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## Applying Artificial Intelligence in the Hotel Industry: Exploring Perspectives of Employees

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## **Applying Artificial Intelligence in the Hotel Industry: Exploring Perspectives of Employees**

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### Abstract

Robots, Artificial Intelligence, and Service Automation, or RAISA, has become increasingly accessible and affordable for a wider demographic of businesses, including hospitality operations, to implement over the last couple of decades. Especially over the past five years, we've seen a significant surge of interest in automating within the service industry

and a coupled sense of uneasiness that this technological development would in turn displace the human workers, due to factors such as cost of labor and perceived removal of human error; however, this thesis will posit that automation is most effectively used by augmenting the capabilities of the present workforce. Integrating smarter technology and an Internet of Things can vastly improve efficiency for the workers, and allow them to defer menial tasks while having more time and resources for more significant duties or issues. Therefore, instead of feeling apprehension about automation, it is more prudent to use it as a tool to better equip the service workforce. To justify this, five front desk workers from the Graduate Fayetteville hotel have been interviewed regarding their opinions and knowledge of RAISA. The analysis is qualitative in nature to gain a more thorough understanding of how a local selection of employees would benefit from these improvements.

## **Introduction**

### **Background and Need**

During the new millennia, there has been a significant shift towards automation in practically all industries. This increase in robotic labor has proven effective in raising efficiency, but it has led to concerns about how workers can remain necessary in this time of labor automation. According to Ivanov and Webster (2018), some examples of the hospitality industry's growth in this field include "chatbots, delivery robots, robot-concierge, conveyor restaurants, self-service information/check-in/check-out kiosks, and many others."

Hospitality is one of the oldest job fields in the world, as inns and host-guest relations have been a notable part of our collective cultural history. For thousands of years, we have tried to make others feel comfortable and at home, away from home. Trying to personalize their experience and give them memorable and enjoyable service has been the status quo, quality that all operations have tried to provide. Especially with the added concerns of the COVID-19 virus, there are more challenges particularly aligned against the hospitality sector, and "anything that happens around the world may affect the business environment directly or indirectly. Proactive and reactive strategies improve decision making and value cocreation and therefore influence the competitiveness and profitability of organisations" (Buhalis and Leung, 2017). We have made strides in how we operate our hospitality businesses, but we are only just now entering a technological stage where there can be exponentially smarter tech in these operations.

The human touch has been an essential aspect of this industry for millennia, but only now is the focus starting to shift away from the human side of service. This field of advancement is

known as RAISA, which stands for robots, artificial intelligence, and service automation. When smart technology is mentioned, that concept is defined as the “integration of a network of organisations and smart features that engage in interoperable and interconnect systems to simplify and automate daily activities” (Buhalis and Amaranggana, 2015). In addition to smart technology, the term artificial intelligence refers to its “algorithms, which mimic human cognitive functions and exhibit aspects of human intelligence” (Huang and Rust, 2018). There are still many instances, however, where operation owners are concerned about whether the guests will still prefer the human aspect of the hotel experience. In Russia, young adults have been shown to regard robots as acceptable for handling information, food, and payment, but the guests still don't trust them for providing guarding or massaging services. (Ivanov, 2018).

The adoption of new techniques has been a driving factor in competition in the industry. This trend towards automation is becoming more affordable and more widespread every year,

and it shows no sign of slowing. Lu (2019) very effectively organizes the different advantages and drawbacks of integrating artificial intelligence in this graph. The traditional way of checking in a guest can

- STRENGTHS**
- Labor decrease
  - Waiting line reduction
  - Fast access to service
  - Hygiene and cleanliness
  - Always-on customer support
  - Improve privacy and security

- WEAKNESSES**
- Lack of human interaction
  - AI unfamiliarity
  - Fixing error difficulties
  - Financial capacity
  - Misunderstanding between AI and customers/employees

- OPPORTUNITIES**
- Future human helpers
  - Reduce language/cultural barriers
  - Improve safety and security
  - Better world for introverts and the anti-social
  - Sustainable development
  - Solution for mass tourism

- THREATS**
- Lack of job opportunities for people
  - High energy resources
  - Customer data security
  - Environmental impact
  - AI against humanity

be time-consuming or problematic, potentially souring their first impression of the hotel. This can possibly be mitigated by implementing a new system which employs artificial intelligence,

to further streamline the process and ease the employee's job of keeping the guest engaged. Having an integrated smart ecosystem in a hotel allows all of these different aspects of the operation to run more smoothly, because interconnectivity provides more accurate data, and data is "one of the most valuable assets in the hospitality industry" (Buhalis and Leung, 2017).

Employers know that guests visit a hotel with some level of expectations, and having intelligent systems can make it much more accessible for workers to exceed those expectations. Dr. Nakanishi (2018) investigated this subjective perception of the guests and found that they wanted to have a personal experience, but that there were still aspects that could be effectively replaced with AI. Hypothetically, in an integrated operation, a guest enters a lobby, and conveniently checks in at a digital kiosk. An employee asks if they have any requests or preferences for the room, and the worker uses a tablet integrated with the business's artificial intelligence to turn on the lights in the guest's room, turn on the television to a particular channel, or have a robot bring amenities to their room, before the guest has even arrived in their room. The concept of the Internet of Things is having a high level of integration, where most or all of the devices and electronics in a space are interconnected, which is very valuable for employees to personalize the experience of each guest. According to Porter and Heppelmann (2014), the Internet of Things can be revolutionary for the hospitality industry and help to "control and monitor business". With the balance of the human employees and the AI presence, the best aspects of both can be combined to heighten the guest experience. There is great potential for automation to improve the employee's experience and job performance, without displacing anyone.

## **Problem Statement**

There is fear among many workers in the hospitality sector that a rise in automation will displace jobs, but the human touch is uniquely necessary and advantageous in this sector, and that automation can be more effective as a tool to empower employees. Smart technology can be used as a tool to augment the performance of workers, rather than making humans obsolete in the industry. It is also essential to examine the effects on “competitiveness, service quality, and human resource management” (Ivanov, 2017).

## **Purpose of the Study**

This study explored the uses of AI and automation in the hospitality industry, and to establish that there is an equilibrium to be found between automation and human workers.

## **Research Questions**

Over the course of the study, it was necessary to thoroughly analyze how automation affected all aspects of an operation, specifically on the employee of the desk.

- What are the areas of improvement where automation can help the hospitality operation, from the perspective of management?
- According to workers, where can automation improve service quality and employee performance, without compromising their job security?
- Would employees trust delegating trivial guest questions and problems to robots, and would it alleviate stress or create new stressors?

- Would a manager or sales department be more likely to charge a higher room rate if it has been equipped with automated services, and how much if so?

## **Literature Review**

Hospitality has revolved around people providing compassionate and helpful lodging to others since its conception, and the foundational human element has been present for thousands of years. As Tuomi (2020) says, “the global hospitality industry would not exist as it is today without people”. When a traveler stays at a hotel, they interact with a front desk agent, receive room service or cleaning from housekeeping, and generally have exchanges with multiple employees throughout their stay. Over the past few decades, though, this constant has been shifting in certain operations, as some are adopting smarter systems and better computational intelligence. Management researchers are investigating guests’ needs, “cognitive and affective”, to develop more personalized and integrated hotel experiences (Gursoy, 2017). According to Wirtz et al. (2018), service robots are “system-based autonomous and adaptable interfaces that interact, communicate and deliver service to an organization’s customer”. These devices can be used to help an employee perform check-ins more efficiently, assist in fielding guest questions so that the employee can help other guests, and also provide employees with better options for customizing guest experiences.

