feedback from industry peers, but was more skeptical of a technology which has never been used before. Another elaborated for their trust in technology, “Yes -- I trust that very smart people working on a problem can

come up with a solution. I will challenge them on their assumptions and try to ‘break’ their system, but that is due diligence more than anything else.” The remaining participants who expressed initial trust in new technology provided reasons such as they were an early adapter of technology by nature and a propensity to keep an open mind. The three participants who stated that they didn’t trust new technology provided three rationale: 1) A need to test the technology to verify its purported benefits and effectiveness; 2) A distrust of claims made by those who had used the product because the information is provided by someone who is biased towards their product; 3) Experience with technologies which have not lived up to their claims Regarding the need to thoroughly test the technology, one participant stated, “I don’t. I prefer to verify stats in a test environment before relying on it in a live situation. I have been through many system upgrades that don’t perform as promised.

Table 13

Synopsis of trust in new technology

Level of trust in new technology	Total
Generally trust new technology	
Yes	6
No	3
Reasons for not trusting new technology	
Needs to be tested thoroughly	
Initial claims are based on biased observers	
Has observed many technologies that don't perform as promised	

Opinions of RMS: Trust vs. Distrust in Technology Groups

When dividing revenue managers into two groups, based on those who expressed a general distrust in technology (Table 14) versus those who expressed a general trust in technology (Table 15), there are some striking differences, but also some unexpected

similarities. Regarding the latter, it was very perplexing to observe that when asked, “Are there instances in which your RMS fails you,” while all three of the revenue managers who expressed distrust in technology stated that there were instances in which this occurred, as expected, four of the six revenue managers who expressed trust in technology also voiced this same sentiment. When asked, “Do you feel your RMS is reliable?” as expected, five out of the six participants who expressed trust in technology stated, “yes.” However, two out of the three revenue managers who expressed distrust in technology also stated the same feeling, which was a bit of a surprise. Again, when asked, “Does your system provide effective pricing recommendations?” five out of the six revenue managers who expressed trust in general technology answered, “yes,” as expected, but so did two out of the three revenue managers who expressed distrust in technology.

Although there were a couple instances in which the opinions of those who trust and distrust technology overlapped in regard to the reliability and dependability of their RMS, there were more instances in which they starkly contrasted one another. When asked to use a Likert-scale to rate their level of agreement with the statement, “I feel my company utilizes RMS technologies effectively,” of the six revenue managers who expressed trust in technology, four said they, “Strongly Agree,” while two said they, “Agree.” Support was much less robust in the group of revenue managers in the distrust group; one responded, “Agree,” one responded, “Neither Agree or Disagree,” and one indicated, “Strongly Disagree.” There was also a divide on the issue of dependability of RMS. Using the same Likert-scale, when asked to rate their level of agreement with the statement, “I feel my RMS is dependable,” four of the six in the trust group said they,

“Strong Agree,” with the remaining two stating they, “Agree.” In the distrust group, two stated they “Agree” and one stated “Neither Agree or Disagree.” The remaining three questions exhibited a much higher degree of variance than the aforementioned and yielded very interesting results. When asked, “Does your RMS provide the functionality you require?” four of the six in the trust group answered “Yes” and two answered “No,” while all three in the distrust group answered a definitive, “No.” When asked, “Do you feel completely comfortable using an RMS?” all six in the trust group answered “Yes,” while in the distrust group only one answered “Yes,” one answered “No,” and one declined to answer. Once again, when asked, “Do you feel completely comfortable using an RMS?” all six in the trust group answered “Yes,” while two in the distrust group answered “Yes” and one answered “No.”

Table 14

Synopsis of revenue managers who expressed distrust in technology

General views on RMS reliability, dependability and effectiveness	Total
My company utilizes our RMS effectively:	
Strongly Agree	0
Agree	1
Neither Agree or Disagree	1
Disagree	0
Strongly Disagree	1
I feel my RMS is dependable:	
Strongly Agree	0
Agree	2
Neither Agree or Disagree	1
Disagree	0
Strongly Disagree	0
Do you feel your RMS is reliable?	
Yes	2
No	1
Are there instances in which your RMS fails you?	
Yes	3
No	0
Does your RMS provide the functionality you require?	
Yes	0
No	3
Does your RMS do what you want it to?	
Yes	0
No	3
Does your system provide effective pricing?	
Yes	2
No	1
Do you feel completely comfortable using an RMS?	
Yes	1
No	1
NA	1
Do you feel completely confident using an RMS?	
Yes	2
No	1

