




To Study the Technological Impact and Innovation on the Hotel Industry in Relations to the Employees Working in the Concierge Section of Front Office

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Abstract. Technology and Innovation (TI) is the latest vogue in the field of Hospitality , which is entering more and more into our daily lives. Post covid, human dependency on Technology and Innovation has increases several times. As these days hospitality sector especially hotels are also facing highly competitive climate, with changing covid norms, changing guest demands who wants more innovations and with saturation in the technologies and top of that the pressure of employing everything within the limited budget. Adoption of Technology has become crucial to integrate innovations with economy. To meet the needs of innovations the hotel industry is also looking for the different ways to incorporate Technology and Innovation into their business and they have been successfully implanting Technology and Innovation into their hotels. But like every coin has two sides, the adoption of Technology and Innovation has also come up with its own thorns, TI has gives many new innovative technologies to meet the guest satisfaction, but it has also brought along with it, many complexities and problems for the hotel industry. Thus the major objective of this study is to study the Technological Impact and Innovation on the hotels industry especially with reference to the employees working in the Concierge section of front office department of the hotels.

Keywords: Technology and Innovation, Concierge, complexities, Hotel Industry, Front Office

1 Introduction

Technology and Innovation (TI) the word itself consists of a vision of a whole new world, made with the combination of man and machine. The two words which make the Technology and Innovation is, artificial, which denotes something developed by the efforts of human's intelligence, which denotes the capability for self-governing thought that is the skillful use of mind. Consequently, Technology and Innovation is implicit to be a thinking potential made by humans [3] According to [4] Technology and Innovation predominantly is the computer systems, which is emulating the human intelligence

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functions. According to [2] in artificial intelligence, machines imitates and carries out human-like every day jobs to increase organizational effectiveness, that is when systems broaden sophisticated, the big databases, Technology and Innovation happens. Algorithms are used by Technology and Innovation in an effort to tackle human-related issues by fusing human traits with machine efficiency [1] Thus it can be established that by enable computers to make wise judgment that guide to more effective operations, Technology and Innovation can excel in doing particular tasks, thereby transforming basically every aspect of a nation's wealth [4] [5]

There by deploying deep-learning algorithms that learn and remember consumers' requirements and preferences exclusive of requiring human interaction, Technology and Innovation facilitate companies in their variety of sectors, to provide their customers distinctive experiences [6] Additionally, AI makes it feasible for folks to operate more sharply, which improve corporate outcomes, but it may also calls for the development and growth of newly capacities and competences, from the technological knowhow the social and ingenious aptitude as well as emotional intelligence [7] [8]

Seeing the benefits of Technology and Innovation in each and every sector of corporate worlds even the hotel industry was not left behind, but the major revolution was seen during and post covid, its use has increase to greater extent, thus hotel industry is accepting the use of Technology and Innovation with open arms. It was found that by combining information, from reservations, transactions, or satisfaction surveys, Technology and Innovation may acclimatize guest's expectations and ascertain their needs.

The realm of Technology and Innovation presents a dual nature, akin to a coin with two sides. While its advancements promise unparalleled benefits, it also harbors potential challenges that warrant careful consideration. One of the profound threats posed by Technology and Innovation lies in its ability to emulate human cognitive processes and reasoning capacities. This capability raises concerns about its potential to undertake tasks traditionally reserved for human professionals, thereby challenging established occupational norms [8]. Because Technology and Innovation predicted how to increase operational efficiency, enhance the guest experience, reduce worker costs and certain occ. in the segment of hotel, like maintenance and housekeeping, are inter headed for automation. Depending on the specific talents the Technology and Innovation offers, other guest service professions, such as the concierge and front desk, might be able to share their duties with artificial intelligence.