Automation has the ability to revolutionize all aspects of a hospitality operation, from the guest experience, to administration, to maintenance, to security, and more. There has been considerable research done into how these advancements can be implemented, but there is a gap in the research with how operations can integrate artificial intelligence with the human

counterparts. Not only this, but managers also have to consider encouraging loyalty and satisfaction and following trends as very relevant priorities (Gursoy, 2017). The general consensus is that the role of automation is an all or nothing situation, but there must be research into how the two factors can work together to improve the overall performance. It's also important to consider how much adaptation will happen, since the service robotics should fit well with the desired brand image of a business (Kuo et al., 2017).

Year	Metric	Weight	Metrics			Scores		
			CN	EU	US	CN	EU	US
2017-18	AI Venture Capital and Private Equity Funding per Worker	5	\$17.2	\$11.2	\$102.4	0.7	0.4	3.9
2017-18	Number of Venture Capital and Private Equity Funding Deals per 1 Million Workers	2	0.5	2.6	7.7	0.1	0.5	1.4
2000-19	Number of Acquisitions of AI Firms per 1 Million Workers	2	0.0	0.6	3.2	0.0	0.3	1.7
2017	Number of AI Start-ups per 1 Million Workers	4	0.5	2.9	8.4	0.2	1.0	2.9
2019	Number of AI Firms That Have Received More Than \$1 Million in Funding per 1 Million Workers	4	0.3	3.1	10.5	0.1	0.9	3.0
1960-2018	Number of Highly Cited AI Patents per 1 Million Workers	3	0.9	12.0	170.0	0.0	0.2	2.8
1960-2018	Number of Patent Cooperation Treaty Applications per 1 Million Workers	5	1.4	4.3	11.3	0.4	1.3	3.3
<b>Total Scores</b>		<b>25</b>				<b>1.4</b>	<b>4.5</b>	<b>19.0</b>

In reference to Castro's table (2019), A.I. is becoming more and more invested in, especially in the United States. This suggests a very strong future for RAISA to become more widespread on a global scale, so integrating superior technology may become the only method of keeping up with competition. On a smaller

scale, automation can benefit every department of a hospitality establishment, and each sector has particular advantages.

**Administration**

Kanuganti (2005), Mamula (2019), & Verma (2016) all focused their studies on how AI can improve the administrative side of the business, using artificial neural networks and computational intelligence to increase efficiency. This would improve the ability of current hospitality operations to collect real-time data to predict guest behavior, which is a notable benefit to forecasting and comparisons with historical trends. (Aluri, 2018). Some of the most significant improvements that come with artificial intelligence are “increased cost-effectiveness, better resource utilization, more accurate demand prediction, better quality control, improved process management, and the removal of human error.” (Ivanov and Webster, 2019). These qualities are very important to maintain the most reliable forecasts and keep the hotel as up-to-date as possible, but also to ensure that the experience is consistent for all the guests, and that guarantee of consistency is very desirable for a hotel operation. Of course, it's very important to understand how AI functions, because not knowing the process of the algorithms can lead to managers making tactical or strategic mistakes (Mustak, 2021).

**Guest Services**

RAISA is particularly well-suited to helping workers to customize their guests' experiences at the hotel. A fleet of robots can virtually take over the room service aspect of the hotel's employees, not displacing them, but allowing them to manage other, more pressing issues. Robots can provide information to the guests, supply amenities like food or drink from the kitchens, and potentially accept payment for stays or upgrades. Having a touch screen in their room equipped with a user-friendly interface could allow them to change the brightness of

their lights, change the temperature, access a help/services menu, and more, giving them more power to have exactly the stay that they are looking for (Kabadayi, 2019).

### **Resource Management**

These technologies can have a direct impact on electricity or water usage, helping to maximize efficiency in lighting, HVAC, and maintenance of all kinds. The versatile nature of modern automation is further supported, including a “multi-modality system” which is capable of handling “communication, entertainment, safety, security, lighting, HVAC, electric consumption, and water usage” information (Verma, 2016). Artificial neural networks can be used to better the connectivity of the space, so that alerts and errors can be more easily reported to the necessary parties.

### **Employee Tools**

Increasing automation can allow workers to reallocate their labor and time to more demanding tasks, rather than spending time on menial jobs that an AI can manage more efficiently. The ability of A.I. to efficiently take on the trivial and time-consuming parts of the workload makes it very desirable as an alternative to the slower, more strenuous experience a human would face doing the same job, which is highly desirable to most employees. (Mamula, 2019).

## **Methodology**

This study of automation was conducted in a generally qualitative style, because the daily and overall experiences of a hotel employee are individual and personal, requiring a more in-depth analysis. The use of case studies is also necessary, as that form of research provides a detailed and more complete understanding of a specific instance of how a boost in artificial

intelligence can improve a particular operation, or how a worker would perceive the addition of robots. Data can also be discovered in a way that can vary from what's expected, or lead to surprising directions (Padgett, 2017).

Approaching the tricky nature of unique experiences requires a method such as interviewing or case studies, as Padgett goes on to describe, including analysis that is based on “depth rather than breadth”, as well as focused on “people, rather than variables” (Padgett, 2017). Observation of participants, also known as ethnography, is another effective means of identifying what employees prefer and expect out of their hotel establishment. Qualitative methods are especially effective when performing “exploratory” research, particularly because the hospitality industry can be analysed through the lens of the social sciences, where data must be viewed more subjectively than objectively (Gerring, 2012).

This thesis will focus on the potential social interactions posed by automation, and these intangible experiences cannot be quantified; therefore, the best option is to adopt qualitative methods for describing them (Queirós, A, Faria, D, Almeida, F).

### **Population and Sampling**

The populations that were analyzed were coworkers and other employees. This particular type would be categorized as convenience sampling, whereby the population is selected based on how accessible they are, which is effective when collecting opinions from hotel workers (Marshall, 1996). The process of sampling was accomplished through proposing the short interviews in the lobby, where many of the employees congregate, as well as eliciting responses from the employees and managers when they're elsewhere on property and available. This style is commonly known as the “emic” perspective, or the insider analysis, because “the objective is

to learn as much as possible about an experience directly from the person who had the experience and who is able to describe it” (Olson, 2016).

The most effective qualitative methods to use were interviewing and focus groups. Since each experience is subjective, and with hospitality being founded on intangible services, the best way to consider these perspectives was with one on one and group interviewing. This way, we could attain a more thorough understanding of how automation affects the worker experience. There was a high level of diversity required to accurately portray the population's preference, so the ages of participants vary from college age to seniority, hopefully with at least one or two members of each age range for employees.

