

Digitalization and its effects on Employability of newly graduating hospitality professionals in Indian market

Karan Lulla¹

1 Introduction

Abstract. In India hospitality is one of the biggest employment generating industry, its contribution to the GDP and foreign exchange of the country works as a driver of growth. As of 2019, 4.2 crore jobs were created in the tourism sector in India, which was 8.1 per cent of the total employment in the country. The number is expected to rise by two per cent annum to 52.3 million jobs by 2028. Tourism & Hospitality Industry in India (Sep, 4 2020) Retrieved from: <https://www.ibef.org/industry/tourism-hospitality-india.aspx>

Traditionally Hospitality Industry is considered to include three sectors: Accommodation, travel and tourism and Food and Beverage. It is an industry that demands more practical working knowledge than theoretical knowledge. Industry has been through many phases of change in the past due to the specific needs of time. In line with that presently the industry is in a continuous state of flux and is changing at a very fast pace owing to the automation and digitization due to advancement in the technologies like AI (Artificial Intelligence), ML (Machine learning) which are shaping the future of the hospitality industry. With these changes it is expected that technology will overtake many routine and repetitive jobs in hospitality.

Historical empirical experience tells us that emergence of new technology replacing humans, initially faces some resistance before gaining acceptance and eventually the service providers find the mechanisms to meet the demands of the consumers. This might lead to some anxiety in hospitality professionals and graduating students about the future of employment prospects.

Since, hospitality education is very closely intertwined with the hospitality industry and has to be updated as per the needs of the industry which is shaped by the customer demands. Hence, there is an urgent need for the hospitality academia to understand the way industry is changing with technological advancement to incorporate them in the education in order to make the newly graduating hospitality students well equipped with the skills needed for the future jobs, which will be very different from present skills. Hospitality academia will have to reorient the education to meet the changing industry demand.

2 Literature review

Giampaolo Viglia, Mirko Pelloia, and Dimitrios Buhalis (2018) concluded the following in this chapter published in the book “Innovation in hospitality education” that talks about the reforms in hospitality education with increased use of technology: Inclusion of digital skills along with traditional training. Integrating analytics and social media in teaching, partnering with global universities to facilitate cross cultural exposure and include best practices in education and curriculum flexibility are the main highlights.

Stainslav H Ivanov (April,2020) concluded that Automation will eliminate some tourism and hospitality jobs, will change the tasks for others, and will create brand new job positions. This means that companies that adopt automation technologies will experience changes in their service processes (both front-of-house and back-of-house processes) and the job requirements towards their employees. The source of their competitive advantage may shift from the attitude, conduct and appearance of their service

¹Karan Lulla, Assistant Lecturer, IHM Ahmedabad, E-mail - karanlulla@ihma2020.onmicrosoft.com

personnel towards the effective and efficient use of automation technologies. Companies, universities, managers and employees will have to adapt to the new technological realities. The biggest challenge will be to persuade (even to force) lecturers, managers and employees to abandon their silos and within-the-box thinking, stop being afraid of automation and embrace it as a tool for being more productive in the workplace

3 Research objective:

- To understand and analyse the digitalization and project its possible implications on hospitality industry and employment scenario for newly graduating professionals and outline suggestive measures for the hospitality academia to cope with them.

4 Research design:

An exploratory research using qualitative secondary data analysis method.

5 Overview of state of automation in hospitality industry and reasons behind it

- With the technological revolution that we are witnessing since last one decade has its impact on all the industries including hospitality. There is a general trend to adopt automation especially in routine, repetitive jobs demanding more accuracy due to the obvious advantages over humans in terms of reduced cost associated with humans like payroll, and other benefits and the accuracy that can be achieved by technology. This phenomenon is more commonly known as automation.
- Moreover, the recent disruption due to Covid-19 is a medical crisis which has proved to be a major setback for the world and especially for the hospitality industry. The business has plummeted resulting in the reduced revenue. Cost reduction is the only way out for businesses in order to tide over it. As a matter of fact, labour cost constitutes major portion of the overall cost in hospitality business. Hence, it resulted in job losses as a consequence. Also, in absence of any reliable vaccine and to prepare for any such health crisis in future, eliminating the human contact is the most effective way to curb the spread of virus. The pandemic has made the customers highly conscious about health and safety and it also hugely affected their buying decision. Providing service without human intervention is the best way to reinstate customer confidence. Hence, it has further accelerated the process of automation in the industry.