2 Literature Review

The hospitality sector is widely recognized as a cornerstone of economic stability for nations worldwide [9]. Hospitality, encompassing the methods of welcoming and entertaining guests, is a crucial aspect of both commercial and non-commercial outlets, with a focus on essentials such as f & b, lodgings, and other consumables [10]. This sector spans diverse industries, including hotels, tourism, food and beverage, as well as meetings and events [3]. Undoubtedly, the global hospitality and tourism sector stand out as one of the most significant, substantial, and rapidly expanding industries on a global scale. Accounting for approximately 10% of the global GDP and constituting one in every ten jobs worldwide, this sector generates a remarkable \$Seven point Six trillion in revenue and employs a staggering two nine two million people. The industry's profound impact is expected to lead to further job creation in the years to come, given its anticipated stable growth trajectory [11].

As the hospitality Industry powerfully relies on representation and feedback of the customer because it is built on guest services so to every time meet guest expectation is a difficult task as well as the increase demand of innovation and technological advancement has put more pressure on the hospitality industry especially after post covid hotel industry is also facing highly competitive climate, with changing covid norms, changing guest demands who wants more innovations and with saturation in the technologies and top of that the pressure of employing everything within the limited budget. Adoption of new technology has increased several times. Moreover, the new revolutionary technology can make the customer's point of view of contact for the guest experiences while requiring less human labor efforts in overall. As a outcome, many hospitality sector have increased their technological investments (TI) in recent years in array to enhance their income [12]

Several studies have even supported the fact of the use of Innovation and Technology in hotel industry: According to [13] Technology and Innovation is very much impactful for hotel industry as hotels have always unusually focused on identifying work development indication and boost organizational helpfulness, Innovation and Technology approaches have continually proven valuable to apply in the generosity sector for the benefit of customers. In the age of innovation, Technology and Innovation methods in the hospitality sector are seen as modern equipment to not only reduces unhappy guest but also to provide incentive services. [15] Talked about how eventual guest might persuade the hotel

business to implement particular Artificial Intelligence solutions. For in-person guest care, chat bots and tools for messaging, machine learning-powered of business analytics tools, and virtual and increased reality, the most major deployments are. According to [16], Technology and Innovation is anticipated to have a substantial impact on company models, sales processes, customer service alternatives, and consumer behavior in the future. The understanding of new Microsoft communication between service providers and customers has been a major source of dependence for the hotel industry. The idea of using Technology and Innovation in marketing as a whole was examined by [17]. Technology and Innovation Marketing or AIM is a strategy for minimizing technological use to develop the guest experience. It is now more important than ever, mainly post covid, for firms to, be glad about and comprehend the stress and prospect of their clients in terms of products and services. The use of Technology and Innovation in digital marketing to alter consumer behavior was emphasized by [18]. Using Technology and Innovation a new technology, digital marketing's influence on consumer behavior can be enhanced.

[19] Acknowledged that the hospitality industry is characterized by the complexity of managing guest experiences, all of this, compels human resources managers to find new and innovative ways of managing relationships with employees as well as the guests. Good relations usually reflected by the organizational culture in an organization are one of the major stimulants for inspiring positive behaviour amongst employees. Good behaviour of employees is often a repercussion of employee satisfaction which leads to enhanced customer satisfaction. The importance of satisfaction with management relations and co-worker relations and their joint influence on overall job satisfaction and hence the customer satisfaction in the hospitality industry, is being acknowledged as positive behaviour inside the organization.

[20] found that employee behaviour has a significant role in satisfying restaurant customers, and functional aspects of employee behaviour have a considerable impact on customer satisfaction. Both functional and personal aspects of service behaviour are able to involve the guest experience and guest satisfaction and service behavior of hotel employees have more bearing on customer experience and customer satisfaction rather than the functional aspects of service behavior. It was suggested that hotel operators should identify the specific behaviors and actions that lead their guests to be delighted with the services received by them so that the employees can specifically be trained about specific behaviors and actions.