Table 15

Synopsis of revenue managers who expressed trust in technology

General views on RMS reliability, dependability and effectiveness	Total
My company utilizes our RMS effectively:	
Strongly Agree	4
Agree	2
Neither Agree or Disagree	0
Disagree	0
Strongly Disagree	0
I feel my RMS is dependable:	
Strongly Agree	4
Agree	2
Neither Agree or Disagree	1
Disagree	0
Strongly Disagree	0
Do you feel your RMS is reliable?	
Yes	5
No	1
Are there instances in which your RMS fails you?	
Yes	4
No	2
Does your RMS provide the functionality you require?	
Yes	4
No	2
Does your RMS do what you want it to?	
Yes	3
No	3
Does your system provide effective pricing?	
Yes	5
No	1
Do you feel completely comfortable using an RMS?	
Yes	6
No	0
Do you feel completely confident using an RMS?	
Yes	6
No	0

Reoccurring Themes and Concepts

As illustrated in Table 16, Table 17 and Table 18, the revenue managers provided a wealth of insight into the three research questions posed in this study. The open-ended questions in the e-mail interview allowed the revenue managers to express without restraint how they feel about several important issues facing practitioners in the field of revenue management today; reliability and dependability of commercial and in-house RMS; situations in which pricing recommendations offered by the RMS are less than optimal; how trust in technology affects a revenue managers ability to perform the duties of their job.

Table 16

Themes and concepts expressed by revenue managers related to Research Question 1

R1: In what instances do revenue managers at casino resorts generally find RMS to be reliable

Factors Negatively Affecting Reliability

- Incorrect labeling of business types
- Drastic changes in trends
- Unusual demand due to events and offers
- Fluctuation in year to year consumer demand
- RM expecting system to do something not programmed to

Occurrences of Failure

- RM incorrectly assigning data to wrong business types
- RM failing to label certain dates as special events
- A day when no trend can be predicted
- Predicting short term demand
- Tracking business levels of competing non-gaming properties
- Monitoring lengthy periods in short window

Occurrences of Malfunction

- Processing overnight results
- System outages
- Backup issues
- Platform being down

Functionality Desired

- Determine value of guest based on ancillary revenue
- Ability to see total bookings at property
- Determine demand from competing non-gaming hotels
- See statistics on length of stay
- Determine actual profit per market segment
- Determine price elasticity

Tasks Desired

- Receive information from PMS about total spend of a guest
-

Table 17

Themes and concepts expressed by revenue managers related to Research Question 2

R2: In what instances do revenue managers at casino resorts override RMS pricing recommendations?

Instances of Ineffective Pricing Recommendations

- When change in business strategy affects room occupancy
- Low demand with a low booking window

Reasons for Overriding System Recommendations

- Knowledge of a group not filling their block
- It doesn't see a large percentage of bookings
- Pricing opportunity over dates the system isn't aware of yet
- Days in which trends don't help
- Pricing recommendation seems far off
- System generally over predicted occupancy result
- No price elasticity
- Rates may be too high too soon

Table 18

Themes and concepts expressed by revenue managers related to Research Question 3

R3: Does a revenue managers propensity to trust general technology have a positive effect on trust in their organization's RMS?

Reasons for not trusting new technology

- Needs to be tested thoroughly
- Initial claims are based on biased observers
- Has observed many technologies that don't perform as promised

CHAPTER 5

Discussion

The study set out to gain insight into how property and corporate level revenue managers at the top casino resorts in Las Vegas viewed the effectiveness of their revenue management systems. In addition, it attempted to make links between certain demographic characteristics, such as age, education level, and professional title related to their general trust in technology and their general view of their revenue management systems. The study employed an array of open-ended questions in an online format to gather participants' thoughts and opinions, related to their revenue management system. The study provided some key patterns and themes as to the pros and cons of complex revenue management systems at some of the largest casino resorts in Las Vegas.

Key Findings

It was great to see that the study population was almost equally composed of both males and females. It would be interesting to see if this is a trend for those who hold revenue management titles at casino resorts in Las Vegas or merely a random occurrence in this study. If it were a trend it would be interesting to see which properties adhered to the trend and which hired more females or males. It would be interesting to see how casinos who had predominately more males or female compared in their pricing strategies to one another and to those who hired an even mix of males and females. This analysis could lead to other research, which looked and how male and female revenue managers differed in their strategies for maximizing the efficiencies of their revenue management systems and how often each group overrode system recommendations, based on intuition.

