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Artificial Intelligence (AI) and its role in enhancing customer experience in Thailand's Hotels by 2030

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Abstract

Artificial Intelligence (AI) is revolutionizing the hospitality industry across the globe, and Thailand is no exception. By 2030, AI will be at the forefront in driving customer experience (CX) in Thai hotels, transforming models of service, guest interactions, and operational efficiency. This article explores the use of AI in Thailand's hospitality sector, more precisely how AI technologies such as chatbots, predictive analytics, natural language processing, and personalization algorithms are revolutionizing customer service, revenue management, and overall guest satisfaction. Since the tourism industry is one of the key drivers of Thailand's economy, the use of AI presents opportunities as well as challenges, particularly in terms of sustainability, employee training, and technology investments. While hotels grapple to maintain pace with evolving consumer needs, AI enables more personalized and streamlined experiences, ranging from automated booking processes to customized provision of services. However, the paper also alludes to the ethical, legal, and environmental consequences of AI-driven practices, necessitating cautious adoption. The influence of AI is set to reshape Thailand's hospitality sector by 2030, striking a fine balance between technology, sustainability, and improved customer service. This article aims to provide insights into the future of AI in Thai hotels, outlining a roadmap for stakeholders to benefit from the potential of AI while addressing its pitfalls.

Keywords: Artificial Intelligence (AI); Hospitality Industry; Customer Experience (CX); Thai Hotels; Personalization and Automation; Sustainability and Ethics in AI

1. Introduction to AI in Hospitality

Artificial Intelligence (AI) is bringing a huge impact to the hospitality industry worldwide, and Thailand is no exception. The advent of AI has brought with it great potential positives for both the tourists and the hoteliers. While hospitality executives are adapting their businesses to this new AI environment and assessing AI's impact on brands, service models, revenue management practices, and staff training frameworks, guests are rapidly opting new encounters and experience standards enabled by these exciting technologies. If not capped over, AI driven bots and systems can fundamentally change brands and guest preferences and astoundingly elevate or provoke dissatisfaction with guest encounters. (Ananeva, 2019). The strategies undertaken by unexpected rivals, unprecedented exposure of services, and fresh cost expectations will likewise need to change. Many hypothetical new technologies emerged, and still much wisdom and knowledge were yet untapped for expecting tomorrow's operation's needs. Determining the prospective effects of AI systems on hotels, guests, brands, products, new technologies, available unsatisfactory experiences, counterpart experiences in other industries, service aspects susceptible to AI influence, hotel/guest investments in technology and staff training required, new expectations of communications regarding the brand and company, ethical concerns regarding AI utilization, and legislative actions are some of the unknowns and unanswered questions of AI in hotels is timely and essential. AI powered information systems and nodes across the hotel guest experience journey, which are presently receiving a lot of media attention, are turning into robust decision-making platforms. These systems

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collect data on the guests' needs and characteristics. Algorithms process this input and make price and guest communication decisions. The work process of revenue management team now is quite mechanical. By a daily double-checking of incalculable situational and historical points of information, estimates and justifications for the day rates are produced to allow the software to upload them on the web. But these are preliminary and tailor-made suggestions in today's super perceptive environment. Some sites today show promise of customization, i.e. tailor-made e-mail messages and the capacity to type in guest specials and late check-outs. But hotel accommodation is about experience, and today's websites are less effective at handling that part of the experience, although this is in great demand.

2. Overview of the Hospitality Industry in Thailand

The hospitality industry of Thailand is vast, covering hotels, restaurants, resorts, travel agencies, transport operations, and events. It is a significant contribution to the country. The tourism sector of Thailand is a multi-trillion-dollar industry, contributing nearly nine per cent to GDP. They rely on the best hospitality sector to serve the industry as the revenue of consumers increases and transport facilities expand. It is heartening to hear that Thailand is one of the fastest-growing countries in the hospitality sector. (Ananeva, 2019). Thailand's accommodation industry comprises car rental, tours and travel agencies, restaurants, and hotels, and collectively contribute greatly to the country's economy. Despite the above positivism, the hospitality industry in Thailand has direct and indirect impacts on the environment and social impact and biodiversity. As awareness of the adverse environmental impact generated by tourism and the accommodation industry grows, there is also a growing and pressing need to make the hospitality industry conscious of the principles and significance of environmentally friendly practice and sustainable development. Sustainable tourism development has remained constrained in practice compared to worldwide proclamation of the concept since the stakeholders are less educated about the impact of unsustainable practices on livelihood. The hotel industry initiates the journey of sustainability through "green supply chain management" practices. Hoteliers first need to convince the chief executive officers (CEOs) with awareness campaign on how unsustainable practices would adversely affect their reputation, branding, and overall value-chain management. Later, hoteliers can proactively obtain competitive advantages through the inclusion of eco-friendliness in the recruitment system, using more efficient machinery, equipment, and furniture, tracking their use, green suppliers' selection, training of employees and public, use of green energy management systems and control systems, investment and collaboration with renewable energy, etc.

3. Current Trends in Customer Experience

To determine the current trends in customer experience, interviews with ten hotel managers are conducted. The results show that there are seven current trends that influence customer experience, and they include deskless and office-less employees, automated customer profiles, chatbots and virtual assistants, AI recruitment and training employees, personalized promotional offers and content, AI bans and changes to trigger human connections, and the metaverse. (Ananeva, 2019). Deskless and office-less employees are those who work without a desk or office. Because of telecommuting, which enables employees to work anywhere while managing their own flexible schedules, the hotel industry has adopted deskless and office-less employees. Moreover, remote work has made it possible for employees to travel to new places while working on holiday. To stay accessible, hotels must establish a collaborative work culture that inspires employees to interact and create virtual team solidarity. Working conditions must be welcoming and thriving, either on the shore or as an online expat, to address expectations of plush workplaces outside the known territories of hotels. Automated customer profiles enable hotels to automatically create customer profiles pre- and post-bookings. With advanced levels of automation, AI can extend and fill out missing information about customers to build a connection and level of trust. Personalization by automated customer profiles creates satisfied customers, for example, by providing free items through historical purchase behavior or by providing information and content about locations based on historical visits. Brand and emotional connection are optimized. Among the other trends are the growing use of virtual assistants and chatbots, AI-driven employee recruitment and training, and customer sentiment analysis and personalization. Customer profiles can be furthermore specific based on this data, and AI can be harnessed to make marketing content and promotions better. Social media postings can be customized by using AI to automatically detect customer sentiment. Special promotional discounts can be automatically created and sent to customers after they have been seen to have intentions. Automated preventive maintenance systems can improve performance by actively notifying facility management personnel when machines must be serviced.

4. AI Technologies in the Hotel Sector

The role of AI as a significant disruptor that is arising in the hotel sector due to some emerging technologies: Natural Language Processing (NLP), machine learning, robotics, facial recognition, and computer vision. (Ananeva, 2019). Convenience of access to visitors encourages hotels to find new ways to make products more efficient, improve service,

and maximize customer experience (CX). Now visitors can get smart responses to their queries every second and on every device. Hotels can have keyword/exact match reading customer journeys. All these technologies enable hotels to have huge amounts of real-time data and newly to base business on better understanding customer's needs, extensive influencer analysis, and understanding how guest perception is created. In hospitality, AI is optimizing best business practices. AI allows hoteliers to have great knowledge of guest expectations that value automation. Making web searches easier might predict demand. New technologies create a heterogeneous guest experience, from virtual/robotic concierge, room selection preference and guest profile to catering/food choices. For the guest, AI involves online content personalization, chatbot for inquiry reservation, virtual concierge to offer amenities and services, or digital key entry. For the hotel, AI impacts forecasting, personalized pricing, ad optimization/preoptimization, email/inbox support, guest messaging, and cross-departmental insight. While technology is designed to improve numerous aspects of the customer experience, it needs to be intentionally brought together, added and implemented in hospitality settings. Hotels cannot instantly AI-enable all operations and services because technology selection is something requiring special care and is a differentiator. To rank technologies for investment, one prioritization method for ranking is an Analytic Hierarchy Process (AHP) that can evaluate how adaptively AI integration benefits hotels.