2.1 Technology and Innovation in Hotel industry

Connie and AI-powered concierge both from Hilton World-wide, gives visitors recommendation for nearby attractions [14] as well, The Marriott International introduced “The Best Experience,” which gives visitors the chance to interact with Leo and Cleo, two robot servers who can provide RSO (Room Service Order) while visitors are there [21]. The Sheraton hotel in San Gabriel, CA, the Westin hotel in Buffalo, NY, and the Hilton Garden Inn resort in Gilroy, CA are just a not many of the United State hotels that have adopt and used Artificial Intelligence in overhaul areas. According to estimates, three nine point five million service robots would be full for domestic purposes just by 2021, with a market value of \$11.1 billion and an annual rate of growth 30%–35%. (International Federation of Robotic, 2018) [24] state that even if the robot’s performance falls short of the guest’s expectations; nonetheless, robot aid could lessen the emotional labour of human workers. This idea suggests that even if social robots’ existing communication capabilities are not entirely satisfactory, they may still be beneficial.

2.2 Negative Impact of Artificial Intelligence

Although several papers have frequently anxious on the significance and advantage of artificial intelligence, [20] [25], little research has been done to understand the probable impact of employment instability can be brought on by application of artificial intelligence. In particular it is predicted that over next 20 years, computerization and automation would put around 47% of present employment in the United States of America at a higher risk, forcing employees to compete with Technology and Innovation in a variety of cognitive task. Thus despite being such a novel technology, Technology and Innovation has its own side of dark shades, many researchers and professional have anticipated that with the use of Technology and Innovation in the hotel sector would have the negative impact on both employees and the guest also in longer run. [13]

For instance, [22] argued that mechanical and critical intelligence jobs in the service sector could be replaced by Technology and Innovation where as intuitive and empathetic intelligence will continue to play a significant role in human employees. There by showing that low skilled jobs will be in more danger with the use of artificial intelligence. Thus, some common threats employees will start feeling after the employment of Technology and Innovation includes: the loss of less-tech jobs, a loss of less control owing to robot self-sufficiency, as fit as fears about privacy ,safety and security [21]. Due

of its advantage of easy consistency and accessibility, Technology and Innovation (TI) and robotic, some tourism & hospitality firms have also revealed concerns towards the hazards and security associated with their execution [23]. For example, as Technology and Innovation (TI)-assisted robots have a certain level of independence, and if there is a lack of communication between a robot and a person, it may cause a robot to act in a way that is not under the power of a human still, which may be of huge risk even endanger the wellbeing of the employees.

A new danger brought on by the use of Technology and Innovation is that of robots being more intelligent and fast may increase the risk of loss of employment or having machines judge the quality of employee's work, might put human workers and robots in competition [21] [22] [25]. This stress of job insecurity or loss of job has put a great threat in the workers' mental health due to this constant risk; workers could experience a huge stress.

As there will be more convenient and automated travel facilities, there will be an increase in the demand for travel and tourism, which could exacerbate problems like excessive tourism putting more pressure on tourist destinations' ecosystems. Moreover, security and privacy issues may become bigger issues, as Technology and Innovation includes the internet of intelligent things, thereby giving undue invitations to the hackers who may readily reverse client data from machine learning models, and can cause a hazard [10] thereby showing that development of Technology and Innovation comes with its own hazards.

3 Research Methodology

3.1 Research Problem

The main objective of this study is to study the impact of Technology and Innovation on the hotels industry especially with reference to the employees working in the front office department of the hotels.

3.2 Sample dimension

Sample involves formative the frequency of observations, and the recurrence of a tentative condition used to estimate the variability of a product which they should be incorporated in a statistical sample. Sample sizes stand for parts of a population chosen for any experiment or survey. For the purpose of this calculation, a margin error ϵ , is

recognized, it is the utmost distance most wanted for a sample estimate to deviate from the correct value. For this purpose, the following self-confidence interval equation is used, [8]

Sample Size for Unlimited Population:

n Equal

$$z^2 \times p(1 - p)$$

ε^2

Sample Size of Finite Population:

Where:

z - Z score

ε - Margin of error

N - Population size

\hat{p} - population proportion

$n =$

n

$$z^2 \times p(1 - p) \frac{1}{1 + \varepsilon^2 N}$$

Thus, for the population size of 2,05,816, a sample of at least 115 people will be essential. The researcher was able to collect data from 125 respondents in order to ward off the possibility of incomplete questionnaires. The questionnaire carried objective-specific questions as well as demographic data questions to allow tourist/customer segmentation and enable the researcher to apply different measures of central tendency.

