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# ARTIFICIAL INTELLIGENCE AS DISRUPTIVE INNOVATION IN THE HOTEL INDUSTRY:
Finnish Boutique and Lifestyle Hotels Perspective

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Artificial intelligence or simply AI is a popular topic nowadays. The basics of the concept are based on two main parts – autonomy and adaptivity. AI is entering and helping in many fields these days, including the hospitality and hotel industries. However, new technologies usually often disrupt old ways of performing things. Boutique and lifestyle hotels have rarely been in the focus of researchers. Unique environment and services, with high standards of personal service and human interaction significance, are the most determine characteristics of the boutique accommodation segment. It is crucial to find a balance of relationships between guests, a hotel, employees, and new technologies applications, in order not to ruin providing services and experiences, but to improve them.

The purpose of this study was to find out how new AI technologies can change the management and service practices of boutique and lifestyle hotels. The research was conducted within the Kämp Collection Hotels hotel chain, which has unique luxury hotels with high-quality guest service. Semi-structured interviews, as a qualitative data collection method, were created and conducted in an individual face-to-face way. Interviews were conducted from the hotels' headquarters perspectives, such as from hotel managers and front desk managers. The collected data were analysed via content analysis, using both inductive and deductive coding approaches. Disruptive innovation theory by Clayton Christensen, which shows the way new technologies and innovations disrupt an already built and established market, was chosen as a prospective base for this research.

The study results showed that AI technologies have not entered the case study of Finnish boutique and lifestyle hotels yet. Based on the interviews, three areas the AI influences the most were generated: hotel services, guest-host relationships, and working processes. According to findings, most AI disrupted areas will be employees' tasks when guest-host personal contacts and interactions are needed the least. AI machines' and programs' help will be highly appreciated with monotone, repeatable duties, that can be easily automated and do not require much deep thinking. AI might limit guest-host interactions, but at the same time, human-guest communications will become more relevant and complex, therefore improving relationships with guests in general.

The power of AI should be directed to guest personalization preferences to provide high-quality accommodation and services. In the hotel industry, the case is not about machines replacing humans at work, but machines working side by side with humans in the fields they are obviously advanced. In boutique and lifestyle hotels, the possibility of AI disruption is far away from the real future forecast.

Keywords: artificial intelligence, AI, disruptive innovations, boutique and lifestyle hotels

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# 1  INTRODUCTION

*The rise of powerful AI will be either the*
*best or the worst thing ever to happen*
*to humanity. We do not yet know which.*
- Stephen Hawking (2014)

Living in the 21st century it is hard to imagine our lives without technologies. They are intruding in life more and more and surround us everywhere. Nowadays, the machine revolution is just starting and slowly entering people's routine life. The term Artificial Intelligence has become more and more popular recently and appearing in various conversations more often these days. Artificial intelligence or simply AI today is surrounding us: from unmanned cars and drones to virtual helpers and programmatic provision for translating (Schwab, 2016). It is hard to define AI very concrete since the topic is vast and is slightly changing and expanding more and more due to computer innovation development. The basic concept is based on two main parts – autonomy and adaptivity. Artificial intelligent technologies so far are not very well advanced, but year by year they develop further on. The development and implementation processes are slow, but these innovations provide significant changes to many industries. Risto Siilasmaa, chairman of the board in Nokia, says that AI is going to have an as considerable impact on our society as electricity. (The Elements of AI, 2018).

AI is already used in many various spheres in today's society, from education to medicine, from transportation and customer service to music and game industries, and consequently not avoiding hospitality and hotel industries. In the hotel industry AI helps and make specific tasks easier for employees; helps to gain, analyse and use big statistical data for future predictions; divines guests' desires and preferences and making their stays more comfortable and convenient. The official definition says that the hospitality industry is a vide sphere in the service industry, covering lodging, event planning, theme parks, transportation, cruise line, travelling and additionally any related tourism industry fields (Hospitality Industry, 2018). Since the hospitality industry consists of companies within the service and tourism fields, the hotel industry is one of them and moreover is one of the main ones; therefore the author is focusing and limiting research within the hotel industry area.

Big hotels worldwide have been in focus of researchers for many years considering various topics, and technological implementations are not exceptions. Over the years, hotel operators have embraced a range of technologies to drive profitability, enhance service, support management decision-making, improve productivity and process efficiencies, and increase customer satisfaction (Kim, Lee & Law, 2008). Most of the previous researches in the sphere of technologies in tourism and hospitality industries are focusing on the users of self-service and the role of technology in improving the service quality (Meuter, Ostrom, Bitner & Roundtree, 2003). Following the technological development processes, researches have started to get the interest to current technical novelties as well, including AI, its applications, and consequences. However, the main focus of researchers is at AI in the hotel industry in general, and they do not consider hotel specializations and segments as related factors. The majority focus on big hotels or hotel chains, leaving small hotel sectors, such as boutique and lifestyle hotels behind, and there are a minimal amount of studies within these hotel sectors.

Hotel marketplace is very competitive, and hotels are seeking to achieve the advantage of it by offering highly specific differentiation (Gao, 2012). The term "boutique hotel" was used to describe a unique 50 – 100 room hotels, non-chain operated, well-designed, and providing individualized service (Ljiljana, 2014). The most common adjectives to characterize such properties are cool, urban, and trendy (Băltescu, 2016). Other essential elements named individual attention, high quality, emotions, and intimate surroundings. According to Boutique and Lifestyle Lodging Association (BLLA), a lifestyle hotel is a subcategory of a boutique hotel, as defined as a property with a combination of living elements and activities, and functionality to give guests the opportunity to explore the experience they desire (Day, Quadri & Jones, 2011). Lifestyle hotels are usually small to medium-sized properties, with innovative contemporary design features, providing highly personalized service, which differentiates them among other hotel brands (Day et al., 2011, as cited in Ljiljana, 2014, p. 47). There are cosier and closer relationships between hotel personnel and guests in small boutique and luxury hotels, rather than just in standard big hotels, which are duplicated ones, in different locations, offering the same style and services in every spot. Boutique hotels are fashionable, have ultimate attention to details, and provide high-quality services. Relationships with guests are meaningful for individual boutique hotels, as well as guest experience of such properties. All these factors make boutique and lifestyle hotels very sensitive to any technological novelty that certainly is intruding and becoming essential to humans.

Even though technologies nowadays are integral parts of everyday human life, they usually often disrupt old ways of performing things. Slowly step by step technologies replacing people at their work positions, bringing new ways of implementation and services and at the same time making employees lose their jobs. Technologies that are not mainstream are usually classified as disruptive technologies (Christensen, 1997; Cobanoglu, 2001). AI is not merely an advance computer force that applies programmed decisions but also performing learning capabilities (Makridakis, 2017). AI technologies can exist themselves without further guidance, improve themselves, and learn and develop from their own mistakes. Soon in the future, it will be possible to find, for example, cafes, where all the employees are robots. Therefore, all these factors make them independent at work, meaning AI technologies are able to complete and at some point, transcend humans in the working environment, help with their tasks and even replace human force entirely and at some point create treats to people.

The interest of this study came from the author's previous working experience in the hotel industry and current job position in the same area. The author also has a personal interest in customer service, service innovations, and improving as customer services for guests, as working facilities for employees. Working in several hotels in three different countries as a receptionist has given a good background for this study and a feeling of being in a comfort zone when talking about hotels. Moreover, the author was always keen on technology in general, especially in technological innovations as in daily life, as in the work environment. The selection of the case study for this research was made because of the author's current job position in one of the hotels of the case hotel chain.

## 1.1 Previous studies

Already more than twenty years ago, Dabholkar (1996) noted, some studies have found that consumers enjoy interacting and playing with technology.  At the age when technologies were only entering and surprising human lives, it was noticeable that they are popular, and people got interested and addicted to them very fast. However, in addition to that, at that time people were worried this enjoyment might cause lack of staff service because consumers' need in that will reduce.

Technologies in hotels, once they became essentials, had been a high interest not only for hotels themselves and their guests but for researches as well. Many researchers focus on tech novelties and their determined dependency on guests and hotels business success. Cobanoglu (2001-2011) was mostly studying technologies in the hospitality industry. With his colleague Collins (Collins & Cobanoglu, 2008) they studied hospitality information technologies, the Internet and support technologies for sales and marketing purposes in hotels. After that, Cobanoglu, Berezina, Kasavana, and Erdem (2011) studied the impact of technology-based amenities in hotels on overall guest satisfaction. The results show that technologies have a significant impact on hotel total guest satisfaction, and due to that success, companies are going to consider some types of technologies as vital factors in hotel-guest relations. Chathoth (2007) concluded that components, such as reliability, responsiveness, assurance, and empathy, involved in exceeding guest needs are essential features of hotel information technology. Cornell University Center for Hospitality Research has done the research to investigate hotel guest technological preferences (Verma, Victorino, Karniouchina & Feickert, 2007). The research results showed guest desire to adopt hotel web-booking engines, self-check-out service, and in-room Internet access; however, to all hotel guests accept innovations uniformly. All the results, as mentioned above, represent the high necessity of technologies to be implemented in hotels, as they had already established in human lives.

Fewer studies had been conducted within luxury hotel sectors or specializing studies to specific hotel segment. However, the luxury segment had proved its importance in studies results. Some studies examined several objectives about deploying self-service technologies (SST) in luxury hotels and the impact of innovations' distribution of business traveller's choice of a luxury hotel brand. Various demographic and cultural factors had different effects on guests' perceptions of SST (see, e.g., Kucukusta, Heung & Hui, 2014). Males, business travellers, aged 20–49 years, with higher education, and from Australia, New Zealand, or the other South Pacific islands were found to have more favourable perceptions. Females, aged 60 years or above, with lower education levels, and from mainland China were found to have the lowest satisfaction with SST. The results of the study of Kucukusta et al. (2014) showed the importance of both human and SST service in satisfying guests, their needs, and getting more profit for hotels. Several researchers were trying to investigate hotel technologies influence on guest satisfaction. In their study, Cobanoglu, Berezina, Kasavana, and Erdem

(2011) concluded that comfort technologies appear to no direct impact on hotel guest overall satisfaction. Comfort technologies are such as an in-room electronic safe, in-room guest control panel, in-room PC, mobile access to hotel websites, electronic wireless key cards, flat panel HDTV, etc.

Through the time, researches about technologies in the hospitality sphere have been following and changing according to changing mainstream of technologies. Additionally, researchers focus and aims have been changing the same way technologies have been entering everyday human life. Once technologies have become essentials in the hotel industry, many researchers have started to study this niche and the consequences of technological implementation, as well as the benefits of using human or technical services. Some researchers were also interested in getting to know people's communication preferences in the tourism and hospitality sectors. The study about self-service technology (SST) in hotel reception in Finland (Mäkinen, 2016) was researching whether Finnish young adults choose self-service technology instead of interaction with a receptionist and what they want from the customer service nowadays. The questionnaire results showed that the majority of respondents would prefer self-service technology to traditional human interaction. The study suggests not to replace standard customer service altogether, but to offer self-service as an additional tool in future receptions. Kim, Connolly, and Blum (2014) explored the potential of mobile technologies in the hospitality business context. Mobile technologies provide several opportunities for hotel managers, and this study looked at the adoption of mobile technologies for each hotel department, to help to have better and faster access to information and software. The study found that hotel property managers would like to use and are willing to recommend mobile technologies for improving productivity and communications, facilitate access to information, and reduce operating costs.

Technologies have started to become essential for hotels, and several studies have proven that both hotel guests and managers are willing to use innovations in the hotel business. After that, many researchers were interested in having a picture of the future of the hotel industry. Jasonos and McCormick (2017) were investigating and trying to predict the future of the hospitality industry by conducting interviews within the restaurant and industry professionals, selected by their experience. In the research, authors were evaluating the direction of how intelligent technology will change within that area according to professionals' views and forecasts by 2025. Technologies are in used already in restaurant and hotel industries,

offering, for example, waiter-less and chef-less restaurants and robotic hotel receptions. The study results showed that the hospitality industry would continue using technologies and moreover, it will be necessary for offering modern and user-friendly facilities. The use of machines is very integral nowadays, and such a trend will continue developing, and all areas of our lives will be technology driven.

AI technological changes and innovations are currently becoming a subject of study in general and in individual spheres as well. Undoubtedly, it is impossible to predict what the future will be about in AI technological terms. The fourth industrial revolution has influenced and changed dramatically the way all aspects of society, life, and firms operate. Nowadays, at the threshold of the forthcoming AI revolution, people wondering would this one cause the same far-reaching consequences. By studying analogous inventions of previous revolutions, professor Spyros Makridakis (2017), in his study, claims that the upcoming AI revolution changes will be extensive, with more significant improvements in productivity and wealth. This revolution is about to supplement all currently performed humanly tasks. The study concludes that the biggest challenge for society and companies to come would be to utilize the benefits of availing AI technologies, to avoid unemployment increase, provide opportunities, and increase productivity for products and services. The study covers all possible market and business niches in general, not going into details which spheres will be caused the most. However, it is evident that some areas will be affected more than others.

All innovations, and especially disruptive ones, in the accommodation sector, can best be views through the lens of disruptive innovation theory, proposed by Clayton Christensen in several works (Bower & Christensen, 1995; Christensen, 1997; Christensen & Raynor, 2003). This theory describes a process when a disruptive product transforms a market. This theory was recently applied to Airbnb accommodation service in the studies of Guttentag (2015) and Guttentag and Smith (2017). The status of Airbnb as a disruptive innovation has not been examined previously, and authors were investigating the impact of the service to the hotel accommodation sector. The studies showed that many guests prefer Airbnb to hotels and have relatively high expectations of the service. It was stated that Airbnb has the potential to disrupt the traditional accommodation sector significantly. The studies also showed that disruptive innovation concept is only partly applicable to the discussion of the service's competition with hotels.

A lot of researchers have studied how technologies have or are influencing and changing hotel services performance. Having considered that, Bowen and Whalen (2017) have identified four trends - technology, big data, social media, and online communities, and the sharing economy; and discussed their impact on hospitality and tourism, also providing implications for managers. Authors stated that these trends would forever change the hospitality industry, and AI and robots will have a profound impact on hotels and restaurants. The research on AI technologies and robots in particular in tourism has been minimal until Ivanov, Webster, and Berezina (2017) had conducted their study of the adoption of robots and service automation by tourism and hospitality companies. In their research, they provide a review of what tourism and accommodation companies currently do and what they could do to adopt robots and automate services. Tussyadiah and Park (2018) came to robot adoption issues in hotels from another perspective and studied consumer responses to robots. The success of service robots depends on their users' satisfaction (Bartneck, Kanda, Mubin & Mahmud, 2009). Two types of robots were tested – NAO for check-in procedures and Relay for room delivery. The study represents that consumers desire to adopt hotel service robots is influenced by human-robot interaction dimensions.

Despite a vast number of previous researches about impact of technology on customer retention, guest satisfaction, the use of self-service technologies (SST) and AI (see e.g., Beatson, Coote, & Rudd, 2006; Cunningham, Young, & Gerlach, 2009; Curran, Meuter, & Suprenant, 2003), the understanding about the relationship between AI technologies and luxury brand identity is still limited. Many studies have focused on upcoming AI technologies in hotels and how the industry will change afterward. Less attention has been given to hotel workers, and guest reactions on these intelligent technologies, mainly on guest-host relationships shuddered by AI stepping in between two parties. Therefore, this study attempts to fill in this gap by examining the influence of AI in hotels on human relations.

## 1.2 Purpose of the study

New technologies can decrease provided high-quality services, break hotels, guest-host relationships, and lead to business decline. Moreover, recent AI innovations, such as chatbots and robots, are already replacing human employees at work. A lot of previous researches were focusing on hotels in general, big hotel chains, without taking into consideration hotel

segmentations, categories with their focus and orientation. This study's focus is on boutique and lifestyle hotels, small but still meaningful segment in the hotel industry, which express high-quality guest services and guest-oriented environment.

The author based this study on disruptive innovation theory, that was proposed and developed by Clayton Christensen in several seminars. Disruptive innovation theory describes how companies may fall by not paying attention to the possibility of a disruptive product existence. (Bower & Christensen, 1995; Christensen, 1997; Christensen & Raynor, 2003). The disruptive innovation theory is chosen in this study because a process through which a new product transforms a market is presented (Guttentag, 2015). A disruptive product cannot just appear as a new market. There should be a gap, a disadvantage, from which the possibility for a disruptive product will grow. This theory is suitable for this study because it is applicable for such situations when new AI technology is entering hotel processes and services, replacing employees' duties and stepping in between guest and host in their relationship and providing services themselves. AI technologies are considered as disruptive innovations in this study.