Regarding education, it can be seen that 66.7% of the participants received a bachelor's degree, while 22.2% had received a master's degree. A study conducted by Beck, Knutson, Cha and Kim (2011) of revenue managers at Marriot, Hyatt, Hilton across the U.S., as well as members of the Hospitality Sales and Marketing Association International's (HSMIAI) found 59.2% of participants held a bachelor's degree, while only 8.6% held a graduate degree or higher. Given the discrepancy in education level amongst revenue managers interviewed for this study and those of the aforementioned study, it would be interesting to examine if revenue managers who are employed by casino resorts in Las Vegas tend to have a higher education than their counterparts in other areas of the country.

When looking at the professional backgrounds of the participants, one of the most surprising findings of the study was the amount of diversity in the professional titles held by participants: two VPs of Revenue Management, one Corporate VP of Revenue Management and Distribution, one Director of Revenue Management, one Hotel Yield Manager, a Founder of a Company, one CEO and one Director of Hotel Operations and one Regional Hotel Yield Manager. It was very pleasing to see the amount of experience that each revenue manager had in their profession and with their level of experience at a casino resort. Since all of the participants had at least six to ten years' experience at a casino resort, and over three fourths had at least six to 10 years' experience using a revenue management system and serving in a management role, it was very reassuring that the results had significance, as the participants vast experience gives merit to their views and opinions of the reliability, dependability and effectiveness of their systems. It was very surprising to see that the range of experience at a casino resort when from seven

years all the way up to 35 years because it allows for varying perspectives on the effectiveness of a RMS, since the latter would have started their career in the hospitality industry without the luxury of the latest analytical tools in assisting with forecasting and setting prices. On the other hand, those with less experience in the casino industry would have always used a RMS, so they would not know the advantages/disadvantages of past methods of price setting, compared with those generated by complex pricing algorithms used by today systems.

When asked to rate their level of agreement with the statement, “My company utilizes revenue management (RM) technologies effectively, two of the nine participants indicated that they either “Neither Agree or Disagree” or that they “Strongly Disagree.” This is very interesting because one would think that a revenue manager would have a general level of trust in the way their organizations utilized revenue management system, or would suggest solutions to change the practices of how revenue management tools are used at their property. It could be the case that suggestions have been provided by the revenue managers, but they have been ignored by upper management. However, the majority of the participants were in management positions, so one would think there opinions would carry a certain amount clout.

For the following statement, “I feel my RMS is dependable,” it was very interesting to see that eight of the nine participants indicated that they “Strongly Agree,” or “Agree” with the statement; with only one indicating that they “Neither Agree or Disagree” with the statement. From the responses of the first two questions, this would indicate that the vast majority of revenue managers surveyed feel as if their system is

effective at what it is designed to do, but that the organizations sometimes utilize these tools in ineffective manners, at least in the eyes of their revenue managers.

It seemed that participants were very unsure of the purported benefits of moving their RM system to a cloud SaaS solution, or they were unsure of what exactly an SaaS was. While three of the participants answered that they, “Strongly Agree,” with the statement, four indicated that they “Neither Disagree nor Agree with the Statement,” indicating that there was no feeling one way or another regarding the issue. Since one participant indicated that they “Disagree” and another “Strong Disagree” with the statement, it is obvious that there were polar opinions on the issue. Since eight of the participants indicated that they “Strongly Agree” that their RMS was dependable, it was not surprising that when they were asked if their system was reliable, the same amount indicated that they felt it was. Many of the participants may have not been able to differentiate between the term “reliable” and “dependable,” so more clarification could have been made, as the two terms are very similar in meaning. The reasons which were given for why the system was generally unreliable in certain instances fell in three distinct categories; the first related to unpredictable demand, with issues such as drastic changes in trends, unusual demand due to events and offers, and factors from year to year affecting consumer demand; the second being incorrect labeling of business types; the third being error on the side of the revenue manager expecting the system to do something it was not programmed to do.