### **Rigor**

Rigor can be especially difficult to establish in a qualitative study, because in the “naturalistic/interpretive paradigm, reality is assumed to be multiple and constructed rather than singular and tangible” (Sandelowski, 1993). Due to the innately subjective and varying opinions that the employees might have, there is more challenge in determining parameters than in a quantitative piece. Rigor was maintained in this proposal by documenting the specifics of a worker's preferences, opinions, and experiences, and establishing criteria that are both broad enough for multiple subjective perspectives, yet distinct enough to eliminate confusion.

When conducting qualitative research, it is vital to achieve truthful results that are reliable and accurately measured, though much of the data collected is difficult to quantify. Even from the employee's perspective, describing the guest experience is subjective and unique, which requires an individual analysis. Some of the most effective qualities to maintain in the research

includes confirmability, where the guests that were interviewed shape the results instead of vice versa, and dependability, eliciting results that are consistent between subjects.

A purely qualitative approach was most appropriate, because focusing on qualitative techniques for my instrumentation would produce the most in-depth data on the workers' attitude towards automation. For analysis in hospitality, it is better to have data that is a mile deep, rather than a mile wide (Denzin, 1978), because each person has a different experience that requires detailed investigation. For instance, interviews can be conducted in multiple sessions, which allows for a more thorough review of the subject's experience and preferences.

### **Instrumentation**

The method of analyst triangulation was employed to gain a more thorough and elaborate compilation of data. This technique utilizes multiple observers to conduct the interviews, ensuring that there is a greater breadth of interpretation, so the data can be considered from different viewpoints. (Denzin, 1978.) Triangulation of sources was also adopted, because this form of research involves interviewing different demographics to piece together a larger collection of evidence. Guests were asked questions that were formulated through consideration for how significantly they prefer human interaction, and if they could place trust in an AI to fulfill their needs or requests. Employees were interviewed based on how automation would affect their day-to-day tasks, how quickly they would be able to adapt to a new, smarter user interface, and if they felt more comfortable without the same pressure of guests' needs as before.

### **Credibility**

According to Dr. Laura Krefting (1991), "A qualitative study is considered credible when it presents an accurate description or interpretation of human experience that people who also

share the same experience would immediately recognize.” Guests had no incentive to give dishonest or misleading information, and the questions presented offered little opportunity to mislead. Many of the responses gathered reflect a common enthusiasm for implementing AI, providing this recognition of similar preferences. Persistent observation was also utilized to improve the accuracy of their responses, to ensure that there was no shifting of opinion.

### **Transferability**

Automation is becoming commonplace in almost all industries, including hospitality, and how the guests perceive this new element can be very helpful, in other business contexts.

### **Dependability**

Results may not be consistent throughout all of the participants, but due to the nature of service and quality perception, such variation is expected.

### **Confirmability**

To avoid researcher bias, the interviews presented as little personal context as possible, with the participants having the burden of contextualizing this subject.

### **Data Collection**

The data that was collected was categorized by the subjects' role in the operation as employees, and focuses on how their experiences would be impacted by implementation of artificial intelligence. The results from the interviews and case studies were compiled and organized based on different parts of the hotel experience, and contrast with how the operation would be improved with automation. Collection was done in the lobby of Graduate Fayetteville, presenting local opinions on the controversy and the possibilities of RAISA. An interview composed of contextual and open-ended questions was most fitting.

## Data Analysis

In reviewing the content of the interviews and overall case studies, I intend to compile the results based on similarity, and to pull direct quotes from the interviewees. I will create and determine ratios and percentages for how often the participants said they were excited for artificial intelligence or if they had had prior experience using smart technology. If there is a specific phrase or concept that they describe that is particularly distinct, then it will be included in the findings with an evaluation or explanation of what they said. I will design tables to format all of the responses, in groups of similarity.

All of the questions listed below have received approval through the Streamlyne program provided by the Institutional Review Board, or IRB. The questions have been posed to each interview participant on an individual basis, with some commentary to better contextualize the responses and situations. The subjects were informed prior that the interviews would be recorded and stored for analysis, and all consented to being recorded. In this explanation and integration of responses, the data collected will be compiled based on frequency of similar answers and positive or negative views of the artificial intelligence concept. The questions presented in bold denote particularly pertinent information, where the most thorough responses have been given.

1. Would having the ability to customize the light color or brightness of a guest room to a guest's precise request be a good selling point for your hotel's market?
2. **Would your front desk crew benefit from having self-check-in kiosks in the lobby, regularly sanitized, to offer alternative ways to socially distance guests?**

3. **Would having simplistic user interface panels in guest rooms make it more convenient to receive and perform maintenance/housekeeping and food & beverage requests?**
4. Does your central reservation system already work with AI services that increase guest engagement, like Oaky or Upsell Guru which use the Opera PMS to send offers?
5. **Service robots are becoming very popular across the world, and employing them creates a point of interest for the guests. Do you think that your front desk workers would have more time for other duties with these assistants?**

## Results and Analysis

Overall, the participants that offered their insights were generally positive and enthusiastic about the prevalence and growing accessibility of artificial intelligence in the hospitality industry. In addition to the table containing the responses based on each question, the participants' answers have received additional dissection.

**Table 1 - Demographics**

Participants	Age	Education Level	Work Experience	AI Familiarity
Brennan	23	Bachelor's Degree	Working since the age of 16	Has heard of AI in larger cities.
Tony	41	High School	14 years of hospitality work	Has heard of AI in hotels.
Nick	23	Bachelor's Degree	Working since the age of 15	Has heard of AI in hotels, but dislikes the concept.
Spencer		Bachelor's Degree	2 years of hospitality work	No.
Mikayla	21	High School and some College	Working since the age of 14	"Yes and no, I think I read it, but didn't pay much attention."
Lauren	21	High School and some College	4 months of hospitality work	Has heard of AI in hotels.

**Table 2 - Responses for Question 1**

"Would having the ability to customize the light color or brightness of a guest room to a guest's precise request be a good selling point for your hotel's market?"

	Response	Analysis
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<p>Brennan Smith</p>	<p>“I don’t know if going and retrofitting all the rooms would be worth it, but if you were building a hotel, there’s no reason not to. I think the prices on those lights are just as affordable as the other lights. So yeah, I think that would be a huge selling point.”</p>	<p>This answer is notable because it addresses a common apprehension towards automating based on the price of smart equipment. For hotels being renovated or constructed from the ground up, however, outfitting each room with these bulbs would be more energy efficient and contribute to placing the operation at the forefront of smart establishments.</p>
<p>Nick Lange</p>	<p>“I honestly think it absolutely would, they would be able to say ‘they were able to do this for me, so I will definitely be coming back again because of this small gesture.’”</p>	<p>Mr. Lange points out that subtle details such as light customization can make a guest more likely to return, because they know that they will have better opportunities to tweak their experience to what they particularly enjoy.</p>
<p>Tony Blackburn</p>	<p>“I believe it would, because guests are always saying how dark the rooms are, so with more light, I would feel like they would be more happy with that.”</p>	<p>Mr. Blackburn mentions some of the feedback we often get from guests, and that having an option to increase brightness or change the lights would help with our guest reviews.</p>
<p>Spencer Bradshaw</p>	<p>“Yes, but I feel the cost would outweigh the benefits for already-built hotels. For newer ones, yes. And if you could change the color, hotels in locations like Vegas would be great.”</p>	<p>Mr. Bradshaw points out a valid counterargument for implementing smart lights in extant hotels, because there is a high upfront cost. But there is strong potential return on investment for existing locations and even more so for new properties.</p>
<p>Mikayla Cantu</p>	<p>“Our market is more of nostalgia, not really about technology, like I really don’t think people would care, some, like the younger people would, but mostly we have older alumni, so I don’t think they would really care.”</p>	<p>This is an interesting and pertinent observation; the demographic a hotel appeals to generally has to be younger to elicit the most eager response regarding new technology.</p>
<p>Lauren Restino</p>	<p>“I believe that yes, it would. I think every guest comes in with individual needs and any way that you can customize their experience is always a positive way.”</p>	<p>Ms. Restino’s observation of personalizing the guest’s stay is one of the most promising and hospitality-significant ways in which artificial intelligence can be implemented.</p>