The main objective of this study is to get a better understanding of AI technologies' implications and their effects in boutique and lifestyle hotels. New technologies are involved more and more in the hotel industry, and it is crucial to find a balance of relationships between guests, a hotel, and new technologies applications, in order not to ruin providing services and experiences, but to improve them. The goal is to find out how will AI change the management and service practices of boutique and lifestyle hotels. This study will also fill the gap of how AI will influence on human factors and relationships, that matter the most in the whole hospitality industry and thoroughly represented in boutique and lifestyle hotels. The following research questions are formulated to meet the aim of the study:

RQ1: How AI technologies change the service model of boutique and lifestyle hotels?

RQ2: What impact AI has on guest-host relationships in boutique and lifestyle hotels?

RQ3: How does AI influence working practices in boutique and lifestyle hotels?

The study increases the interest towards not yet widespread and well-known AI technologies in the whole hotel industry, even though the current research is focusing on one of the hotel sectors only. The study is aiming the situations related to interactions within humans, both hotel guests and workers, and AI technologies. Therefore, the author is creating and discussing the kind of scenarios of future situations and consequences of human-facing AI technologies in hotels. The information that came as a result from this research will be useful for the tourism industry in general, since hospitality and technologies are essential elements there, and every hospitality manager will face AI technologies in the own business one day.

## 1.3 Research methods and data

This research is implemented in frames of boutique and lifestyle hotels. BLLA (Boutique & Lifestyle Lodging Association) has given definitions to these two hotel types. Boutique hotels are described as luxury, intimate, and upscale hotel environments. Lifestyle hotels are properties that combine living elements and activities into a functional design. (Day et al., 2011). The case study is Kämp Collection Hotels hotel chain. The choice was made because of the author's current job position in one of the hotels of the group. Another significant reason for the selection was the fact that Kämp Collection Hotels include various luxury hotels, with original thematic design and message; and these properties are considered as boutique and lifestyle ones, because of their exclusiveness and high standard guest service quality.

For data collection, several interviews in frames of qualitative research were held. The author organized six semi-structured face-to-face interviews with different hotels' managers, who work at a managerial level in hotels, meaning hotel managers, and front desk managers. The semi-structured interviews were chosen due to their ability to collect data within the real-life context and without basing the research to prove specific arguments. All participants are considered to be the experts of the hotel field, and the chosen method allowed a researcher to gain long-term field information of the research subject. Interviews were gathered between January and March 2019. Total of 15 open-ended questions was formulated to give freedom to express participants' opinion in their own words. Interview questions were divided into sections according to three research questions for a better understanding and flow of the interviews. All discussions lasted approximately 45 minutes each and were recorded after

announcement and agreement about it with interviewers, in order not to lose any critical information.

Because of the fact that it is difficult and very time-consuming for any person to transcribe all interviews into text manually, the help of Descript program was used. Based on AI, Descript transcribes recordings automatically into readable text format, and only a small manual human correction was needed before starting to anatomize with data. For data analysis, the content analysis method was chosen, because it works perfectly with a significant amount of texts, as well as transcribed interview texts, and makes it easy to structure and analyse the primary data. Atlas.ti Cloud content analysis program was used for coding collected data, utilizing both deductive and inductive coding approaches. Deductive codes were generated from the theory for this study and had the majority of all codes used for analysis. Inductive codes were elicited from the collected data, that could not be included into any of deductive codes. The final codebook consisted of 27 generated codes – 19 of which were deductive ones and eight were inductive correspondingly.

## 1.4  The structure of the study

The present study is divided into seven main chapters. The study starts with the introduction part, discussing the background of the research, other studies conducted earlier, and the main aim of the study with the following research questions. The paper continues with chapter two, representing an overview of AI, with its history and formation, definitions, and subfields, that the whole AI sphere consists of. This second chapter also discusses AI technologies implementations in the hotel industry. The third chapter contains information about categories of innovations, distinguishing disruptive ones explicitly and explaining the difference between innovations, disruptions, disruption innovations, and disruptive technologies. In the third chapter, the primary study theory of disruptive innovations by Christensen is presented. Recent decades disruptive technologies and their influence on the hotel industry are discussed through the lens of disruptive innovation theory in the same part. In the fourth chapter, the methodological part represents how the study has been conducted – the case study, data collection, and analysis methods, together with ethical considerations. The next chapters show empirical findings, highlighting the main categorized topics and essential thoughts from the data. The most significant results from analysed data are

discussed continuously in more detail in the next chapter. The study finishes with a conclusion chapter, where all completed work is summarized. Research limitations and ideas for future researches are represented in the last section as well.

# 2   ARTIFICIAL INTELLIGENCE

The following chapter introduces the AI topic, starting from the very beginning, when the whole concept was born and how it was forming during the time. The main aspects of AI formation in history are highlighted. Several definitions of AI are provided in order to give a better understanding of the concept since there is no one concrete definition. Additionally, the structure and subfields of AI are highlighted to introduce the size of the sphere and give an idea of how and where it might be applicable. Finally, examples of AI technologies and their applications in various fields and hotel departments are presented.

## 2.1  History and formation of Artificial Intelligence

To understand the concept of AI better, it is crucial to start acquaintance with it from the very beginning, when the concept was about to come into being. Although AI itself is a growing field, it takes its roots from other very old disciplines. The first modern operational computer was invented in 1940 by Alan Turing's team. The first operational programmable computer was an invention by German Konrad Zuse in 1941 and was named the Z-3. Despite the invention of floating-point numbers, Zuse was the first one, created Plankalkul – the high-level programming language. The computer industry provided options precisely, which all AI programs are required – advances of speed and memory while dealing with a significant amount of data. Even though AI owes to computer science for supplying operating systems, programming languages, and tools, at the same time AI instituted plenty of ideas for computer science, such as automatic storage management, object-oriented programming, time sharing, etc. (Russell & Norvig, 1995, pp. 8-16.)

Starting from the 19th century, the advancement of sciences and technologies have been building theoretical, ideological, and material basement for developing AI research (Shi, 2011). By 1956 British scientists have been researching machine intelligence for already ten years. New machines' speed computation possibilities had turned out to overcome human ones'. Therefore the question had appeared in the scientific community: what are the limits of computer abilities and will machines reach the human evolution level?

One of the pioneers in computation machines Alan Turing (1912-1954) is rightfully considered to be the father of computer science (The Elements of AI, 2018). Starting from

1941, English mathematician and logician, Turing mainly was involved in researching machine intelligence problem, and one of his first "computer intelligence" mention was made in 1947. He was fascinated by intelligence and the possibility of simulating it with thinking by machines for several years, and in 1950 he wrote an article "Computing Machinery and Intelligence" (The Elements of AI, 2018). In the paper he proposed to change the original article question from "Can machines think?" to "Can machines do what intellectual human creatures can do?". The advantage of the new question was that the author made a precise border between physical and intellectual human abilities. To answer this question, Turing has created an imitation game, which is later was called the Turing Test.

> The Turing Test's goal is to define AI possibilities, which are close to human ones. In the test, a person interacts with two hidden players, A and B, where one is a computer, and another one is a human. Communication is happening by written messages in a chat. A person should investigate, who is who from the players, based on received answers. If a person cannot determine a computer from one of the players, it means that the computer has passed the test and it is equivalent to humans (in a general natural language conversation), and it then has reached intelligence on a human level. According to the test, a creature considered intelligent if an observer from another intelligent could not distinguish it. Even though computer programs had been passing the quiz, the test was measuring the intelligent computer behaviour, rather than whether it is intelligent. (The Elements of AI, 2018.)

In the real world, the majority of problems are complex, without any algorithm to adopt. Of course, researches might simplify complex problems and produce satisfactory solutions; however, they might not be optimal from the scientific perspective. This problem-solving led to the birth of AI. (Shi, 2011.)

In 1956 the term "Artificial Intelligence" was officially formulated when it was chosen as the topic of Dartmouth Summer Research Project for Dartmouth College conference, which was organized by John McCarthy (1927-2011), who is often referred to as the Father of AI. He continued with Turing's argument about automated computation with the following proposal: "Every aspect of intelligence can be so precisely described to a machine, so it will be able to simulate it." Starting from this conference, the real sense of AI as a research field has begun, and considerable progress has been made in this sphere through years of research and development. Later, McCarthy also invented the Lisp language, a tool that can process

symbols and not only numerical values. Many achievements have been made in disciplines, such as Natural Language Processing, Machine Translation, Robotics, etc. (Shi, 2011; The Elements of AI, 2018.)

After bringing AI to life, the following research mainly focused on game playing. In 1956 Arthur Samuel wrote the first game-playing program with learning ability. In the same year a heuristic program the Logic Theorist, which proved correct theorems from "Principia Mathematica" and has started the era of cognitive psychology research with computers, was invented by Alan Newell and his colleagues. In the early 1960s, Allen Newell published the General Problem Solver (GPS), designated the rhythm for AI research to focus on problem solving and algorithms. His program was the most robust heuristic program at that time. Marvin Minsky established a unified terminology for AI research by his paper "Steps Towards Artificial Intelligence" in 1961. Four years later, Edward Feigenbaum with colleagues, initiated the shift from computer algorithms to knowledge representation as to the focus of AI research. In 1969 International Joint Conferences on Artificial Intelligence (IJCAI) was established, and these conferences were held once every two years in odd-numbered years. A year after that, the first AI journal – Artificial Intelligence – has been created and started to publish, edited by IJCAI. Continuing then in the 1970s, AI research focused on Knowledge Representation, for example, the frame system theory by Marvin Minsky, and Natural Language Understanding. In 1972, Terry Winograd investigated details of the SHRDLU program for understanding natural language, and Roger Schank proposed the Conceptual Dependency Theory for Natural Language Understanding. Subsequently, Prolog AI programming language was developed by Alain Colmerauer. In the 5th IJCAI journal, Edward Feigenbaum published a paper "The art of Artificial Intelligence: Themes and case studies in knowledge engineering" in 1977. His statement there was that Knowledge Engineering is bringing AI research principles and tools to deal with severe applications problems, which require expert knowledge to solve them, and that the technical issues play essential roles in the design of knowledge-based systems. A boom of AI research developing was in the 1980s when more and more expert systems were used, new tools were created, and additionally, industrial AI was getting ahead. Dramatical promotion of the development of AI had started in 1982 when Japan's Ministry of International Trade and Industry commenced the Fifth Generation Computer Systems project. (Shi, 2011.)

The importance of AI is getting more and more relevant nowadays, almost in every sphere. Understanding that, and the necessity of AI in the future, various business schools, and universities, for example, Kellogg, Insead and MIT Sloan, have been introducing courses on AI. Smith School of Business in Toronto came further and has introduced first Master of Management in AI program, where students are studying how to apply AI in finance and the use of artificial neural networks in advanced pattern recognition. One of the program's students Jay Rajasekharan says about the importance of AI and the course, that there may be roles that do not even exist today, as AI is a very fast-growing industry. According to Kjell Carlsson, a senior analyst at Forrester, business leaders are full of ideas about improvements of their companies, but barely a knowledge what the new technology can achieve. From the other hand, he adds, technologists can tell all about the technology, but not what it can solve in business purposes. Therefore, businesses need skills to understand AI technology and what problems the technology is good at solving. (Nilsson, 2018)

The University of Helsinki, together with Reaktor company, created an online course "Elements of AI" in the middle of May 2018. The English course is available online for everybody free of charge, and its goal is to teach at least 1% of Finnish citizens what is AI and which opportunities it gives for the whole of humanity. Even though the authors' goal is to educate Finnish people, anyone from other countries is free to sign up for this course. According to Hanna Hagström from Rektor company, it is essential to understand AI on the basic level, and this course allows looking at the human surrounding from the perspective of changes, which AI can introduce (Fedorov, 2018). Mayor of Helsinki city Jan Vapaavuori is sure that this course is a great additional training resource for personnel and Helsinki will lead the way how cities are going to benefit from digitalization (The elements of AI, 2018).

## 2.2 Defining Artificial Intelligence

Defining AI, one should start with understanding the term intelligence itself. Rational thinking and actions made purposefully, as well as the capability to adapt to the environment – all of these are involved in intelligent actions (Shi, 2011). In other words, intelligence is a pinch of capabilities to understand the surrounding, adapt to it, and apply purchased knowledge for future actions, for example, problem-solving. The intelligence of a human being includes broad capabilities, such as understanding objects; coping with complex

environments; perceiving and applying knowledge, with judgement and decision making; gaining experience through knowledge, learning, problem analysis and problem-solving; predicting of development and changes.

Human intelligence is integrated with social environments, because people live in society and continues to expand gradually, following the development of human society. AI, compared to a natural human one, aims at imitating and enhancing human intelligence. This is happening by artificial techniques of achieving machine intelligence. AI science focuses on the computation of intelligent behaviours, develops computer systems, and solves complex problems. (Shi, 2011.)

It is hard to define AI in frames of short definition, mainly because it may mean different things to different people – for some it is artificial programs and robots and others name almost any data processing technology like AI. One more difficulty in strictly framing and defining the concept is that this sphere is continuously growing and developing; what is named simply programs or automatic methods and called statistics or probability today, belonged to AI methods several years ago.

In 2005, McCarthy pointed out that the long-term goal of AI is to become human-level AI (McCarthy, 2005). To explain the concept of AI and define it more precisely, it is easier to highlight two characteristics of it – autonomy and adaptivity (The Elements of AI, 2018). In other words, the simplest definition of AI would be as artificial processes, with the ability to complete tasks adapting to the environment independently and with the ability to improve itself by learning from experience. These properties are the basement of the whole system, and any process, which has these two components might be regarded as AI.

Objectively, AI research is still at the beginning stage of Intelligence Science, which dedicates to joint research on technologies and theories of intelligence, such as Brain Science, which explores natural intelligence in molecular and cellular level; Cognitive Science, which studies mental activities of humans – learning, memory, thinking, etc. By using human intelligence through artificial means and techniques, AI research focuses on achieving machine intelligence eventually. Imitating, extending, and augmenting disciplines explores new concepts, theories, and methodologies for Intelligence Science by working all together. This way, they open a successful future up in the 21st century. (Shi, 2011.)

Going deeper into understanding the concept of AI, it is common to see the terms "general" and "narrow" AI. "Narrow" AI is a program(s), which can implement only one particular task at a time. The word "narrow" describes the true extent of this discovery - a machine or an app powered by narrow intelligence, which only performs one task at a time (NG Staff, 2018). All AI methods in use today have started from being "narrow" AI and later being improved with science fiction. "General" AI, or Artificial General Intelligence (AGI), is the actual tendency of the industry – to handle any multiple intellectual tasks, the same way a human does. The ideal of "general" AI is that the system would have cognitive abilities and a general understanding of the environment the same way as humans do and could adjust and cope with problems more significant than humans (Mr. Trask, 2018).

Additionally, it is common to meet other dichotomies of AI – strong AI and weak AI. Weak AI is a set of settled actions, to be completed by a machine or in order words, a program, which is configured to act according to the default settings only. Strong AI machines otherwise act like a brain, not as a program. The main task of strong technology is to develop machines, so they start performing different tasks and make decisions on the spot, not depending on human actions or settings. In other words, the difference between weak and strong AI is that actions are happening under supervised and unsupervised programming (Kerns, 2017). This difference refers to a philosophical distinction between being intelligent and act intelligently, where "weak" is what we have and exhibit intelligent behaviour, and strong, that is genuinely intelligent. (Difference.Wiki, 2016.)

The significant progress of AI research has been made during more than 50 years and plenty of theories, such as Heuristic Searching Strategies and Machine Learning, have been proposed. AI grew and took part in various spheres, for example, Intelligent Decision Making, Robotics, Natural Language Understanding, etc. The next chapter will open all subfields AI includes for a better understanding of the whole sphere and to know which fields could be called AI and which are not.

