Automation and Enhanced Service Delivery through Process Improvement in Hospitality Industry

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Abstract: Automated technology is revolutionizing the service industry and is a necessity in order to provide quality service. There are several ways in which hotels can incorporate the use of automated processes to improve service delivery, efficiency to customers and profit to the organization.Many areas in the hotels are explored for automation to analyze the role played by it. This study was pursued to understand the perspectives of operational heads who are implementing automation hands-on, which is important for the success of automation for enhanced service delivery through process improvement. About 30 senior executives from different categories of star hotels who handle day to day operations were selected and a semi structured questionnaire was administered. The findings indicate that there is a high prevalence of usage of function based software's that has resulted in process improvement, customer outreach through GDS, increased revenue and enhanced service delivery. However challenges prevail in the areas like front office areas where there is a high level of personal interaction with customers. There is a positive perception about automation, but training and customization have been indicated as key for success.

Key Words: Automation, Service Delivery, Quality, Process improvement, customer Satisfaction.

I. INTRODUCTION

Hotel is a complex organization with dozens of moving parts that must work seamlessly together to maintain efficiency and customer satisfaction.[21] Process Management provides a framework of consistent service quality and improves guest experience. It emphasizes on consistent rules, procedures, policies and branding across all hotels providing customers with memorable experience creating customer loyalty. It is an important asset to improve organization's performance and strategic competitiveness. [32]

Processes Management in Hotel Industry:

Processes specific to hotel industry fall into three categories: Core Processes, operating processes and managerial processes.

Core Processes provides transparency in policies and procedures of the organization to the employees. It also assists in filing customer complaints, reviews and tracking the properties that the guest has stayed previously. This helps to further understand customer buying habits and to set efficient marketing strategies.

Operating Processes deliver products/ services specific to customer requests and wants. Managerial Processes is a key to basic functionality and covers all aspects such as product supply, guest arrival and departure as well as food service.

There is a steady growth in the number of hotels and hotel chains day by day ensuring the growth of this sector in the global market. Customer's need on service quality has increased tremendously and to combat this expectations service delivery plays an important role.Service management is a set of resources and capabilities that aims to deliver valuable service to its customers. It is about optimizing value in order to ensure whether business requirement are met. The organization takes a life cycle approach to the delivery of services.

Service Automation is a relatively new domain in the delivery of services, [5]which has entered into the hospitality industry affecting different areas of hotel operations. It is the practice of an industry that enables their autonomous to procure, manage and adjust services in order to systematically exceed user expectations through self-service technology and concepts.

Today's environment is full of digitalized work-place, where users are working across virtual, physical and connected environments. It's all about the user's choice and seamless integration of mobile in work place[30]. It can provide a digital work place with better and more personalized customer interactions and a multi-device collaborative employee environment. The various forms and formats and paperwork have reduced way back with the use of Point of sale (POS) systems. Room bookings and cancellations are happening in one click of a button according to the choice of customers. Independent and disconnected processes which requires several man hours of work, are integrated and automated such that there is a workflow and several man hours are saved for other works [26]. Wynn Hotel & Resort, Las Vegas has implemented Amazon Echo with voice assistance. Guests of Wynn can control the light, temperature, drapes and television in the room. Renaissance Midtown hotel, New York has introduced a new concept of an interactive wall called

"The Discovery Portal" which acts as a virtual concierge from which guests can choose a variety of items ranging from entertainment, dining and much more by stepping into a hologram projected on the floor along with an in-person concierge service providing information on the discovery portal.

Multiple integrated automated systems are used by some hotels. Hotel Calma Blance in Cadaques, Spain provide i-buttons which are configured with mini servers. They are accessed via an app on online, making the process extremely streamlined. Guests can control the temperature, lights and window screens at the beginning of their stay. This gets adjusted whenever the guests the room. Staffs are also provided with ibuttons to enter rooms for cleaning purpose. They have limited access and cannot change settings in a room.