**Conclusions from Question 1** - The first question that the interview opens with involves a simple and frequently overlooked advancement in technology, being smart lights. These bulbs can be adjusted in regards to hue and brightness, providing boundless possibilities for guest customization and tailoring to precisely what the individual desires. They are somewhat more costly than normal fluorescent bulbs, but they last for years and function very well as an aspect of a room with integrated smart technology. Even among the interviewees with generally negative perceptions of automation, this feature is popular, showing that smart/AI enhanced lighting, photo-frames, or AC can collectively create a considerably more personalized experience.

**Table 3 - Responses from Question 2**

“Would your front desk crew benefit from having self-check-in kiosks in the lobby, regularly sanitized, to offer alternative ways to socially distance guests?”

	<b>Response</b>	<b>Analysis</b>
Brennan Smith	“Yes, especially on the weekends, I find myself not focusing so much on check-ins, but more talking to guests, explaining how to do things, where to go eat, so being able to alleviate or get rid of some of that traffic with check-ins would allow me to have more time to speak with guests, talk to them more, more in depth, give them more of a personal feel, what they want to do, instead of just trying to get them to	Brennan touches on a notable benefit of incorporating automation into daily procedure, in which the check-in kiosk resolving the more tedious parts of getting a guest in the system, also allowing the guest service representative to dedicate more time to the guest and inform them of local attractions, places to eat, and general information about the hotel. This creates a more personable atmosphere for the guest, and keeps the

	where they’re going, to be able to help the next guest in line.”	GSR available to answer questions or help with other issues.
Nick Lange	“I honestly think that it would just not be the same, you just, hotels are about human [interaction]. Really getting that one-on-one with your guests, so I honestly feel like it would hurt the hotel industry because you’re not interacting with people. Because hospitality is basically the art of making humans feel welcome in their presence.”	Nick was understandably apprehensive towards the idea of having this automated form of check-ins on property, which highlights the common fear that using AI will displace the human workers. He is entirely correct in saying that hospitality is the art of humans making other humans comfortable and socialized; however, the conclusion of this thesis argues that AI will actually increase human interaction.
Tony Blackburn	“I also believe that that would help out a lot as well, with everything that we’re going through with COVID and everything like that, that it would help out a lot.”	This is one of the more topical benefits of the advent of no-contact check-ins, keeping the kiosks sanitized would allow immuno-compromised guests to avoid the anxiety of interacting with the human workers if they felt at risk.
Spencer Bradshaw	“Yes, some guests that come often would love this. It would allow for lower labor.”	Frequent Graduate guests often get tired of the same check-in spiel with parking, housekeeping, & amenity information, so they would certainly benefit from a streamlined check-in kiosk.
Mikayla Cantu	“No on this one, too, just because some of our best reviews are about interacting with the front desk. So, I think people would actually be really upset if we made them go to that, or, like, if that was there for them. They would be like, ‘but we like talking to y’all!’ I don’t think that really benefits us and our market.”	In a perfect world, there would be a balance between human front desk workers and one or two self check-in kiosks, but some guests would still be disappointed in not having that same personal interaction.
Lauren Restino	“I think that that’s a tricky question, there’s definitely a lot of importance in having guest interaction, and that starts right from check-in, the second they walk in. So, I feel like having self check-in kiosks as the only option might kind of distance the guests from the hotel and the brand itself, but I do think	This response highlights the need for balancing both human and artificial elements. If an operation only has kiosks and no humans, that personal touch will be virtually non-existent, but performance can be greatly improved with at least one kiosk for every two employees. With this situation, the employees are less likely to be overburdened during busy weekends,

	that, again, having options to allow the flexibility for each guest is important.”	and less social guests have a quicker, more convenient check-in option.
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**Conclusions from Question 2** - There is a considerable amount of apprehension regarding the check-in kiosks, because the participants generally agreed that the human element of check-in was one of the most important. This is entirely true, the first impression that a guest has can have a significant impact on the quality of their stay, and some guests would feel alienated by being required to use the kiosks. Fortunately, there is a stable equilibrium to be found when there are both humans and self-operated kiosks, so that some guests have the option to bypass the small-talk and socializing of the normal check-in procedure, such as if they have a time-sensitive stay.

**Table 4 - Responses from Question 3**

“Would having simplistic user interface panels in guest rooms make it more convenient to receive and perform maintenance/housekeeping and food & beverage requests?”

	Response	Analysis
Brennan Smith	“I think yeah, this is like a no-brainer at this point, I think something like this should be implemented in every hotel. Um, because it can alleviate charges, you know, as soon as someone wants a water bottle, boom, it’s charged to the room, you don’t have to worry about the guest service representative not doing it. Um, it keeps ordered track of information, allows the guest to see what your property fully offers, in a nice, clean way. Yeah, there’s just so much you can do with that type of stuff, more	The presence of a user interface screen in the guest rooms would lighten the burden of the front desk and housekeeping with taking room requests and questions. Using these panels, it would not displace any workers, but would make it easier for requests to be completed, and the guests would have the convenience of just tapping a touch screen and having their items dropped off: less contact, more convenient fulfillment. Installing the equipment would be an expensive investment, but it would garner more

	towels, remote to the TV, remote to the lights, all from one central hub.”	guest interest and justify increasing the rates.
Nick Lange	“I honestly think that that would be a really good part, because they will send us the request, we’ll be able to do what they need, and still have that human [interaction] with some help from technology.”	Even the more skeptical hotel workers find the panels to be very helpful for completing guest requests. It balances interaction and automation very well, because the human workers still take the items up to the room for the guests.
Tony Blackburn	“I believe it would as well!”	The general consensus among the workers is very positive regarding the user interfaces in each room.
Spencer Bradshaw	“Yes, we currently see many hotels developing [applications] for this. If we could start to have iPads in the room with easy UI, that would be amazing.”	There is already a growing market for interconnectivity with guest rooms, and ensuring user-friendliness would be very valuable for old and new properties alike.
Mikayla Cantu	“Yes, since with people on the phone it’s so hard to hear them sometimes, and it’s hard to understand.”	With the advent of these user interface screens in rooms, there would not be any language or communication barrier between the employees and guests.
Lauren Restino	“Yes, I definitely think that that is, like, here at the Graduate, we use the texting software which is really good, but this would just be taking that to the next level, which would be really helpful, and everything would be handled in real time.”	Ms. Restino makes an interesting point about the technology that the Graduate hotel already has, a texting platform that decreases call volume while making requests faster, but this in-room panel would be even more convenient for the guest than the texting feature.