## 2.3 Subfields of Artificial Intelligence

The AI field, which itself is a subfield of computer science, is vast and includes plenty of big and small subareas. Such fields as data science, statistics, machine learning, deep learning, etc. are parts of AI. Figure 1 illustrates the relationships within the following areas, where A – Computer science, B – AI, C – Machine learning, D - Deep learning, and E – Data science. It is visible that whole computer science, including AI, and it's all subfields are integrated with data science partly.
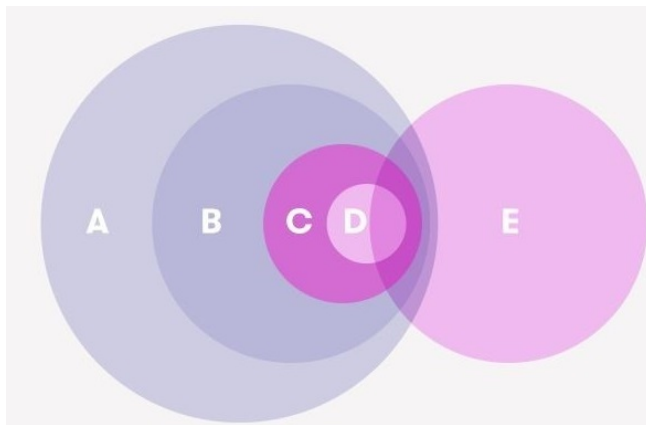


Figure 1: Taxonomy of AI. Source: The Elements of AI. 2018.

As it is visible from Figure 1, data science is a recent umbrella term, covering several subdisciplines. It includes machine learning and statistics, certain aspects of computer science, including algorithms, data storage, and web application development (The Elements of AI, 2018). Data science is a part of computer science, that studies problems of analysing, processing, and presentation of data in digital format. Data science is a concept to unify statistics, data analysis, machine learning, and their related methods to understand phenomena with data (Hayashi, 1998). Data science often involves a pinch of AI and can as well be a practical discipline, that requires an understanding of a domain.

Machine learning is one of the biggest subfields in AI. The roots of machine learning are in statistics, especially with methods, such as linear regression and Bayesian statistics, and even today in the heart of machine learning (Machine Learning, 2018). Knowledge, knowledge representation, and knowledge-based reasoning algorithms are always considered at the heart of AI (Shi, 2011). Psychologists and philosophers through years agreed that the underlying mechanism of learning is transferring the way of behaviour from one practice to another

similar one. The learning process includes four stages – processing collected information from the environment; understanding and gaining experience; improving acting performance based on received knowledge; discovering the correct way of behaviour and adapting to the environment (Shi, 2011). Machine learning can be defined as systems, that improving their performances time after time by completing tasks and getting more experience and data out of the processes. Machine learning can be autonomous as well as follow particular instructions; therefore, there are three areas of problem-solving, depending on the kinds of problems being attached – supervised, unsupervised, and reinforcement learning. Supervised learning does not require difficult actions from a system since the input is given, and usually, the answers of the form are yes/no. The task in unsupervised learning is to discover the structure of the data, and there is no right and wrong answers evaluation. When an AI system acts independently in an environment, like a self-driving car, it is called reinforcement learning. Machine learning research field enables machines to work on, obtain and evaluate knowledge automatically, and additionally uncover human thinking and learning principles, improving human learning efficiency as a result of this (Shi, 2011).

A deep learning technique is similar to a certain kind of machine learning, where several parts of processing units are connected in a network. Deep learning uses a multilayer system to extract features with transformations. Each subsequent layer receives the output of the previous layer at the input. The input into the system is passed through each one of the units in turn. This way, deep learning allows to understand and learn more complex structures, without requiring a huge amount of data (The Elements of AI, 2018). The increased computing power of modern computers has allowed increasing complexity and deal not only with quantitative but also qualitative problems.

As it is visible now from the presented explanations and examples, AI is a giant sphere, including plenty of different subfields. That is why AI could be applicable and used as a helping tool in a significant number of spheres in human life. During the current days, AI is continually growing and developing, increasing the area of its application.

## 2.4 AI technologies in the hotel industry

The purpose of any hotel is to accommodate a high amount of people and offer personalized services (Fisher & Beatson, 2002). Every hotel gives different service experiences to guests (Tisch & Weber, 2007). The hotel industry, as a part of the vast hospitality industry and tourism sector, is widespread and will not lose its potential, since thousands of people are travelling to different destinations daily and this industry brings a considerable amount of money. However, because field travel is emerging rapidly, it is crucial for workers in the sphere to keep up with the latest developments and trends. Customers usually start to use technologies as soon as they released on the market; thus, tourism and hospitality organizations should be up to date as well, in order to establish good connections with their customers (Caraivan, 2017).

Bill Gates once said that "we always overestimate the change that will occur in the next two years and underestimate the change that will occur in the next ten" (Mest, 2018). This quote is usually used when addressing incredible innovations; however, when talking about AI, this is not a dream anymore, but the reality. AI, as well as service automation and robots, are likewise entering the tourism and hospitality industry (Gladstone, 2016; Ritzer, 2015).

In 2018, at the Austrian Hotel Congress in Vienna, Markus Gratzer, the managing director of the Austrian Hotel Association, together with Vladimir Preveden, Co-Managing Partner at Roland Berger Austria, presented updated study of digitalization in the hotel industry, where AI, voice control, and robots were the new vital competencies (Preveden, 2018). Gratzer and Preveden have created a cycle (see Figure 2) of a guest hotel experience from beginning until the end and showed, how AI can accomplish and work for better guests' experience through the whole customer journey.

**ARTIFICIAL INTELLIGENCE IN THE HOSPITALITY INDUSTRY**

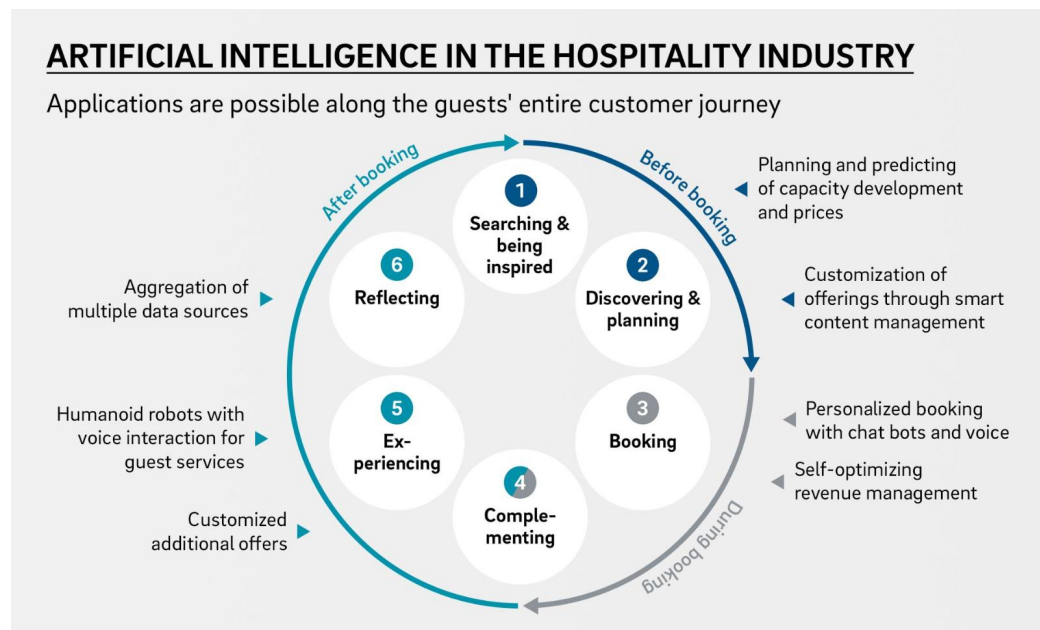Applications are possible along the guests' entire customer journey

Figure 2: AI in the hospitality industry. Source: Preveden, 2018.

The authors divided the journey into three sections – before, during, and after booking – and pointed out examples of AI application on every stage. The traditional hospitality industry has been transferred into a new technological level, as AI is promising to increase hotel reputations, enhance revenue, and meet changing customer experience expectations. Further on in this chapter, the author will describe the real already existing examples of using AI services at hotels.

Having a look at the above-presented figure, it is vital to mention that this research is focusing on the third section of the cycle – after booking. This research is not having a look for phases before guests entering a hotel, such as discovering, planning, and booking; however, it is necessary to provide some comments regarding that. More and more people year by year have been making hotel reservations online, not using old ways of reservations. Moreover, the Internet influences and changes tourists' behavior, allowing direct interaction between consumers and providers (Mihalcescu, Sion & Marginean, 2016). A study by Nielsen Media Research reveals that travelers spend average 53 days visiting almost 30 webpages during the decision-making process and more than half of them are seeking pieces of advice and recommendations via social network (Diez, 2017). Peer-to-peer communications and smart devices innovations have revolutionized scheduling, administration, and finances opened new horizons for the introduction of innovative sales and marketing technologies in the whole tourism industry (Zsarnoczky, 2018). This research is

looking for AI examples, their communications and consequences in hotels when guests are already in the house or prior to check-in. The current study is focused on AI technologies in hotels used both by guests and hotel employees.

Since AI is dealing with data and can evaluate and interpret it in any compelling way, hoteliers can cater experiences to guest preferences, and therefore AI is also taking a step into another industry plate – personalization (Sickel, 2018). Google was a pioneer, started to rank the site's appearance on the internet, and later the bidirectional communication started with the use of cookies 2.0. Since then, consumers became objectives for businesses, who seek to succeed in customer service and want to know their demands in detail. Modern digital services require the identifications of users and information about preferences. AI decision-making platforms collect the data, replace and evaluate it, and create optimal personalized offers. (Zsarnoczky, 2018). This way, automated platforms are collecting all individualized require information about a guest, and hotels can use machine learning with business-specific algorithms to get a profile about a guest and offer suitable products and services (Maruti Techlabs, 2018). Knowing the target audience better is a central concept to satisfy the guests, presenting them with an excellent exclusive service. AI software may help to capture information about customer purchases, location preferences, payment methods, travel choices, etc. (Maruti Techlabs, 2018). Soon hoteliers will be able to predict whether a guest would need access to a gym, a list of vegetarian restaurants around or best night clubs in town, before a guest even asks for it.

People love absolute control and flexibility and feel attracted when hotels allow them to do so (Maruti Techlabs, 2018). When staying at hotels, guests would like to surround themselves with a home-like atmosphere, get things the way they get used them to be, pretend that they are still inside their comfort zone. To do so, a guest may require plenty of facilities and things, and a mobile app, where guest can control everything him or herself is a relief for hoteliers. Via apps, guests can adjust room temperature, operate curtains and light, order drinks, and many other things. Moreover, with the help of AI, all guests in-room preferences may be settled automatically. The future is not about what one turns on and off devices, but that one programs them the way one prefers them to operate. In the age of all-in-one devices, it is vital to treat guests with personalized hotel experience (Medium, 2018).

Several prominent, leading hotel groups are already implementing intelligent systems into hotel work. In 2017 AccorHotels have launched the "Phil Welcome" chatbot via Google Assistant and Facebook Messenger, which provides straightforward information about hotels, such as available amenities, check-in/-out times, etc. Phil testing has allowed the company to improve AI knowledge, user experience, and interface. Best Western Hotels & Resorts chain is testing Echo, answering guests' questions, for example, "What time is breakfast tomorrow?" and making special requests. Marriott is also testing virtual assistant, which could be asked by texting or voice controlling to wake up a guest, start the shower, play a specific video, etc. All guests' preferences, as comfortable room temperature, are stored in their profiles. (Sickel, 2018.)

Marques (2017) stated that in the last 20 years, people have seen more impact of technology on the travel industry, that it has done in the previous 100 years. Innovation in hospitality tends to be something that everyone expects, rather than something anyone could have even thought about; in other words – evolutionary, rather than revolutionary (Hospitality Insights by EHL, 2017). Disruptive innovations are resulting in challenges for the hotel industry, but at the same time, they are alarms for hoteliers to wake up and turn these challenges into business opportunities. Hoteliers should be aware of and prepared for those opportunities and look to improve their services and enhance their hospitality offerings. Due to rapid technological development, such a scenario will continue for many years to come, primarily because of fast-changing market needs. (Zhang, 2019.)

# 3 DISRUPTIVE INNOVATIONS

The current chapter introduces the main theory of the study. Firstly, this chapter makes clear the difference between innovation types: sustaining, revolutionary and disruptive; the difference in disruption, innovation and technology terms; and afterward explains the theory of disruptive innovations with its main idea, describing how does the disruption happen in practice. It is also saying about types of disruptive innovations and several previous pieces of research about the theory are mentioned and discussed. Further on, this chapter discusses technologies that have entered hotel management life recently and have changed and at some point, disrupted the way the hotel operates. Examples by previous researches are also reinforced. AI technologies as a new form of technological innovations, are discussed as well in terms of changing hotel operations.


## 3.1 The notion of innovations

Innovations are being heard for many years from the very first invention. As Crossan and Apaydin (2010) explain, innovation is production or adoption of a novelty in any market or sphere; products and services renewal and development of new production methods. Innovations are also establishments of new managerial systems, and innovations are both processes and outcomes. In his study, Christensen (1997) proposed three variations of innovations – sustaining, revolutionary, and disruptive. This research is focusing on disruptive innovations, and it is necessary to determine the differences between innovations types certainly. Following the critical features of innovations and disruptive innovations are presented by pointing out the primary distinctions.

Sustaining innovations, or as they also usually simplified innovations, improve already existing products, and develop better value. Sustaining innovation is a continuous technological improvement that happens in already existing business or market (Christensen, 1997). Innovations usually help companies to compete against each other's sustaining improvements with better performance than what was available previously (Campbellsville University, 2017). Binetti (2018) suggests that sustaining innovations should be used in traditional linear management techniques because of the low uncertainty level. Innovations come from the consumer side, and the purpose is to convert existing users (Broadfoot, 2018).

Sustaining innovations usually focus on increasing market share and a new or improved product.

Another, yet not very popular form of innovation, proposed by Christensen (1997), is the revolutionary one. Unlike the sustaining innovations, revolutionary is a step-by-step change in the technological side, which however fits within the business operations (Binetti, 2018). Revolutionary innovations employ and change technologies, but the business model stays the same. This form of innovations is an ensuing part of sustaining innovations in a certain way. Binetti (2018) highlighted the fact that the size of each innovation sector is following their order: the clear majority of innovations are sustaining, followed by revolutionary with approximately one-third part and then the comparably small rest of disruptive ones. Binetti (2018) also stated that most innovations are sustaining at the very beginning and an inevitable part of them sooner or later will turn into a revolutionary one, cased be various factors and motives. Continuously, a part of revolutionary innovations breaks apart and generates disruptive innovations itself, which do not fit within a current company business.

In contrast to sustaining and revolutionary innovations, disruptive ones are outstanding and completely change the market they serve or even create a new one. To start the explanation, disruptions are innovations, but not all innovations are disruptive. Being rational, innovations are usually well-thought processes of planning before they put in place, while irrational disruptions are more about thinking outside the box by testing and trying (Cruickshank, 2017). Disrupters might start and use innovations for achieving goals, but not all innovations cause businesses to evolve. Compare to innovations, disruptive innovations or disruptions do not take place with established competitors, and it is not the technologies, but the business model, which creates the disruptive effect (Campbellsville University, 2017). The disruption focus is often on adopting new users first, by providing secondary products and gradually improving them to become the mainstream, and therefore, the result of disruptions is often the increased market size (Broadfoot, 2018). Disruptive innovations often germinate in feedbacks and observations, by looking and highlighting innovative ideas, that rearrange the way the market operates.

The term "disruptive technology" has been used as a synonym to the original "disruptive innovation" term set by Christensen (2001), meaning that the new outcome is displacing the

existing market via the implementation of entirely new technology. Nowadays, disruptive innovation as a term is more preferred, because disruptions are usually happening because of technologies application change and not because of the technologies themselves. Innovations, or sustaining innovations, are usually happening in technological processes, whereas part of them – disruptive ones – change the entire markets. (Tullis, 2013). Technologies usually make innovations cause disruptions to already existing products, where the industry that produces the product is often called disruptive technology. In other words, disruptive technologies are more prominent and broader, as they apply and change the whole way the industry operates. In this study the author uses both terms – disruptive technology(-ies) and innovation(-s) as synonyms to each other, referring to the changes in products and services and possible changes of the whole industry.

## 3.2 Disruptive innovation theory

AI technologies can best be viewed through the lens of disruptive innovation theory, which was proposed and developed later on by Clayton Christensen in several seminal works (Bower & Christensen, 1995; Christensen, 1997; Christensen & Raynor, 2003). Initially, the very first theory by Christensen was "Disruptive technology theory" in 1997, where he proposed how a product can disrupt a market. In 2003, in the book "The Innovator's Solution," Christensen and Raynor replaced disruptive technology with disruptive innovation in order to resolve the innovator's dilemma about replacing sustaining appliances. The theory outlines a process through which a new product transforms a market, sometimes transforming it entirely upside down. At first, a new product can only serve a small number of a market. The market disruption happens when a new product gets the attention of the majority of customers of an established market. Usually, a disruptive product will underperform to an established product key attributes but offer cheaper, more convenient, and simpler alternatives (Guttentag, 2015).