Today's automated operations began with a major cause to relieve the continuing need for people to perform complex, labor intensive jobs. The various benefits of process integration through automation are: Cost reduction, Productivity, availability, reliability and performance to the organization and also improves the overall service delivery and customer satisfaction. Further it provides better experience to the customers. Hospitality organizations have begun to invest 3.1-4% of their revenue on investments in Information Technology. [4]

II.   AUTOMATION IN HOSPITALITY – LITERATURE REVIEW

Hospitality is a multi-sector and is more complicated. Automation is an asset to improve organization's performance[32].Hotels can retain a larger amount of clientele if it had stronger processes and procedures in place. Automation of these processes further simplifies mundane, routine tasks that are done in a process that may not need interaction from an outside force. This creates process improvement. Better processes leads to lower costs, motivated employees, and happier customers.[21] Once processes are automated business will gain better visibility and control.

Hotels have been embracing automation to improve its operations and revolutionize guest experience. [28] Today, technology is preferred over human interaction. The various areas where automation has been resorted to in various hotels in improving their processes are:

- Automated Check-in Check-out at hotels using mobile devices or on-site kiosk[19]are much faster than standing in line to be checked in by front desk staff. [19] Hilton Worldwide provides its guests this experience with their smartphone. Yotel in New York has touch screen kiosks instead of front desk staffs and friendly robots to store luggage.

- Online booking management enables guests to book their rooms at one's own convenience. Booking and cancellation can be done at any time of the day.

- Mobile apps being room keys for the guests and facial recognition through biometric systems not only frees the customer but also provides the entire data of the guests.

- Artificial intelligence combined with automation[11-12] in rooms can be programmed to an extent of waking up the guest, where AI triggers automated opening of drapes and turning on the preferred news station creating a unique and memorable customer experience.

- Mobile concierge services which is round the clock which attends to beyond basic requirements. It can also connect guest directly to staff members bypassing a phone or visit to the front desk.

Voice command technology by the bed side console can do multiple tasks such as a concierge, control temperature, lighting, audio-visual components of the room etc., and it can also be integrated with in-house offers and also greet the guest when they wake up. This provides the guest with great experience.

Energy efficient motion sensors placed in aisles, bathroom, elevator etc., Lighting and temperature control in rooms via smart apps or by inserting the room keys into a reader near the door, with in-room automation system with occupancy sensors not only helps energy optimization and eliminates wastage of energy and moreover enhances customer satisfaction. Utilities are responsible for 6% of the operating cost.[1]

Safety sensors like smoke and gas leaks placed in kitchen, guestrooms, storage areas where fire safety is important can be centrally monitored via smart app.

Automation in laundry by use of conveyer belts in the issue process helps in space and time optimization and better customer satisfaction. Use of a fully automated washing machine programmed to extract required amount of chemicals at required time for the type of linen selected provides same finish. This eliminates manual errors by hotel staff significantly.

Restaurants have adopted conveyer systems for food delivery[23, 25]which is based on mechanical or water based system or magnetic movement to deliver food to customers. Customers can place orders and submit payments on tabs. Once the order is ready the items appears on the glass cubby with customers name on it. [25]Food cooking is also done by robots called robot chefs. They can prepare items like noodles, Sushi, sausages, burgers, milked drinks, coffee etc.,[6-8, 14, 15, 22,27,29,]

Janson Micheal Fawaz, 2019, Vice president of Revenue, Hawkeye Hotels, said that, "as the hotel industry pioneers forward, the ability for hoteliers to make pricing, scheduling or even ordering decisions themselves is starting to fade out in favor of full automation".[16] Nearly all major brands of hotels use automated systems to manage room rates, stay restrictions and discount availability. It sets up a customized strategy for each day of the year. It shifts the role of revenue manager from in-depth analysis to system optimization. The manager just has to manipulate the system according to various situations that arises on day to day basis.

Automated feedback systems send pre-scheduled e-mails to a recently checked out guest. This saves time and effort as customers can take time to provide feedback without being bothered by front desk staff.