Apart from the above factors, other factors that are contributing to the process of automation are:

- Demands of the millennial guests- In a market economy the consumer demand is what commands the supply so, the globalized customers will demand the same scale of technological efficiency in India what they get in other developed countries that will compel the Indian chains to follow the suit and offer the services at par with their global counterparts. The showmanship and the customer attraction associated with the new technology like robotic servers and the resulting business from that also acts as a driver for adopting new technology.
- Potential for scaling up of business faster- The data suggests that the companies using technology in marketing have an upper hand in terms of customer outreach than those which are not. A good example of this is the OTAs (online travel agents) have scaled up their business using technology by manifold. And most of the start-ups in hospitality space and in other industries are based on technology.

- So, the single skill operational jobs are more likely to be replaced by technology. Repetitive jobs like RSOT, concierge, receptionist, etc. are likely to be eliminated with automation. And the jobs demanding planning and conceptual thinking like sales and marketing will very much exist but the nature of those jobs will change significantly and will include new skills like social media marketing, data analytics, etc. And it will also lead to creation of new jobs.
- It might cause some serious apprehensions in the minds of the **new graduating students** and the hospitality academia alike about the future of the employment prospects in the industry. Digitalization will not only eliminate some of the existing jobs but will change the nature of some of the existing jobs and will also create new ones.
- It presents many opportunities in terms of benefits that technology has to offer like faster and greater customer reach, creation of new business platforms based on technology, more efficiency, better utilization of human resources, etc. In a crux the technology will do better for the industry in comparison to the short-term disruption it will create.
- At the same time, it also presents a huge challenge for the hospitality academia, for they have to prepare and equip the future professionals with the necessary skills that they require in order for them to have the ability to tap the opportunities offered by the technology. Presently hospitality education is very good at preparing the students for the single skill and single discipline jobs like working in a single area of a department and performing repetitive jobs which might not exist in future. Hospitality academia will have to put more impetus on multiskilling and skills that help them to capitalize on the technology for better outcome.

6 Various technologies and their application in hospitality:

6.1 Artificial intelligence (AI)

Artificial Intelligence simply means machines performing the tasks with human intelligence e.g. interpreting voice, analyzing data. It is a breakthrough technology that is used for automation in digital age. E.g. Chatbots, Natural Language processing (NLP) & Intelligent virtual assistants (IVA), etc

- Customer service using Chatbots are conversational agents used in customer service space to answer questions like a customer service representative. The technology works based on (NLP) Natural Language processing used for voice recognition. It is used in both written and spoken form of communication. Chatbots are popular in hospitality industry for answering guest queries, making recommendations, sending alerts about timings, making bookings, etc. It uses SMS, live chat and voice chat to communicate with the guests throughout the journey. The works as hotel concierge. It provides a quick point of communication for the guests with the hotel. E.g. Triliyo, Hoperator, Quicknext, Bebot, etc.
- In room voice controlled virtual assistant- Intelligent Virtual Assistants (IVA) is more advanced technology than chatbots and is used to perform tasks based on voice commands. They are like personal human assistants and are used for a host of different tasks like ordering room service, requesting for housekeeping service, playing music, making reservations, concierge services, etc. VAs are equipped with advanced ability to comprehend, analyse and provide solutions. Due to Machine learning the VAs have the ability to learn from every interaction with humans and become smarter. A good example is Amazon Alexa launched for hospitality industry and is being tested at two Marriott hotels.
- Virtual reality- Virtual reality is used to give a virtual experience of a place without being physically present there. Guests like to know more about a place and a destination before visiting that place. They do it by reading reviews, viewing photos, etc on social media. Using virtual reality, the hotel and tourist service providers can give a virtual experience to their guests before booking. It can be used as virtual booking tool, virtual hotel room tool or virtual travel experience.

6.2 Big data & data analysis

- Big Data is the phrase used to describe the extremely large sets of data gathered from varied sources that come into a business on a day-to-day basis. After gathering data, it is important to analyse this data to draw logical conclusions out of it (Data Analysis). This processing of such large amount of data produced by the customers online which cannot be done in the traditional way. Hence, AI is used to do the job. The data is collected from customer feedback from surveys, reviews and online polls and analysed to find a pattern in consumer behaviour so that the services can be adapted to the customer likes.