When talking about disruptive innovations, it is common to see an extracted definition of it, based on typical usage of the concept, but not a stipulated definition based on the precise concept (see e.g., Christensen, Baumann, Ruggles, & Sadtler, 2006; Christensen, Horn, & Johnson, 2008; Paap & Katz, 2004). However, if a definition is not addressing innovation characteristics, then it is meant to discuss something other than innovation. A stipulated

definition need as a fundamental criticism was highlighted by several business scholars (for example, Markides, 2006; Schmidt & Druehl, 2008). According to that, two different definitions have been proposed to identify a disruptive innovation. One definition focuses on functionality and cost of innovation, defining disruptive innovations as a low-cost newness with "good enough" quality of functioning (see e.g., Christensen et al., 2006; Christensen et al., 2008, Paap & Katz, 2004; Thomond & Lettice, 2002). Nevertheless, logically, the lower quality and priced innovations tend to improve themselves until they can compete with leading market products when then these innovations are becoming disrupters. Disruptive innovations cannot be characterised as lower quality products that compete on price, because price changes are reflected by many factors, such as market conditions, cost of materials, organizational processes, and it is more a price and quality competition business strategy. This definition focuses more on market strategies and discount innovation characteristics, which are essential because they make changes in buyers' expectations and could disrupt markets (Nagy, Schuessler, & Dubinsky, 2016). Another definition of disruptive innovations targets innovations' characteristics with market expectations. According to several researchers (see e.g., Danneels, 2004; Markides, 2006), disruptive innovations tend to change consumer expectations of a market. However, this definition does not provide characteristics that could disrupt marketplace preferences and does not explain how innovation can be sustaining for one group, but at the same time, be disruptive for another group. Therefore, this definition highlights the importance of marketplace positioning, as innovations characteristics are not identified (Nagy et al., 2016).

Several researchers have tried to identify and overcome the double meaning of identifying the disrupting innovations - predicting a disruption of a product in a research or a market's tendency to disrupt. To evaluate that, researchers considered whether a product lines up with characteristics of disruptive innovations or not. Their pieces of evidence relied on their market research analysis or the industry members' opinions. Rafii and Kampas (2002) proposed a scorecard to assess disruptive threats (i.e., rating an innovation by quality, cost, user application) for companies. Hüsig, Hipp, and Dowling (2005) evaluated wireless local area network technologies' disruptive potential and also would the potential disruption be better, cheaper, simpler, and more convenient. The disruptive potential of a few information and communication technologies were assessed by Sainio and Puumalainen (2007), focusing would the products introduce new value propositions. Keller and Hüsig (2009) examined the

Google's web-based office applications' disruptive potential with the use of a scorecard, evaluating overall underperformance and ability to be "cheaper, simpler, more comfortable or reliable."

Christensen emphasized in his theory that disruptive innovations could be classified as low-end and new-market disruptive innovations, by the way the disruption got started (Christensen & Raynor, 2003). The disruptive product could appeal to the low-end of the market, attacking the least-profitable and most over-served customers. Low-end appears because business leaders try to provide ever-improving products and services to their demanding customers, therefore paying less attention to less-demanding customers (Christensen, Raynor, & McDonald, 2015). This opens the door to a disrupter, that focused on providing sufficient products and services to low-cost customers. New-market disruptions create an entirely new value network, where there is not the company executive to overcome, but the non-consumption (Christensen & Raynor, 2003). Disrupters find a way to turn non-consumers into consumers. At this type of foothold, there is no excised previously market, and a disrupter creates one. (Christensen et al., 2015.) Additionally, Christensen stated that even though some innovations are harmed by one group, rather low-end or new-market, the same innovations might still be sustained by another group (Christensen & Raynor, 2003; Christensen et al., 2015; Schmidt & Druehl, 2008).

It is worth to mention that the first theory proposed by Christensen in his book "The Innovator's Dilemma" was "Disruptive technology theory" in 1997. This book opened up the basics of disruptive technology theory in a detailed manner. At the very first stage of the development process, every disruptive product could only serve niche segments. Its further development could increase disruptive technology's performance to satisfy mainstream customers. Improved disruptive technology is still low quality, compared to already existing and established technologies, which are also in an inevitable process of improving themselves. Usually, mainstream technologies are keeping the same high-demand of mainstream customers. The market disruption happens when the new product receives the majority of mainstream customers' attention on an established market.

This first market is limited and thus not suitable for big corporations, that are focusing on getting more profit by improving their products and services through 'sustaining innovations'

to attract higher-paying customers. However, soon they start to ignore regular customers, who would like to get simple, low-cost alternatives. This is the breaking point, where the new company appears, bringing those alternatives. Big companies stay focused on the same target group, but soon starting to overserve, and no one wants to pay for such products anymore. Meanwhile, the disrupter improves its products to get more customers. Customers are not prepared to switch until the quality improves; and when this happens, many people start using the product or service, and market prices are driven down (Hutt, 2016). It might eventually attract leading companies' attention, but the disruptive product can be too ahead and advanced, making it hard for big corporations to compete.

In 2003 Christensen and Raynor published another book – The Innovator's Solution, where they replaced disruptive technology with disruptive innovation. The purpose of the book was to resolve the innovator's dilemma – how to avoid the replacement of their sustaining appliances by disruptive technologies in incumbent firms. Authors applied the theory wider than only technological products, but also services and business model innovation, i.e., low price, point-to-point airlines, online business education (Yu & Hang, 2010). Disruptive innovation theory describes how companies may falter not because of being slow with advanced technologies or ignoring the target consumers, but by not paying attention to encroachment of a disruptive product, which lacks in traditional attributes but offers alternative benefits (Bower & Christensen, 1995; Christensen, 1997; Christensen & Raynor, 2003; Schmidt & Druehl, 2008).

The only way for industry giants to fight back is to launch their own disruptive innovations. They must treat the product as a separate unit with a different business model and growth expectations. The excellent start would be to set the question – what job customers need to be done. After that, one should segment customers by the job, but not by product, or market size, or demographics. Conclusively, companies need to develop basics low-cost ways to get the jobs done. (Christensen et al., 2015.)
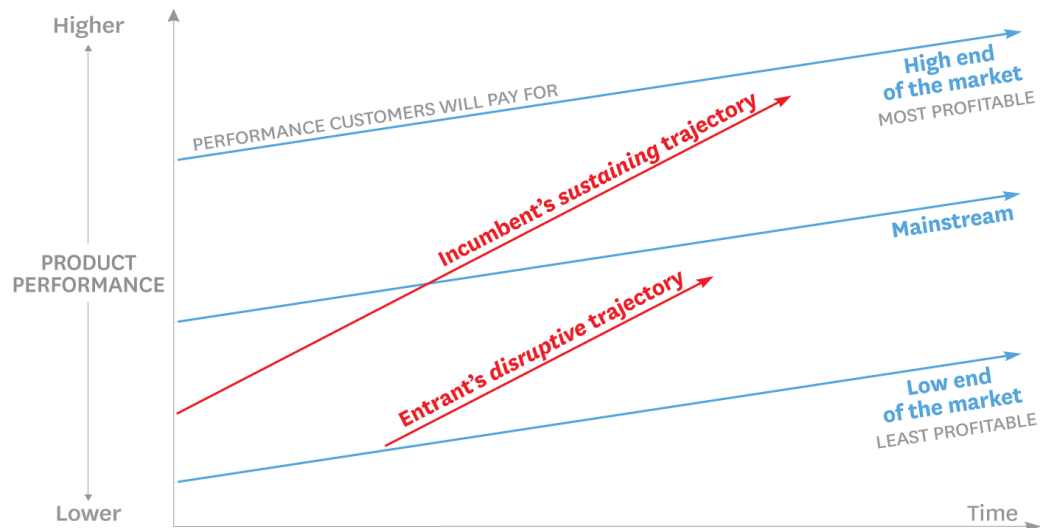
Figure 3: The disruptive innovation model. Source: Christensen et al., 2015.

On the model above (see Figure 2), professor Christensen illustrates the relationship between product performances (in red) and customers' demands (in blue), where red lines showing how products/services improve over time, and blue lines showing customers' willingness to pay. Incumbent companies overshoot low-end customers, focusing only on the high end of the market, thus opening the door for disrupters to find footholds. Entrants improve their offerings, move up, and challenge the incumbents.

King and Baatartogtokh (2015) were studying and testing how useful the theory of disruptive innovation really is and how widely it is applicable. The authors' starting point was a notification that the theory's essential validity and generalizability have seldom been tested in the academic literature. Authors had identified four key elements of the disruption theory: (1) that incumbents in a market are improving along a trajectory of sustaining innovation, (2) that they overshoot customer needs, (3) that they possess the capability to respond to disruptive threats, and (4) that incumbents end up floundering because of the disruption. The first key element's point is that incumbents are finding the best way, based on year-by-year improvements, and therefore gets and follows the best sustaining innovation route. The second element is that innovations almost always overcome customer expectations and needs. The next element is that incumbent companies are usually able to succeed; however, they do not know how to exploit it. The last element is that incumbent companies usually fail to disruptive innovations since the second ones improve products' performance and eventually take over the market. In the study, there are 77 samples of disruptive innovations – 75

corresponds to the cases listed in The Innovator's Solution and two cases discussed at length in The Innovator's Dilemma. 82 experts agreed to participate in the study, and 79 finished one or more surveys about a specific case. Selected experts had been identified by scoring academic publications and reached out to industry associations, publishers, authors, and academic librarians. However, as a result, many of the theory's typical cases did not fit all its conditions and predictions well. Using the industry experts' assessments, only 9% of the cases exhibited all four elements of the theory: 69% of incumbents engaged in sustaining innovation, 22% of sustaining innovations overshoot customer needs, 61% of incumbents had the capability to respond disruptions and 62% of incumbents happened to be disrupted. The threats faced by the companies in the sample were deeply challenging. They cannot be understood from a single viewpoint, but it is needed to evaluate severe problems from several different perspectives. Authors proposed a fairly diagnostic based on authenticated modes of analysis – first, managers should realize the value if winning; second, they should decide the way to leverage existing capabilities, and finally, managers should collaborate with other companies as well. Authors did not advocate discarding the theory of disruptive innovations but instead recommend using its best parts. (King & Baatartogtokh, 2015.)

The process of disruptive innovation can occur in any sphere, and tourism is no exception. The hospitality industry has changed dramatically within the past years because of the new industrial revolution. Technologies nowadays surrounding ones and have had a significant impact on hospitality services ones have at the moment, comparing to what was provided several years ago.

## 3.3  Disruptive technologies in the hotel industry

When there is a potential for the improvement to overcome customer needs, the theory of disruptive innovations should be considered as a warning rather than prediction (King & Baatartogtokh, 2015). Technologies have entered the hospitality and hotel industries many years ago and have a significant effect on the way industries operate current days. Following, the author represents meaningful technological innovations in recent years, some of which are considered to be disruptive, that have impacted and changed the accommodation industry as ones know it now.

The adoption of hospitality industry-specific technology has been continuously advancing since its very beginning in 1970s (Collins & Cobanoglu, 2008; Kasavana & Cahill, 2007; Sammons, 2000). Managers of tourism corporations have understood that technologies can make life easier in working conditions for employees and improve their services and attract more guests as well. With the use of technology, the aim is to further improve the quality or extent of a tourist experience (Uriely 2005). According to the World Economic Forum (WEF) recent note, "Digitalization is the cause of large-scale and sweeping transformations across multiple aspects of business, providing opportunities for value creation and capture. The digital economic and societal implications are contested and raising serious questions about the wider impact of digital transformation." (Hughes, 2018). Technologies have been implemented not only inside hotels to improve guest experience, but also to facilitate working tasks inside and outside companies.

With the born of the Internet, it became possible to check destinations, read descriptions and other 'visitors' reviews and feedbacks, and what is more important, to book accommodations online in only a few minutes. Disruption in the hotel industry came from outside, in terms of the online travel agencies (OTAs) or alternative accommodation platforms (Hospitality Insights by EHL, 2017). Online resources have removed travel agencies in terms of booking holiday amenities, such as tickets (train, ferry, plane ones), accommodation, tours, and holiday packages. Hotels, airlines, and many other tourism companies had moved their business online, offering guests book and pay for everything without leaving their homes. These websites cannot match the personalized service of a travel agency but can offer potential convenience and cost-savings. Meanwhile, third-party companies, such as Booking.com, has been established to make hotel booking for guests even easier, by combining all hotels on one webpage. This was a great revolutionary and easy opportunity for a tourist, but a big loss for hotels as they started to lose direct reservations from their webpages. Another example is a rare type of accommodation – Airbnb, which has shaken up the accommodation industry by providing an online marketplace that permits the large-scale rental of spaces from one ordinary person to another ("peer-to-peer accommodation") (Guttentag, 2015; Guttentag & Smith, 2017). As it is typical for disruptive innovations, Airbnb accommodations often are cheaper than hotels (Haywood, 2016; Hockenson, 2013), may provide a more unique and authentic experience, additionally with household possibilities, such a kitchen (Guttentag, 2015). Nowadays, if a hotel would like to be heard

and has a business floating, it must collaborate with Booking.com by paying commission to the service, and all hotels nowadays are very dependent on this third-party webpage.

After the Internet, technologies have started to develop dramatically, bringing wireless communications, smartphones, and mobile apps into life. Mobile devices assist guests in various tasks, such as searching for hotels, making reservations, monitoring loyalty program account, ordering room service, controlling room environment (e.g., temperature settings and lighting), and much more (Nysveen, Pedersen & Thorbjornsen, 2005). Besides, via mobile, the information about travelers' preferences at the different stages of the customer journey will be insecure access (Diez, 2017). Hotel apps allow to quickly book a hotel room anywhere, get information about a hotel in a nutshell, inform a hotel about one's arrival time, to get the room keys ready whenever you need them to be, check-in and check-out online via the app, without spending a lot of time at the front desk. Many hoteliers view the rise in mobile devices to be an opportunity to adopt new business practices and to create efficiencies throughout the various departments of their hotels that will lead to improvements in the bottom line, guest service, and employee productivity (Kim et al., 2014). However, once again hotels became very dependent to mobile technologies as it has already happened with the born of the Internet – if a hotel wants to be popular and has its business going on, it has to be in line with technologies.

Self-service technology (SST) is rising its popularity among hoteliers and customers, bringing benefits and highlighting the importance of personal service encounters to hotels. SST is a customer service, where interacting is happening between customer and technology (Beatson et al., 2006). SST started with ATMs at banks and has spread in other industries such as airlines, travel agencies, restaurants, hotels, and others (Kucukusta et al., 2014). IBM Corp. pioneered SST usage in hotels in 2000, and later on, the company started to work with several major hotel chains including Hilton, Starwood, and Marriott providing self-service applications (Avery, 2008). To ensure guest satisfaction in brand identities, hoteliers sure it is critical to adapt SST (Talbott, 2006). James Biggar, EVP of hotel management company HHM is sure that technologies can help in the pre-arrival experience particularly. For example, if a mobile check-in procedure - receiving guest data, collecting and swiping a credit card, assigning the room and providing room keys - could be done in advance, then the labour can be focused more on the guest experience and ways to improve it. However, from

the other hand, Lauren Chewning, VP of consumer insights at Marriott International, pointed out, that too much automation is damaging to the industry, which is a social business, where the main focus is the human interaction and guest satisfaction. She also mentioned that "There should be a human element in a hotel; otherwise, it would be creepy." (Eisen, 2018.) Meuter, Ostrom, Roundtree and Bitner (2000) were investigating factors that contribute to guest satisfying and dissatisfying when dealing with SST. The study result showed that efficient and convenient SST that perform better than traditional human interactions could provide guest satisfaction. However, results also showed SST disadvantage from a guest point of view, when technology failed to perform correctly. These results create confusion between SST and human service, as it is impossible to say which way of the guest interaction is the best and most satisfied. (Kucukusta et al., 2014). It is critical to define technologies that impact on guest satisfaction currently and those, that are going to have an impact on evaluation in the future. (Cobanoglu et al., 2011.)

After the fourth industrial revolution, technological advances have entered the service industry and have provided opportunities for automation (Collier, 1983). The mobile technologies boom has also brought AI technologies into use. AI is about to do too complicated or dangerous for human things to do, as well as individual tasks that could be easily atomized. AI influences the whole travel industry. AI has entered many hotel spheres, such as guest-host communication, customer preferences, and experience improvements, hotel optimization, etc. Technologies have been advancing and changing through time, and tourist demands have grown up accordingly, meaning the willingness to get higher quality products and services.