For Primary data collection, Focus Groups, individual depth interviews, group discussions, Questionnaire containing Multiple choice questions, Rating scale questions, Likert scale (five point) questions, Open-ended questions, Demographic questions, and Ranking questions were used to identify distinctively salient segments of the population, to identify the various important factors within the target population and to assess the degree of acceptance etc.

Cronbach's alpha is one of the most commonly used tests of reliability. The prevailing practice is to report the test value of Cronbach's alpha reliability, but the researcher feels that the confidence interval for the population consistency value should also be stated. Validity and reliability are two cardinal components in evaluation of an assessment tool. Tools can be traditional knowledge, survey questionnaires, clinical simulations, or skill & attitude tests. Tools can measure opinions, cognitive content & skills, or affective values. weight refers to the extent to which an instrument is able to measure, what it was created to measure, and its ability to measure it consistently. The reliability of a tool is exhaustively connected with its validity. An instrument can't be valid unless it is reliable [24]

Investigating the raw constant data is fundamentally the first step in initiating statistical analysis. The two samples of key statistics that will be calculated from the dataset are measures of the central test tendency of the sample allocation and of the spread of the data concerning the central tendencies of this data. Inferential statistical evaluation is contingent on the knowledge of these descriptive statistics.

4 Data Analysis

Descriptive test of Analysis helps in describing, and abridgment data points in a useful way so that a pattern might emerge that can fulfill all the conditions of the data.

Descriptive test of techniques include construct tables of quintiles and means, method of dispersion viz., variance or standard deviation, and measures i.e. segregation, discrimination, and difference can be studied using descriptive specialized techniques.

Tourist’s place of Origin

Table 4.1 Place of Origin

Place of Residence	
Urban	55
Rural	70
Total	125

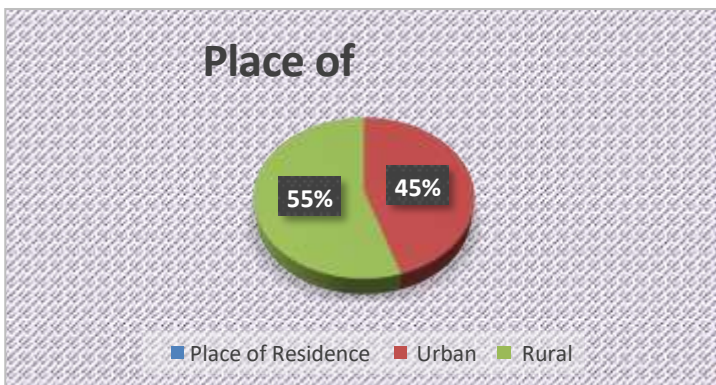


Fig 4.1 Residence Status

Tourists originating from rural locations are not very far behind from the Tourists originating from urban locations and this is changing the tourist needs and wants profile forever.

Age profile of the Tourist

Table 4.2. Age Profile

Age(Years):	
18-25	32
26-35	31
36-50	42
51-65	20
	125

In terms of qualification of the respondents there were 82% respondents who have done their Bachelors in Hotel Management and 18% have done diploma course in Hotel Management as shown in Fig 4.2.