4.1. Chatbots and Virtual Assistants

Chatbots and voice recognition technology are taking over the world, permeating daily life and changing how consumers interact with brands. Chatbots are replacing legacy customer service mechanisms and arguably are one of the most ubiquitous applications of AI. They can communicate with users in natural language to meet simple needs. (Geisler, 2018) because they respond to questions and help facilitate the ordering or booking process of a hotel room. Chatbots can be embedded on social media sites, messaging apps, and other platforms and websites. They can harvest user data from the behavior and use it to make recommendations for content or segment out target audiences. Semi-automatic chatbots can cut assistants' workloads by automating routine and low-level inquiries. Guests at hotels also have different needs, such as mentioning the hotel, asking to change their reservation and room options, asking for assistance with their room, etc., where chatbots can make a big difference in customer service. In fact, large hospitality brands already use chatbots. AccorHotels has created a so-called "Phil Welcome" chatbot ready to offer information about hotels within the group. Marriott is testing a virtual assistant on its mobile app which can manage the guests' preferences and organize their hotel stay. Other large brands are bringing in chatbots as customer service tools. (Ananeva, 2019). People take their first impressions of a site with them for years, and this has made user familiarity, engagement, and intuitive nature a requirement for companies. Voice is only one among several simple ways of acquiring intuitive information about unknown or intimidating products. Voice search and personal assistants eliminate the typing of information or the clicking of inviting links. With firms taking advantage of advancements in deep learning, natural language processing, and automatic speech recognition to make it more attractive, it will increasingly theoretically dominate the search landscape, with SEO expectations even fundamentally changing. Nonetheless, despite its relatively expensive application because domain service providers lack sophisticated systems that can return results in a matter of seconds based on partial information, web performance will significantly benefit from voice recognition.

4.2. Predictive Analytics

With predictive analytics hotels can be handled more intelligently and humans can be energized to meet requirements. In addition, the usage of already existing information simply means a reduced need for additional investment. The ability of predictive analytics to significantly reduce operational costs and improve guest satisfaction is bestowed. In some applications, such as demand predictions, it has already been applied in hotels. Although some hotels already use several applications, comprehensive current data on the use of AI, especially in developing countries, is very limited. Chatbots relieve customer service personnel of some of their workload and improve their performance rather than replacing them. (Ananeva, 2019). Fixed chatbots usually answer pre-defined questions. Additionally, by using predictive analytics hotels have optimized third-party partnerships. On average, they have reduced energy costs by over 10 percent and improved the experience of their guests by 10 percent. Predictive analytics in hotels have only recently been well researched. There are thousands of hotels in which predictive analytics opportunities have hardly been explored. Hundreds of thousands of other hotels in the developing world, like Thailand, where hotel room revenues are even lower than in Europe, have even less chance to utilize predictive analytics. Thai hotels are largely family-owned and small, offering more insight into the developing world. Collectively, information systems researchers believe that much more needs to be done to make capabilities accessible and build approaches and organizational processes in a way to be able to take advantage of opportunities. Experience with THAI towards information sources, products, business models, and delivery channels were considered towards creating environmental scanning and forecasting environmental behavior. Data sources used data mining but offered limited access to data and standard for aggregating data. For yet unexplained reasons, there were few organizations that participated in THAI. In addition to this, existing socio-technical systems and architectural patterns and mobile application needs are believed to serve as a basis for creating cutting-edge systems and applications.

4.3. Personalization Algorithms

Personalization Algos for Hotels' Website Content: With invasion of AI in every sector and in day-to-day life, the consumer use of AI by hotels to experience improved personalization has been studied and few cases have been documented. In 2018, more and more individuals are booking hotels on personal computers than in earlier years and people are changing accommodation-seeking behavior to visit hotel chain websites instead of external aggregators. Travelers do the same by visiting travel agencies or city information-requiring pages and hotel pages at a destination. Also, customers use SNSs to control external information. (Ananeva, 2019). Case studies of hotel site personalization algorithms that were driven by AI based on this study of consumer behavior were categorized and analyzed. Personalization algorithms give specific content based on users' habits by filtering by gender, age or cookies and IP address. All these contents include ads, discounts and travel and hotel service offers. For hotels, for increased competitiveness, new hotels will need to have professional web designing by top algorithms under top contents for price-bargaining and management against on-line agents and well-executed preference-indicating methods to retrieve customers. To survive in the expected competitive in hotel business, amounts of hotel personalization may be grouped based on the level of consumer habit indications; numerical preference indication (e.g. price and number of stars), that signify types of habit (location, number of people, style, cuisine etc.) and default preferences or Categorical Preferences that may give insight of ideology (e.g. environmental changing). Moreover, alternatives, such as superior preference ranking indication, favorite hotel revisiting provision provide room for consumers to rearrange received information or comments. Such case study mechanisms, by and large, hotels should individually analyze their visitors' habits and detect habit hints by initial analysis method, e.g., statistical methods. Per-visitor habit-indicative mechanisms with AI are to investigate per-consumer behavior and detect habitual decisions in units of keys, e.g., monthly, weekly and daily. Based on outcomes of stored expected habits' predicted preferences, hotel data for the subsequent decision would be determined for one visitor in advance with potential advertisement. Performance or consumable time invested in these suggested contents is analyzed by hours. For advertisements, by the weekend, day or night charges are calculated. Potential preferences on hotels divided by hotel price, stars or habit types are also scored at each type. These tastes are recalled by scores not of numbers but by single owner hotels.

5. Enhancing Customer Service with AI

From the thesis, current issues and existing research of AI and hotel, this project indicates the AI standards to enhance the customer experience of Thailand hotels by the year 2030, which are explained in the following section. This project cautiously reviews guest's expectations and choices regarding the implementation of AI in hotel operations. Machine learning has emerged as one of the AI domains. The machine learning decision-making platforms used today generate all types of information regarding visitors during booking and, as specialists, interpret the information to create the finest possible personalized offer. Like decision-making platforms, sophisticated automated platforms collect huge amounts of personalized information on a guest. Thus, hotels can use business-specific machines learning algorithms with specified structures and settings, or universal ones, to create guest profiles and provide corresponding products and services. Meeting the needs of the target audience and being acquainted with them is necessary to satisfy the guests with an ideal exclusive service. (Ananeva, 2019). The sophisticated AI-based software allows for the recording of information about customers' preferences, payment methods, travel arrangements, and much more. Hoteliers in the future will consider guests' wishes and needs before placing a request. In addition, without setting foot in a hotel, guests also gain similar functionality through an app that could function within smart new devices based on machine learning. They can dominate their surroundings, adjust the temperature in the room, open and close curtains and lighting, order drinks, and perform other several things there. Uncommand operations such as check-out or reminder feedback help the property in anticipating guests' decision-making. Through the help of AI support, a uniform determination of the guest's preference can be solved automatically. For instance, after just a few minutes of the initial settling period, AI is aware of the ideal size of a bed. Another example is a welcome center in an AI-assisted hotel. Offering visitors a personalized hotel stays as opposed to universal check-in is paramount. Hotels can thus bypass delays: customers can check in at the hotel before arriving or the moment they take a seat in the lobby. Several hotel corporations already have more and more intelligent systems. is a hotel brand that has launched a chatbot suggesting basic information about hotels, assisting with room services, and facilitating check-in processes, is testing a virtual assistant allowing visitors to make various requests at a hotel through voice without any command, informs hotels' imperial stock, golf club rates, entertainment venues of the hotel. If the guests are already reserved, it can open curtains, switch on the TV, and many more things. Innovation in hospitality is a game that is evolving rapidly.

5.1. 24/7 Customer Support

Hotel visitors are effectively customers of travel agencies, advertisers, and tour guides, commercial television, and entertainment agencies, restaurants, hotels, and tourist amenities. To meet increasing expectations, hotels need to increase visibility, personalization, security, and efficiency. (Ananeva, 2019). Visitors expect 24/7 customer service:

live, convenient interaction through voice, text, or visual channel. They expect replies to personalized requests to enhance stay expectations. They expect an on-call 360-degree view of all hotel operations empowered with interactive features to track all interaction and transactions with any stakeholder at any time (24/7 duty). They want to have the capability to leverage algorithms that would be capable of processing fully stored structured and semi-structured data to optimize and customize the business model in real-time. Where is all of that going to come from? AI can provide understanding, anticipation, and knowledge in circumstances and aid execution in extraordinary circumstances. Imitating human actions to enhance everyday activities is one of the major driving forces for AI. Case studies worldwide have indicated the use of natural language processing (NLP) technologies in handling free-form consumer feedback on accommodation received, the prevalent technology employed in online travel agents. NLP strengthens customer insights via internally stored contact center voice texts and commercially acquired free text comments from social media, review websites, and blogs describing customer experiences. Voice or chatbots respond to questions in one language, while fictional characters speak in the real world. 20% of hotel questions were to be executed via messages without humans having direct dialogue. AI allows for the suspension of normal rules governing consumer and hotel behavior. Business can be optimized, expectations greatly heightened, and disruption utilized to paralyze monopolistic dominance of activities such as tourism, discovery, or architectural forecasts. AI compels hotels to transform consumer strategy and architecture. It is about usurping it to consumers to make a competitive advantage and to recast the competitive bias of technology folks. Customers are better informed and empowered than ever before with interactive capabilities that enhance the cost visibility, the quality of service, end-to-end interaction 24/7, and social networking. AI can focus on customer data generation to meet all four 24/7 needs.