Benjamin Devisme, VP of sales for The Colossal Factory, an AI-based instant communication channel for hospitality companies, said that since people have moved from Web to mobile, this change caused the way travellers interact with hotels (Sickel, 2018). Therefore, it is suitable the most to host AI on mobile platforms. Moreover, mobile apps could help in guest-host communication. In the case of Intercontinental Hotel Group (IHG), their IHG app has a Translator menu, which has over 50 phrases in 12 languages including slang, a voice-to-voice translator, live translator and currency converter (IHG App, 2017). It is common for some quests do not speak any other language except their mother one and try to fuss with people while travelling. IHG app could be an excellent solution for such

travelers. From another point of view, such apps and helpers reduce the necessity of hotel staff in at least basic multilingual knowledge and lower the uniqueness of employees, who can speak many languages.

Hospitality service is interactive, as personal contact is happening between a provider (host) and a receiver (guest). The communication is not only the way people talk between each other and the emotional colour of the conversations but providing services for the guest. Relationships between a host and a guest in the tourism industry, and therefore in the hotel industry as well, are based on two contrasting facts: service-oriented interactions and emotional labour of tourist experiences (Cordeiro, 2014). The hospitality factor of experience relates to intangible, immeasurable value, which can transform an instrumental into an emotional transaction (Lugosi, 2008). Emotional element or emotional labour, involved in these services, is a work that requires management of feelings (Cameron, 2000; Urry, 2002) and causes emotional recoil from both quest and host parties. Nowadays, instant messaging is becoming a current way of communication. Chatbots, also known as smartbots or talkbots, are computer programs powered with AI, that conduct conversation via voice control or textually (Techtarget, 2017). This autonomy refers to the ability of robots to perform tasks without human interaction by intelligence, mobility, and sensory abilities (Ivanov et al., 2017). Chatbots might be settled in a smartphone app, tablets, and TVs in hotel rooms and guests, by sending messages or chatting with a bot, can get necessary information and services. Correctly programmed bots can help with ordering meals or drinks, suggesting dishes, managing evening reservations, taxi bookings, providing information about hotel services (for example breakfast time), and many others (Maruti Techlabs, 2018). Additionally, advanced bots can manage room facilities themselves - receive a request from a guest and this way there is no need for a human to adjust everything him- or herself but give a command to an intelligent program to serve. This way, chatbots, and robots are now located in the middle of guest-host relations or even replacing human interactions. It is more guest-robot or guest-robot-host communications, rather than the previous direct version. Chatbots and robots are replacing the host in guest-host relationships taking the human staff's duties off.

Service itself is a contested notion and the use of which is very complicated. Service has always been a form of social interaction between consumers and providers, and as Urry

(2002) has stated: "to buy a service is to buy a social or sociological experience." This point also was supported with 'Hemmington's (2007) statement: "customers do not buy service delivery or service quality – they buy experiences and memories." Besides programs and chatbots, there are already existing robots working in hotels to assist guests with excellent service. According to the Oracle Hospitality report, 35% of guests said they would like the possibility to schedule room cleaning, and 26% said they would like to receive a notification if their room was being cleaned (Marques, 2017).  Almost three-quarters of consumers believe robots could improve service in the hotel industry (Singer, 2016). Thus, at Cosmopolitan in Las Vegas, there is a "Rise" robot, and guests can text it 24/7, and their requests will be completed (Newman, 2018). Hilton hotels launched an AI robotic concierge "Connie" in 2016 (Hilton, 2016), that can communicate with guests, answering their questions, and providing suggestions of nearby places. As the robot is an AI platform based, it can learn from every human interaction and improve itself for future communications (Ivanov et al., 2017). Consumer acceptance will either make or disrupt the usage of robots in the hotel industry. However, travellers are most comfortable with robots at hotel receptions when supplemented by humans. (Singer, 2016.) Robots in hotels are still a unique phenomenon, and not all guests are ready to meet and, primarily to interact with them. Additionally, it takes time to understand how a new technology works before becoming a sufficient user of it. Therefore, hoteliers have to be very careful when thinking about new technologies implementation into their hotels and consideration of target guests and their motives and desires when staying in a hotel.

Even though technologies are making guests life easier from one hand, they reduce the work positions for employees from another. According to PWC analysis, 25 per cent of the jobs in the hospitality industry in the U.S. will be automated by the beginning of the 2030s, and around 73 per cent of worker activities have a potential for automation (Gupta, 2018). Since AI is popular and effective at what it does, there are many fears about human workers potential replacement, particularly in hospitality. An example of this can be found in the Courtyard hotel brand of Marriott International hotel chain. As part of the biggest hotel chain in the world, the Courtyard brand replacing concierges with "GoBoard" virtual concierge touch displays. With its help, guests familiarize themselves with hotel surroundings (e.g., restaurants, bars, shops, theatres), get to know hotel events, receive flight information and have access to walking directions and routes, which can be downloaded to 'guests'

smartphones afterward (Hospitality Technology, 2011). All of those opportunities attract guests and make the touch screen very convenient and popular; however, at the same time, it disrupts the old way of human concierge service. Understanding where these fears coming from, Greg Adams, SVP and chief digital officer at Best Western Hotels & Resorts, stated ""'AI's and machine 'language's goal in hospitality is not to replace humans, but to take repeatable actions off from employees, freeing up time for them to focus on what is important to guests"". Bill Ramsey, senior director of mobile and emerging channels at Choice Hotels International, additionally added that AI could improve hotel staffing and machines can track and react to changes faster than humans. He is sure that AI works for scheduling and can also make recommendations on how to solve problems. He also pointed out that AI could help guests, for example, to answer questions about reservations or to smooth staff operations. "There are many opportunities, and they do not eliminate jobs," he said. (Mest, 2018.)

Hoteliers have come to the idea that the best way to increase brand value is in-depth customer service, followed by accurately customer insight (Maruti Techlabs, 2018). The rise was noticed in mature-service hotels, when guests were delighted with new AI technologies such as robots, in addition to excellent human guest service and pleasant hotel interior. The study of Kucukusta, Heung, and Hui (2014) explores deploying self-service technology in luxury hotel brands from the perceptions of business travellers in Hong Kong. The study results represented that when a guest chooses a luxury hotel, personal service ranked the fifth most important factor, and most customers (85%) express personal service as their main reason for staying. The introduction of new self-service technologies brings advantages and positive feedback; however, at the same time, there is also a negative side of outcomes. These results are, for example, a lack of human interaction, inadequate service recovery, reduced interpersonal contact with service staff (Hackett, 1990). Consumer experience includes both the environment and guest-host interactions. An excellent hospitality level impresses guests and consequently increases guest overall satisfaction. When the hosting behaviour is decent, guests would be pleasured with the full-service quality; even the actual service might not be provided with satisfaction (Ariffin, 2008).

# 4 METHODOLOGY

This chapter presents the qualitative research methods that are used for this study. Starting by introducing the empirical content and case study, the introduction to the Kämp Collection Hotels hotel chain is presented. The chapter continues with describing data collection methods and a content analysis after that. In the end, the ethical consideration of the research is discussed.

## 4.1 Empirical context

As it was already indicated earlier, the choice of the case study was made due to the author's current job position in one of the places of Kämp Collection Hotels. It is essential to mention that this research is not supported financially, or by any other means, by Kämp Collection Hotels chain, none by any individual hotel of the chain. Also, this research is not done in purpose for the Kämp Collection Hotels chain or any hotel of the chain.

The concept of a boutique hotel covers all or some of the following specific attributes: an emphasis on distinctive interior design; focus on high-tech developments, especially in terms of bedroom environment; high and personalized service level; providing a stress-free relaxing environment; offering complimentary products to guests, usually from well-known luxury brands (Horner & Swarbrooke, 2004). Lifestyle hotels are part of the boutique hotel segment. Even not all boutique field operators see themselves the same way, there is still a lifestyle key link (Bǎltescu, 2016). Lifestyle describing characteristics that include "innovative, contemporary, and modern," while boutique hotels' point is more on unique design and personalized service (Gao, 2012).

Kämp Collection Hotels consists of big and small luxury hotels, each of them with a unique theme, idea, and signature. There are no the same hotels in this chain like other chains have, but all individuals. Thus, individual hotels from Kämp Collection Hotels in this research are considered as boutique and lifestyle, as they are exclusive with high-quality services and cause the same high-quality relationship to their guests. This was one more reason to conduct the study within this case hotel chain because it suits very well with the boutique and lifestyle hotel frames of the research.

Kämp Collection Hotels, Kämp Group previously, is a Finnish hospitality group, which consists of most luxuries Finland's hotels, restaurants, lounges, bars, and spas. Kämp Collection Hotels is owned by CapMan managed funds, Berling Capital Oy and Rake Oy and Kämp Collection Hotels' management. The history of Kämp concern was starting from 1887 when the legendary hotel Kämp was established. At the moment of the beginning of 2019, there are 10 hotels, 2 spas, and 17 restaurants, lounges, and bars in the chain. All hotels and adjoining health and F&B services are located in Helsinki, except only GLO Hotel Airport situated in Vantaa airport and GLO Hotel Sello in Espoo. Even GLO hotels under the same brand have different hotels, depending on their locations and purpose. Kämp Collection Hotels consists of the first and finest hotels in Helsinki. Ranging from cozy to luxurious, every hotel represents the crown jewel in its category. The hotel chain employs over 600 hospitality professionals, and its turnover in 2017 was 76 million euros. Today Kämp Collection Hotels are still among the most upscale hotels in Finland, and their pursuit is to be the reason for people to come to Helsinki and Helsinki region. Restaurant and hotel units of Kämp Collection Hotels are focusing on openness, engaging and respecting their guests, making excellent their visits, and making guests feel like home. Kämp group is annually and actively participating in current charity projects. Social responsibility and green values are essential to every unit in the chain and International Green Key certification awarded to all Kämp Collection's hotels. (Kämp Collection Hotels, 2018.)

## 4.2 Semi-structured interviews

In qualitative research, the most common data gathering method is the semi-structured interviews (Jamshed, 2014; Qu & Dumay, 2011). As Qu and Dumay (2011, p. 246) stated, the semi-structured interviews contain several open-ended questions, predetermined by a particular theme. The focus is to cover broad themes, by answering several topic-designed questions, starting from the topic's edge and step by step getting closer to the core. The technique used in semi-structured interviews provides the researcher with the possibility to draw out more narratives, getting deeper into a particular topic. This method allows to collect the data within its real-life context and enables interviewees to provide answers the way they

think, with their own words, the way they use language. Because of these facts and benefits, the semi-structured interview data collection method was chosen for this study.

It was relevant and valuable to have a test interview before having the research ones. Such a pilot interview version helped to indicate limitations of questions and improve them afterward. As it was the first time for the author to handle an interview, the test one also helped to practice interview behavior. The candidate for the test interview was a duty manager, a person one step lower position from a hotel front office manager, but who is still has a proper hotel knowledge and experience. The test interview highlighted the weaknesses of questions and helped to evaluate correct questions for further improvements. Some questions were corrected afterward.

The data was collected by interviewing hotel management: general hotel managers and front desk managers; as these representatives have knowledge about hotel and target groups. Since front desk managers work closely with guests and general managers are broader awareness about the hotel management systems and preferences in the future, this gave the researcher the data from two different perspectives. Interviews were held face-to-face for a more comfortable atmosphere and to minimize possible misunderstandings between parties.

The author has designed the interview according to the selected research theory. Questions were following the process disruption happens in a market in real life. There were 15 open-ended interview questions, divided into four sections according to the main research questions and one section highlighting the basement questions: AI technologies in hotels, hotel service models, guest-host relationship in boutique and lifestyle hotels, and hotel working practices (see Appendix 1). The author's goal was to design interview questions in a way that they would not lead participants to any probable answer. The data was collected between January and March 2019. The researcher sent invitations to 11 managers, and only 6 of them have responded and agreed to take part in the study. Luckily, finding potential participants was not very time consuming since the research was conducted within one hotel chain, where everyone working as a team and few participants had known the author before and were happy to help with the research. The duration of each interview was approximately 40 - 45 minutes. All discussions were recorded and transcribed afterward into a written format with a total of 37 pages of text with the help of Descript program. This program works

based on AI - automated speech recognition and natural language processing; and then gives a proper transcribed text. It was a great example and opportunity for the author to try AI in real and prove that these technologies are already part of everyday human life. A free trial version of Descript that included 100 minutes of recordings was enough for the current study to transcribe all interviews into text format. The automatically transcribed text was corrected manually for grammar mistakes and spelling repetitions afterward. Also, unnecessary fillers words, which are impossible to avoid in spoken language, such as "Like," "Yeah," "So," "All right", etc. were deleted to get the precise informative data for more straightforward analysis. In addition to recording, the author also had been making notes herself about relevant topics and essential things, to make data analysis easier later.

## 4.3  Content analysis

To analyse the data, the content analysis method was selected for this qualitative research. Elo and Kyngäs (2007) stated that content analysis suits to both qualitative and quantitative data analyses. According to its name, this method is used for analysing the content of communication (Ishiyama & Breuning, 2011). Content analysis suits well when working with a significant amount of text, to organize, categorize, and summarize it. Firstly, a significant amount of text should be read and re-read several times to get the main point. After, one should start dividing the text by meaning units, formulating codes, and grouping them into categories (Erlingsson & Brysiewicz, 2017). There might be main categories and several sub-categories, depending on the research aim. Content analysis was chosen because of its possibility to handle enormous amounts of text and to constructively summarize and categorize it, getting the proper evaluation and conclusion afterward. In addition to that, content analysis works perfectly not only with written texts but also with transcribed sentences from oral communication, which is essential for this study.

There are two ways to create codes in content analysis: deductive and inductive (Azungah, 2018; Elo & Kyngäs, 2007). The deductive approach is based on analysing the research theory. Another one, inductive, involves working by using collected data text as a base. (Azungah, 2018.) In this study, the author used both deductive and inductive approaches. The coding was completed via Atlas.ti Cloud program. Atlas.ti Cloud is an online version of original Atlas.ti program, a qualitative data analysis software. It was a helping tool to

summarize, understand, and categorize the data. It also helped to save time and not to lose any collected data accidentally. The coding was done according to research questions, its fields, and sub-fields (theory-driven); as well as based on received interview answers (data-driven). First of all, the author allocated codes from the theory and was dragging them into data. After that, the main aspects, compelling thoughts, and ideas, as well as essential statements, were highlighted from the interview texts and inured separate codes creation based on the data. Finally, 19 theory-driven and 8 data-driven codes were investigated.

## 4.4 Ethical consideration

All people recognize some universal ethical norms but interpret, apply, and balance them in different ways considering their own values and life experiences (Resnik, 2015). Many different disciplines have standards for behaviour that suits the best their particular aims and goals. Ethical norms in research play an important role in promoting the values that are essential to collaborative work and designed to protect intellectual property interests. Research delinquency is a serious concern since it harms the authors', corporates' and instructors' reputation (Flynn & Goldsmith, 2013).

There are several ethical issues conducted in this research. Voluntary participation is one of them, meaning there was a choice for people to take or not the part in the interview, no one was forced to do it and participants were able to quit at any time. When the author was searching for potential interview candidates, she sent an invitation cover letter regarding the research (see Appendix 2). The cover letter contained information about the purpose of the study and the research methods. In the cover letter, the author also informed that all interviews would be recorded for further transcription. At the beginning of each interview, participants were requested to sign a written consent form (see Appendix 3) to participate in the interviews and to make sure that the participants understood for what they had signed up. Before the actual interviews have begun, the author had briefly introduced the necessary study information and the reason why the research study is conducted. Participants stay anonymous; no names, as well as hotel names, are announced. Only working positions are reported, with the corresponding participants' agreements, as the author points out that the interviews of this study were collected from general hotel managers and front office managers. Representatives' anonymity and confidentiality are the fundamental ethical norms

in social research (Crow & Wiles, 2008). All received data is stored responsibly – no unauthorized authority gets access to it. The results are honest, not falsified and objectively analysed, disclosing personal interests. All received data is confidential, is used in the frames of this research only and is not available to anyone who is not directly involved in the study. Participants anonymity is the critical factor; however, in order to identify their answers, names, and recognition should be replaced with specific signs. When processing the data analysis, all participants were assigned a number for analysis R1, R2, R3, R4, R5, and R6.