**Conclusions from Question 3** - The concept of installing a panel device in each room of a hotel property can seem very intimidating, but the wide variety of uses they offer tip the scale in their favor. Implementing these screens in each guest room or in suites would allow for a higher rate to charge, as well as increased guest satisfaction because of higher convenience. At the same time, offering these panels would not necessitate firing any workers, since this upgrade would only change the method and speed in which workers respond, allowing for faster

completion of requests and less time spent responding to calls or requiring the guest to walk down to the desk for amenities.

**Table 5 - Responses from Question 4**

“Does your central reservation system already work with AI services that increase guest engagement, like Oaky or Upsell Guru which use the Opera PMS to send offers?”

	<b>Response</b>	<b>Analysis</b>
Brennan Smith	“Yes, uh, you actually may know a little more about this than I do, and how this works, but I know that we use Upsell Guru, to offer... upgrades to the room for a certain price, if that room’s available.”	Upsell Guru is most often triggered by third party reservations, and it allows the guests to bid on room upgrades, both increasing their satisfaction and providing more revenue to the property. This is one of the best forms of AI we currently use.
Nick Lange	“Yes, yes we do.”	This service is so self-sufficient that the front desk workers barely have to interact with it, other than confirming the room for what Upsell Guru dictates for the guest.
Tony Blackburn	“I mean, we do have that?”	Most of the front desk workers are aware of Upsell Guru, but rarely have to interact with or monitor the service.
Spencer Bradshaw	“Yes.”	N/A
Mikayla Cantu	“Oh, yes!”	N/A
Lauren Restino	“Yes, we do here, so we already... Guests who book online can get upgraded through Upsell Guru.”	Currently, Upsell Guru only targets third party reservations for upgrades, but the service would be very helpful for direct bookings, as well.

**Conclusions from Question 4** - Upsell Guru is just one example of the automated services that allow for guest upgrades, adding a sense of urgency and satisfaction in the bidding/auction styled messages that it sends to third party guests. Without any interference or input from the hotel workers, this program incentivizes people to reserve upgrades for their room, such as higher floors, suites, and other amenities, so it's very simple to implement and manage.

**Table 6 - Responses from Question 5**

“Service robots are becoming very popular across the world, and employing them creates a point of interest for the guests. Do you think that your front desk workers would have more time for other duties with these assistants?”

	<b>Response</b>	<b>Analysis</b>
Brennan Smith	“Sam, one of our housekeepers, here, is always having to clean rooms, do room moves, and a lot of the time she has to stop doing what she’s doing to be able to go fill a guest service request, whereas if we had a robot to just take them a towel or a water bottle, it would allow her to continue the job, instead of having to stop every ten minutes.”	This is one of the more promising aspects of incorporating robots into the hotel staff, because it will allow the most minor and tedious delivery requests to be completed without distracting housekeeping and the front desk from more nuanced tasks. When delivering small amenities and such, it is not necessarily vital to have a human perform such a simple task.
Nick Lange	I honestly feel like we would, but it still wouldn’t be the same. Because one of our things our hotel strives upon is just that interaction between the worker and the guest. So, I feel like with that technology in the way, it would just create more downtime and just, we still wouldn’t be able to do that stuff for the guest in person.	Some employees are strongly in favor of keeping exclusively human workers on the roster, but the hypothetical downtime Mr. Lange mentions would be very helpful for the workers to expend their efforts on other, more complicated job duties, rather than more menial tasks like making small item deliveries.

<p>Tony Blackburn</p>	<p>“Yeah, definitely, like if we were here by ourselves, you know, that’s always a way that it can help.”</p>	<p>Mr. Blackburn referenced the benefit of having service robots available at the hotel, and mentioned how useful it would be when the employees are working alone. The front desk at Graduate Fayetteville is generally staffed by one person per shift on weekdays, along with one public attendant to handle guest requests.</p>
<p>Spencer Bradshaw</p>	<p>Yes and no, I think robots helping deliver stuff would be amazing, however, I know some guests still wish for human interaction for certain things.</p>	<p>These responses feature many of the same general worries about maintaining the human touch in service, and suggest that robots would be best performing only basic tasks, so that humans will still be majorly present in assisting guests.</p>
<p>Mikayla Cantu</p>	<p>“On a busy weekend, yes, but on non-busy weekends, it would kind of be just overkill. But even then, on a busy weekend, you can just hire more people.”</p>	<p>This taps into the main controversy of automation, being that the employees would be replaced by robots; however, the ideal would be to have robots on hand to decrease the workload for workers currently employed, without additional individuals on payroll.</p>
<p>Lauren Restino</p>	<p>Yes, I definitely believe that, while I understand the importance of guest interaction, like I talked about earlier, simple things like bringing towels can be done in several other ways, and can really just... Task completion is really important to me, so I feel like when I start something I really want to be able to finish it. But, at the same time, I want to deliver good service, so I find myself cutting myself off multiple times to bring things up to the room, when that can be served otherwise.</p>	<p>This response advocates for automation because it would allow for a more complex task-oriented work environment, so that humans can focus on guest-recovery and personal matters, while the robots would be geared towards delivering amenities and more tedious tasks. In theory, even having these robots absorb some housekeeping duties would not necessitate the housekeepers being terminated, instead giving them more time to complete more rigorous duties.</p>

**Conclusions from Question 5** - In line with Tony’s opinion, having a service robot at the desk for check-ins or performing tasks for the guests would allow the human employees to

focus more on front desk reports or paperwork and addressing guest concerns, or for the public attendants to manage cleaning and assisting the desk with more nuanced work.

## **Conclusion**

Overall, this thesis has allowed for the collection of in-depth perspectives on how workers on a local level feel about automation, and explored the role that RAISA can play in the years to come. Instead of this tool forcing out the humans that make this industry, automation can be used to improve the job that our employees perform, and allow them to concentrate on more refined and subjective tasks. After completing the interviews, it became clear that people are familiar with automation in this industry, but they tend to have cautious and wary opinions about it.

Through my findings, I believe that this apprehension can be alleviated if people are given more information about the level of customization that automation allows for. Especially after conducting primary data collection with the interviews as well as through perusing secondary source research, it seems clear that the situation is not black and white; RAISA can be implemented as lightly or thoroughly as desired, but it absolutely does not necessitate replacing the workers who already make the hotel what it is.

It was surprising but also very insightful to learn about the neutral and negative opinions my coworkers had regarding the prevalence of robots and AI in hotels. Going into the research phase, I was expecting to discover mostly positive thoughts about it, but my data reflected much more mixed opinions of automation than was previously anticipated; however, this new data is

just as valuable regardless, because it highlights a gap in understanding about the different ways that automation can be integrated into practically any hospitality operation.

In future research, it would be pertinent to analyze how workers perceive automation before and after they learn more about how it would actually be implemented, and the potential it has to ease the burden of their work duties. These findings suggest that from the small scale and local businesses all the way up to global and national economic trends, automation is on everyone's minds, and it won't change any time soon. Economies across the globe are beginning to show more interest and investment in the rise of robots, and this may be the perfect opportunity for the hospitality industry to take advantage of all the added enthusiasm.