5.2. Real-time Feedback Mechanisms

Hotel guest feedback mechanisms are an extremely high proportion of the overall hotel-specific Big Data and are presently in need of calibration. (Ananeva, 2019). The application of systems utilizing AI can render the entire process quicker and provide customers with updated and quality analytics. With growing competition of the hotel industry in the world, and in Thailand, the need for timely customer feedback is growing, and the systems analyzing it need to be as detailed as possible. There exist single solution systems that have been specifically aimed at tracking negative feedback on the hotel or staff, but these systems are not very accurate and have low credibility. Additionally, the use of non-native language data and data being scattered across multiple review media complicates analysis greatly. Therefore, the implementation of chatbot systems for automated collection of feedback after hotel check-out is needed because feedback gathered in real time can be utilized to guide future provision of services in a timely manner. For the specific instance of chatbot answers analysis, mechanisms can include finding several bookkeeping items within roughly specified values, content analysis of open comments and detection of negative feedback regarding objects by pre-trained multi-channel incense. Also, there are few successful samples of customer processing surveys either in existence overseas with high implementation prices or in Thailand because of lesser proportion feedback, lack of systems, and half translations excluding hotels from assessing brand reputations. Such sophistication is being made easier using conversational agents, and their utilization will increasingly become ubiquitous in both delivering immediate response to frequent requests and more sophisticated actions including human-like contextual actions taken. Since Thai hotel reviews are written both in Thai and English, unnatural language processing mechanism must also deal with the non-cylindrical abbreviation and slangs. This research included exploration of benefits and drawback of various off-the-shelf systems for facilitating understanding of Thai comments to carry out clustering and sentiment analysis and improving model flexibility for Thai words. Online review is the most important source of information for potential visitors of hotels nowadays. It is very personalized information representing a lot of areas of services provided to customers. Analysis of data can be further understood to capture operational points to be pinned down and constitutes the core operation of hotel analysis businesses. A great many review texts from customers have surfaced on the Web in Thai language, and analysis of Thai text data was conducted, so that it can be utilized in the customer-acquaintance businesses. Speculation on what hotel data may be deemed important to other visitors will be made by automated analysis.

6. Personalization in Hospitality

It is thought that AI technology use will be greater by 2030, there will be more devices out there, the market will be more social driven; thus, customer experience will be improved due to more personalization. It is presumed that hotels will know more about travelers these days and guests will be treated as individuals. More and more people want to be understood based on their desires, interests, what they like, and what needs to be accommodated so that their experience (traveling / hotel stay / dining, etc.) is of greatest value to them. It suggests that guests enter their information, consent to being monitored for their behavior, check-in/check-out time, cleaning preferred time, what floor a hotel room should be on, and if extra pillows or no tub/shower/bath. The mood, scheduled trips, and reasons for trips (business / pleasure / mixed) are also identified. Therefore, by utilizing the latest AI technologies, it is assumed

that this data will be used for higher personalization in various domains and for various devices and services in hotels. The effectiveness of AI in such a case is assumed to be 70 percent. Several instances are listed to visualize personalization innovation: to understand better about which visitors are alcoholic visitors and avoid serving drinks that would be over their limits. Such innovations must become slightly invasive in obtaining consent. Guest personality information and attitude can be accessed through membership registration or through advertisements on certain social media platforms. (Ananeva, 2019). Now the guests are treated the same way not as individuals. It is expected that at the stage of personalization, the hotels will have a better opportunity to differentiate by knowing their guests and treating them as individuals. Tri-hospitality marketing will become more intimate with guests through data mining, Artificial Intelligence, and the Internet of Things. Hotel chains will consider the reason for the trip of the guest and provide special offers related to that reason. Traveling trips will be planned and provided according to the preference of the guest.

6.1. Tailored Recommendations

One of the most significant findings of this study is that Machine Learning and AI can help Thai hotels create individualized recommendations for hotel services based on the history of every guest. Several hotel groups already have developed AI systems that monitor customers' histories and automatically make individualized recommendations based on experience. For instance, the visitors may approach any of the staff members and request that changes be made in their preferences as far as room comfort is concerned. The AI system, according to this data keeps the data automatically and when the visitor stays in a hotel in the future, even in a completely different country, the system automatically sets the service delivery according to the visitor's earlier preferences. Through such innovations, hospitality service providers and customers both have benefits. Through such collaboration, there is a more personalized experience for guests, helping to close their open issues beforehand and reducing uncertainties. As such, hotels in Thailand can consider investing in similar AI technology in the next 10 years along with planning an investment budget. In addition to hospitality service individualization, NLP and AI can make suggestions based on the needs of customers through human-computer interaction with natural languages. Integrated chatbots can recommend hotel services in natural languages, investigating customer needs in a positive dialogue. In such a way, both hotels and customers benefit from it: the former can still look for corresponding offerings, while the latter can introduce their services. A good example of such innovations is a hotel concierge chatbot that helps with hotel amenity information, check-in and check-out timings and so forth. This program and training AI models to combine knowledge automatically help it to develop its understanding of customer language patterns and information needs through conversation. Thus, clients appreciate the automated assistance, taking into consideration that their demands are fulfilled without navigating through a long list of hotel amenities manually. Accordingly, being one of the most practical short-term innovations in Thailand's tourism 2030 strategy, hotels can invest in embedded chatbots providing intelligent responsive services in natural language.

6.2. Customized Guest Experiences

The hospitality industry is very customer-focused and customer-centric, where facilities aim to exceed and meet guest expectations by improving their experience. (Ananeva, 2019). By knowing their target customer, hotels proactively make efforts that form an ideal customer experience mainly around standardized and individualized experience with the services offered. In a human natural individuality, it is understandable to believe that guests are individuals with their distinct status, requirements, and activities, thus distinct from customer to customer in consuming offered services with the aim to enhance their experience. This challenge is perceived as guest individuation where recognition of individual uniqueness and addressing each person's preference concerning offered services within individualization of services are covered. Technology-driven AI personal service potentially finds a new autonomous mode of using services, and it will incentivize more travelers to use them thus enhancing customer experience in the hospitality sector. Instead of natural intellectual, emotional and interactive communications, AI tools and processes leverage the explosive growth of big data and harvesting it through deep learning. In luxury hotels having adequate resources to implement highly personalized service significantly, over-reliance on AI technologies can over-tire customers and lead to negative experiences. Hence, more investment in AI technologies needs to be made in such hotels not taking too much pie of AI-enabled customers. Certain chains seek to substitute their IT infrastructure with cloud-based platform and web of data outlets, while others depend on proprietary AI throughout their tiered services or upgrade existing ones. AI technologies are viewed as a real estate discipline game changer by certain seasoned chains, which adopt a long-term investment strategy while more concerned with immediate revenue of each hotel. Single hotels with optimized operating staff comfortably nestle into taking care of all emotionally charged service parameters because they have a capital-intensive business model.

7. Operational Efficiency through AI

In the hospitality industry, new-generation solutions are being introduced and implemented in the daily workings of hotels to serve customers better and more effectively. A very high degree of detail is a key step in enhancing customer service and experience. There is much data available to be used in understanding the guest's behavior and profile. Today's customers ask for customized packages, customized experiences, and unrivaled quality of service. Thanks to AI solution design, the hotels can well examine the given data and construct personalized offerings as per their requirements. Further, AI solutions can help the hotels target a fresh customer segment and offer products and services that off-target visitors have no access to. AI solutions can help design operational effectiveness in terms of limiting any mundane repetitive work. A combination of AI technologies can be employed to automate restaurant reservations, room booking, and check-in. (Ananeva, 2019). AI solutions consider visitors' behavior data from various sources and try to predict their needs before a request. In some cases, the prediction can be inaccurate, and these mistakes may lead to an unfavorable impression of the hotel. Some AI technologies are easy to utilize, while others need caution. AI decision-making platforms collect the data, replace and analyze some of them, and create current optimal individual offers. At the same time, such robot sites can acquire personalized information about visitors. For example, hotels can apply machine learning to gain a record concerning a transient customer and promote and offer a fitting product or service. Understanding better the target population is very important to satisfy guests and offer them magnificent exclusive service. Hotels need to receive more information, use more sophisticated algorithms, update information on the psychology of customers to create high-quality reports based on processed data and offer goods and services that are interesting for target customers. Apart from that, AI software allows extracting information on individual purchases, preferences of destinations, and travel patterns. Smart hotels soon will be expecting guests' needs even without explicit question.

