

**ARTIFICIAL**  
**INTELLIGENCE**  
**AND REVENUE**  
**MANAGEMENT**  
**SYSTEMS IN**  
**HOTELS**

## INTRODUCTION

Over the most recent couple years, many changes in the technology space (mainly artificial intelligence in hotels) have brought forward a prototype shift and interrupted many industries, leaving some players behind whilst concurrently adding more worth for the end consumers. The implementation of new up-and-coming technologies has gone on to turn out to be pretty the inclination after attaining inspiration from victorious use cases. In case of hotels, the real enhancement of artificial intelligence in hotels sprung from the fact that it has the authority to influence and change the industry entirely. Given the increasing requirement for smart computerization of current processes, AI has gone into the traditional hotel landscape with a promise to improve hotel status, drive revenue while taking consumer experience to the next level (Adoption of Artificial Intelligence in Hospitality - Impact on Operational Dynamics - Maruti Techlabs, 2018).

Like the majority of industrial systems, the world of hotels rotates around a handful of resolutions all driven by intelligent chat bots and voice-enabled services. To get together with the changing customer expectations, hotels globally ought to upgrade their operational system and services by incorporating intelligence-based prognostic analytics in hotels. Therefore, this publication highlights on Artificial Intelligence and Revenue Management Systems in Hotels

## **The history of Artificial Intelligence and Revenue Management Systems in Hotels**

Revenue management was originally invented by the airline industry approximately 60 years ago and has been tailored by the hospitality industry over the past numerous decades (Anderson & Xie, 2010). Conventionally, it was described as selling the right produce, to the right consumer, at the right time, for the right value (Yeoman & McMahon-Beattie, 2017). So far, it has mostly been executed in the rooms divisions. Ten years ago, scholars forecast a resurgence of revenue management that would develop through technology in further hotel functions as well (Cross, Higbie, & Cross, 2009). With the swift expansion of new revenue management software, it is doubtful to what degree the revenue division is potential proof. As knowledge is increasing at a gradually faster speed, it is getting easier to run complex algorithms that permit revenue management to optimize and develop. Current expansion in the hotel industry comprises the computerization and centralization of revenue management that restores the role of on-property revenue managers (Kimes, 2011). Artificial intelligence and automation are honored as game changers in the industry.

### **Why Every Hotel Needs a Revenue Management System**

A Revenue Management System makes it simple to regulate prices across various delivery channels, without having to personally log in to all the diverse systems. As a consequence, key performance indicators, such as revenue per accessible room (RevPAR) can be enhanced, rising the hotel's top and bottom lines. Mostly, Revenue Management Systems are all-inclusive software packages, with a full range of features and roles to make use of. The following are the most significant aspects:

## **1. Opportunities of Automation**

Revenue management is a new invention in the hospitality industry. It has already witnessed key changes like the change from an occupancy-driven to price-optimization revenue management. The current revenue management software depends greatly on being fed with data and being sustained by humans. With growing artificial intelligence, as well as rapid development in computer software and hardware, revenue management software is becoming more precise, dependable, and heuristic in its decision-making. Using advanced technology, super computers, and cloud services, a change from a rule-based revenue management to science-based revenue management is enabled. Automatic and centralized revenue management systems efficiently analyses all potential while executing the option that is mainly in line with the holistic approach of the hotel (Wang, & Specklin, 2015). This cause increased competence levels, leading to low costs and a high level of income for the hotel.

## **2. The Big Data**

All revenue management systems depend greatly on data and processing command. Lately, the mass media started utilizing the term big data that lack a broad and homogeneous definition. With the execution of automatic revenue management system, it is potential in utilizing big data for projecting and pricing. Particularly both short- and long-term projection is of great significance for a flourishing business function and a competitive advantage (Pan & Yang, 2017). Scholars argue though that interior data might not be sufficient any longer to have a competitive advantage, and in order to develop a data warehouse peripheral data needs to be obtained (Buhalis & Leung, 2018). Due to the huge volume of big data it can only be processed by non-traditional calculating methods (Pan & Yang, 2017). With the contemporary traveler

departing from digital traces before, throughout, and after their stay, technology allows us to produce profiles that comprise the guest's fulfillment, favorite, physical location, and expenditure power (Pan & Yang, 2017). Whereas the majority of revenue administration models depend mainly on past data, big data as well take an organization's exterior data into contemplation (Buhalis & Leung, 2018). This data comprises the political atmosphere and destination security (Buhalis & Leung, 2018). Social media can be a good basis for hotels to get this data and be more consumer-centric, and can even be seen as a new circulation channel (Noone, McGuire, & Rohlf, 2011). Through the efficient utilization of this data in real-time, room rates can be tailored for each guest, independently providing the best alternatives for both profit maximization and customer fulfillment (Wang et al., 2015).