Following are the areas where big data and data analysis can be utilized:

- The job of Revenue management can be greatly optimized using big data by analysing large amount of data from different sources like past history of occupancy, local events, environmental trends to project the demand with more accuracy and deciding the right price to optimize revenue and profit.
- Targeted marketing- Knowing the guest preferences and behaviour using big data then analysing and classifying/segmenting the customers based on some common factors like age, nationality, etc. helps in pitching right offer to the right group.
- Enhancing the guest experience- Gathering the guest data not only from the feedback given during their stay but also from their feedback, reviews posted on other online platforms like social media and related websites help in finding a common trend in terms of guest preferences and improving the service offering with the object to improve the guest experience.
- A large amount of data can be gathered from different online platforms regarding any new service requested by the customers, and service no longer required or things that need to be changed, etc. E.g. If more and more customers are requesting for the home delivery of food then hotel may consider offering home delivery of food.

6.3 Use of robotics in hospitality

The idea of robots fully replacing the humans in hospitality is a far-fetched idea but it is gaining some traction in the owing to the visual appeal associated with it among the customers. Their use has been started in several areas like concierge, kitchen, and restaurant service and is expected to be used in other areas of hotels in coming time. Some examples of the use of robots for certain types of jobs in hospitality is illustrated below:

6.3.1 Robot concierge

IBM Watson and Hilton worldwide have jointly developed AI based robot concierge named ‘Connie’. It provides information to guests using speech recognition. With every interaction with guests it learns and improves for future communication.

6.3.2. Robots in kitchen

- Sally the Salad Maker is a robot made by Chowbotics making real inroads into food production, specializing in salads. Sally is about the size (and shape) of a dorm-room refrigerator, and can deliver up to 1,000 different types of salad in 60 seconds.
- Flippy- An AI kitchen assistant helps with grilling, frying, food preparation and plating. It has software that integrates with sensors and cameras that enable it to “see” the food and handle functions like temperature control developed by miso robotics
- Moley the robotic kitchen- It is a fully functional robot integrated into a professional kitchen which can cook food developed by Moley robotics.
- Mechanical chef- It is a cooking robot designed in India which can cook more than 100 dishes of Indian cuisine.

6.3.3. Robot for service

Robot servers are already being used in some restaurants like a Robotic server Butler ‘O’ Bistro developed by SP robotics and is being used at VR mall in Bengaluru.

6.3.4. Robots in housekeeping

Milagrow robots is a Gurugram based company that has developed a range of robots to perform house-keeping cleaning jobs from floor cleaning, window cleaning, pool robots, duct cleaning robots and many more.

6.4 Limitations for automation in Indian hospitality industry:

- While the automation in manufacturing industry is relatively easy to achieve but in case of service industries like hospitality the challenges are multifaceted. Some intrinsic defining characteristics of hospitality makes it different from other service industries and will have a bearing upon the process of automation. Most important one is that, by its very nature the hospitality industry strives to create a personalized experience for the guests and in order to do that it has been a very human driven industry. Automation in hospitality is going to happen with an aim to enhance the guest experience which cannot be compromised to save cost.
- The decision to automate for any company will depend on the return on investment in terms of reduced cost compared to the human employees. In developing countries like India there is abundance of human resource due to its demography and the wage cost is relatively less compared to developed countries. Also, most of these automation technologies cannot work on their own and need human supervision so, if there is no actual cost being saved then it won’t be a viable option.
- Digitalization also depends on the how comfortable the target market is in using the technology. There are some countries where the technology penetration is at its infancy.

7 Implications of digitization on the Industry:

- More Technology based hospitality organizations- A new form of hospitality organizations which are tech driven are already gaining prominence in large numbers and are likely to increase in future. These new forms of organizations have the ability to grow at a very fast pace. These companies are surely going to increase in number and size in coming times. Several examples are room aggregators like OYO rooms, Treebo hotels, Fab hotels, etc.
- Automation of routine jobs- Owing to technological breakthroughs it is believed that some of the routine jobs in the industry will cease to exist in coming future due to technology and it has already started happening. The automation of jobs is likely to be seen at different degrees in different areas like food processing, food service, hotels, etc. In food processing the jobs like food handling, packaging and distribution can be easily automated. F & B industry will see an increase use of technology in ordering, preparation and service. The hotel operations like reservations, concierge are already experiencing this trend.
- Sharing economy- Technology has paved the way for the emergence new business models based on sharing economy where those small service providers which were traditionally not considered a part of the mainstream hospitality business are empowered to use the available unutilized resource/capacity. E.g. People are free to use their extra rooms in their homes to sell them on Air B & B. likewise there are selling platforms for food business. This gives an opportunity to a small business operator the ability to compete with mainstream brands.
- Increased competition- In travel and tourism business we have seen the rise of OTAs (online travel agents) like Make my Trip, Yatra. Com, etc which have made the travel booking (for hotels, airlines, etc) much easier for the consumers and also given opportunity to the customers to compare various options and get the best price as a result of increased competition.