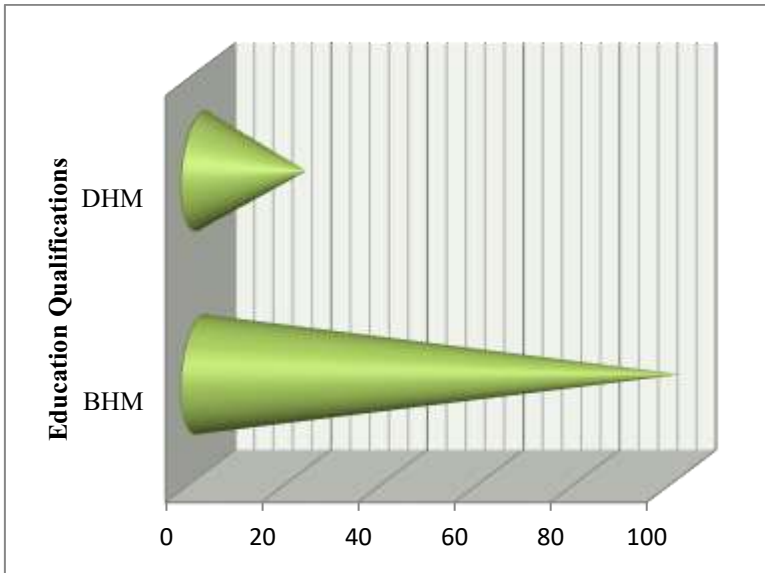


Fig4.2. Education Qualifications

Guwahati is a Metropolitan city, within the boundaries of it, is Dispur, the capital of Assam, hence Guwahati enjoys the status of Capital city for all practical purposes. It's a magnet city for entire North-East India and it is also known as gateway to NE India. Hence the footfall of travellers (Business and Pleasure) is part of a normal process. The distribution of different types of hotels seems appropriate, to address the needs of every type of traveller from every social class. The city is in no need of investing or changing anything in present or near future.

4.1 Descriptive Statistics

Table 4.3. Descriptive Statistics

Descriptive Statistics										
	N	Minimum	Maximum	Mean	Std. Deviation	Variance	Skewness	Std. Error	Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
PR	125	1	2	1.55	0.498	0.248	-0.201	0.113	-1.968	0.225
AGE	125	1	5	3.49	1.329	1.765	-0.437	0.113	-0.896	0.225
OCC	125	1	6	3.56	1.432	2.051	-0.096	0.113	-0.843	0.225
AMI	125	1	5	2.6	1.375	1.891	0.188	0.113	-1.357	0.225
GEN	125	1	5	1.79	0.824	0.679	1.561	0.113	3.156	0.225
RDT	125	1	5	3.16	0.975	0.95	-0.596	0.113	0.77	0.225
SCH	125	1	5	3.16	1.062	1.127	-0.39	0.113	-0.536	0.225
ERSDPAP	125	2	5	3.72	0.905	0.819	-0.075	0.113	-0.885	0.225
CSHRS	125	3	5	3.71	0.774	0.599	0.559	0.113	-1.124	0.225
KSHP	125	3	5	3.95	0.861	0.742	0.098	0.113	-1.647	0.225

KSLTP	125	2	5	4.11	0.78	0.609	-0.438	0.113	-0.568	0.225
GRSSPTIVSY	125	2	5	3.87	1.023	1.046	-0.214	0.113	-1.312	0.225
QVRSRY	125	2	5	3.6	1.073	1.151	-0.019	0.113	-1.276	0.225
ABVRSAY	125	2	5	3.84	0.892	0.795	0.268	0.113	-1.586	0.225
Valid (listwise)	N 125									

- Around 73.7% of scores are within One standard deviation of the represent,
- about 100% of scores are within Two standard deviations of the represent,

Chebyshev’s theorem confers the minimal percentage of the data which must lie within a given number of standard deviations of the mean to establish the validity of data to pursue further analysis.

4.2 Principal Component Analysis - Component Score Coefficient Matrix:

The factor of extraction technique is employed to form uncorrelated linear combination of experimental variables. The first component has a highest variance. PCA is a dimensionality to reduction technique that has four parts: feature covariance, composition, principal component conversion, and selecting components in terms of explained variance. As the number of characteristics or proportions gets bigger, the volume of data needed to extrapolate precisely grows exponentially.