## Literature Cited

- Aluri, A., Price, B. S., & McIntyre, N. H. (2018). Using Machine Learning To Cocreate Value Through Dynamic Customer Engagement In A Brand Loyalty Program. *Journal of Hospitality & Tourism Research*, 43(1), 78-100. doi:10.1177/1096348017753521
- Assa abloy and telkonet extend hospitality automation through intelligent connectivity. (2018, Jun 18). *NASDAQ OMX's News Release Distribution Channel*. Retrieved from <https://search.proquest.com/docview/2056370253?accountid=8361>
- Buhalis D., Amaranggana A. (2015) Smart Tourism Destinations Enhancing Tourism Experience Through Personalisation of Services. *Information and Communication Technologies in Tourism*. Springer, Cham. [https://doi.org/10.1007/978-3-319-14343-9\\_28](https://doi.org/10.1007/978-3-319-14343-9_28)
- Buhalis, D., Leung, R. (2017, December 22). Smart hospitality-Interconnectivity and interoperability towards an ecosystem. Retrieved from <https://www.sciencedirect.com/science/article/abs/pii/S0278431917301974?via=ihub>
- Castro, D. (2019, August 30). Who Is Winning the AI Race: China, the EU or the United States? Retrieved from <https://datainnovation.org/2019/08/who-is-winning-the-ai-race-china-the-eu-or-the-united-states/>
- Cordray, D. S., & Patton, M. Q. (1981). Qualitative Evaluation Methods. *Educational Evaluation and Policy Analysis*, 3(5), 98. doi:10.2307/1164029

Denzin, NK. (1978). *Sociological Methods*. New York: McGraw-Hill.

Gerring, J. (2012). *Social science: methodology, a unified framework*. Cambridge (GB): Cambridge University Press.

Gursoy, D. (2017, November 23). Future of hospitality marketing and management research.

Retrieved from

<https://www.sciencedirect.com/science/article/abs/pii/S2211973617301228?via=ihub>

Huang, M.-H., & Rust, R. T. (2018). Artificial Intelligence in Service. *Journal of Service Research*.

Kabadayi, S., Ali, F., Choi, H., Joosten, H., & Lu, C. (2019). Smart service experience in hospitality and tourism services. *Journal of Service Management*.

doi:10.1108/josm-11-2018-0377

Kanuganti, S. (2005). *Creating a secure and efficient working environment using office automation*. Retrieved from

<https://search.proquest.com/docview/305450239?accountid=8361>

Krefting, L. (1991) Rigor in Qualitative Research: The Assessment of Trustworthiness.

*American Journal of Occupational Therapy*. <https://doi.org/10.5014/ajot.45.3.214>

Kuo, C. M., Chen, L. C., & Tseng, C. Y. (2017). Investigating an innovative service with hospitality robots. *International Journal of Contemporary Hospitality Management*

Lu, T.L. (2019). *Opportunities of Artificial Intelligence in Hospitality Industry for Innovative Customer Services. Case: Hotels in Ho Chi Minh City, Vietnam*.

Mamula, M., Folgieri, R., & Duvnjak, K. (2019). Some Considerations About Artificial Neural Networks In Hotel Industry: State Of The Art And Future Developments. *Tourism in South East Europe*. doi:10.20867/tosee.05.8

Marshall, M. N. (1996). Sampling for qualitative research. *Family Practice*, 13(6), 522-526. doi:10.1093/fampra/13.6.522

Melton, C. (2019, Feb 08). Ball state survey shows robot workers could become more common. *University Wire*. Retrieved from <https://search.proquest.com/docview/2177237234?accountid=8361>

Mustak, M., Salminen, J., Plé, L., Wirtz, J. (2021). Artificial Intelligence in Marketing: Bibliometric Analysis, Topic Modeling and Research Agenda. *Journal of Business Research*.

Nakanishi, J., Kuramoto, I., Baba, J., Kohei, O., Yoshikawa, Y., & Ishiguro, H. (2018). Can a Humanoid Robot Engage in Heartwarming Interaction Service at a Hotel? *Proceedings of the 6th International Conference on Human-Agent Interaction*. doi:10.1145/3284432.3284448

Padgett, D. K. (2017). *Qualitative methods in social work research*. London: Sage.

Patton, MQ. (1999). "Enhancing the quality and credibility of qualitative analysis." *HSR: Health Services Research*. 34 (5)

Porter, M., Heppelmann, J. 2014. How Smart, Connected Products are Transforming Competition. *Harvard Bus Rev*.

- Queirós, A., Faria, D., & Almeida, F. (n.d.). STRENGTHS AND LIMITATIONS OF QUALITATIVE AND QUANTITATIVE RESEARCH METHODS. Retrieved from <https://oapub.org/edu/index.php/ejes/article/view/1017/2934>
- Ristova, C., & Dimitrov, N. (2019). DIGITALIZATION IN THE HOSPITALITY INDUSTRY: TRENDS THAT MIGHT SHAPE THE NEXT STAY OF GUESTS. *International Journal of Information, Business and Management*, 11(3), 144-154. Retrieved from <https://search.proquest.com/docview/2216865195?accountid=8361>
- Sandelowski, M. (1993). Rigor or rigor mortis: the problem of rigor in qualitative research. *Advances in nursing science*, 16(2), 1-8.
- Solnet, D., Subramony, M., Ford, R. C., Golubovskaya, M., Kang, H. J., & Hancer, M. (2019). Leveraging human touch in service interactions: Lessons from hospitality. *Journal of Service Management*, 30(3), 392-409. doi:10.1108/josm-12-2018-0380
- Tuomi, A., Tussyadiah, I. P., & Stienmetz, J. (2020). Applications and Implications of Service Robots in Hospitality. *Cornell Hospitality Quarterly*. doi:10.1177/1938965520923961
- Verma, N., & Jain, A. (2016). Energy optimized building automation with guest comfort in the hospitality sector. *Second International Innovative Applications of Computational Intelligence on Power, Energy and Controls with Their Impact on Humanity (CIPECH)*. doi:10.1109/cipech.2016.7918764

Wirtz, J., Patterson, P. G., Kunz, W. H., Gruber, T., Lu, V. N., Paluch, S., & Martins, A. (2018).

Brave new world: Service robots in the frontline. *Journal of Service Management*, 29(5),

907-931. doi:10.1108/josm-04-2018-0119

## Appendices

### Tony Blackburn Interview Transcript

**Logan** - My name is Logan O'Hara, and I'm going to be interviewing Mr. Tony Blackburn, who works the front desk of Graduate Fayetteville. So, first question: Would having the ability to customize the light color or brightness of a guest room to a guest's precise request be a good selling point for your hotel's market?

**Tony** - I believe it would, because guests are always saying how dark the rooms are, so with more light, I would feel like they would be more happy with that.

**Logan** - Yeah, definitely! Perfect. And second, would your front desk crew benefit from having self-check-in kiosks in the lobby, regularly sanitized, to offer alternative ways to socially distance guests?