When asked about perceived RMS failures, many of the participants echoed the sentiments they expressed when asked if their system was generally reliable. It was very interesting that eight participants indicated that they felt their system was reliable, but

when asked if their system ever fails them, seven indicated that it in fact did, and they gave very specific, in depth examples of when these instances. This would seem to indicate that the instances of failure were very familiar to the majority of participants. Among the reasons offered were failure to label certain dates as special events, tracking short term demand, tracking the business of competing non-gaming properties, and monitoring long term demand in a short window, and RM incorrectly assigning data to wrong business types. It was interesting to see that the themes of the RMS failing to mark special events, assign data to the wrong business types and tracking demand were reoccurring themes expressed as issues by the revenue managers, so further research should go into seeing how these issues could possibly be addressed with new features in commercial and in house RMS. When participants were asked if there system every malfunction on them, meaning that the system was unable to function as it normally should, five of the participants indicated there were instances in which this occurred. The list of the occurrences were rather short, and included failure to process overnight results, system outages, backup issues, and platforms which the system rests up being down. The latter three are issues which can be experienced by any system or software, so were not surprising.

While reliability and dependability of the system measure how good the system is at what it is designed to do, asking the participants about desired functionality allows the participants to elaborate about what they believe the system needs to be able to accomplish, but currently does not possess the ability to do so. It was very intriguing to see the range of responses to this question, indicating that RMS developers have a lot of potential to improve their systems and make revenue management a more exact science.

If RMS developers are aware of the shortcoming over the current systems offered on the market, this gives them a competitive advantage in the marketplace. According to the participants, revenue managers should look at including features in their system which determine the value of guest based on ancillary revenue, ability to see total bookings at the property, track statistics on the length of stay, measure demand from competing non-gaming hotels, determine actual profit per market segment, and measure price elasticity. It is shocking that developers have not already included these features in their systems, but it is likely the case that some include them, while others do not, so the list is composed of the shortcomings of several systems, with including the aforementioned features and others not. The follow up question to, “Does your RMS provide the functionality you require?” was a related question which was “Does your RMS do what you want it to?” Since the vast majority of the participants (six) reported that the system did *not* do what they wanted to, this again indicates that system developers have a lot of potential to survey revenue managers in the casino resort industry and see how they can do a much better job of tailoring their systems to the needs of professionals in the industry. The issues expressed in response to this question shared some overlap with the previous question, such as a desire to receive information from property management system about the total spend of a guest and see all the information which goes into the property management system, such as total bookings, but there also additional issues expressed, such as the desired ability to view individual room types and categories, event planning and group displacement functions, ability to limit occupancy segments, accept group business after their cutoff date and analyze value of groups.

While the revenue managers surveyed expressed issues with the systems overall functionality and ability to perform the tasks they desire, when it comes to the most important aspect of the system, its ability to provide effective pricing recommendations, all but two of the participants expressed positive opinions about the system's abilities. The only two issues which were listed as shortcomings of RMS pricing abilities were its ineffectiveness to account for when changes in business strategy affects room occupancy and when there is low demand with a low booking window. These findings seem a bit odd; one would think that if the revenue managers offered a laundry list of shortcomings with the system and an extensive list of features they would like to see built in, that this would mean they don't believe the system is generally effective at producing an optimal price point. The question begs to be answered, if the majority of participants believe the system is effective at producing desired pricing outcomes, then why change anything? It may just be that the systems seems to provide effective pricing solutions because it is all the revenue managers know; meaning that they haven't got to test systems which include the features they desire, so they don't know how much better the system would be if it included such features. While seven of the participants indicated that the system generally provides effective pricing recommendations, this doesn't mean that the system is without some shortcomings, as expressed by responses in previous questions. This was highlighted in the question that asked what the main reasons participants generally overrode their system's pricing recommendations. There many reasons offered, which included knowledge of a group not filling their block, the system not seeing a large percentage of bookings, pricing opportunity over dates the system isn't aware of yet, days in which trends don't help, the pricing recommendations seem far off, the system

generally over predicted the occupancy result, and no price elasticity. The participants didn't elaborate as to the likelihood of such occurrences, so too much should not be read into these responses. It could be that such instances of system override are few and far between.

While the first two research questions the study set out to answer related the degree to which participants found their RMS to be dependable and reliable, and the second related to whether or not participants felt their system offered effective pricing recommendations, the third related to whether or not the participants level of trust in general technology related to an increased propensity to trust recommendations made by their RMS. Of the nine participants, three expressed that they generally don't trust new technologies. An analysis was done to look specifically at these individuals and see if there lack of trust in technology would have an effect on their general view of their RMS. When these individuals were asked about their opinions on the dependability of their RMS using a Likert-scale, two "Agree" and one "Neither Agree or Disagree" with the statement, "I feel my RMS is dependable." When asked if they felt completely comfortable using an RMS, one said yes, one said no and one declined to answer. When asked if they were completely confident using an RMS two said yes and one said no.