Table 4.4. Principal Component Analysis

Component Score Coefficient Matrix									
	Component								
	1	2	3	4	5	6	7	8	9
AGE	-0.034	0.088	0.022	0.034	0.028	0.000	0.019	0.063	0.026
OCC	-0.017	0.068	-0.011	0.010	0.092	0.088	0.105	0.007	-0.049
AMI	-0.040	0.067	-0.028	-0.003	0.011	0.092	-0.038	0.098	-0.020
GEN	-0.030	0.037	-0.060	0.057	0.083	-0.058	0.041	0.057	-0.093
RDT	-0.031	0.058	0.065	0.054	-0.034	0.022	-0.015	-0.154	-0.022
SCH	0.062	0.028	0.030	0.024	0.019	-0.003	-0.006	-0.080	-0.064
ERSDPAP	-0.014	-0.053	0.028	-0.015	0.083	0.124	-0.080	0.060	0.061
CSHRS	0.025	-0.044	-0.049	-0.085	-0.051	0.063	0.029	-0.021	-0.214
KSHP	0.051	0.012	0.022	-0.056	-0.055	-0.068	-0.027	-0.046	-0.168
KSLTP	-0.010	-0.010	0.019	0.087	-0.018	-0.073	-0.076	0.141	-0.070
GRSSPTIV SY	0.026	-0.083	0.041	-0.003	0.010	-0.092	0.016	0.036	0.035
QVRSRY	-0.003	-0.070	-0.034	0.108	-0.023	0.002	0.024	-0.132	-0.022
ABVRSAY	0.052	-0.026	-0.008	-0.031	0.017	-0.070	0.107	0.068	0.091
Extraction Method: Principal Component Analysis.									

a. Non-Parametric tests NPAR:

Table 4:5. Non-Parametric test - Descriptive Statistics

N-Par Tests				
Descriptive Test of Statistics				
	N	Percentiles		
		25 th	50 th (Median)	75 th
PR	125	1	2	2
AGE	125	3	4	5
OCC	125	3	3	5
AMI	125	1	3	4
GEN	125	1	2	2
RDT	125	3	3	4
SCH	125	2	3	4
ERSDPAP	125	3	4	4
CSHRS	125	3	4	4
KSHP	125	3	4	5
KSLTP	125	4	4	5
GRSSPTIVSY	125	3	4	5
QVRSRY	125	3	4	5
ABVRSAY	125	3	4	5

The NPAR (Non-Parametric) tests or procedures enables the user to implement an assortment of non-parametric statistical tests. In contrast to parametric

statistics (inclusive of the product- moment correlation, t-test, ANOVA, etc.) the exploitation of non-parametric tests implies few presumptions about the nature of the data. They might be useful when there are comparatively few instances in the sample that we want to examine, or where a prevalence apportionment is considerably skewed (in place of symmetrical). Considering a technique like ANOVA, which commands that the dependent variable be truly numerical, non-parametric tests can manage the data at other 'levels of measurement'. Specifically, these tests facilitate the analysis of 'nominal' data and 'ordinal' data.

5 Findings

- In terms of major findings 26% of the respondents strongly believed that Technology and Innovation is better than humans.
- 31% employees strongly believe that major involvement of Technology and Innovation in the hotel sector may result in the loss of jobs.
- 32% respondents strongly believe that application of Technology and Innovation can reduce paper work.
- 34% employees strongly believe that Technology and Innovation can become a cause of stress for employees.

6 Conclusions

The revolutionary advancement in the technology has improved the day to day life of the people, in this 21st century especially after covid the use of online technologies has kept has connected and opened a new way of living which is more advance and technology friendly. Especially Technology and Innovation which was slowly and gradually entering into the hospitality industry and even was introduced in hotels also post covid its use has increased. More and more hotels have been approaching to adopt this new technology. The

use of Technology and Innovation was not only seen as way to meet guest demands of innovations and excellence but also as a way to meet the obstacles of costing, paperwork, forecasting etc as well as to project the image of providing the inventive services inside the age of advancement. But as there are two sides of coins in the same way artificial intelligence, have its own thorns or negative impact. For instance Technology and Innovation revolution has brought along with itself the worries about replace human occupations could cause employees to feel anxious about their jobs. This is due to the fact that during this period of environmental change, and with new covid norms has put lot of pressures on the managers to not only constantly meet the guest demands and satisfaction, but also to keep the innovations, advancements and excellence on top priority with a control on the cost among the employees has brought the use of Technology and Innovation to great fold which has ultimately brought the pressure of job uncertainty and stress among the employees.