All the above are examples of various process improvements in different areas using automation which enhances service delivery

III.   AUTOMATION & SERVICE DELIVERY

Gežinič, J.states that, efficiency of a system needs to be monitored to analyze the customer demands as well as control the process and implement constant improvement.[8, 10]

Technology must provide a means of overcoming challenge as the customer's expectations for positive experience is growing high. Deploying solutions that deliver personalized, efficient and unique customer service has become the key to attract and retain guests and to provide an efficient end to end stay experience for customers.

Benefits to the Customer:

Automation allows Self-Service. Tyler Craig in New York Times said that customers look for efficient self-service when they arrive at hotels. They prefer to have at least the option of self-service. [17]

Automation provides personalized Service. Guest data base collected through Property Management System, (PMS) provides details as to guest preferences and use it to design an experience tailored specifically for them.

Depending on guest preferences hotel can program their marketing software to automatically send special offers, reminders and in-stay messages lets them know that you care for them.

Automation provides guest convenience. With easy check-in and check-out procedures, automatic identification with mobile apps, lighting and temperature controls, mobile ordering options etc., enhances guest stay. This reduces the hassles faced by the customers as it saves time and energy.

Benefits to the Organization:

Automation reduces labour-time. Right automation reduces the amount of labour time to complete their daily tasks. This time can be utilized to perform better tasks with higher priorities.

Automation reduces errors. With automation in place it eliminates manual data entry, which in turn eliminates mistakes. Information captured is transferred into a digital database for accurate indexing and data management. It saves countless amount of energy spent and also helps in effectively maintaining regulatory compliance.

Automation provides operational stability. There is a level of stability implemented in daily processes.[10] It follows rigid guidelines set and created eliminating situations where processing steps might be missed if done manually. Employees can easily perform the task of verifying information and performing daily tasks efficiently.[24]

Automation provides Customer Consistency. Customers will receive the same standard care with every interaction.[10] Digital database becomes very handy providing customer information in seconds not making them wait.

Automation can reduce costs and overheads. By decreasing errors and improving employee efficiency hotels can experience a decrease in expenditure while simultaneously improving revenue. The ability of a hotel to connect with target population of customers in real time reduces marketing costs and increases effectiveness. [18, 31]

Automation saves energy and time. Automation of processes provides information or completes the task in time saving a lot of energy and time enabling staffs to focus on more complicated issues and timely fulfilment of guest requests. Hotel automation such as use of keycard to activate lighting and air-conditioning in guest rooms can help minimize energy costs associated with running a hotel. [2-3]

Automation increases productivity. When work happens in one click of a button in handy devices more work can be performed in no time allowing employees to focus on tasks which cannot be automated and requires human touch. It will reduce the employee attrition rate by removing the work pressure. [20]

RESEARCH GAP:

From the available literature and case studies on automation in hospitality industry, it could be observed that the focus is predominantly about technology applications in different domains. There is a dearth of literature from the perspective of operational executives who are the nodal points of automation. Though investment in automationis a strategic decision the success lies in the floor level execution. Any automation initiative implemented without taking into account the operational scope and constraints may not be successful. Hence there is a necessity to understand and highlight such scope and constraints from the perspective of the operational executives. This paper attempts to fill this gap in literature.

IV. OBJECTIVES OF THE STUDY

- To identify the scope of automation in hospitality industry
- To identify the perception of operational executives about automation in Hospitality Industry
- To examine the differences in perception among the executives about automation in different categories of star hotel
- To elicit the challenges faced by executives in automation

V. PURPOSE OF THE STUDY

The purpose of the study is an attempt to understand the scope and challenges in adopting automation in the hotel industry from the perspective of the 30 selected senior executives in different categories of star hotels who handle the day to day operations. It also attempts at understanding the service automation procedures adopted at the hotel industry and its benefits experienced by the customers and gained by the organization.

VI. RESEARCH METHODOLOGY

This is a descriptive study using purposive sampling technique.30 selected senior executives in different categories of star hotels were selected and a semi structured questionnaire was administrated. Percentage analysis and t-test are done to show the level of significance.