At first glance, these responses may seem to be counterintuitive for individuals who express distrust in technology, but as will be seen when analyzing the participants reasons for not having faith in technology, it is based on a lack of using the technology, meaning a lack of initial trust. Even though a revenue manager may have an initial skepticism of a RMS, after familiarizing themselves with its features, one will develop knowledge based trust if the system consistently offers the results it promises, as

discussed in previous sections. Following this line of reasoning, it makes sense that when this group was asked if they found their system to be reliable, two said yes and one said no. This is not to say that these revenue managers found their systems to be flawless, as all three indicated that there were instances in which their RMS failed them. This point is even further illustrated by the point that all three indicated that their RMS did not provide the functionality they required; in a related question, all three also indicated that their system did not do what they desired. Just as with the rest of the participants, there was a seeming contradiction between the responses to these questions and the perception of the system's ability to provide effective pricing recommendations, as two out of three expressed that their system did in fact offer useful pricing. When asked when, and if, they override the system's pricing recommendations, what the main reasons were, the answers included that the system didn't see up to 30% of the bookings in the system, as well as that the system over predicted the occupancy result. The participants elaborated that when they overrode the system in these instances, it was preceded by a combination of gut feeling, experience and discussion with others. One of the main indicators that these participants may not be very tech friendly or savvy related to their responses to a Likert scale question which related to moving their system to a cloud SaaS based solution. Since two of the revenue managers expressed that they "Neither Agree or Disagree" and one stated they "Strongly Disagree" with the statement that "I support moving out RMS to a cloud SaaS based solution." Since they were not allowed to elaborate on the question, it could mean that they genuinely are opposed to such a measure or simply were not familiar with the capabilities of utilizing their RMS on the cloud. When asked if they

would prefer to move their RMS from a mobile application, one said yes and would fail to provide a definitive yes or no.

Implications

Since this study was exploratory study which utilized an e-mail interview with primarily open-ended questions, the results will hopefully lead to many other studies. Specifically, much knowledge could be added to the field of revenue management in researchers were to take the main findings of this study; why revenue managers find their RMS to be reliable and dependable and in what situations revenue managers tend to override pricing recommendations provided by their RMS; and turn them into quantitative studies. This would allow researchers to target a much larger study population, for instance, revenue managers at a hotel chain such as Marriott or Hilton, or members of an organization such as HSMIAI, and be able to find results that were much more general.

Limitations

It has been noted that one of the biggest hurdles in conducting qualitative data analysis is deciding on what piece of the data constitutes a meaningful unit to analyze (Chenail, 2012). By this definition, when conducting a qualitative data analysis, a unit would be defined as a single entity upon which you direct your analysis and express the qualities you perceive in that element. Unfortunately, data does not come conveniently placed in neat little units, which leads to the question of just how do qualitative data analysts successfully select which data units to analyze.

One means of overcoming the difficulties in analyzing qualitative data, which many researchers have used, is to write out their data in the form of transcripts, field

notes, or some other textual source in a line-by-line manner (Chenail, 2012). While this method of using a line-by-line analysis to find common themes patterns may seem like a fool proof method of analyzing data, it all too often approaching lines of a text as prospective units of analysis leads researchers to over- and under-sizing their units to be analyzed. This could lead to misidentifying meaningful qualitative elements to analyze. This problematic outcome can arise because in the analysis of textual material, the number of words portrayed in a line has more to do with margins, justification, and font size than setting forth significant qualitative elements to be studied for their qualities or essential features. In other words, a line of text might not constitute a suitable, undivided entity or whole to analyze qualitatively.

Aside from the means of analysis of the data, the study also contained other limitations, mainly with the population being studied. Given the small sample size of only 9 participants, it is difficult to say that the results of the study could be generalized to revenue managers at casino resorts as a whole. In addition, since the study focused on Las Vegas properties, which has a higher concentration of casino resorts than any other city in the U.S., the factors which affect supply and demand could be different than in other cities which have casino properties. Since this was an exploratory study, further research needs to be done to see if the issues discussed by revenue managers for this study are shared by revenue managers across the industry.