7 Limitations and Suggestions for Future Research

This study has several restrictions. The sample size is the first restriction. Contacting participants and setting up interviews got more difficult as the research's duration the data collection. Yet, the sample size produced enough information to support its use. A priori sample size estimation is, however, fundamentally difficult for qualitative research. Yet, the idea of "saturation" addresses the problem of "informational redundancy" and the adaptive and emergent character of sample size in the qualitative method when the grounded theory approach is used. Another drawback is that we were unable to assess the current interaction between employ and employers related Front Office domains. Future research may take this into account. Future research might assess the "image" of Hotel and comparable Front Office employee in light of the current political impasse and unfavorable working condition in the Hotel.

8 References

1. Aghaei, S. (2012). Evolution of the world Wide Web : From Web 1.0 to Web 4.0. *International Journal of Web and Semantic Technology*, 3(1), 1–10. <https://doi.org/10.5121/ijwest.2012.3101>
2. Anser, M. K., Yousaf, Z., Usman, M., & Yousaf, S. (2020). Towards strategic business performance of the hospitality sector: nexus of ICT, E-Marketing and organizational readiness. *Sustainability*, 12(4), 1346. <https://doi.org/10.3390/su12041346>
3. Buhalis, D., Harwood, T., Bogicevic, V., Viglia, G., Beldona, S., & Hofacker, C. F. (2019). Technological disruptions in services: lessons from tourism and hospitality. *Journal of Service Management*, 30(4), 484–506. <https://doi.org/10.1108/josm-12-2018-0398>
4. Burgess, A. (2018). *The Executive Guide to Artificial Intelligence*. In Springer eBooks. <https://doi.org/10.1007/978-3-319-63820-1>
5. Buyya, R., Yeo, C. S., Venugopal, S., Broberg, J., & Brandić, I. (2009). Cloud computing and emerging IT platforms: Vision, hype, and reality for delivering computing as the 5th utility. *Future Generation Computer Systems*, 25(6), 599–616. <https://doi.org/10.1016/j.future.2008.12.001>
6. Cho, W., Sumichrast, R. T., & Olsen, M. D. (1996). Expert-System Technology for Hotels: Concierge application. *Cornell Hotel and Restaurant Administration Quarterly* / *the Cornell Hotel and Restaurant Administration Quarterly*, 37(1), 54–60. <https://doi.org/10.1177/001088049603700116>
7. Doborjeh, Z. G., Hemmington, N., Doborjeh, M., & Kasabov, N. (2021). Artificial intelligence: a systematic review of methods and applications in hospitality and tourism. *International Journal of Contemporary Hospitality Management*, 34(3), 1154–1176. <https://doi.org/10.1108/ijchm-06-2021-0767>
8. Dwivedi, Y. K., Hughes, L., Ismagilova, E., Aarts, G., Coombs, C., Crick, T., Duan, Y., Dwivedi, R., Edwards, J., Eirug, A., Galanos, V., Ilavarasan, P. V., Janssen, M., Jones, P., Kar, A. K., Kizgin, H., Kronemann, B., Lal, B., Lucini, B., . . . Williams, M. D. (2021). Artificial Intelligence (AI): Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy. *International Journal of Information Management*, 57, 101994. <https://doi.org/10.1016/j.ijinfomgt.2019.08.002>
9. Floridi, M., Bartolini, F., Peerlings, J., Polman, N., & Viaggi, D. (2013). Modelling the adoption of