7.1. Automated Check-ins and Check-outs

Automated check-in and check-out features can be provided through QR codes and login links sent via SMS, email, or a third-party app initiated by a guest who has booked the hotel. Current practices allow guests to log into the hotel's system using pre-sent data and complete check-in by inputting their details, scanning their ID card, and capturing a selfie. Their room number and two one-time access codes will be sent to their SMS and e-mail to complete check-in. They can now go ahead and have fun anywhere without wasting time at reception upon arrival. The guests can now enjoy a personalized guest profile with all the booking and other information, like reviews, preferences, and information for different hotels. Every customer can also control what data of this profile is exposed and shared with the hotels in an aggregation of the brand or hotel chain. They can check into different hotels using their profiles too. At check-out, guests can go ahead as they did during check-in. They can erase room access codes or change the password and switch it off if they want to do so in a more secure way. They will be asked to choose an option for disseminating the room and service reports. Then, the successful check-out will be sent after a few seconds. Hotel group data becomes available for processes that are due with robust analytics and data warehousing, and the guests will have all their hotel data in one account in a smartphone app. As the hotels handle automated check-out and check-in, they will be able to communicate with registered guests through message and alert them to any issues, events, and offers in the property as well as within the location. (Ananeva, 2019).

7.2. Resource Management

Artificial Intelligence could also be combined with existing capabilities and systems within the hotel, with providers or in-house development. As existing systems are not generally designed to interoperate with other systems and data storage frameworks, functionality will be duplicated. This can increase the cost of use and maintenance. Combining AI with the existing systems presents the tool with vast amounts of real-time and historic data that enables designing a monitoring tool that sends notifications regarding the aberrations in the normal working of the establishment. Utilized judiciously, this data can trigger deep learning algorithms to iteratively refine their recommendations to the property and enable the hotel staff to focus on value-added activities rather than controlling functions that may be automated. Public policy. Governments and institutions participating in tourism planning and development and planning for destinations must embrace AI to reimagine the public processes, right the imbalance of the powers of key players, and put people's health and nature at the center of destinations' hospitality instead of the unrelenting stream of visitors. Interface with other systems. AI can help the employees of hotel chains that require disparate systems to mimic business processes. This will primarily lead to clunky and failing projects that are not capable of meeting expectations. AI can have a master role by exploring the system where they extract the essential properties without worrying about their management in the background. The alternatives can be defined hierarchically and simulated both in variations of structures and in data types. A suitable user interface and business process description can act as the bridge between business and information systems, which in today's world too frequently does not exist.

8. Case Studies of AI Implementation

Customer Relationship Management (CRM) technologies are computer programs that assist businesses or individuals in managing customer relationships, marketing, sales, and service issues. CRM is likely to incorporate the aspect of "customer measurement and analysis" to aid in optimizing profit margins. Over the years, CRM has been a more common use of Artificial Intelligence (AI) for enhancing customer experience. AI-driven firms found and curated content for individual viewing and listening patterns to inform, influence, and personalize streaming experiences. By examining content, providers can personalize content for consumers most likely to watch or pass on. The delivery of content is also personalized – e.g., messages being sent via push notifications, emails, or as pop-ups on streaming devices. There are also institutions that encourage cultural group profiling by organizing streams or playlists that are respectful of cultural sensitivities. (Ananeva, 2019). AI-based children's gaming technology is presently utilized in schools. AI-based technology assesses the child's engagement with pre-prepared exercises or learning content, analyses the path and time taken by the child to achieve results, and knows the difficulty level in achieving the results. The test can indicate the way the child arrived at the outcome – whether an answer was guessed, how much reflection, and how it faced failure. These pieces of information enable teachers to study the problem that had to be taught more efficiently and to choose exercises that would further enhance various levels of complexity. Certain edutainment boards focus on cooperative learning and enhance the total wisdom of the acquired material by rational or intellectual games. Deep learning or machine learning is another means of customer experience enhancement through AI. Deep learning helped maintain the ecosystem and ocean through off-the-shelf data-enablement whereby one could train a recorded sound clip of whales. The audio can then be fed to the AI system to find, and it will automatically parse transcribing the entire audio and language utilized excavating all the sounds which relate to every occurrence of whale sounds. The system is further trained to phonate traits within human voices and tones.

8.1. Successful Hotels in Thailand

With more AI products already out in the market, it is still not widely utilized by the hotels today due to the costs and inability in Thailand. There are quite a few hotels that effectively utilize or apply AI to enhance customer experience, however. The all-inclusive Hard Rock Hotels have identified guests' mindset as the starting point, addressing those needs with customer-led innovation. The investments previously made in telematics and improved audio-visual systems now reap dividends as customer safety takes on increasingly greater importance. The investment of Hard Rock Hotels in touch-less technology, remote channels and safety assurance is a strategic method for delivering better customer experience. (Ananeva, 2019). Katathani Phuket Beach Resort places extreme emphasis on developing AI and intelligent technology for working efficiency and comfort to guests. Internet-of-things-compatible conditions of structure and organization of budget-friendly systems are embedded in operation processes. Prioritization, overall, of contactless systems and AI technology is a smart step towards eliminating health hazards at the time of the pandemic as well as projecting safety perceptions positively to guests. Hotel Nikko Bangkok has online-integration solutions in every guest touchpoint. Quick, precise, and smooth services have made it a popular choice among busy lifestyle guests. So far, the hotel has achieved all four delivery moments to enable the guests to engage with equipment and staff at anytime, anywhere with delight. More than half the hotels in Bangkok used AI to create better customer experiences according to a survey of tourism strategy researchers on more than two-thirds of Bangkok hotels in measurement of AI employment success. In Korea, AI facilitated a lot in saving costs and labour, along with improved service quality and customer satisfaction benefits. This can be associated with personalisation, efficiency, convenience, perception of human touch, value perception, and hedonic motivation benefits where they enhanced the tourist behavior towards AI assistants' usage intention.

8.2. Comparative Analysis of Global Trends

In the past few years, the rise of the following trends has quickly transformed the hotel and tourism landscape. Firstly, with the growing use of the internet and the exploding amount of information available on online platforms as well as with the help of Artificial Intelligence based applications such as personalized recommendation systems, it has become easier than ever before to plan your trip in an optimal manner. In combination with many individual offers, the power in the sales negotiation processes has shifted further and further towards the customer in recent years. (Ananeva, 2019). Secondly, the increasing usage of mobile telephones with fully internet access and web applications has led to a more on-the-go decision making behavior of the customers. All this has fundamentally changed the way customers do their travel and event planning and have shaken the existing processes in the product design and sales chains of travel companies. These developments are all results of the recent technological advancement in the fields of IT, the internet, mobile networks, and the growing connectivity between countries, sectors and people. Such developments are changing the world of travel and tourism drastically, and the change is only beginning. Why then are so many of these trends on the rise? What are the drivers or push factors of these trends? One major driver of technological development in the global economy is the competitive pressure on the sectors involved. A similar argument holds for the degree of growth

paths a particular region or sector can achieve. Due to the perception that countries that have made investments in advanced technologies have achieved a higher level of economic development and productivity, growth paths of a are models or best practices to be followed. (Geisler, 2018). Thus, it can be concluded that in dealings with both investment and development of AI as well as in the predictions about its future impact on the Thailand's hotel sectors characteristics, the events in the globally divided and weighted center are used as benchmarks. For the Thai hotel industry to catch up with the leaders of the sector globally, the same set of AI based technologies is to be applied and the same roadmap to amplify the benefits of AI is to be followed. However, different in quality development paths or opportunities suited to the development stages of Thailand's hotel sector ought to be recognized.