APPENDIX 1
Interview Questions

Table 1

Demographic Information

1. What is your current age? _____
2. What is your gender?
 - A. Male
 - B. Female
 - C. Prefer not to indicate or N/A
3. What is your highest level of education?
 - A. High School
 - B. Some College
 - C. Associate's Degree
 - D. Bachelor's Degree
 - E. Master's Degree
 - F. Terminal Degree: J.D. or Ph.D.
4. What is your current position title?
5. How many years do you have working in a casino resort or similar operation?
6. How many years have you been in a management role at a casino resort?
7. How many years have you been at your current position?
8. How many years have you been in a management role related to revenue management?
9. How many years have you been using a revenue management system or similar decision support system?

Survey Questionnaire

PLEASE READ CAREFULLY:

*For the purposes of this study, *revenue management systems* refer to any decision support system, such as an Excel spreadsheet, commercial revenue management software, or custom made software used for revenue management decisions at the corporate or property level.

Questions asking participants to rate their level of agreement with a statement correspond to the following scale:

1 = Strongly disagree; 2 = Disagree; 3=Neither disagree or agree; 4 = Agree; 5 = Strongly Agree

Q1: My company utilizes revenue management (RM) technologies effectively:

1 2 3 4 5

Trusting Belief - Specific Technology - Reliability (Adapted from McKnight, Carter, Thatcher, and Clay, 2011):

Q1: Generally speaking, do you feel your revenue management system (RMS) is reliable? If not, in what instances is the system generally unreliable?

Q2: What about the RMS you currently utilize at your organization? Are there instances in which your RMS fails you? If so, what situations are ‘failures’ most common?

I feel my RMS is dependable:

1 2 3 4 5

Q4: Does your RMS ever malfunction on you? If so, what instances seem to be the most common?

Trusting Belief - Specific Technology – Functionality (Adapted from McKnight et al., 2011):

Q1: Does your RMS provide the functionality you require to successfully carry out your duties? If not, what functions does it lack?

Q2: Does your RMS do what you want it to do? If not, what tasks is it unable to complete?

Trusting Belief - Specific Technology – Helpfulness (Adapted from McKnight et al., 2011):

Q1: Does your RMS provide competence guidance through a help function?

Q2: Does your RMS generally provide sensible and effective pricing recommendations? For example, does it almost always accurately predict the room occupancy, or almost never accurately predict the room occupancy?

Q3: What percentage of the time do you estimate you override the systems pricing recommendations? (Override refers to making modifications and adjustments to the final recommendation provided by the decision support system being used.)

Answer the following if you override the system's recommendations:

Q4: What are the main reasons you generally override the system's pricing recommendations?

Q5: When you override the system's final recommendations, what is the main reason (ie. experience, gut-feeling, discussion with others)? Please elaborate:

Situational Normality – Specific Technology (Adapted from McKnight, Choudhury, and Kacmar, 2002):

Q1: Do you feel completely comfortable using an RMS? If not, why?

Q2: Do you feel completely confident using an RMS? If not, why?

Faith in General – Specific Technology (Adapted from McKnight et al., 2002):

Q1: Based on your use and exposure to existing decision support systems, do you believe that most RMS are effective at what they are designed to do? What types of RMS in particular do you feel are effective versus ineffective. For example, off-the shelf (by vendors), custom made (in-house), customized by vendor, etc.

Trusting Stance – General Technology (Adapted from McKnight et al., 2002):

Q1: Do you typically trust a new technology until it gives you a reason not to? Why? Why not?

2: Do you generally give technology the benefit of the doubt when you first use it? Why? Why not?

3. Please indicate your level of agreement with the following statements:

I support moving our RM system (as well as other transaction systems) to a cloud SaaS solution?

1 2 3 4 5

I prefer to access my RM system from a mobile application.

1 2 3 4 5

APPENDIX 2
IRB APPROVAL



**Social/Behavioral IRB – Exempt Review
Deemed Exempt**

DATE: May 10, 2013
TO: Dr. Mehmet Erdem, Hotel College
FROM: Office of Research Integrity – Human Subjects
RE: Notification of IRB Action
Protocol Title: Exploring the Level of Trust in Revenue Management Systems
Protocol # 1305-4451M

This memorandum is notification that the project referenced above has been reviewed as indicated in Federal regulatory statutes 45CFR46 and deemed exempt under 45 CFR 46.101(b)2.

Any changes to the application may cause this project to require a different level of IRB review. Should any changes need to be made, please submit a **Modification Form**. When the above-referenced project has been completed, please submit a **Continuing Review/Progress Completion report** to notify ORI – HS of its closure.

If you have questions or require any assistance, please contact the Office of Research Integrity - Human Subjects at IRB@unlv.edu or call 895-2794.

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