**Tony** - I also believe that that would help out a lot as well, with everything that we're going through with COVID and everything like that, that it would help out a lot.

**Logan** - Nice, okay. Then, third question, would having simplistic user interface panels in guest rooms make it more convenient to receive and perform maintenance/housekeeping and food & beverage requests?

**Tony** - I believe it would as well!

**Logan** - Yeah, perfect. Let's see, does your central reservation system already work with AI services that increase guest engagement, like Oaky or Upsell Guru which use the Opera PMS to send offers? (That is something that we have here!)

**Tony** - I mean, we do have that?

**Logan** - Yeah, so, Opera has joined with Upsell Guru, which basically sends out promotional offers to the guests without having an actual, physical person to do it.

**Tony** - I'm sorry!

**Logan** - No, you're fine! It's okay. Alright, the last question, number 5: Service robots are becoming very popular across the world, and employing them creates a point of interest for the guests. Do you think that your front desk workers would have more time for other duties with these assistants?

**Tony** - Yeah, definitely, like if we were here by ourselves, you know, that's always a way that it can help.

**Logan** - Yeah, that's fantastic.

Background Questions

- What is your age? - 41 years old
- What is your gender? - Male
- What level of education have you completed? - Completed high school
- How long have you been working in the hospitality field? - 14 years
- Have you heard of AI being used in hotels? - Yes

### **Brennan Smith Interview Transcript**

**Logan** - Hello, my name is Logan O'Hara, and today I am going to be interviewing Brennan Smith, who works at the front desk of Graduate Fayetteville. So, question 1: Would having the ability to customize the light color or brightness of a guest room to a guest's precise request be a good selling point for your hotel's market?

**Brennan** - I believe it would be a great selling point, I don't know if going and retrofitting all the rooms would be worth it, but if you were building a hotel, there's no reason not to. I think the prices on those lights are just as affordable as the other lights. So yeah, I think that would be a huge selling point.

**Logan** - That's true! It definitely makes sense that it would be cheaper in the long run to do it for a new property. So, question number 2: Would your front desk crew benefit from having self-check-in kiosks in the lobby, regularly sanitized, to offer alternative ways to socially distance guests?

**Brennan** - Yes, especially on the weekends, I find myself not focusing so much on check-ins, but more talking to guests, explaining how to do things, where to go eat, so being able to alleviate or get rid of some of that traffic with check-ins would allow me to have more time to speak with guests, talk to them more, more in depth, give them more of a personal feel, what they want to do, instead of just trying to get them to where they're going, to be able to help the next guest in line.

**Logan** - Yeah, that's it, it really helps with the human element, with the trivial stuff set to the side, and you're able to have a real conversation, to really augment their experience. Yeah! Okay, so, question number 3: Would having simplistic user interface panels in guest rooms make it more convenient to receive and perform maintenance/housekeeping and food & beverage requests?

**Brennan** - I think yeah, this is like a no-brainer at this point, I think something like this should be implemented in every hotel. Um, because it can alleviate charges, you know, as soon as someone wants a water bottle, boom, it's charged to the room, you don't have to worry about the

guest service representative not doing it. Um, it keeps ordered track of information, allows the guest to see what your property fully offers, in a nice, clean way. Yeah, there's just so much you can do with that type of stuff, more towels, remote to the TV, remote to the lights, all from one central hub.

**Logan** - Yeah, definitely a lot more convenient. This one, for someone who works at Graduate, it's a little already answered, but does your central reservation system already work with AI services that increase guest engagement, like Oaky or Upsell Guru which use the Opera PMS to send offers?

**Brennan** - Yes, uh, you actually may know a little more about this than I do, and how this works, but I know that we use Upsell Guru, to offer - uh, why I am blanking on the - upgrades to the room for a certain price, if that room's available. Um, that's kind of the extent that I know how we use it.

**Logan** - Yeah, that's it! And, lastly, service robots are becoming very popular across the world, and employing them creates a point of interest for the guests. Do you think that your front desk workers would have more time for other duties with these assistants?

**Brennan** - I think so, I think it would. Sam, one of our housekeepers, here, is always having to clean rooms, do room moves, and a lot of the time she has to stop doing what she's doing to be able to go fill a guest service request, whereas if we had a robot to just take them a towel or a water bottle, it would allow her to continue the job, instead of having to stop every ten minutes. So yeah, that would be a huge relief off of Sam, or whoever is working that position.

**Logan** - Yeah, that's very insightful! Definitely. And other than that, we've just got some basic demographic questions.

### **Background Questions**

- What is your age?

So, I'm twenty-three.

- What is your gender?

I'm male.

- What level of education have you completed?

I am currently a student at the University of Arkansas, going into my last semester.

- How long have you been working in the hospitality field?

I've been working in the hospitality field since I was sixteen. I started at a restaurant, then did a couple hospitality internships, now here I am working at the hotel.

- Have you heard of AI being used in hotels?

And then, I have heard of AI being used in hotels, a lot of hotels I've heard that are using it are those newer ones in Las Vegas, like bigger cities, but I think as that technology becomes more and more, like, recognized and accessible, it's going to be everywhere, no matter where you're at.

**Logan** - That's perfect, thank you very much! I appreciate it.

### **Nick Lange Interview Transcript**

**Logan** - My name is Logan O'Hara, and today I am going to be interviewing one of our recent hires, Nick Lange, and here we go. So, question one, would having the ability to customize the light color or brightness of a guest room to a guest's precise request be a good selling point for your hotel's market?

**Nick** - I honestly think it absolutely would, they would be able to say 'they were able to do this for me, so I will definitely be coming back again because of this small gesture'.

**Logan** - Yeah, definitely! That's a good insight. Let's see, number two, could your front desk crew benefit from having self-check-in kiosks in the lobby, regularly sanitized, to offer alternative ways to socially distance guests?

**Nick** - I honestly think that it would just not be the same, you just, hotels are about human [interaction]. Really getting that one-on-one with your guests, so I honestly feel like it would hurt the hotel industry because you're not interacting with people. Because hospitality is basically the art of making humans feel welcome in their presence.

**Logan** - Yeah, that totally makes sense! I totally see where you're coming from. So, number three, would having simplistic user interface panels in guest rooms make it more convenient to receive and perform maintenance/housekeeping and food & beverage requests?

**Nick** - I honestly think that that would be a really good part, because they will send us the request, we'll be able to do what they need, and still have that human [interaction] with some help from technology.

**Logan** - Yeah, definitely! I feel like that would be especially helpful, here. Question four, does your central reservation system already work with AI services that increase guest engagement, like Oaky or Upsell Guru which use the Opera PMS to send offers?

**Nick** - Yes, yes we do.

**Logan** - That's fine! Basically, it will show up in our system as a fixed charge, and the guest will approve it. They'll get a personalized notification from Upsell Guru, and it'll offer them, like, the ability to upgrade. And lastly, question five, service robots are becoming very popular

across the world, and employing them creates a point of interest for the guests. Do you think that your front desk workers would have more time for other duties with these assistants?

**Nick** - I honestly feel like we would, but it still wouldn't be the same. Because one of our things our hotel strives upon is just that interaction between the worker and the guest. So, I feel like with that technology in the way, it would just create more downtime and just, we still wouldn't be able to do that stuff for the guest in person.