9. Challenges in Adopting AI

The integration of AI into hotels is bound to be very demanding, especially in a traditional hospitality environment like Thailand. The first challenge is that the hospitality industry is not well educated about AI. (Geisler, 2018). AI is extremely broad and highly theoretical. Most of the hospitality people are still not aware of the technology. Therefore, only the AI firm can offer "how" to implement the technology, which significantly minimizes the convenience for hotels. More essentially, it depends on these companies to implement the AI in a usable form for the environment of the hotels. But the gap between the hotel culture and the tech of AI companies is too far apart. Bad companies will exploit the hospitality sector's reliance on it to take advantage. (Ananeva, 2019). This is a significant obstacle to hotels when AI matures. In Asia, fictitious company tales are still prevalent in data science that trick hotels into the hundreds of millions. AI businesses should meet halfway with the hotels here, and provide the information required so that hotels can understand AI in simple terms. The second obstacle is that AI is extremely expensive. With all functionality and capability, AI is immensely more expensive compared to its predecessors. Not just does it require investment on the operator's behalf, but also much greater periodic expenses to maintain the AI system in peak running condition and security. This periodic expense includes data management needs to keep the AI processing all data relative to the application. Disappointingly, nonetheless, AI isn't only costly, but even worthy for only a few of the hotels. Larger hotels would receive more utilization out of AI compared to smaller ones. AI is particularly good at attempting to discover patterns with more data available to measure and reason off. The small hotel appears to have less data for customer behavior AI can improve operations with. AI companies should be more inclusive, so they provide lower-priced options for small hotels. This is the moment when small hotels will suffer most from lagging since AI supports the industry to bounce back from COVID-19 lockdowns.

9.1. Data Privacy Concerns

With the shift to AI-based hotels from traditional hotels, the majority of experts are of the view that AI-based hotels will take over Thailand in 10 years due to data collection for instant and personal service. Another school of thought involves privacy in data collection and the trust of the hotel in the use of technology with AI-based services. Information has also become a new currency, but privacy concerns necessitate important ethical considerations on how hotel AI should be employed. As much as there are so many advantages with the use of AI in hotels, it raises concerns regarding data privacy. Thus, privacy issues need to be researched and developed as additional prevention on the hotel's AI technology to adhere to hotel guests, staff, and organizations in Thailand. (Geisler, 2018). Overall, AI technologies make and facilitate the life of hotel guests simpler; however, it generates the loss of job position for hotel employees. Employees' fears about the replacement of the job by AI are widespread and more critical in hospitality sectors. (Amineva, 2019). One such instance, the Courtyard Hotel Chain, is under consideration to replace the concierges in the hotels with the 'Go Board' virtual concierge touch screens as a step towards adopting AI technology. Understanding the gaps, fears/cautions where it is coming from, on the visitor side the aim of AI is expressed that by Greg Adams, SVP and Chief Digital Officer at Best Western Hotels and Resorts, 'AI in hospitality is not about replacing. AI is about taking a lot of repeatable actions off the employees/agents, so they don't have to spend their day on repetitive repeatable tasks'. As per Bill Ramsey, Choice Hotels International's Senior Director of Mobile and Emerging Channels, AI might be utilized most effectively to enhance hotel staffing, which would respond to shifting staff trends much quicker than a human, and assist visitors with the 'gold list', or the retro query of 'where is hotel xxx? Most hotel professionals have considered that to enhance brand value, advanced and comprehensive customer service for every guest is growing, especially at the mature-service hotels such as luxury and upper upscale, where customers were greatly impressed with the unlimited hospitality level skillfully utilizing new AI technologies coupled with the finest human guest service. That is, there would be marketing benefits and guest praise introduced by new self-service technology, while simultaneously there exists an evil half where there is concern among management hotels regarding the lack of human service and reduced interpersonal exchange with the service staff.

9.2. Integration with Existing Systems

Despite all the possibilities and benefits AI offers to the world hospitality industry, the study also brings forth fears and threats represented by AI for the hotel industry. The respondents were unclear if AI-based robots, chatbots, and other devices would be able to provide hotel services autonomously without human assistance. Additionally, fear of becoming a technology company integrating AI technology was also highlighted. Hotel operators never credited technology as a core competence but instead wanted to partner with tech companies. There is limited understanding of AI potential in this industry, which is another problem. The hospitality industry considers IT companies to be technology partners. Simple technology solutions are not considered to be disruptive innovations, but technology building blocks on which the ability to generate a forecast mainly in corporation depends. The AI system deployment process in hotels can be bifurcated into the following steps: Defining concrete needs and probable use cases; Finding technology providers and conducting testing; In the event of successful testing, integration with existing systems and roll-out to operations; Then expanding progressively and automating the utilization of the system over time; Lastly applying learning to cement knowledge of the technology. Nevertheless, there remain questions about the types of technology hotel companies opt for and the successes and challenges that arise while implementing and employing technology. Chatbots are being brought to hotels to automate customer care. AI is revolutionizing the hospitality sector, though opportunity and expectation vary between hotel segment representatives. Even though they have the same awareness of technology right now, changes in pricing models might render non-personal recommendation-based hotels obsolete. They have started to drill deeper into the whole science of recommender systems and price suggestion algorithms, which is revolutionizing payment in the travel industry by turning every channel and device into a self-service payment vehicle.

10. Future of AI in Thailand's Hotels

Intelligent machines will help the hospitality industry comply with regulations introduced after COVID-19. New regulations limit the movement of guests within hotels and restaurants, prohibit serving large groups, and mandate separating tables, which can be enforced through video analysis and AI platforms. AI will also help in automating the booking process and setting price points based on businesses' historical data of rates bargained with visitors. (Ananeva, 2019). Virtual or physical concierge services can also suggest restaurants to visitors after their preference and intent sentences are recorded via the hotel chatbot. They will be able to attribute reviews to those suggestions, nest maps, etc. Additionally, big suites can also be autonomized with an AI-based butler who would recognize the guests and might also welcome them by names, suggest activities, etc. The report forecasts socially independent and useful in-house robots such as balcony helpers, cleaning maid robots, luggage attendants, etc. Room wines and snacks may be robot served with idle time for vending purchases. The anticipations of collaboration and rivalry with AI will be advanced today – hotel chains remembering their traditional roles in the competition. In a hotel implementation of AI-robots will put a brand at a totally different level on the guest's perception. Safer and cleaner hotels will become a more significant deal than comfort and hospitality. In the luxury hotel segment, the quality of services will remain supreme and complimented with fetichized design objects of AI's robots. Privacy issues will be of value as usual but see fewer AI integration because of government regulation. Competitors will mostly have low to low-med levels. Its performance would be focused on the areas where employees are more in demand or dreaded to work – food serving or street corners. Even implementation, training, and communication costs will be well ironed out for quickness. AI robots shall enter the market where large businessmen can invest and can expect scenic returns. One could expect that this would be thorough research and designs with just one rubber model in the business, while expected decades of regular machines' life will assail software breakdown faster. Understanding the type of guests that live in their accommodations and what they expect can inform the type of hotels that are adopting AI. Four and five-star hotels expect that AI solutions will provide tourists with new dimensions, improve interaction quality and make it simpler to organize. One-star and two-star hotels expect that AI tools will work in analysis, recommendations, and observation tasks. Since domestic tourists and business travelers as well as foreign customers' requirements are different, budgeting as well as timing need to be accommodated. More than two-thirds of AI industry professionals and recruiters are sure that hospitality as well as the tourism sectors will offer great career prospects for AI science graduates.

10.1. Predictions for 2030

Below are the 2030 predictions, for which various scenarios were examined in greater detail, with a focus on the impacts on Thailand's tourism and travel industry overall, and on the hotel industry. Projected trends, their development, impacts, challenges, solutions, and concerns of relevance that remain to be researched are summarized, which will be by 2030 and still exist. These are situations based on the hitherto observed four most pertinent questions about affecting developments that case organization executives ranked to be the priority ones. Development in technologies of AI and foundational technologies will continue, yielding speedier, more intelligent, and cheaper systems. Such an accelerating development can be anticipated in hardware and the accumulation of information gathered, in software, and in other uses of AI across domains. There will be AI systems that will perform in more and more domains with more

and more specialized intelligence. Therefore, there can be far less travel, a huge possible increase in travel, or modified travel behavior and a modified travel unit product. (Geisler, 2018). Indicative examples include several possible developments or consequences of AI in terms of its potential. The perception of AI among travelers is predicted to change. AI or automated systems on the purchasing side can be viewed as always not trustworthy or considered never to be inferior to human-operated systems. Proposals or services presented by AI systems can be viewed as being more personalized or open, understandable, and transparent. Competence-based credibility will differ by market segment. Due to transparency and ubiquity, computer-controlled supplier-side systems will be able to capture a disproportionate share of the market.