# 5 FINDINGS

This chapter represents the findings with interpretations of the collected data. The main aim of the current empirical analysis was to answer three research questions: How AI technologies change the service model of boutique and lifestyle hotels? What impact AI has on guest-host relationships in boutique and lifestyle hotels? How does AI influence working practices in boutique and lifestyle hotels? Collected empirical data was analysed by utilizing qualitative content analysis, with the help of both deductive and inductive approaches. Consequently, five key themes came up from the data.

## 5.1 AI technologies in hotels

Interview participants firstly were asked about AI, to explain it in their own words and provide some examples. This way the author gained the data about managers' knowledge of AI. Only after that, the author explained the AI term and concept and gave examples from the read theory. This was done to be sure that both the participant and the author were considering and talking about the same concept. It is worth to mention that unfortunately, not all participants were familiar with the AI concept. They were familiar with the term itself, but it was hard for them to explain and determine it, and also certain provided information was not exactly correct. The most common words to describe AI were: *human-created intelligence, machine/computer/robot that can think and solve problems independently, machine/program that do the task you told it to do.*

AI has entered the traditional hotel industry with the power to transform the industry completely (Maruti Techlabs, 2018). However, according to the findings, managers were not aware of AI technologies being implemented in the hotels and agreed, that they have a narrow understanding of AI. One of the managers said: "There might be even more what we can see and what we can understand." (R2). Few managers have mentioned the same technology that is used in both revenue management and reservation departments – this technology that is settled to predict how hotels occupancy will be approximate makes calculations and sets or closes the certain rates, based on current and predicted occupancy. This system is used to generate data for all hotels in the chain. The managers, however, were not sure how the program works and if it is based on AI principals. This also could be the reason why all respondents gave examples about other various technologies implemented in

hotels, that they thought could be examples of AI when the question about hotel AI technological equipment was asked. Without even realizing it, we are already interacting with AI daily (Carvell, 2018).

To succeed in a computing environment, to meet changing consumer expectations, hotels should integrate intelligence-based technologies into their businesses (Maruti Techlabs, 2018). Even though the managers were not wholly aware of AI being implemented, the question about its relevance was asked. The findings supported the importance of AI implementation in the digital age, but it is not mandatory to have them all only because they are popular. One of the respondents had the following opinion: "Some technological ideas will succeed if there is logic in them, they are worth for the guest and give new experience, but it is not that we must do it. Not everyone has a smart home or all novel technologies at home even they can afford it - it is just not vital, not vital yet maybe." (R3). This, at first sight, positive opinion, is actually the first warning sign that disruption can come. According to the theory (Bower & Christensen, 1995; Christensen, 1997; Christensen & Raynor, 2003), there should be a gap, from which a disruptor will appear, and since managers do not reject a possibility for AI to appear in hotels, the gap already exists.

All participants mentioned that it is important to have various types of modern technologies in hotels, including AI ones. Nevertheless, author did not get any positive answers about hotels' plans to use AI technologies in the nearest future. One respondent was quite traditionalistic when talking about possible AI implementation:

> If we would have planned some AI here I would like to say No, I don't see us even as a company is very advanced with AI. In the near future, I don't see a lot of development towards AI. (R4)

The findings showed that managers' opinion was that it is good to be on top of the modern things happening; however, it is not that important to have all top novelties and to be one of the first to take this kind of modernisation thing into own business. The managers' opinions about future AI plans could be explained as a subconscious fear of disruption. Since the disruptive product serve a small amount of potential firstly, and then grow up and disrupt the entire market (Bower & Christensen, 1995; Christensen, 1997; Christensen & Raynor, 2003), hotels management perhaps would like not to use AI as long as possible, not giving a change for disruption to start. It is impossible to avoid technologies slowly entering and

implementing into hotel life. Probably, one day AI technologies will be a must even to boutique and lifestyle hotels, depending on how the whole hotel industry will develop.

Spending resources on technological novelties can make a business competitive, but at the same time can bring organizational disruption, financial losses and other negative consequences (Goldstein, 2018). Before implementing any technology, it is vital to be prepared and know what one may except the innovation. Respondents were asked to highlight the most important things that, as they think, should be considered before implementing any new technology in hotels and how to be ready for technical installation. Almost every respondent mentioned at first that the upcoming innovation has to be completely ready and tested several times before. This is what one of the respondents stated:

> It (any new technology) should be ready if you want to be a five-star hotel. It has to be smooth. it needs to be very well done and implemented. It would not itself give any kind of value if it is not working. It should be confirmed and tested, that the technology is able to do what it is supposed to do. (R1)

In addition to this point, one respondent also commented: "And before they (guests) know how to use them there will be a need to be people there to show them how to use it" (R5). It is normal for any person, not to know how new technology is working and therefore there will be a need for assistance in more complex cases. This point is applicable to hotel staff users and to any user of technology. Marketing importance also was mentioned by several managers. Marketing is one of the important things of any novelty in hotels and therefore its strategy must be very well planned. Without the advertisement, many guests might miss the information about new features and therefore miss the opportunity to try something new. Continue then, all respondents mentioned the importance of brand loyalty and the actual necessity of technology and its significance. A couple of managers explained this point as the following: "It needs to be in line with the whole experience and the brand. Otherwise, I think it will just turn against us." (R3). "It should be valuable. Does not matter if technology is top-popular nowadays. Implementation should worth it for users first of all, would it be a guest or a hotel employee." (R6). All the above-mentioned factors reflect the idea about awareness of possible hotel disruption and highlight the most important areas to pay attention for, to minimize the risk of disruption.

## 5.2 Hotel services

Nowadays, not only humans but different devices can provide services in hotels. The AI sphere is very wide and applicable to different departments in hotels. It was interesting to know managers' opinions about AI technologies they would like to see and have, in which spheres and departments AI is relevant in their hotels. Also, the author has raised the question about what existing hotel services could be replaced by AI. Mentioned answers for these two questions were almost the same. Many various AI technologies examples were provided during the interviews. The following ideas were created from thoughts since there were no actual plans in any of the case hotels to implement such technologies yet. Several ideas were mentioned by more than one interviewee about various robots, for example: *bell boy robots for luggage delivery; self-check-in/-out kiosks; chatbots for completing simple requests, like room service or setting wake-up calls; room service delivery robots; cleaning robots, like automated vacuum cleaners for housekeeping purposes; concierge and security robots.* Despite these options, a couple of respondents also provided interesting thoughts about the technology they would like to have. One manager said the following: "It would be nice and interesting to have something like Siri but in the room, like a made-in-room robot, which you can ask any service from, instead of calling to the reception." (R1). This idea is followed by regular robots or chatbot devices and is a little bit futuristic; however, this also might be applied one day. According to disruptive innovation scholars (Christensen et al., 2006; Christensen et al., 2008; Paap & Katz, 2004), the examples previously mentioned can be categorized as disruptive ones, as these novelties are low-cost and good-enough solutions. The examples would be categorized as a low-end innovation, as according to their origin, they tend to appear in the gap of least brainwork environment, where AI technologies are still weak ones. The actual disruption will happen when new AI machines and robots will be serving the majority of hotel guests as well as hotel employees.

There probably could have been more examples provided, however, perhaps due to lack of knowledge about existing AI technologies and what these technologies are able to do, managers' answers and ideas were limited. One of the reasons for that could be that there is just no such advanced AI technology that would become a must and the most desirable one, completely beneficial for both hoteliers and guests in boutique and lifestyle hotels at this moment. Another reason could be that currently there is no need to supplement hotel working processes with AI mechanisms. Nevertheless, it is visible that hotels do not reject updates

from the technological side in general. One of the respondents explained why managers do not know about all AI possibilities and why ideas options were limited:

> We are not experts about how things (AI technologies) work. We could have ideas about what we want, how we want it, but it is an IT department which needs to create it. We are users and hotel industry experts – let us decide what is needed and it is their work to make it happen. We will wait for IT experts' offers and then let's see. Perhaps, we would need to wait for a while for more advanced technologies to come. (R6)

Since the technologies are not yet very advanced, and it is obvious that the same service will differ when provided by humans and by electronic machines. Both providers have own advantages and disadvantages. The main disadvantage of AI is oppositely the advantage of humans – personal contact. Boutique and lifestyle hotels' guests are willing to receive the personal, cosy, home-like and warm atmospheric host in particular hotels, which AI implementors are not able to provide, and therefore human providers are very appreciated. One respondent said the following: "Emotional reaction and support are on high demand to our guests and no robot or machine can replace this human touch." (R5). From another perspective, human factors can play against themselves and born issues in guest-host communication, as it was exampled by one interviewer:

> AI machines do not have human factors, emotional ones, for example, tiredness, stress, change of mood, which can influence on the quality of providing services and can harm it and cause guest dissatisfaction. (R6)

Humans – both as guests, as hotel employees - are emotional, and sometimes these emotions can take over a person and lead to a conflict in communication. AI machines are missing the emotional part in their systems and therefore they are steady, and any bad emotions of guests cannot harm the work of AI. The advantages of services provided by AI are mostly related to its productivity and efficiency. One of the managers expressed them as follow:

> AI machines can work 24/7 and do not require breaks for sleep, food, taking rest, only for charging, perhaps. Additionally, one machine can work non-stop and there is no need for several items to change in between shifts. (R5)

Despite the above-mentioned facts, it is very expensive to maintain AI machines. One respondent commented this fact as follows: "A problem with the incompetence of AI technology can automatically cause a problem for staff and guests, and moreover lead to an absence of service itself and ruin the guest impression." (R3). Both humans and machines have advance factors and the best way to success is to utilize them correctly. As one of the respondents supposed: "There will be issues and errors in working processes anyway, rather

they are human or A technologies ones. I don't think any work can be done without any mistakes." (R6).

When talking about the importance of AI, several participants mentioned about another important thing – customer service. Hospitality continues to be the central point for all managers and their hotels, despite living in a digital age and all correspondent technological innovations. The human touch and anticipation of guests' needs are what makes a good hotel, and this is what hospitality is (Carvell, 2018). More personalized all kinds of digital innovations the hotel industry is reaching would be better for the business. Participants perception, according to their answers, was that in terms of customer service and maintaining a high level of guest relations, these innovative technologies, including AI, are not that important. Because of such substantial human contact establishments in boutique and lifestyle hotels, there is a slight possibility for AI to disrupt personal service providers. From the theoretical perspective (Christensen et al., 2015; Christensen & Raynor, 2003), the disruption would not appear in a low-end way, as there is no gap to start, but instead will be created as a new-market way, offering innovative advantages in customer service.

The hotel industry is about hospitality and its main focus is still on hotel guests. It is, of course, necessary to be in time with technologies and not to become lagging property compare to competitors, however, hotel managers were sure that it is not vital to become crazy about new technologies and start to apply them everywhere in a hotel just to be up to date. Businesses should focus more on adding the value rather than on playing catch-up, to avoid potential failure (Goldstein, 2018). Managers strongly believed that at this moment of technological advancement nothing would beat talking to a person about something in terms of getting things done and getting guest needs taken care of and completed.

## 5.3 Guest-host relationships

It was worth to talk with managers about possible AI technologies implementation consequences in hotels. Of course, it is hard to predict, and it also depends on many factors, however, the author managed to get the general idea about what will happen when AI machines will be hired to work in boutique and lifestyle hotels. Most respondents agreed that it will be a mix of the feelings that people would have towards these novelties. So far it is

impossible to predict will AI has benefits in the hotel industry, bring more profit and attract more guests, or another way around – happened to be disadvantaged at all. Respondents commented on the following things:

> If there are some disadvantages when interacting with a flexible robot or human being, then whichever is the best solution, I think they (guests) would prefer that. (R1)

> If certain technology is brought in to help the human staff already there, then I would think, at least I would hope, that they (guests) would see this as a positive thing. (R5)

> If the action would be done that we would replace all the humans by technologies, that will have a negative effect. (R6)

From the answers listed above, it is understandable that the hotel lifecycle, its reputation, and after-coming business life does not directly depend on AI technological equipment in hotels. The main thing still is and would keep the hotel to be the same hotel is the overall experience, and it does not matter, if this experience is delivered by a human or a machine: "If the experience harmed by the AI and the creations of that, or if human beings harm it, the team members – it is the same thing." (R4). Such an opinion makes AI disruption possible. At this point, the AI technologies will already serve quite a significant number of guests and tent to satisfy an even more substantial amount of them. According to the disruptive technology theory, once the majority of mainstream guests will follow AI, it means that the disruption has happened already (Christensen, 1997).

It is almost impossible to predict guest reaction on AI services in hotels, however, as managers are familiar with their target audience well, they provided some assumptions about what the guest opinions and feelings will be. The majority respondents agreed with the opinion that guests will be keen on such innovations: "I think it would actually be interesting for guests and they would be willing to try." (R2). Respondents also provided their thoughts and reasons why the target audience more preferably is going to like AI technologies:

> I guess it depends a lot on the guests and what they are used to. I would say that some people might take that (AI technologies) easier than others. (R6)

> If a guest will benefit from AI technologies and they will help guests –guests will be happy. More personalized all kinds of digital things that we are reaching to the customer would be better. (R5)

> If you are a loyalty guest and you come here every week then that will be very good. You (a guest) can also check-in by yourself. (R1)

Nevertheless, one of the respondents was sure that even some number of guests will be excited about new technologies, this amount of people will be small:

> There will be the hip bunch that loves all new things and are accepting their way of how they work and can make them work in the way they want. However, this is I would say maybe about 10-15 percent maximum. A small bunch will be eager for this kind of changes and then there are the majority of people, or a bigger bunch, they will be on the fence with this one - they do not really know if it is good, or bad, or if they like it or not. (R3)

According to respondents' answers, hotel guests' reactions to AI technologies will vary a lot of their habits, the purpose of the trip and the guests themselves.

In the question of guest preferences in communication between AI technologies and human beings all respondents, except one, mentioned that it depends a lot of the desire question or service. According to Chamelian (2018), any complex inquiries will be delivered to humans anyway. Several participants agreed with that, and one mentioned the following: "If it's easy to use, people will use it for something, but when the need gets tricky, then they will want to talk to a person." (R2). Another mentioned reason that supports guest preference to AI technologies was guest habits and surroundings. As one of the respondents said:

> I guess it depends a lot of the guests and what they are used to. In some cultures, they are already kind of there, in terms of chatbots and things like that. I would say that perhaps some of the more technology-advanced places, for example, Hong Kong, Singapore, guests who come from that area might be more used to doing request on interfaces instead of calling the reception and asking for something. (R4)

One more reason for technological communication was the question of generations. Generation X (born 1965-1982) is not likely to deal with new technologies easily, as it is a new world for them. Nowadays, children and young people (generation Z, born 2001-2019 and generation Y, born 1983-2000) have starting to face technologies in a much younger age than current mature adults. (Taylor, 2018). It is obvious that young people, who have rather been growing up meanwhile developing of technologies, or born and currently growing up surrounded with technologies, are going to use tech novelties in any surroundings with pleasure. Several respondents agreed that young guests will faster and preferable accept and use AI technologies rather than human interactive services in hotels. To sum up the all mentioned topics of guest preferences in communication, it is good to refer to one respondent's words:

The number of guests willing to communicate with technologies will increase, but at the moment not that many people get used to that. Guest preferences are divided – some are going along technologically pretty well, some are willing to try, and some are still preferring old communication ways. (R5)

This represents AI as a disrupter at the very beginning stage of disruptive theory, when it serves the small number of guests only, but will continuously increase the potential (Christensen, 1997). Serge Chamelian (2018), the managing director of a hospitality services firm has stated that in the future there will be an entire generation of guests, who will choose not to talk to a human being hotel staff and not to be accustomed to waiting for a simple answer but prefer AI technologies preferably to serve them. However, these study respondents not ultimately agreed with this point. Only one respondent said: "I do not think you want to meet the machine. I think we are in the hospitality business. You want to meet the person." (R1). Others were more indulgent about guest preferences in communication. All in all, managers are not against the idea that AI technology will be in the middle of guest-host communication relations. They stated that it would be interesting for a guest to communicate with AI technologies, and a lot of them would be willing to try. One more point that was announced during the interviews was that some of the guests might find contact with technologies as a terrifying way of communication:

One of the scariest scenarios is to face a robot, a completely atomised machine, as a lot of guests might probably see it the first time in their lives and have no idea how to make a contact. It will take time to get used to machines. (R1) – explained the situation one of the respondents.