- More vocal customers- It has brought more transparency in terms of customer reviews which can be accessed by anyone and everyone. As a consequence, businesses are putting more premium on guest satisfaction. Because reviews whether good or bad have a much higher impact now than ever before.
- Though the basic principles of revenue management remain the same that is use the variable pricing based on the demand and supply dynamics. Technology allows the businesses to use it more efficiently using much more data and many more variables that helps the business to decide the right price multiple times in a day with higher accuracy.
- Diverse pool of Human resource- The workforce of the organizations is already becoming highly multi-cultural with people from technology industry working at higher positions in hospitality organizations. In the coming times more hotel employees will be hired from tech. institutions. So, hospitality graduate students will face a direct competition from such students for employment.
- More outsourcing - In order to reduce the cost of operation it is very likely that operations like HR, reservations, accounts department, etc will be outsourced in the coming years. As digitisation intensifies, remote working is here to stay. Automation will slay jobs. Expect work to be digitally sliced and farmed out to different kinds of workers — full-time to freelancers. Malini, Goyal (2020, Oct 04). Newly emerging key job trends in India, retrieved from: <https://economictimes.indiatimes.com>

8 Role of hospitality academia in light of the above implications:

Since, the industry and academia are very closely interlinked and interdependent the technological implications highlighted above are cues for the academia to plan the future course of hospitality education. It presents a challenge for the hospitality education institutions because the jobs for which the hospitality institutions are currently preparing the students for may not exist in near future. The education is more focused on specialization in core operations and less on the multidisciplinary education with the ability to exploit the benefits of technology with other skills like planning and management. The implications highlighted above must be analysed collectively by the hospitality academia and the results must be incorporated to reform the hospitality education in India to make it more relevant to the changing needs of the industry.

9 Specific suggestive reforms in hospitality education:

9.1 Technological education.

Technology will be the common factor in all the types of businesses in times to come. There is no reason for the hospitality students to learn how the technology is made. But its is imperative to know how the technologies work in order to be able to capitalize the technology as per the needs of the business, to increase efficiency, to enhance the customer experience, etc. The idea is not to replace humans with machine but to be for the humans to be able to collaborate and capitalize on the benefits of technology. One way to achieve this is by having a special digital lab like for all the other core departments where the students can learn the use of new technologies and it will have to be updated from time to time.

9.2 Collaboration with multiple entities in gig economy.

More and more services are expected to be outsourced using contracted services or freelance workers for which, collaboration will be very important. This must be taught by collaborating with the industry to work on some joint projects for mutual benefits. Students can help the industry to solve their practical problems by doing research and gathering data for them. This will also help in building long term relationship between Industry and academia based on mutual support.

9.3 Broadening the scope.

- Hospitality institutes will have to train the students to be comfortable working in industries outside the ambit of traditional hospitality (which includes hotels and restaurants) considering the fact that

hospitality is not an industry per se but it is a trait which is a must for all the industries involved in customer service. E.g. Hospitality graduates are already being employed in retail, and will have to make inroads in other industries like FMCG, e-commerce, etc. In order to achieve this management studies must be an intrinsic part of the hospitality education.

- This is also applicable to the Industrial training- Training in tech-based start-ups and not just in branded hotels.

9.4 Skills that separate humans from machines

With the increasing automation hospitality professionals will have to focus on skills that set humans apart from the technology. It includes equal focus if not more on soft skills like emotional intelligence, leadership, problem solving, and critical thinking.

9.5 Development of entrepreneurial mindset- Certainly, Technology has presented a huge opportunity for creating start-ups in hospitality

In past little more over a decade there is a trend towards technology-based start-ups in hospitality and not necessarily among the hospitality graduates but also from people from other disciplines mainly from technology fields. Incidentally, majority of these start-ups are technology based and the hospitality education institutes cannot afford to not be a part of this. Shifting the focus from purely job seeking to Self-employment and job creation will be indispensable. There are steps being taken in this direction and there is a lot yet to be done by the hospitality education educational institutes from formal training, setting up incubation centers.

