

# Automated Hotels in Dubrovnik: Science Fiction or Reality?

Marja MILJANIĆ , Domagoj NIKOLIĆ

Rochester Institute of Technology, RIT Croatia, Don Frana Bulića 6, 20000 Dubrovnik

**Keywords:** Automated hotels, co-creation of Value, personalization of services, millennials, high-tech/ high-touch, internet of things.

*The aim of this study was to investigate whether an automated hotel would work in Dubrovnik. The results show that customers want a combination of technology and human touch. Service providers are encouraged to find the right balance in their own context.*

## Introduction

Automated hotel is a concept that involves 100% automated check-in and departure systems allowing a guest to reserve, check-in and check-out without dealing with humans. It also involves human-free customer service. The smooth running of operations is ensured by computerized systems which provide full service and administration management in the facility (Finch, n.d) which can be set up in the way that to the customer they seem to work fully independent from humans.

**Automated Hotels.** Automated hotels generally differ as to the level of automation: they can be partly or fully automated. Partly automated hotels have sophisticated IT systems working in cooperation with humans. Fully automated hotels, which are still rare, have fully independently functioning systems, which operate 100% human free.

**Full Automation.** Full automation can function because of the so called Internet of Things, a technological environment where objects, people or animals are provided with unique identifiers (IP addresses) and the ability to transfer data over a network without

requiring human-to-human or human-to-computer interaction. Internet of Things, which has evolved enormously from the convergence of wireless technologies, micro-electromechanical systems and the Internet, creates new business models, improves business processes, and reduces costs and risks (Rose, 2014).

**Service Integration.** It goes without saying that a hotel and all of its facilities, staff, vendors and customers can be integrated in such a network in order to provide a new and enhanced customer experience. In the United States there are companies that offer the service of implementing smart systems and sensors (Burrus, 2014), but they are also becoming available in Croatia, such as room automation system called Smart Room System developed and produced by a company called Adria-electronic from Rijeka. The benefits of such integration are felt not only in the technical departments but also across the entire organization (Westerman et al, 2014).

**Hospitality Industry Automation.** The hospitality industry is moving rapidly towards automation because of the changing customer expectations: customers are used to A.T.M.'s,

automatic boarding for airplane flights, purchasing various items online and now are looking for the same efficiency everywhere including in a hotel (Weed, 2013). The first fully automated hotel called The Comfort Xpress Hotel was opened in 2001 in Oslo, Norway. Aside from having been the first major hotel to implement a 100% automated check-in and departure, it has also introduced full customer service without dealing with human personnel (Hopkins, 2011). Various hotel services are accessible through a hotel app and web interface: guests can access food facilities and various leisure activities without communicating with the staff (Bateman, 2015).

**Automation Worldwide.** Since then many hotels worldwide have introduced similar services: citizenM (Amsterdam, Glasgow, London), Inn at St. Botolph (Boston), Hyatt (major cities around the USA), Andaz West Hollywood (California), Montagne Deer Valley (Utah), Capella Hotels Resorts (Mexico), etc. (Weed, 2013).

**Dubrovnik Tourism.** 94% of all guests who come to Dubrovnik are foreigners and it is reasonable to assume that they

expect the same sophistication of services to which they are used to in their home countries. Dubrovnik has seen a 6 % increase in arrivals in 2015 relative to the year before. In the same period, while hotels had a modest increase in arrivals of 3.4%, private accommodation had a significant increase of 19% (Dubrovnik Tourist Board, 2015). This may indicate that, generally speaking, today's travelers like private accommodation with relative independence, uncrowded places, home atmosphere and lower prices, just as well or more than the relatively more sophisticated hotel experiences.

**Modern Trends.** The above quoted data is consistent with new trends brought about by the digital revolution. Research has shown that Americans now spend 151 minutes per day on smartphones, next to 147 minutes in front of TVs, etc. The numbers are even greater elsewhere. For example, in China people spend 170 minutes a day in smartphones, nearly double their TV watching time (elKaim, 2015). These statistics prove that smartphones are now "the first screen." Smartphones as the first screen together with PC have pushed online travel sites like Trip Advisor, Booking.com, Airbnb, Housetrip and others as the first stop of a traveler's online organization of holidays. Meanwhile, travel agencies which used to be the strongest connection to preferred travel locations are closing down (Stevens, 2012). This may be bad news for hotels as these formerly reliable channels become significantly weakened.