Before the hospitality industry can change and incorporate completely computerized revenue management systems, the general organization of the department must be altered. A continuing inclination here is centralization (Kimes, 2011). The majority of hotels have their own revenue management department. However, various hotels subcontract their revenue department to reduce costs. Furthermore, the inclination is to have a vital office that is accountable for numerous properties on a company level. Meaning, that present revenue management divisions are working on the business unit stage and will be relocating to the company level (Wit & Meyer, 2014). Through a smart revenue management system, it will be likely to cover additional properties with one administrator that minimizes costs.

### **3. The Current Debate**

There is a huge debate on computerization and the panic of a possible job loss, tagged as "technical joblessness" by the economist John Maynard Keynes (McClure, 2018). This lack of

trust considerably amplified during the Great Depression, but economists turned more positive in the subsequent years (McClure, 2018). Lately, distrust has developed particularly since the research was published that forecasted 47% of jobs in the US will be affected by computerization or even no longer be required (Frey & Osborne, 2017). Other investigations like a study by Gartner Research state that more than 1.8 million jobs will be lost due to technical development in the US; however, 2.3 million new ones will be produced (Arnold, 2018). According to a statement by McKinsey & Company (2017) up to one-fifth of the world's labor force will be substituted with robotics by 2030, particularly in industrialized nations like Germany and the US. This caused fear amongst many as it became an extensively discussed subject in the community. However, automation is by now being implemented in most sectors, particularly in extremely industrialized industrial nations, and will keep on growing in the next few years.

#### **4. The Future Development**

The location of the revenue administrator is presently seen and implemented by humans using hardware and software. With the existing improvements in this field, it is doubtful how practical this role design will be in the future. Is the revenue manager's position being replaced by an entirely sovereign operating system or does human being authorization continue to be essential (Schwartz & Cohen, 2004). So far, the majority of revenue management systems are easy algorithms that fall short of learning or showing AI characteristics. Therefore, human revenue managers can be described as a heuristic (Cetin, Demirciftci, & Bilgihan, 2016). It is the capability of learning independently from experiences through individual behavior and that of others (Gilmore & Williams, 2013). This capability is important to implement revenue management on a proficient level and scale. Thus, it is important for revenue managers to stay put with improvement in the marketplace and invest in attaining new acquaintances. In

distinction to human revenue managers, transforming into computerized revenue management systems will enhance the level of reliance on the system. Enhancing the reliance level will automatically lead to an increase in risk for a hotel (Wit & Meyer, 2014). This implies that hotels are highly dependent on developers and vendors of these systems. Above and beyond, software from third parties can be extremely expensive. It is suggested to expand an artificial intelligence system in the company as this backward upright incorporation results in a reduced level of reliance on suppliers (Wit & Meyer, 2014). Nevertheless, creating software that has the capability of using synthetic aptitude involves big savings. As a result, the general viability is doubtful. The big question is whether this investment can be reasonable against the anticipated raise in revenue.

Presently, some hotels are carrying out revenue management at a fundamental level as a well-designed division by only looking at the rooms' income. It is a long way to build up the division and bring it to the company unit level (Wit & Meyer, 2014; Wang et al., 2015). Thus, it is suggested to permit revenue administrators to perform revenue management in all divisions that generate income while granting them the necessary ability to do so (Kimes, 2011; Wang et al., 2015). Expansions in revenue management technology may additionally encourage a reduction in locally engaged revenue managers. On the other hand, it will increase the level of revenue management specialists on a company level who guarantee human management in revenue management.

## **Conclusion**

The technical expansion of the last decade has had a remarkable authority on the hospitality business, the travel behavior of customers, and hotel operations. After revenue

management was introduced to the business, this new form of pricing has been implemented by the majority of hotels. While having a revenue management strategy for hotel rooms is a prerequisite, the business is gradually changing to execute it in meeting and conference spaces, as well as food and beverage sales points (Kimes, 2011; Wang et al., 2015). Automation and artificial intelligence (AI) are increasing at a swift speed, giving new changes such as the use of big data, but this also comes with disputes such as the panic that present workers can lose their jobs. Social media provides an excellent source for business connections with guests. This might be used for temporary and long-lasting costs but also as a new channel to sell rooms. Whereas total automation is not yet possible, intellectual revenue management software currently supports the revenue manager in analyzing and projecting, and in strategy-oriented balanced decision-making. This allows corporations to centralize their income departments, as one administrator now can supervise more than one asset. However, the dependence on this software comes with risks for the hotels that have to depend on the safety of the systems, often provided by peripheral third-party vendors that can be costly. One of the biggest challenges for these systems is human associations that are often preserved between hotels and customers for years.



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