Another respondent said the following: "If they (guests) cannot tell the difference if it is a human being or a chatbot or whatever then I do not think they would mind." (R4). It means that some amount of people will not pay attention to whom they are referring: a human or a machine. The main goal is to receive desirable service/item/answer and if it would be done anyway, the provider does not matter any time longer. This may also create a dangerous gap for AI disrupters to enter the market. If it does not matter, who is a servant for service to be delivered, AI technologies might develop dramatically and become more advanced than human, as disrupters always tend to serve more and more customers (Christensen, 1997).

Guests' reaction on facing intelligent machines and the necessity in communication with them will also depend on the AI technology itself, proposed interview respondents. Whether the technology is easy-to-use and understandable, fun and very efficient - hotel guests will learn how to communicate with it faster and therefore hopefully will use it more often and

more people are going to use it correspondingly. Oppositely, if the technology is very complex, even though can fulfil a big amount of guests' needs, it might scare people and the usage popularity is going to be low. According to the theory of Christensen et al. (2015), these scenarios are examples of low-end market disruption. In these cases, AI is tending to attack and complete the simple, easy-to-do guest tasks and inquiries; provide services to low-requirement guests. The primary attention of hotel workers would be then paid on target guests and their complex requests, meanwhile disrupting AI will satisfy and conquer more and more potential users, gaining more tendency for more prominent disruption and human replacement.

Innovations always followed by their satisfaction with both hotel staff and guests. Continuously, guest overall satisfaction correlates to hotel occupancy afterward - more happy guests increase hotel score and attract more guests in the future. In order to have a good occupancy, more and more guests should be satisfied with the provided services. According to received data, guest overall hotel experience does not relate completely to established AI technologies. "It is a nice and interesting bonus, but not something the hotel is built from." (R2) – commented one of the managers. Following are the words of another manager, who explained the point of guest reaction and consequence on AI innovations:

> At the time that AI technology is a novelty and considered as something outstanding, modern and funny – it's interesting for guests, therefore they will, hopefully, like it and overall hotel satisfaction will be high as well as hotel occupancy. But by the time AI is everywhere, it will be nothing special anymore, not going to surprise and will be more as a must to have. Then, it will be time to surprise guests with something else. (R5)

Thus, hotel managers seemed neutral to AI innovations in hotels and were quite sure that they are most likely not going to be placed in between the relationship of guest and host. Smart technologies will be a sort of alternative to human personnel and helping them with their duty tasks. However, if taking a look at the theory of disruptive innovations of Christensen and Raynor (2003), such opinion might lead to failure, as hotels do not pay attention to engenderment disrupters. The underestimation of competitor service providers could only help to improve the power of AI and lead to decreasing of necessity in a guest with host human communications.

## 5.4 Working processes

AI is able to improve not only guest experience but also to help hotel workers with their daily tasks. Human staff should focus on what they do best, and let technologies do what they do best (Carvell, 2018). Two managers mentioned the idea where hotel, as a business would benefit the most and technology, would be created in hotel personnel purpose, nevertheless due to improving guest services and their satisfaction:

> We have a lot of channels where guests write their opinions and feedback about the hotel and their stay in general. Physically, it is hard to review and gather all this information and highlight the weaknesses we have in order to focus on and improve them. I am sure we do not even know and see all these channels with all comments. It would be great to have a program or robot that could look up, analyse all information and provide a kind of statistics about hotel situation from the guests perspective. (R2)

Other examples of delegating working tasks were also provided and some of them were mentioned the majority of times. According to hotel managers, AI technologies can influence and take part in improving daily duties in every hotel department. For example, at the front desk, hotel employees can trust all reports and financial accounting calculations to be automated and completed by intelligent programs, as well as room service delivery, room preparations and requests (e.g. flowers delivery) to machines. In the restaurant, side technologies are able to take care of inventory calculations and room service orders delivery to guests. On the kitchen, cleaning and dishwashing actions, as well as some precooking procurements could be completed by robots. In housekeeping departments, robots are able to clean different areas, such as there are already exciting robotic intelligent vacuum cleaners, that are able to save a lot of staff's time and energy. Desirable AI technological help in cleaning and maintaining duties was mentioned by every respondent since the tasks do not require personal, emotional communications with guests and the possibilities of ruining guest-host relationships are very low.

To sum up all highlighted examples, managers agreed that simple tasks, which can be easily automated, which do not require much intellectual work but conversely manage better physical and movement work, would be happily delegated to smart machines and robots. Disruption in working processes will appear in a low-end way. Managers were happy to delegate repeatable and monotonical working tasks to AI. This is the perfect gap for disruption to start, as according to the theory, the disruptors tend to attack the smallest part of the processes, the least attentional ones (Christensen et al., 2015). As it was stated, managers

would keep more complicated, especially the ones that require communication duties to human hotel personnel. This is another sign for disruption to be born according to the theory (Christensen et al., 2015)., as the hotels would pay attention to the target, prior tasks, and duties.

However, despite all the positive aspects of helping people, managers were worried that staff perception of AI technologies will be mostly negative. At first, many employees will be happy to get dispose of certain tasks. However, later on, a fear of potentially losing workplaces will be spread out. The following explanation was announced during the interviews:

> The hotel staff can think that, if machines are replacing daily duty tasks, then it means they (machines) can replace all human tasks completely and there will be no need for people to work inside a hotel at all. (R6)

The hotel employees will be happy as long as the new technologies have no effect on human working hours and not take them out from them.

## 5.5 Human replacement by technologies

Having discussed all AI technological opportunities in the hotel industry, their implementation possibilities, and consequences, with existing probable examples, the question appeared: but do managers actually see their hotels with implemented AI technologies? All respondents, not depending on their personal interest and positivity towards technologies, agreed that it is hard for them to see their hotels with such advanced automation in the upcoming future. The following arguments were provided to support the statement:

> I still believe that it is a necessity to feel a human touch in our hotel and that human interaction is needed. If the action would be done that we would replace all the humans by technology, that will have a negative effect. (R2)
>
> In the big picture, they (AI technologies) are not able to take everything over in terms of people in the hotel. There are slight possibilities of these alternatives to come true, depending a lot on how the industry develops in the near future. (R4)
>
> It is more than a technology that could help for a better experience for guests. But in small boutique hotels – not, not actively. It is still hard for me to see that happening here. (R3)

However, one of the respondents was not that conservative about the possible upcoming AI technologies in the hotel: "It is quite hard to predict as well. But if the technology, if the AI, is brand aligned once again, if it really supports the brand, the service, then I think it might be a positive thing for our guests." (R5). The answers represented that AI technologies are not likely welcomed to boutique and lifestyle hotels, at least in the nearest future, due to its current incompetence and strong hotels' desires to keep the very warm human atmosphere in guest-host relationships.

There are many discussions nowadays that robots and machines will replace human beings or at least a certain part of human duties in the future. A lot of examples have been presented in the theoretical part of this research where AI technologies are already working instead of people in hotels. There is even a robot hotel Henn-na in Tokyo, where machines serve guests. However, many hotel professionals worldwide believe that such replacement will not happen any time soon. All respondents of this research have also proved that replacement will not happen, at least in the nearest future. One of the respondents shared the following thought: "I could see AI technologies in the near future as a supportive function or service, but then again, I can't see it within next five or ten years replacing human beings here, as we're talking about luxury products, luxury hotels." (R6). This thought has also another good point, that some other respondents agreed with as well – there are no such advanced technologies yet, that could absolutely replace human beings in hotels, keeping the same atmosphere, characteristics and emotions human staff members provide in luxury and boutique hotels. On the one hand, a lot of progress towards strong AI development has been made, but on the other hand there are still many human intelligence fundamental aspects for machines to reach (Krupansky, 2018) All other respondents also agreed with this statement and these are the words of one of them: "New AI technologies are possibilities, new alternatives, good options. Of course, in 2050 might be the only choice, you never know. But now as they are as helping hands - just another way of doing things, like a bonus." (R1).

Even though technologies are developing fast nowadays, and it is a very top industry that progress actively, it still takes time for people to actually start using them in everyday life. According to Gather Hype Cycle, AI, the internet of things (IoT) and other technological trends will get maturity in 5-10 years only (Goldstein, 2018). One of the interviewers gave a

good explanation of why the human hotel workers replacement to artificial ones will not happen quickly:

> For example, if you look at airports, it's a little bit similar business in terms of what the people do - they check-in there, they check-out. At the airport, check-in automats have become the standard of the things you do there, so you do not any longer go to the people, you go check-in device. But this technology has already been at least 10 years and it slowly now going towards the main point. They have replaced probably half of the workforce. But in 10 years of the airlines pushing this and marketing this actively, they still have been only able to replace about 50 percent. This is a long and very slow process, but I would say that check-in automats would work in a hotel in a similar way that they work in the airport - people will use them if they know how to use them. And before they know how to use them, there will be a need to be staff there to show them how to use it. So, the first five years you will have to have a person standing next to the machine to teach the guests how things work. (R2)

By taking a look at the findings through the lens of the theory of Christensen (1997), it is visible that there are already the first signs of the AI disruption process in the hotels. Even, according to the interview participants, there are no physical AI technologies and machines implemented into the hotels, the desires and wishes of their adoption in the future were mentioned several times. Moreover, since some big hotels and hotel chains worldwide are using the AI technologies already, one day, these innovations will reach boutique and lifestyle hotels as well. As stated in theory, the disruptors will firstly serve a niche only (Christensen, 1997), and this will be the moment for the hotels' management to be aware and start taking actions to compete with upcoming AI modernization and delay the actual disruption as long as possible.

The progress is not happening at once, it takes time, sometimes a lot of time, to finally reach desired objects. With the help of AI integration, hotels should decrease business weaknesses. This is the key to improve customer service, increase brand recognition, gain more revenue and attract more guests. (Medium, 2018). Instead of fully replacing human workers, the hotel industry should adopt a partial automation system and work side by side with artificial force (Fussell, 2019).

# 6  DISCUSSION

The objective of the study was to gain an understanding of AI technologies' implications and their effects in boutique and lifestyle hotels. To achieve this objective, six hotel managers (meaning both hotel and front desk managers) were interviewed by the author. It is vital to mention that all participants are professionals in the hotel sphere as it was hoped to be before starting the research: with an average of 19 years of work experience in the hotel industry and around 2,5 years of working on current managerial positions. Based on interview discussions, five key topics that AI technologies have an impact on were identified: hotel technological implementation, hotel service models, guest-host relationships, working practices, and human contention with AI.

As the results showed, the managers are not aware of AI technologies being currently implemented in any of the case study hotels. However, the further elaboration represented that there is at least one system exists, that uses AI help – the rate reservation and booking program. When hotel management was stating that there is no AI technology implemented in hotels, they perhaps meant the physical AI systems, for instance, AI machines and robots. There might be several reasons for AI absence, such as apathy for investing money for innovations, lack of use in such advanced technologies, and many others. Additionally, one of the reasons could be that head managers are aware that AI technologies may disrupt habitual, regular working processes and communication with guests and, correspondingly, harm the business and cause financial and reputation losses. Managers represented that they are aware that disruption can happen when AI will be implemented, and as discussions showed, they know possible consequences and ready to face them. The logic behind this could be that since there are, or will be, no many AI technologies implemented, therefore no than many possibilities for disruption to appear. As stated in Oracle Hospitality, 64% of hotel guests said that it is crucial for hotels to invest in technologies (Marques, 2017). It is wrong to say that hotel head management is against AI, contrariwise, the majority of them told that they think it is essential to be up-to-date with technological novelties, spending money rationally and thinking through all upcoming technological changes carefully and adequately.

The findings reveal some examples of AI that managers would like to apply and that most likely to be settled down in their hotels. All proposed examples, in general, tend to perform simple, repetitive duties. It is visible that hotel personnel does not yet trust artificial

technologies much and, if talking about entrusting and delegating, hardly can rely on completing tasks absolutely on them.

Following then, one of the respondents shared the idea that it does not matter if a service is provided by human or machine, as far as the service is provided well. This statement again refers to the idea that services provided by technologies should work correctly, without any disturbances and interactions, and should have the same outcome as if a human provides the same service. Nevertheless, both humans and machines are not ideal, and nothing guarantees that there will be no mistakes made by any provider. There will be mistakes from both sides anyway, both big and small ones. It is only a question about where these mistakes will lead to and how hard they will be able to ruin providing service and dissatisfy opponents. When the guest experience is ruined, it does not matter anymore who made this dissatisfaction happened, a human or technological service provider, but how the situation should continue in order the problem will be solved, and guest satisfaction got back to the high level.

One may think that if there is no difference in service providers, then it means that machines can easily replace human beings at work. However, as ones are talking about simple tasks implementation, it is instead that only specific human duties can be transferred to be completed by intelligent technologies and for now, there should always be people behind being ready to replace technology and complete service with their own. In addition to that, if there is no difference in who is providing services, the human factor is more valuable in boutique and lifestyle hotels, as the guest interaction from the emotional side is highly essential and is on the peak level, which therefore decreases the potential of human replacement by AI technologies. It has been established that guests are usually based on their emotional dimensions when they evaluate hotel services. No matter how much technology has impacted the hotel industry, hospitality – and the human touch – will always exist and should never be replaced by AI. Robots have been increasingly appearing in hotels, but one thing they cannot deliver is that human touch.

The whole hospitality business is based on the experience factors; otherwise, if customers would have been paying for products only, they would never have come to restaurants and were buying products from grocery stores. According to Walls (2011 as cited in Gao, 2012), the most important dimensions of customer experience in human interactions in luxury hotels are employees' attitude, proactive service, appearance, and professional behaviour.

Individuation in customer experience is highly essential in the upscale market because guests love to be treated as VIPs. Individuation or personalization is about fulfilling all guests' desires efficiently (Talbott, 2006). Talbott (2006) also argued that for upscale hotels, all services have to be genuinely personal and aware of the unique requirements if every individual guest. The study results showed that hotel management appreciates a lot the personalization they provide to guests, and most of the respondents are afraid that with AI implementation hotels will lose such high individual service touch. Personal preferences of all regular guests are impossible to remember by a human, and nowadays this information is stored in Property Management Systems (PMSs) and withdraw upon checking-in. While one thinks that AI completely disrupts all humanity and personal touch in hotels, it is another way around, and human touch is what AI could bring to hotels (Carvell, 2018). Big Data requires AI to use the wealth of data, to learn customers' behaviour and take care of anything customers would need (Maruti Techlabs, 2018). AI technologies could help staff know and predict in advance about all preferences, and moreover, with well-advanced innovations, they can set some of the preferences themselves, without involving hotel employees. There are already existing technologies known as "Smart Home," when indoor electronic devices, for example, TV, AC, kitchen appliances, light, are connected in a system that could be controlled distantly via app in a smartphone. Such technologies by working together with guest preferences could rise comfort standards in boutique and lifestyle hotel to a very high level and indeed to be called personalized services.

According to the findings, guests' preferences in communication might vary a lot depending on different factors, for example, age, home country, and development level of the country, the purpose of travel, etc. Also, guests who are staying in the same hotel regularly will probably choose fast service with minimum communication, as everything is familiar for them. From the hotel management perspective, there will be people in their boutique and lifestyle hotels, who might not be used to technologies in everyday life, but it still will be interesting to communicate with them. In either event, in order to satisfy guests, despite the primary fact of completing the requested services, communication with technologies should be easily understandable.

Nevertheless, human contacts and interactions are relevant and meaningful in boutique and lifestyle hotels. Results showed that in such hotels, guests still want to contact and talk with humans, and besides, sometimes delegate simple tasks and services to machines. According

to respondents' answers, warm guest-host relationships are sustained due to excellent communication between a small amount of hotel personnel and a small number of guests, because of correspondingly small hotel sizes. In such an environment, the communications are happening due to different occasions, and often it might be that same person of the hotel staff serves drinks in the evening, meets in the morning on the way to breakfast, and sometimes even does check-in and check-outs. This means the staff meet a guest in different situations, more frequently, therefore learn guest behaviour and habits and eventually know a guest pretty good. In addition to that, because of the same small sizes, boutique and lifestyle hotels are very good in guest personalization – business travellers do not communicate much, meaning there are around 50% of guests (leisure travellers) who actually ask and talk, which means that there is not that big amount of guest to remember their wishes and preferences. Despite this fact, AI can still be beneficial in terms of guest individuation even for small boutique and lifestyle hotels. AI technologies help in personal guest preferences, together with human staff interactions and conversations should work together for improving personal contacts with guests, excellent relationships, attitude, and services. As Hans Wiedemann, Managing Director of Badrutt's Palace Hotel said, AI is a tool that can help businesses to grow, but hotels must continue to enhance personal care, communications and feelings, which are at the core of the hospitality (Zhang, 2019). A personal touch and personal contacts, according to the study findings, are still too valuable for boutique and lifestyle hotels, and none of AI technologies can beat them. Even though there are possibilities for AI machines to enter boutique hotels and start to serve guests in there, the gap for disruption is tiny, or even there is no gap for future development at all. Because of that, according to the theory, the chances for disruptors to come are very tiny, meaning the disruption will not happen in between guest and host communications (Christensen et al., 2015).