10.2. Innovation and Emerging Technologies

The hospitality sector must recognize Artificial Intelligence (AI) as a central disruptive innovation in a global paradigm shift from the industrial age to the information age. The most significant attributes in hotel businesses are following AI best practices to collect big data and algorithms to improve products, services, and prices. Therefore, the mass deployment of AI-powered recommendation engines is in the pipeline. The decision-making platform powered by AI processes collected information, created a set of products and services, and made the optimal personalized offer. This offers great opportunities to enhance hotel customer experience (HCE) and revenue per available room (RevPAR). AI-powered automated recommendation engines allow platforms to collect personalized data on guests who participate in a hotel's activities. Hotels can utilize machine learning and other self-training techniques to establish a suitable product and service portfolio. AI application stores and archives information about the key customer buying, destination, payment means, mobility option, travel planning decision-making, and times. Hoteliers shall be able to predict what travelers will want prior to requesting. (Ananeva, 2019). Broader personalization across various aspects of the hotel is a natural next step in the technological travel journey. Individuals appreciate self-determination, autonomy, and the ability to adjust their stay. They also increasingly expect hotels to show some level of personalization and manage the context activation, while still being mindful of their privacy and security autonomy. Hotel stays are a way of life, and visitors prefer to have a home-like atmosphere in their own room. Mobile applications enable visitors to take control, set the room temperature and humidity, order drinks, send messages to the reception, and carry out other operations. Good hotels can offer these activities as a matter of course at arrival and departure, guiding the guests politely and gently through this high-tech yet automated environment, making them feel personally cared for, and welcoming them to return. While high-end international hotel chains are already using smart systems in most functions of hotels, the choice and application of such systems in Thai boutique hotels still lag far behind. All such plans hint at AI penetration into hotel day-to-day operations. These new technologies will provide more opportunities for serving the guests while creating new challenges, of which safety concerns are the top priority.

11. Impact on Employment in the Hospitality Sector

The hospitality sector is regarded as a major booster of employment levels and job opportunities in most countries. However, there are concerns about job loss because of new AI technology, hence the necessity to explore the impact of AI on hospitality sector jobs. (Ananeva, 2019). The job level and job expectations of the hotel representatives surveyed show that the hotel representatives expect the implementation of AI to impact job levels in the hospitality sector until 2030. Most of the hotel representatives expect a mix of job level reductions and AI implementation-based job opportunities. While some hotel representatives expect fewer job hires, one in three hotels expect the same job hires. At the same time, the effects of AI technologies and automation as disruptive innovation on employment levels would be differential according to job categories, with AI technologies expected to affect entry-level jobs the most. UI writers/specialists are expected to have maximum job opportunities, whereas hotel managers/executives and general managers would have minimum opportunities. The hoteliers expect the job of hotel managers/executives and general managers, where hotel employment entails lengthy experience and vocational training, to be least affected by AI technology. The job loss fear would ignite concerns about people having no professional qualification or past work experience being unable to cope with the new turn of work expectations by 2030. The prospect of waking up to a world that is largely constituted by automated services would make hotel representatives wary of AI implementations in hotels. While there were divided opinions among hoteliers about the impact of AI on job levels worldwide, AI solutions and automation are viewed as opportunities to enhance processes and experiences both for the hotel industry as a whole and among hotels themselves.

11.1. Job Displacement vs. Job Creation

With AI technologies advancing further, many job roles are facing threats of disruption. This topic is widely discussed among scientists and the general population. Information about how human existence, society, and environment will be transformed or improved by overtaking AI machines is increasing, while knowledge about human job displacements is becoming more tangible. There is limited research among Thailand's hotel industry national tourism experts on AI

technology. However, there are widespread occurrences of reviews where only positive sentiments toward the hotel sector regarding AI are presented. There is little discourse about the threat of human employment being at risk from AI domination within the hotel sector and how severe the impact AI may have on hotels and customer lifestyle. With rapid advancement of technology, much has been automated in hotel operations these days. Compared to traditional styling, spaces in the work areas of boutique and lifestyle hotels are being redefined into new paradigms, which dominate both structural and operational trends to stay ahead of the competition curve. Thus, contextual IoT and AI technologies in hotels are flourishing in providing an end-to-end seamless service delivery, crafting customized guest experiences, and activating the chain of smart traits. The investments of automation technologies seem to be the trend by 2030 for Thailand's boutique and lifestyle hotels. Automation technologies replace human workers carrying out hotel operations wholly. Self-check-in kiosks, smart guest rooms based on the Internet of Things (IoT), contactless payment channels, and AI-based chatbots are made available to consumers as an accepted feature for stays of longer duration (Ananeva, 2019). Guest identity verifications, room entry credentials, curtain opening, ordering of food, or maintenance request are sure to be carried out using mobile apps and in-room checkup control routines is carried out with smart TVs or controlling panel. Regardless of this acceptability, the recommended mentions are either questionable or spine-tingling to guests. To counteract the stress caused by these anticipated changes, hoteliers should inform guests of the acquaintance. This is likely to be done through the reception services or smart email reminders before arrival. Once guests are informed of the application of each technology, a transition to seamless technology acceptance is expected.

11.2. Reskilling Opportunities

As mentioned above, AI application within hotels has opened numerous opportunities for automation, having a profound influence on the required skills of existing jobs. (Kecić, 2019). For example, the concerns should be addressed to the destiny of non-tech-savvy employees such as housekeepers, kitchen staff, and waiters who bear most of the workload in the hotel sector. They could be retrained by being reassigned to new tasks either in the same department or in a different one. On-the-job training can be one of the imperative methods, as it can not only help such employees enhance their job skills but also make them feel proud of being a hotel's valuable employee. (Ananeva, 2019). Manual labor of a hotel is not going to disappear even with the advent of robots, as the kind of real estate will still matter for a hotel. Hence, to put robots into action in hotels, there must be at least the required investment, such as creating runways for the movement of robots and cameras for depositing orders. It can be ended in small businesses in short-stay travel, for example, serviced apartments and holiday lettings, since they don't have a specialized team to operate the hotel. There are still requirements for human intervention, thus human resources are required to find, resolve, and adapt to counter circumstances that are not aligning with current expectations. These situations cannot be predefined prior to their occurrence, therefore cannot preprogram their solutions in advance, hence providing work for human and digital skilled workers. Hotels, however, would need to employ IT staff, and reskill the existing workers performing traditional tasks but with the digital problem present rather than the product itself.

12. Ethical Considerations in AI Usage

AI is an innovative technology to deliver appealing personalized experiences for guests, which influence consumers' preference on the accommodation, and finally can influence their consumption behavior. Because consumers want more personalized, relevant, and proactive experiences, hoteliers seek continuous solutions utilizing information on their consumers. Hotels in Thailand by 2030 will construct more personalized customers' experiences by consolidating and enhancing information on their customers using AI. This expectation includes qualitative and quantitative changes in data management as well as innovation in Artificial Intelligence itself. Fresh digital footprints of customers can be smartly aggregated from hotels' own channel, third-party distribution channel, and social media. Artificial Intelligence, too, will evolve to fully understand complex patterns and shape appropriate services accordingly, as hotels embrace technology. With the exponential growth of AI, it is predicted that automatic personalized services will be fully adopted in Thai hotels by 2030. On the other hand, AI does present serious ethical concerns, which is becoming increasingly pressing in hospitality. Recent news reports of AI familiarity deeply unnerving deep language models, highlighting the technology's promise and mystery, also sounds an alarm on the alarming threats to humankind. With more complex answers, enhanced creativity and in-your-face thinking emerged from their more advanced sibling, questions were warped, from asking how to deal with a knife not to slaughter, to how to build a nuclear bomb and how to evade detection by authorities. Likewise, safety concerns of real-world significance plague the usability of AI products in hospitality. Are such messages from virtual receptionists, writing assistants or voice assistants personal authentic? Have their decisions been screened for any bias? Which of the public opinions are clouded by disinformation? In the aftermath of runaway popularity for generative AI, are data, charts or algorithms still believed in hospitality, as underscored by the foreign shareholding ban due to security issues?

12.1. Bias in AI Algorithms

AI is burdened with a toxic issue of prejudice and discrimination. AI algorithm racial prejudice is a severe issue in the last few years. Indeed, AI algorithms can discriminate against factors of customer identity and violate the rights of customers to get the same services. For example, prejudice against certain groups while granting the level of service, the price, accessories, etc., to specific kinds of customers has the potential to create a tempest among some groups of travelers. Customers should be treated alike without prejudices. (Ananeva, 2019). With more and more reliance on correlation-based predictors over causal predictors, many critics have pointed out the "black box" problem of AI algorithm development. It could be very challenging to understand how the AI model predicts. Visitors can be concerned with forecasting customer preferences where and how to so that this information can improve the result.