- automatic milking systems in Noord-Holland. *Bio-based and Applied Economics Journal*, 2(1), 73–90. <https://doi.org/10.13128/bae-10882>
10. Great Innovation! But What's it for? Marketers Beware. (2014). <https://doi.org/10.13007/355>
 11. Grünhagen, M., Dant, R. P., & Zhu, M. (2012). Emerging consumer perspectives on American franchise offerings: Variety seeking behavior in China*. *Journal of Small Business Management*, 50(4), 596–620. <https://doi.org/10.1111/j.1540-627x.2012.00368.x>
 12. Guisado-González, M., Guisado-Tato, M., & Sandoval-Pérez, Á. (2013). Determinants of innovation performance in Spanish hospitality companies: analysis of the coexistence of innovation strategies. *Service Industries Journal/the æService Industries Journal*, 33(6), 580–593. <https://doi.org/10.1080/02642069.2011.614343>
 13. Holzinger, A., Malle, B., Saranti, A., & Pfeifer, B. (2021). Towards multi-modal causability with Graph Neural Networks enabling information fusion for explainable AI. *Information Fusion*, 71, 28–37. <https://doi.org/10.1016/j.inffus.2021.01.008>
 14. Khatri, M. (2021) How Digital Marketing along with Artificial Intelligence is Transforming Consumer Behaviour? *International Journal for Research in Applied Science and Engineering Technology*, 9(VII), 523–527. <https://doi.org/10.22214/ijraset.2021.36287>
 15. Lancaster, K. (1966). A new approach to consumer theory. *Journal of Political Economy*, 74(2), 132–157. <https://doi.org/10.1086/259131>
 16. Lemon, K. N., Huang, M., & Rust, R. T. (2011). Call for papers: Journal of Service Research Special issue on IT-Related Service: A Multidisciplinary Perspective. *Journal of Service Research*, 14(3), 251. <https://doi.org/10.1177/1094670511414044>
 17. Licht, G., & Moch, D. (1999). Innovation and information technology in services. *Canadian Journal of Economics*, 32(2), 363. <https://doi.org/10.2307/136427>
 18. Mohr, J. J., Sengupta, S., & Slater, S. F. (2001). Marketing of High-Technology products and Innovations. <http://ci.nii.ac.jp/ncid/BA70800504>
 19. Nelson, P. (1970). Information and consumer behavior. *Journal of Political Economy*, 78(2), 311–329. <https://doi.org/10.1086/259630>
 20. Ottenbacher, M. C. (2007). Innovation management in the hospitality industry: Different strategies for achieving success. *Journal of Hospitality & Tourism Research*, 31(4), 431–454. <https://doi.org/10.1177/1096348007302352>

21. Parimal, P., & Pavitt, K. (1994). National Innovation Systems: Why they are important, and how they might be measured and compared. *Economics of Innovation and New Technology/Economics of Innovation & New Technology*, 3(1), 77–95. <https://doi.org/10.1080/10438599400000004>
22. Pillai, R., Sivathanu, B., Mariani, M. M., Rana, N. P., Yang, B., & Dwivedi, Y. K. (2021). Adoption of AI-empowered industrial robots in auto component manufacturing companies. *Production Planning & Control*, 33(16), 1517–1533. <https://doi.org/10.1080/09537287.2021.1882689>
23. Rust, R. T., & Huang, M. (2014). The service revolution and the transformation of marketing science. *Marketing Science*, 33(2), 206–221. <https://doi.org/10.1287/mksc.2013.0836>
24. Schmitt, T., Hanek, R., Beetz, M., Buck, S., & Radig, B. (2002). Cooperative probabilistic state estimation for vision-based autonomous mobile robots. *IEEE Transactions on Robotics and Automation*, 18(5), 670–684. <https://doi.org/10.1109/tra.2002.804499>
25. Skinner, H., Sarpong, D., & White, G. (2018). Meeting the needs of the Millennials and Generation Z: gamification in tourism through geocaching. *Journal of Tourism Futures*, 4(1), 93–104. <https://doi.org/10.1108/jtf-12-2017-0060>

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