AI application is possible to be turned into help for business managers to reach the same goal of the whole hospitality industry – great guests experience. Together with plenty of technological novelties, a considerable amount of data the technologies are dealing with, have stored; and companies for years have been trying to make the most out of it. According to PwC's 2017 Global Digital IQ survey, only 13 percent of hospitality industry IT and business leaders said their companies effectively use all the data they collect (Sickel, 2018). Some industry managers would like to change that with the help of AI by updating technologies with cloud-based systems. AI can automate the process of data analysis and therefore increase sales, improve acquisition, manage the consumption of resources, and boost revenue

(Gupta, 2018). IHG CEO Keith Barr is sure that "AI machine learning is critical for the industry" before launch IHG Concerto cloud-based global reservations system last year (Sickel, 2018). Other hotel chains, such as Choice Hotels International, Wyndham Hotel Group, Radisson Hotel Group, are also getting in touch with opportunities of AI, and have already updated or in the process of updating their systems into cloud-based ones. From an organizational perspective, intelligent use of data causes low costs, increased operational efficiency, marketing profitability, and the design of new products and services (Diez, 2017).

According to the findings, the most common examples of work duties to be delegated to AI machines could be characterized and referred to repeatable and monotone tasks at first, and secondly, to the tasks that do not require a lot of direct guest communication. Such choices are based on not complete trust of humans towards AI technologies, as well as get rid of the tedious duties of employers to let them use the power of their human intelligence for more complex tasks. All provided examples are categorized as disrupted ones, since the desire of delegating specific tasks to AI, the hotel managers are creating a space for disruption to begin. The disrupters will appear then and will be developing in a low-ended way (Christensen et al., 2015). Such delegation might cause hotel staff worries regarding workforce contraction and fears of losing their working hours and job position afterwards. This possible scenario is the most significant disruption that could happen in the shortest time in boutique and lifestyle hotels. All other examples are far away from actually happening in the nearest future, as they are related to human communications and their emotional relations, which could not be overcome by AI. Meanwhile, the repeatable work, if additionally, not required human contacts, could better be done by machines. This means, relating to the theory, that disrupters serve and will serve quite a significant number of users and might become mainstream (Christensen, 1997). The best solution for managers in the upcoming future is to show and prove their employees the irreplaceable meaning of them and the work they do, in order to work align with modern innovations.

The thoughts and fears about human workers replacement in hotels by AI technologies have a very low possibility of happening in boutique and lifestyle hotels in the upcoming future. Frank Wolfe (2018), the CEO of Hospitality Financial and Technology Professionals, is sure that robots will not completely replace humans because they do not have human traits. One of the reasons for not complete replacement is the personal attention to guests. As it was already mentioned in the theoretical part of this study, and what was corroborated with interview

results, boutique and lifestyle hotels provide high-quality services and pay much attention to keep good communications with guests. Technologies are not able to give the same warm emotional touch. Professor Joseph Weizenbaum at MIT said: "AI cannot, by definition, successfully simulate genuine human empathy" (Weizenbaum as cited in Carvell, 2018). Experience and emotions – these are what people are looking for coming to boutique and lifestyle hotels, and robots and machines are not able to provide these. If one combines all current technological processing ability and compares that power with the human brain, it is evident that technologies are still several years behind (Chishti as cited in Zhang, 2019). Technological intelligence is still far away from a human one. An excellent demonstration for that is a piece of recent news from Henn-na Robot hotel in Japan, where half of 243 hotel robots had been laid off because they had caused more problems that could solve (Liao, 2019). The robots were incompetence in answering open questions, related to information outside the hotel, they were limited in their actions and services, and eventually, the human hotel staff had to fix problems and do the job instead of machines (Liao, 2019). This is an excellent example that human force is still on very high demand in the hospitality industry, especially in the luxury sector with high-quality services.

The situation in boutique and lifestyle hotels with adopting AI technologies will also depend on the level of advancement and development of the whole AI industry in general, as well as AI technologies around the world. Currently, AI machines have not entered, and well established in humans lives, for example, smartphones, but just slowly entering and taking small niche in everyday people's habits. Therefore, people are still not getting used to intelligent machines and do not expect them to be around and help with any issue. Correspondingly, such advanced technologies are not expected to be in every hotel, and every hotel room, and their absence in there will hardly affect guest satisfaction and overall hotel experience. Although at this time, AI in hotels will be a great advantage, something new and exciting for guests to try and might also increase hotel status by attracting more guests. Nowadays, AI technologies play a more additional role as a helping tool, but not as a necessary one. Nevertheless, history has shown that the industrial revolution has happened and been progressing dramatically fast, which means that people were accepting new technologies actively. Since AI is just a new era of the technological strike, it is appropriate to assume that human acceptance and development of AI technologies will happen the same rapid way. By the time AI technologies will be standards and spread everywhere, for instance, peoples' homes, workplaces, etc., all hotel guests will be expected to interact with

intelligent machines during their stays. By that time, if a hotel is lacking these advanced technologies, the reputation and occupancy of such accommodation perhaps will go very low, and it will be a considerable disadvantage. Hoteliers should understand that it is irrational to blindly follow every tech novelty, trying to be the first one to tame everything. Instead, they should be to up-to-date and rationally understand what technology can and should bring to their hotel business and set the proper time for this technology to be implemented as the AI revolution is impossible to avoid.

AI is a set of statistical tools that have already excised for the last 40 or 50 years, which run inside machines. Correspondingly, the machines have become more advanced and powerful over the years. There is no disruption happening here. AI will not change everything – a re-distribution of work is more likely to happen. (Chishti as cited in Hospitality Insights by EHL, 2017). AI could and should help humans with simple tasks, especially with those, that can be easily programmed and automated. Human and intelligent machines should collaborate and work together for better productivity to achieve desired goals.

# 7  CONCLUSION

AI is a prominent technology nowadays, which is applicable in many spheres and entering peoples life, but actually may disrupt and replace old ways of processes. As a technological boom has influenced the hotel industry for several years following the technological evolution steps, AI has already entered the field and actively in use by many hotels and hotel chains worldwide. For boutique and lifestyle hoteliers, it is crucial to understand both positive and negative effects AI may have on their businesses in order to find a solution for the upcoming technological future.

The findings illustrate that AI technologies have not entered the case study of boutique and lifestyle hotels yet. Even not every study participant happened to be very familiar with AI technologies related to hotels and their possible disruption. This factor and also the current absence of AI technologies in hotels with no further plans of implementation could be estimated that AI era will not come to boutique and lifestyle hotels in the nearest future and especially will not disrupt the current hotel operational ways.

The study results represent that the most AI disrupted areas will be employees' tasks when guest-host personal contacts and interactions are needed the least, such as in-room services, room service orders, luggage delivery services and especially cleaning and maintaining. The following areas of tasks are also the ones when AI technologies could help the hotel personnel. In addition to that, AI machines' and programs' help will be highly appreciated with monotone, repeatable duties, that can be easily automated and do not require much deep thinking. Therefore, machines will give more time and freedom for human workers to complete more complex tasks and decisions. Study results also illuminate that AI might limit guest-host connections and interactions, but at the same time, human-guest communication will become more relevant and complex, therefore improving the guest relationship in general. In boutique and lifestyle hotels, the possibility of AI disruption is far away from the real future forecast. Human interactions are on very high appreciation, and necessity levels in such hotels and high-quality human services are what this hotel sector is thriving, favored, and known for. Flexible emotional and creative sides are enormous gaps that artificially intelligent machines and robots are missing. However, with the data AI could deal and work with, intelligent technologies can help a lot with guest individualization. The power of AI

could be directed to guest personalization preferences, therefore helping hotels to provide high-quality individual host and services for their guests.

AI may reduce some working positions, but it will also create new ones, and the human working force will become more thoughtful and rewarding (Franklin, 2018). Technologies nowadays tend to help humans at work, but not to replace them. The author as a result of this suggests not to reject AI at all, but to think about the benefits and help it may provide, and to apply it properly to hotel business to let technologies work together with human staff for better services. In addition to that, the more technologies are appearing, and the more social force is needed to maintain them. Technology has increased total employment through the years rather than taken it away (Carvell, 2018). In the hotel industry, the case is not about machines replacing humans at work, but machines working side by side with humans in the fields they are obviously advanced.

It is essential to understand that every research has limitations, and this one is no exception. Firstly, the research was made within Kämp Collection Hotels and therefore limited in frames of one hotel chain, meaning that findings indicate practices of selected hotels only and may differ from systems and processes in other boutique and lifestyle hotels. Continuously, the sample size was also limited by the number of hotels within the hotel chain – only six hotel managers were interviewed. Secondly, the data was collected from the hotel chain, which has all hotels in the same Finnish location - Helsinki, which also limits the data and findings into a representation of the particular city, in particular country. Thirdly, only hotel headquarters perspectives and thoughts were gathered, and findings are based on their knowledge, without any hotel guests and hotel employees' perception taking into consideration. The last but not least limitation was framed within the AI term itself. As this concept is entirely new and does not mean a single thing, but combines various spheres and subfields in itself, the author had difficulties in collecting the background theory for this research. The previous researches in the AI field were mostly focusing on concrete examples, such as robots or machine learning, and covered AI as a term only briefly.

As a direction for future research, the perception of guests as well as hotel employees regarding the AI technologies in hotels can be gained. Continue then, future research can focus on advantages and disadvantages of services providing by AI technologies and by humans and look for situations and services that AI can make and deliver better than human

encounter and another way around. Besides, future research can also have a look at the hypothesis about human replacement by AI technologies in hotels in the future and test it by multimethod approaches. All above mentioned future research ideas could be implemented in hotels in general, in the same boutique and lifestyle hotels and can also be brought into other hotel categories, for example, apartment hotels, casino hotels, resorts, and hostels.

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# APPENDIX 1: Interview Structure

The tense of some questions will depend on AI technologies existence in the hotel.

**Background questions**
- Hotel name & position in the hotel
- How long have you worked in this position? For how long have you worked in hotel industry?
- Are you familiar with the term Artificial Intelligence? Could you give examples of AI application in any hotel worldwide that you know?

## KNOWLEDGE ABOUT AI TECHNOLOGIES IN HOTEL

1. **Are there any AI technologies implemented in your hotel?**
   *What are they? In which departments?*
2. **Are you planning to apply any/more AI technologies in the hotel**?
   *Could you describe them?*
3. **Do you think it is important to implement AI technologies in the hotel nowadays (in the digital age)?**
   *Why? Why not? In which departments? Could hotel benefit from AI implementation?*

## SERVICE MODEL

4. **Which service(s) that you have/provide in your hotel could easily be replaced by AI?**
   *Which service(s) AI machines can provide easily? Which cannot?*
5. **Do you think there is any difference if service is provided by human or by machine with AI?**
   *Does it matter who provides service? Is there a difference in consequences (guest reaction, satisfaction, evaluation) after providing a service by human and by machine?*
6. **How AI technologies implementation influence on service quality?**
   *Lowering/increasing hotel service quality? Can AI technologies provide the same high standard service quality as human, or they provide lower/higher one?*
7. **Would you implement an AI technology right now in your hotel, if you would get an offer? (not taking the cost of technology into account)**
   *What technology would that be? What department needs it the most? What existing hotel service(s) you would not trust or trust the latest to AI?*

## GUEST – HOST RELATIONSHIPS

8. **What do you think guests prefer to communicate with: technologies (e.g. automatized programs) or human employees?**

*Do you think it depends on service they want to have? Why? Does it depend on certain factors, e.g. their age, sex, country of origin, etc?*

9. **How AI application have affected/will affect on guests' overall satisfaction of the hotel?**
   *Positively/negatively/neutral?*

10. **How AI technologies have influenced/will influence on hotel occupancy?**
    *Have/Will AI technologies attracted/attract more guests? Reject guests? Keep the same number of guests (will not have any effect)? Number of regular/loyalty guests increases/decreases or stays the same?*

**WORKING PROCEDURES**

11. **How do you think AI have helped/could help in the working processes?**
    *What tasks/in which departments/in which situations?*

12. **Are there any working operations/procedures that you have delegated/would like to delegate to AI?**
    *Would these operations/procedures be delegated partly/completely replaced? Could you give examples?*

13. **What was/will be hotel staff perception on AI implementation?**
    *What was/would be hotel staff reaction to innovations? Advantages/disadvantages for staff?*

14. **Do you think AI technologies can replace employees' duties and/or human employees themselves?**
    *If yes: Why? Which? In which departments? What type of replacement that would be (partly or completely)? If no: Why not? Are there any AI technologies implemented in your hotel, that have (partly or completely) replaced human duties and tasks? Are you planning to apply such technologies in the future?*

15. **What should be considered before deciding to implement AI technologies in order for business to benefit the most?**
    *What factors make you decide so? What were/are for and against factors?*

**Are there any other thoughts that you have got during the interview about AI technologies in hotels?**

# APPENDIX 2: Interview Invitation

Dear XXX,

My name is Ananeva Daria and I am working as a XXX at hotel XXX. I also study tourism at the University of Lapland and now writing my Master thesis about artificial intelligence (AI) in the hotel industry.

The main objective of this study is to get a better understanding of artificial intelligence technologies' implications and their effects in boutique and lifestyle hotels. The research results will provide information about the application of AI in hotels and how it affects on provided services, relationship with guest and hotel working practices. More detailed information regarding the topic is available at the end of this letter.

To collect the data, I would like to conduct interviews with front office managers as well as with general managers of several hotels from the Kämp Collection Group. The aim of the interviews is to get a managerial opinion about AI implementation consequences. Interviews will be recorded, and recordings will only be used in frames of this research. Interviews will be conducted individually, anonymously and will not lead to any respondent identification through the material. The duration of the interview will be approximately 45 minutes. The result of the study will be published as part of my master thesis.

As a XXX Manager of unique hotel XXX, I would appreciate you to take part in and share your valuable thoughts, information and experience for my research. Your contribution to this study is essential for the future. Participation is completely voluntary, and you can interrupt it at any stage.

I am happy to answer your questions about my study.

Sincerely,
Ananeva Daria

**Artificial Intelligence as Disruptive Innovation in Hotel Industry: Boutique & Lifestyle Hotels Perspective**
Artificial intelligence or simply AI is a popular topic nowadays. AI is entering and helping in many fields these days, including the hospitality and hotel industries. However, at the same time, new technologies can decrease provided high-quality services, break hotels guest-host relationships and lead to business decline. In the hotel industry, it is crucial to find a balance of relationships between guests, a hotel, and new technologies applications, in order not to ruin providing services and experiences, but to improve them. The goal is to find out how new AI technologies are able to disrupt management and service practices in boutique and lifestyle hotels. This study is relevant as it focuses on small hotel segment, but

still a meaningful part in the hotel industry. The research is conducted within the Kämp Collection Hotels hotel chain, which has unique luxury hotels with high-quality service standards in them. The purpose of the study is to increase understanding of artificial intelligence technologies' effect on hotel operations.

# APPENDIX 3: Participant Agreement

Dear XXX,

My name is Ananeva Daria. I am Master student at University of Lapland, Rovaniemi, Finland under the supervision of Senior Lecturer José-Carlos García-Rosell (XXX@ulapland.fi, Tel. XXX). You are invited to participate in my master thesis study entitled "Artificial Intelligence as Disruptive Innovation in Hotel Industry: Boutique & Lifestyle Hotels Perspective". The purpose of the study is to find out how new AI technologies able to disrupt management and service practices in boutique and lifestyle hotels. The result of the study will be published as part of my master thesis. The thesis is conducted as part of the Master's Degree Programme in Tourism, Culture and International Management (TourCIM).

By signing this letter, you give consent to use the interview material confidentially and exclusively for research purposes. The research follows the principles for responsible conduct of research dictated by the Finnish Advisory Board on Research. The data will be handled anonymously. Your participation is voluntary and you can withdraw your permission even after signing this document, by informing the below mentioned contact person.

Please feel free to contact me or my supervisor, if you would need further information regarding the study and the use of the research data.

Sincerely, Ananeva Daria

TourCIM Master student

I give consent to use the interview as data for the purpose mentioned above.


_____         _____

       Signature                Date


_____

Print Name

# ACKNOWLEDGEMENTS