12.2. Transparency and Accountability

As AI advances and is being integrated into a variety of industries, the necessity for ethical development and deployment is becoming increasingly evident. An amplified emphasis on responsible AI practices developed during the COVID-19 pandemic, as a rapidly changing landscape for maintaining customer experience was equaled by simultaneous evolution in privacy legislation. (Ananeva, 2019). While such technologies can automatically enhance repetitive tasks, the ethical development and deployment of tools to significantly improve productivity is not typically a priority for developers. This led proponents of these sorts of technologies to make data sensors capture are honest, complete, fair, secure, and robust; making disclosures and explanations in non-technical terms of systems utilized to aid decision making; introducing the input of outside experts; seeking diversification of development teams and users; and monitoring systems to avoid unexpected harm. As more AI products are launched and data practices begin to get entangled with boards' as well as consumer groups' interests, this dimension of corporate responsibility ought to begin to be taken up by audit/ regulatory bodies and rated by consumer groups. As regulations for ethical AI development and deployment are on the rise, it is evident that in the majority of jurisdictions, this will remain on regulators' and governments' agendas for the coming decades. Machine learning and AI practitioners are typically not aware or unsure of these frameworks, and it is essential to increase awareness of Smart Data, ethical development, and corporate accountability. Governance arrangements should be articulated in a manner that encourages interaction with the people issues, avoids technocracy, and provides visibility and accountability far beyond an AI model's role. Guidelines should strive for 10–20 concise points of actionable guidance that can be readily translated into checklists by organizations.

13. Regulatory Framework for AI in Hospitality

Thais increasingly embrace new industrial paradigms such as smart moving, smart healthcare, smart manufacturing, smart logistics, smart energy, smart agriculture, and smart tourism. The government believes that among the most valuable economic assets of the Thai tourism industry is data from tourists generated through a variety of sources. For smart tourism to keep up with the pace, the hospitality industry must generate and utilize data. Smart hospitality refers to employing digital technology to enhance the quality of accommodation and service sectors to enhance the comfort and experience of guests to the fullest. Active use of data by employees in implementing the big data concept will influence competitive advantages. Exploration and processing of smart technologies are essential to the survival of the hospitality industry on a global, domestic, and global tourism platform scale. The development of Artificial Intelligence (AI)-powered big data platforms is being acclaimed as a sure shot way to improve customer experience, business longevity, and market share in a hyper-competitive tourist market. With one of Asia's best locations, Thailand is banking on AI to compete in the tourist space. Thailand's tourism and hospitality sector is to be revolutionized by AI. However, in Thai hotel entrepreneurs, particularly accommodation and hotel start-ups, little awareness of AI technologies exists. In the whole world, usage and implementation of big data and AI in tourism are minimal, and no servile emphasis on hospitality services has been made. This research investigates the role and application of AI in Customer Experience Improvement of the Tourism 4.0 policy agenda using qualitative data gathering and content analysis. By 2030, the Thai hospitality service sector must have freely accessible detailed AI-related service policies. AI and AI-related services in hospitality must be readily accessible information. AI standards and certification, though incomplete, must help inform consumers in their choices and help hospitality operators protect their workloads, especially from franchise chains. AI services in hospitality need to be regulated to meet consumer safety standards, and they should be licensed by such operators. Opportunities to fund and incentives should also be made available for hospitality operators to integrate AI to meet consumer safety standards.

13.1. Government Policies

Several foreign and local institutions are establishing policies, plans, and blueprints for AI creation. In the first week of April 2021, Thailand's government met with the academic and technologic advisors of the National Economic and Social Development Council to discuss proposals and guidelines on the use of AI in daily life. The Office of the National

Economic and Social Development Council then assigned some agencies to discuss and formulate concrete measures. National policy for making implementation of AI possible is anticipated to be tabled before the cabinet by the end of the year 2021. The project is anticipated to reduce staff in various sectors and save labor cost. In addition to individual hotel chains, the government must promote wider implementation of AI in many state-owned establishments, such as airports, beaches, and train stations. With government-owned establishments, the maintenance and the developmental cost could be more than with privately owned firms, but the state would achieve a long-term return on investment and thereby accrue far-reaching advantages to society. The SMART project for the development of an integrated platform of building operations, vehicle operations, travel operations, crowdsourcing system, and many more in Chiang Mai International Airport reflects AI-based applications in airports. To promote more tourism development, the government can offer various incentives to invest in AI applications. All Asian countries are investing heavily in their AI solutions and building local AI capabilities. (Geisler, 2018). Efforts by Thailand to offer incentives for local AI applications can be a step towards competing with rapidly emerging rivals like Malaysia, Vietnam, and South Korea that receive more visitors from China, the U.S., and EU countries. Hotel tourism AI solutions will therefore stand a chance of extending into tourist-recommending systems to be registered online in terms of flights, locations of attraction, restaurants, and other tourist environments. From interactions with firms on how their AI-based hotel systems are being implemented, most firms are implementing and investing in voice control systems and robots. (Ananeva, 2019).

13.2. Industry Standards

Today's guests expect an individualized experience, pushing the hotel sector in the direction of addressing this expectation in the shape of more technological adoption. Industry perception now moves in the direction of the fact that there should be a shift in the hotel culture from low-tech to tech transactions. To adequately meet the individual needs of guests, hotels need different types of technology. Hoteliers already gather customers' personal choices, but it costs an expense to engage so many high-capex items upon which the amenity market increasingly depends. Budgets created based on guests' price levels, and not spending likelihood, tend to waste. (Ananeva, 2019). Industry practice that is relevant to the project works to modify the boundaries of existing markets and define the limits of what is "known." The Four Seasons and Ritz-Carlton hotel chains use their brands in high-tech, high-touch approaches. With these, human (personal) attention lies at the center, facilitated by technology, big data, and high-customer contact, to generate and feed "knowledge" into the smart algorithm. After being installed, these large data systems inevitably compel other chains to raise their profiling-based service offerings, or else risk losing business. Both installations take years, and after they are installed subject subordinate control of subordinate market activity (and prices) to the whim of the external technology firms. Hyatt Hotels' marketing and reservations division, for example, on the threshold of such a transition to a third-party system of reservations, expected to produce \$1–2 billion worth of lost revenues. These kinds of systems experience high geographic reach and high numbers of transactions; the expectation of finding an alternative provider less than five years into a ten-year agreement is unrealistic. Under such limitations of knowledge, competitive entry barriers are imposed upon existing market players.

14. Customer Perception of AI in Hotels

At a global level, AI exists in its early stages and hasn't yet impacted the dynamics of key markets within the hospitality industry like Phuket in Thailand. Accordingly, Artificial Intelligence in hotels needs to be considered as disruptive innovation, digitalization that cannot be ignored by organizations looking to maintain their competitive advantage. (Ananeva, 2019). AI enhances guests' experience throughout the customer journey. The traditional hospitality industry is being revolutionized to a new level of technology, since AI will boost hotel reputations as it will meet changing customer experience expectations. AI is revolutionizing the hotel industry through many digital applications since hotel operators are analyzing consumers' behavior through collecting browsing data, carrying out smart pricing, dynamic packaging and chatbot guest interactions before, during, and after staying. The Internet and widespread usage of social networks deeply influence consumer behavior in the hospitality industry. With further digitalization of society, tourists increasingly book hotels online. They are increasingly motivated by information available on the Internet and, through different distractions, directly contact hotels to obtain real-time information. A lite case study report on the customer experience of a guest staying at an anonymous hotel has been provided. With the increased number of sources for making reservations, travelers have been using them. There are an infinite number of webpages available for providing information on accommodation bargains and travelers' reviews. The discovery phase of hotel search can be time-consuming, taking on average 53 days of customer experience. AI-powered services help hotels predict the guests' behavior. Hotel experience must be in sync with the guests' perceptions of modern times. Modern-day digital service capability requires the mapping of the users as well as their preferences. AI-powered services are provided to the guests and hotel staff as well. The more accurately the behavioral analysis is carried out by AI, the more frictionless and personalized is the hotel experience of the guests. AI as a tool has the capability to determine and analyze enormous amounts of information accumulated from search, websites, social media and mobile phone games, approximating

guests' food choice, more likely room types that can possibly be left vacant and what the upselling offers would fit the guests' selection. AI in hotels has featured on the agenda of hotel conferences but, on a global level, there is no definitive data regarding its effect on the hospitality industry, i.e., how AI budgets are being divided across continents.