- Strong Research Culture to drive Innovation- Research & Innovation are the key to stay competitive and deliver new experience to the guests. Almost all the companies will be more or less same in terms of efficiency because of the common technology. In that case innovative offering is what will differentiate one hotel from the other. Hospitality graduates will have to learn to innovate and create a new experience. Hence, research is a tool to achieve that.
- Multidisciplinary learning- It helps in all round development and orientation of a student. Management studies will have to be given prominence. Students must focus on at least one more subject apart outside the hospitality. Not all the subjects can be taught in the college but at least the students can be guided in that direction and can be inspired for self-learning in that subject. E.g. Marketing, in depth learning of technology, waste management, sustainability, hygiene standards, organic farming, food processing, or any other skill because the work environment in future will be highly multidisciplinary.
- Adaptability- In the environment of uncertainty because of the industry changing at a very fast pace due to disruptions from various quarters, the ability to adapt to the changing environment will be one of the most important traits for future professionals. This can be taught by making them solve unpredictable problems and handling challenging situations.
- Faculty training -To achieve the above objectives of inculcating the right skills into the new graduating hospitality professionals it is imperative to train hospitality teachers for the same. It can be done through industry refresher trainings for faculties in new age hospitality brands. Bloom's taxonomy is a good pedagogical method to assist in doing that. An increased use of technology platforms in teaching will help in creating the right learning environment.

10 Conclusion

It is beyond doubt that the disruption in the hospitality brought in by the digitalization and further accentuated by the Covid 19 pandemic is changing the industry in many ways. With the aim of making the service contact-less with technologies like self check-in kiosks, contactless dine-in and robots in various operational jobs, achieving greater efficiency with the technologies like AI and ML for in room virtual assistants, improved revenue management through Big data and data analysis, Virtual reality and augmented reality in tourism experience and many more.

While it is true that the employment in hospitality industry will be hugely affected by digitalization but at the same time it will also open up myriad opportunities for new generation of graduating hospitality professionals in form of new business models emerging due to technological advancement, provided that the academia understands this challenge and adequately equips and prepares the students with the necessary skills needed to capitalize them in the digital age.

11 Limitations

The paper relies on the relevant data available only from the secondary sources.

12 Further scope of research:

This paper explains the present scenario in much detail with specific examples from the industry and outlines its possible implications and the suggestive measures to be taken by the hospitality institutes the future researchers on the subject can focus on the methods for practical implementation of the measures at the educational institutions.

Reference

1. Tourism & Hospitality Industry in India (October, 2020). Retrieved from: <https://www.ibef.org/industry/tourism-hospitality-india.aspx>
2. Court Williams (April, 2018). The Growing Use of Technology and Robotics in Food Service. Retrieved from: <https://www.hvs.com/article/8232/the-growing-use-of-technology-and-robotics-in-food-service/>
3. Srishti Deoras. (September, 2018). 8 Leading Food Tech Startups In India That Use Robotics And AI As Key Ingredients Retrieved from: <https://analyticsindiamag.com/8-leading-foodtech-startups-in-india-that-use-robotics-and-ai-as-key-ingredients/>
4. Luke Dormehl. (February, 2020). Flippy the burger-flipping robot is changing the face of fast food as we know it. Retrieved from: <https://www.digitaltrends.com/cool-tech/flippy-burger-robot-changing-fast-food/>
5. Malini Goyal. (October, 2020). As layoffs, pay cuts and gigification loom large, the road ahead looks bumpy for executives. Retrieved from: https://economictimes.indiatimes.com/jobs/as-layoffs-pay-cuts-and-gigification-loom-large-road-ahead-looks-bumpy-for-executives/articleshow/78465885.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cpst
6. Hospitality education of future. (n.a) Retrieved from: <https://hospitalityinsights.ehl.edu/hospitality-education-future>
7. Top 6 Chatbots that are Transforming the Hospitality Industry. (n.a.) Retrieved from: <https://www.tri-lyo.com/blog/top-6-chatbots-that-are-transforming-the-hospitality-industry/>
8. Giampaolo Viglia, Mirko Pelloia, and Dimitrios Buhalis (2018) Information Technology in Hospitality Education: Springer International Publishing A Retrieved from: https://link.springer.com/chapter/10.1007/978-3-319-61379-6_7
9. Stainslav H Ivanov (April,2020) The impact of automation on tourism and hospitality jobs Retrieved from: <https://link.springer.com/article/10.1007/s40558-020-00175-1>