VII. LIMITATION OF THE STUDY

The study is limited to the survey inputs obtained from the respondents.

VIII. ANALYSIS & INTERPRETATION OF FINDINGS:

The executives were spread across various departments such as Engineering, Front office, Food and Beverage, Guest Services, Housekeeping, Human Resource, Revenue and Sales department.

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The following table shows the distribution of the executives across the various categories of hotel and their years of experience.

Table : 1 One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Years of Experience	30	2.1667	1.14721	.20945
Hotel Category	30	2.3333	.92227	.16838

One-Sample Test

	Test Value = 0					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Years of Experience	10.345	29	.000	2.16667	1.7383	2.5950
Hotel Category	13.857	29	.000	2.33333	1.9890	2.6777

Usage of Tools for Automation:

From the survey results it is evident that there is a high prevalence of usage of function based software among the executives in their respective domain. 100% of the executives of the various categories of hotels agreed that they were using automated software in one form or the other.
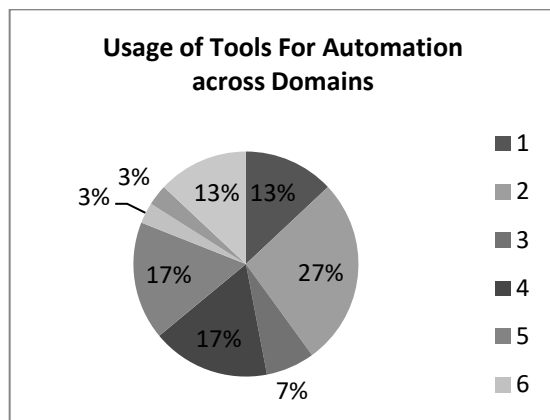

Fig 1: Usage of Tools for Automation

| 1	Developed Application Type Customer Relationship Management
2	Front Office Information Type
3	HMS software, Standard software (Word, Excel), VingCard (Key card creation software), and a software to facilitate the generation of C-Forms (Foreigners registration that is done online)
4	Hotel Management System Type Medallion PMS
5	Information System Dedicated to Booking (Worldspan, Amandeus, Galileo etc)
6	My HR suite
7	Specialized sites that provide online consultancy and advertisement
8	Standard Software's (Word, Excel, Database)
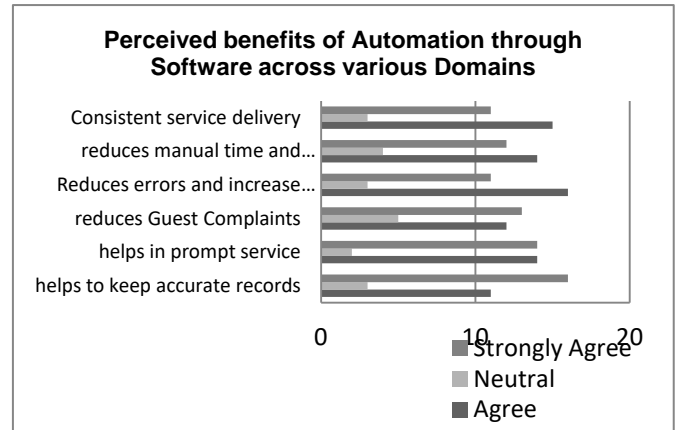
Fig 2: Perceived benefits of Automation through Software across various Domains

The graph clearly depicts that the use of automated software in various domains has led to more positives that a majority of them agree and strongly agree that they were able to maintain accurate records, deliver prompt service, reduce guest complaints, provide consistent service delivery, reduce errors and reduce manual time and energy thereby increasing customer satisfaction. 10 % of the population is neutral to the use of automation which calls for training and equipping them to the system.