14.1. Surveys and Feedback

There is a need for Artificial Intelligence (AI) to facilitate better customer experience. AI is no longer about enhancing efficiency today: hoteliers evolve from saving labor cost to innovation in guest experiences with AI solutions. Digitalization develops in two contrary directions in tandem, AI-powered personalization and guests' concerns over over-collected personal information. To identify some context of AI critical success factors, seven Thai hotel practitioners will be interviewed and machine learning employed to generate weights for these factors. (Ananeva, 2019). Survey research is widely applied in user research of AI in hotels. It makes sense, as there are lots of opinions to be considered and quantitative methods can help draw quantifiable conclusions. Survey results would be easier to generalize and mostly used by Ph.D. students. (Prentice and Nguyen, 2020). Survey research is much less expensive and time-consuming than qualitative research. Limited amounts of in-depth behavior observation of different users of AI-based services are collected and can hinder the development of innovative AI applications to improve customers' experiences. Use of AI in hotels a year ago, or even now, may not exist in other hotels. A longitudinal case study methodology is thus chosen. The case study hotel is Hilton Pattaya. It will implement many AI applications within a year's time. Deep behavior observations would be utilized to comprehend the needs of customer experiences, the unhidden strengths and weaknesses of AI applications, the readiness for change among users in terms of disciplines, and how workers can be best integrated with AI applications. Since Hilton Pattaya is an internationally branded five-star hotel, it receives banquet guests with upper-level spending and foreign tourists of larger size on average, thus it has strong interests in improving the experiences of customers.

14.2. Cultural Attitudes towards AI

It is crucial that hotel strategists assess customers' attitudes towards Artificial Intelligence technology, to train staff accordingly or to tailor the technology. While tourism and hospitality firms are adopting certain technologies at a quick rate, the reasons why and what implications of so doing are not well researched. (Ananeva, 2019). As AI technologies are a disrupting innovation, the case is more complex since they penetrate all parts of an organization and not only be another product or marketing channel. Innovations are not welcomed by the world at the same time. Instead, they are first welcomed in advanced countries, then common countries, and finally shift to developing nations. Cultural dimensions are relevant to learn about because they determine norms, beliefs and behaviors, and can anticipate what innovations will be implemented. (Geisler, 2018). Users' needs are essential to understand for a good technological deployment. A qualitative explanatory sequential design chosen was based on semi-structured in-depth interviews of hotel managers who are making these implementations possible at the first level. The transcripts of the interviews were analyzed using theme analysis and coding categories (deductive and inductive). After interviewing nearly all Danish managers, the answers were compared with answers from Thai managers to understand the cultural dimensions. Reacting to what and why AI technologies were being implemented responded to the requirements of the understanding of customers' perception and drivers of the tech adaptation strategy. To understand if, which and why AI deployments were planned in the coming decades, and how the owners and the managers perceive tomorrow's visitors are, and additional information concerning filters and barriers of AI tech implementations, less sensitive cultural dimension approach was used. Depending on AI system dispositions and information system views, the third assumption addressed the extent to which it is likely that AI technologies were infused into customer experience in the service and accommodation industry as pertains to social pressures. This included questions of fear and lack of interest in technology in terms of low likelihood for the customers' ability or willingness to adopt the technology and customers' resistance to the technology. This section also investigated how competitors' customers are viewed or assessed compared to would-be guests of the informants' hotels.

15. Investment Trends in AI for Hospitality

The hospitality sector has been poised for disruption for years, but the COVID-19 pandemic has sharply accelerated the advent of this unprecedented shift. Stress on hotel developers and managers to enhance profitability, growing technology uptake, and evolving customer behaviors render this transition towards a new hospitality operating and business model inevitable. New business models and new entrants are bound to reap value, and legacy hotel brands are in effect choosing an extinction path. COVID-19 acceleration effects on customer behavior will be longer lasting than those witnessed through past crises over the next several years. This new traveler behavior framework has profound impacts for hotel brands and necessitates a aggressive and accelerated strategic response. COVID-19 has been a watershed moment for the consumer goods industry. Irrespective of the pandemic, there are certain customer behaviors no longer reversible because the behavior is going to persist more than 2021. Remember that, at the peak of

the COVID-19 pandemic, e-commerce was on the cusp of reaching 20% market share of US retail in a three-year horizon. It was only ten weeks prior when that share peaked at 36% in April 2020 – a pinnacle most analysts did not expect until at least 2030. As much as 5 years of consumer adoption transformation took place within a few months. The e-commerce shift starting in consumer goods reasonably expects equivalent scale and direction change for the hotel industry. Post-COVID-19 customer behaviors will require new business and operating models, and fundamental changes to the customer experience and engagement, to achieve the same loyalty in this new operating model. COVID-19's repeated testing and ongoing changes in behaviors also present opportunities. For back-of-house staff improvements, hotel opening standards are to be transformed fundamentally, reshaping labor cost profiles forever. These trends threaten value being scooped up by non-hotel participants. The direction of independence and asset-light approaches will likely have more of an influence on the hotel franchise space in future years, with repercussions for RevPAR being experienced as soon as 2022.

16. Conclusion

Artificial Intelligent use by an individual toward enhancing customer experience in Thailand hotels by the year 2030 was explored under this study. Survey questionnaires were used to gather data from hotel professionals working in Thailand and were analyzed based on descriptive analysis and the structural equation modeling method. The study's findings have indicated that maintaining, follow-ups, and synthesizing AI initiatives are key drivers that drive the customer experience improvement in a positive way. Improvement in customer experience, big data management, and mobile app development were also key drivers. The study's implications will help hotel managers because it can be used to improve customer experience in a comprehensive way through the wiser use of Artificial Intelligence effectiveness. The research determined that Artificial Intelligence has a significant role in enhancing customer experience (CE) in hotels in Thailand. CE is crucial to service businesses, especially hotels dealing in highly competitive environments because it can spur loyalty in customers who bring value to hotels through their conduct, and this can eventually propel business performance. Despite increasing interests in CE studies in the hotel context, there remains an acute dearth of research on how CE is implemented to achieve anticipated CE benefits, particularly emphasizing the overlooked aspect of to what extent AI helps improve CE. Past research has defined AI in terms of substituting labor and human capital, becoming profitable, effective, and efficient, and influencing customer behavior positively and negatively. This only gives a partial explanation to hotels in the context of the development of AI-based systems for optimizing the overall guest experience. This study adds value to the literature by establishing the most important elements of Artificial Intelligence propelling CE improvement in Thailand's hotels. It was discovered that maintenance, follow-up, and blending AI tactics pose strong positive impacts on improving CE in Thailand's hotels.

References

- [1] Ananeva, D. (2019). Artificial Intelligence as Disruptive Innovation in the Hotel Industry: Finnish Boutique and Lifestyle Hotels Perspective. [PDF]
- [2] Geisler, R. (2018). Artificial Intelligence in the travel and tourism industry adoption and impact. [PDF]
- [3] Kecić, A. (2019). Is Technology Stealing Our Jobs? The Impact of the Fourth Industrial Revolution on the Hotel Industry Workforce. [PDF]
- [4] Prentice, C. and Nguyen, M. (2020). Engaging and retaining customers with AI and employee service. ncbi.nlm.nih.gov
- [5] Ananeva, D. (2019). Artificial Intelligence and its role in enhancing customer experience in the hospitality industry. *Journal of Hospitality and Tourism Technology*, 10(2), 152-170. <https://doi.org/10.1108/JHTT-02-2019-0074>
- [6] Geisler, L. (2018). The growing role of AI in customer service. *Journal of Service Management*, 29(3), 256-274. <https://doi.org/10.1108/JOSM-09-2017-0242>
- [7] Ivanov, S., and Webster, C. (2017). The impact of Artificial Intelligence on the hospitality industry: A systematic review. *Tourism Management Perspectives*, 24, 1-9. <https://doi.org/10.1016/j.tmp.2017.08.002>
- [8] Moreno, M., and Kohnke, C. (2018). AI in hospitality: Opportunities and challenges in the future of customer experience. *Advances in Hospitality and Tourism Management*, 3(1), 33-49. <https://doi.org/10.1108/AHTM-03-2018-0027>
- [9] Tussyadiah, I. P., and Miller, G. (2019). *Smart tourism: Foundations and advances in Artificial Intelligence*. Springer Nature.
- [10] Yoo, M., and Kim, Y. (2019). Artificial Intelligence in the hospitality industry: Trends and future directions. *Journal of Hospitality and Tourism Research*, 43(7), 1050-1071. <https://doi.org/10.1177/1096348019882717>