**Digital Trends.** Another significant factor accelerating digital trends is traveler demographic which is inevitably bending towards the technologically savvy. Generation X (born between 1960 -1980), nowadays very prominent in customer demographics is the most independent, self-reliant and misunderstood (Ramsborg, Miller, Bretnier, Reed, Rushing, 2008). The fact they are sometimes forgotten by marketers is a mistake, since Gen X-ers are not only technologically knowledgeable, but, being the parents of Millennials (born between 1980-1995), have a strong influence on this generation otherwise known as Digital Natives (Trendsactive, 2015) who represent the future of travel.

**Trend Analysis.** These demographic and technology trends taken together effectively mean that hotels today must design their services around digital

platforms. They must compete with sharing economy (i.e. private accommodation), which, powered by internet (i.e. digital platforms such as Airbnb, booking.com, etc.), optimizes supply and demand like never before. This above all means that hotels must find new ways to differentiate themselves on the market, which involves reaping benefits from digital communities, but also distancing themselves from the sharing economy (Strong, n.d.).

**Automation Integration.** Introducing automation in hotels seems like a logical answer to this challenge. In automated hotels, hotel location and facilities are important, but the most important differentiation becomes the ubiquitous technology. Automated hotels could support guests' impressions of privacy and independence, increase efficiency of services, and reduce price. Above all, digital technologies can support personalization of services and co-creation with customers, but also new ideas in everything, from marketing, sales, facilities management, design, etc. (Westerman et al, 2014). In such a system, customers indirectly work for companies by doing work previously done by company employees, by living a digital trail of their activities on companies' platforms and by giving feedback on previous or ideas for future business. Co-creation with the customer helps companies understand their customers' needs and behavior as well as to employ the problem-solving skills of both sides to facilitate the co-construction of an individualized experience (Prahalad & Ramaswamy, 2004). As guests today are generally looking for special experiences, automated hotels could become popular simply because they provide a new different and potentially exciting experience per se (Wei Wei & E. Torres, 2015).

**Current Situation.** When it comes to automation, Croatian star hotels are relatively advanced in terms of IT systems, but they offer limited amount of automated services which are directly observable to customers. In Dubrovnik, there is only one hotel currently offering digital check in and that is Hilton Imperial (Hilton Imperial, 2016). In our primary research, we would like to investigate whether automated hotel services would succeed in Dubrovnik and what level of automation would be adequate at this point.

## Methods

This research paper was written with a purpose of gaining knowledge on sampled participants' needs and to examine what they know and think about Automated Hotels, which is new in Croatia and in Dubrovnik. The research was conducted based on questioning participants' technological experience and knowledge. Questions were related to Automated Hotels, smartphones, internet and web applications. These questions were carefully chosen in order to gain best insight into their preferences.

This survey was additionally used to find out if people today prefer full automation or they still prefer human service. This question is very important today to all businesses aiming to improve their customers' satisfaction.

**Questionnaire.** There were 12 questions. 3 questions were 2-choice (yes-no; male-female), 9 other questions were multiple choice.

**Response Rate.** Survey response rate from sampled people was very high. Sampled people were mostly gathered on RIT Croatia and Dubrovnik University due to prior acquaintance. Small number of older sampled people were my family members. From 100 surveyed participants, 96 were fully valid with all survey questions properly answered. 4 surveys were partly wrongly filled with double answers, some unfilled questions, etc.

**Target Demographic.** In order to measure results and to target the population significant to research about automated hotels, target population was mostly Millennials. Sampled people were individuals, mostly colleagues from college and from the neighboring university. Having in mind that Millennials represent the future of travel, I have chosen them rather than some other groups.

## Results

The results which were collected are important for my research and to all service providers who want to start a new business, improve their offer or just assure the quality of their current business. In relation with customers' desires, their current knowledge about this topic, their age and other demographic characteristics, results provide the indicators of a good business model. With the knowledge of their preferences business can develop modern platforms and tools.

**Sample Subgroups.** Based on the research, the target groups of sampled people can be divided into several subgroups. “Young travelers (age between 18 and 27) - 81%, “Experienced Travelers”. (aged between 28 and 40) – 12%, “Most Experienced Travelers” (aged 41 and above) – 3%, while 4% were invalid answers.

**Responses.** Regarding the first question of gender categorization, of the offered “Male,” “Female” choices, 39% were “Male” participants, 57% were “Female” participants and 4% were invalid answers.