**Logan** - That's a good point! Yeah, I see where you're coming from.

#### Background Questions

- What is your age? - I am 23 years of age.
- What is your gender? - I am male.
- What level of education have you completed? - I have a bachelor's of human environmental science.
- How long have you been working in the hospitality field? - I've been working in the hospitality field, probably, since I was fifteen or sixteen.
- Have you heard of AI being used in hotels? - I have heard of artificial intelligence being used in hotels, but I don't really like it.

#### **Spencer Bradshaw Interview Transcript**

**Logan** - Would having the ability to customize the light color or brightness of a guest room to a guest's precise request be a good selling point for your hotel's market?

**Spencer** - Yes, but I feel the cost would outweigh the benefits for already-built hotels. For newer ones, yes. And if you could change the color, hotels in locations like Vegas would be great.

**Logan** - Would your front desk crew benefit from having self-check-in kiosks in the lobby, regularly sanitized, to offer alternative ways to socially distance guests?

**Spencer** - Yes, some guests that come often would love this. It would allow for lower labor.

**Logan** - Would having simplistic user interface panels in guest rooms make it more convenient to receive and perform maintenance/housekeeping and food & beverage requests?

**Spencer** - Yes, we currently see many hotels developing [applications] for this. If we could start to have iPads in the room with easy UI, that would be amazing.

**Logan** - Does your central reservation system already work with AI services that increase guest engagement, like Oaky or Upsell Guru which use the Opera PMS to send offers?

**Spencer** - Yes.

**Logan** - Service robots are becoming very popular across the world, and employing them creates a point of interest for the guests. Do you think that your front desk workers would have more time for other duties with these assistants?

**Spencer** - Yes and no, I think robots helping deliver stuff would be amazing, however, I know some guests still wish for human interaction for certain things.

#### Background Questions

- What is your age? - 27 years old.
- What is your gender? - Male.

- What level of education have you completed? Bachelor's degree.
- How long have you been working in the hospitality field? 2 years.
- Have you heard of AI being used in hotels? No.

### **Mikayla Cantu Interview Transcript**

**Logan** - My name is Logan O'Hara, and today I'm going to be interviewing Mikayla Cantu, one of our new hires for Graduate Fayetteville. Yes, so, thank you for participating! So, question one: Would having the ability to customize the light color or brightness of a guest room to a guest's precise request be a good selling point for your hotel's market?

**Mikayla** - Honestly, I would say no, because our market is more of nostalgia, not really about technology, like I really don't think people would care, some, like the younger people would, but mostly we have older alumni, so I don't think they would really care. They would think it's cool, but they wouldn't care.

**Logan** - Yeah, that's a good point! And especially for what this hotel goes for, it is for that nostalgia and the past, so yeah, that's a good point. So, question two, would your front desk crew benefit from having self-check-in kiosks in the lobby, regularly sanitized, to offer alternative ways to socially distance guests?

**Mikayla** - I'm going to say no on this one, too, just because some of our best reviews are about interacting with the front desk. So, I think people would actually be really upset if we made them go to that, or, like, if that was there for them. They would be like, 'but we like talking to y'all!' I don't think that really benefits us and our market.

**Logan** - That's a good point, definitely. And it does, it definitely changes based on which city you're in, what kind of demographic you appeal to, yeah! So, question number three, would having simplistic user interface panels in guest rooms make it more convenient to receive and perform maintenance/housekeeping and food & beverage requests?

**Mikayla** - I think yes, since people on the phone it's so hard to hear them sometimes, and it's hard to understand, so yeah. That would be a really cool thing to have.

**Logan** - Yeah, I wish we had that! Right, true. Okay, and question number four, does your central reservation system already work with AI services that increase guest engagement, like Oaky or Upsell Guru which use the Opera PMS to send offers? We do actually have that.

Whenever we get those reservations from third parties that say Upsell Guru, like "add \$10 fixed charge".

**Mikayla** - Oh, yes!

**Logan** - So, that's basically what that is. Yeah! Let's see, and then, last question, service robots are becoming very popular across the world, and employing them creates a point of interest for the guests. Do you think that your front desk workers would have more time for other duties with these assistants?

**Mikayla** - On a busy weekend, yes, but on the non-busy weekends, it would kind of be just overkill. But even then, on a busy weekend, you can just hire more people. So if we're just gonna, I think a lot of people would say, "why aren't you just hiring people instead of hiring robots?" So, it goes both ways.

**Logan** - Yeah, definitely. No, I totally see where you're coming from.

**Mikayla** - It would be different without, different without.

**Logan** - Cool, and, lastly, we just have some basic demographic questions.

#### Background Questions

- What is your age? - 21
- What is your gender? - Female
- What level of education have you completed? - High school and fourth year of college
- How long have you been working in the hospitality field? - Long time, first job at 14
- Have you heard of AI being used in hotels? - Yes and no, I think I read it, I didn't pay much attention.

#### **Lauren Restino Interview Transcript**

**Logan** - My name is Logan O'Hara, and today I'm going to be interviewing Lauren Restino, one of our workers here at Graduate. Thank you for taking the time to do this for me! So, question one, would having the ability to customize the light color or brightness of a guest room to a guest's precise request be a good selling point for your hotel's market?

**Lauren** - I believe that yes, it would. I think every guest comes in with individual needs and any way that you can customize their experience is always a positive way.

**Logan** - Yeah, I definitely agree. And, would your front desk crew benefit from having self-check-in kiosks in the lobby, regularly sanitized, to offer alternative ways to socially distance guests?

**Lauren** - I think that that's a tricky question, there's definitely a lot of importance in having guest interaction, and that starts right from check-in, the second they walk in. So, I feel like

having self check-in kiosks as the only option might kind of distance the guests from the hotel and the brand itself, but I do think that, again, having options to allow the flexibility for each guest is important.

**Logan** - Nice, yeah. Would having simplistic user interface panels in guest rooms make it more convenient to receive and perform maintenance/housekeeping and food & beverage requests?

**Lauren** - Yes, I definitely think that that is, like, here at the Graduate, we use the texting software which is really good, but this would just be taking that to the next level, which would be really helpful, and everything would be handled in real time.

**Logan** - That's true. Does your central reservation system already work with AI services that increase guest engagement, like Oaky or Upsell Guru which use the Opera PMS to send offers?

**Lauren** - Yes, we do here, so we already... Guests who book online can get upgraded through Upsell Guru.

**Logan** - Alright! Service robots are becoming very popular across the world, and employing them creates a point of interest for the guests. Do you think that your housekeeping and front desk workers would have more time for other duties with these assistants?

**Lauren** - Yes, I definitely believe that, while I understand the importance of guest interaction, like I talked about earlier, simple things like bringing towels can be done in several other ways, and can really just... Task completion is really important to me, so I feel like when I start something I really want to be able to finish it. But, at the same time, I want to deliver good service, so I find myself cutting myself off multiple times to bring things up to the room, when that can be served otherwise.

### Background Questions

- What is your age? - 21 years old
- What is your gender? - Female
- What level of education have you completed? - High school and some college
- How long have you been working in the hospitality field? - Four months
- Have you heard of AI being used in hotels? - Yes.