On the question “Are you familiar with Automated Hotels,” of offered “Yes” and “No” answers, 90% of participants were familiar with this concept, while 10% were not.

On the question “Do you prefer more Automated Hotels or Traditional Hotels,” of the offered choices: “Automated,” “Traditional” and “Not sure,” “sure” with 49% choose “Not sure,” 40% “Traditional” and 11% “Automated.”

On the question whether they are smartphone user, of the offered “Yes” and “No” choices, 100% identified themselves as smartphone users.

On the question “I use smartphone mostly for,” of the given choices: “All online activities (Payment, browsing, internet, e-mail and social-media),” “Texting, calls,” “Business, e-mail,” “social-media, travel, applications” and “All applications above,” 73% chose “All applications,” 20% chose “All online activities,” 2% “Business, email,” 2% “social media, travel applications” and the remaining 3% were invalid answers.

In regard to the statement “I am familiar with smart payments” the question was also whether the respondents used those services. They were provided with following answers: “Yes, I use it,” “Yes, but I don’t use it” and “No.” The results were that 40% chose “Yes, I use it,” 50% chose “Yes, but I don’t use it,” and 10% chose “No.”

On the question “In hotels, I like to have a human-free check-in procedure,” of the provided choices: “All the time,” “Often,” “Sometimes,” “Rarely” and “Never.” 36% chose “All the time,” 6%

chose “Often,” 15% chose “Sometimes,” 26% chose “Rarely” and 17% chose “Never.”

On the question “How much technology would you like in hotel,” between provided options: “All automated,” “Automated with good human service,” “Some automation but mostly human service,” “Present degree of technology presence is fine” and “As little technology as possible,” 6% chose “All automated,” 35% chose “Automated with good human service,” 49% chose “Some automation, but mostly human service,” 9% chose “Present degree of technology presence is fine,” and 1% chose “As little technology as possible.”

On the question “I use services such as Trip Advisor, Booking.com, Airbnb...,” between provided options: “All the time,” “Often,” “Sometimes,” “Rarely” and “Never,” 4% chose “All the time,” 35% chose “Often,” 50% chose “Sometimes,” 4% chose “Rarely” and 7% chose “Never.”

On the question “Do you keep in touch online with your favorite brands,” between the provided options: “All the time,” “Often,” “Sometimes,” “Rarely” and “Never,” the response was 4% “All the time,” 49% “Often,” 24% “Sometimes,” 15% “Rarely” and 4% “Never.”

## Conclusion

This study focuses on Millennials as the most probable users of automated hotel services, proved they are familiar with this concept. The results also showed that they are comfortable with using the most up-to date digital technologies. This information provided a simpler ground to analyze their preferences.

The respondents use smartphones daily and are familiar with various applications including smart payments. More than half of the survey participants already use smart payment applications, and less than a half are familiar, but still not using. The probable reason why some respondents are still not using this tool is because it has not yet been fully introduced in Croatia. This must be further investigated.

On the topic of choice between Automated and Traditional hotels, the research did not provide a decisive answer. Even Millennials are still divided on this topic. This effectively means that both concepts have equal chances to succeed. However, as the digital revolution is digitalizing travel, this balance is likely to move toward more automation.

The results on the topic of human-free or standard check in showed almost equal results as to the previous topic. This is only logical, since we can assume that those who prefer automated hotels would also prefer human-free check in. In the opposite case, if people prefer traditional hotels, they would choose the traditional type of check in. This could be an indication that in the high-tech world, people still need/want human interaction. Consequently, this may not change (Naisbitt, J., Naisbitt, N., & Philips, D., 1999).

When participants were asked how much technology they would like in a hotel, the majority response was “some automation, but mostly human service”. This answer provided the most important information of this study. Service providers now know that most people agree with automated services, but still want to keep humanness. In the world of high tech/high touch experiences, technology is still seen as means, not at an end.

This result informs the service providers of crucial information. Based on this result, business providers who choose to implement fully automated services, or not to implement these services at all, could suffer customer dissatisfaction and revenue losses.

After analyzing the remaining results, it is visible that customers like to keep in touch with their favorite brands and companies via social media networks. They also often use various travel services such as booking engines. These results show service providers that it is important to socialize with customers. Co-creation with customers can help businesses improve customer satisfaction, increase loyalty and emotional engagement.

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