Usage of Global Distribution Software among the Executives

Global Distribution System (GDS) is a world-wide conduit between travel bookers and hotels or other accommodation providers giving information on the live products, price and availability data. It enables online booking engines and allows for automated transactions. Many corporate companies use this platform as their preferred booking method as it presents hotels, flights and car rentals in one simple interface convenient for the end users. From figure 1 on the usage of tools of automation 17% of the executives were using one or the other form of GDS which is Amendeus, Galileo, Sabre and Worldspan. GDS is a valuable channel for hoteliers to increase the reach to attract more customers, increase revenue and make a profit.
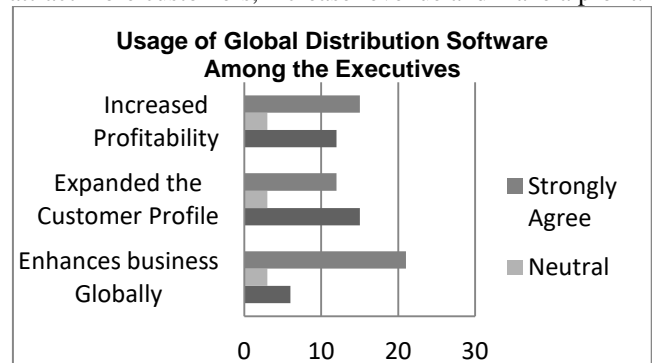

Fig 3: Usage of Global Distribution Software among the Executives

From the survey result presented above it could be observed that majority of the executives have endorsed that usage on global distribution software has resulted in increased profitability, expanded customer profile and enhance business across the globe. Less than 10% of the executives had reservations on the same.

Usage of Integrated Process Approach through Automation in their respective Domains

Processes specific to hotel industry fall into three categories: Core Processes, operating processes and managerial processes. Selected executives have agreed that they utilize integrated process approach in their respective domains.

Table 3: Usage of Integrated Process Approach through Automation in their respective Domains

Use of Integrated Process Approach through Automation in their respective domains results in	Agree	Disagree	Neutral	Strongly Agree	Strongly Disagree	Total
Better job satisfaction and hence better performance of staff	16	1	2	11	0	30
Enhanced Team Work	14	0	1	15	0	30
Performance improvement of employees and hence customer satisfaction	13	0	2	15	0	30
Timely Analysis of each process and corrective measures employed	15	2	2	11	0	30
Accurate records are maintained for all processes and checked time to time	10	1	1	17	1	30

Greater percentage of the executives agreed that usage of Intergrated Process Approach through Automation in their respective domains has resulted in bettter job satisfaction resulting in better performance of staff. It has enhanced their team and improvement in the performance of employees and hence customer satisfaction. It also helped to maintain accurate back end records which is checked time to time and whether the usage of intergrated process approach helped in timely analysis of each process and corrective measures employed. Only a few were on the neutral and disagree state.

IX. CHALLENGES & SCOPE FOR ACCEPTANCE OF AUTOMATION

Some of the open ended questions in the survey clearly highlight the needs for training and customization among the selected executives. 49% of the executives of various departments feel that they require training in the use of automation. Most of them predominantly talk about automation on software side but penetration level of automation seems to be low in front end areas like front office and food and beverage service.Only a few areas such as automated key cards access to rooms by the guests, in-room lighting and temperature control were effectively implemented.

Front office automation shall be difficult to implement since it will affect overall safety and absence of empathy and human touch. Majority of the executives felt that guests with special needs and elderly guests will find it difficult to handle automated services in front office.

In order to combat such challenges automation should be an option but not the only option to accommodate everyone. Though machines cannot independently carryout a hotel's basic function a wise combination of human and automated services can provide a much enhanced service delivery. More of automation can be utilized in back office operations where there are no guest interactions or interventions to reduce cumbersome and mundane activities performed by the employees.

X. BUSINESS IMPLICATIONS:

Once processes are automated it helps to gain better visibility and control over the business. It helps in identification of bottlenecks, find possible improvements to make it more efficient. Process improvement and automation increase bottom-line number, return on investment and enhanced efficiency of the business. Implementation of automation in the processes cuts back on labor hours and boosts service delivery through increased production and output and increase efficiency of workers. Moreover the end users of the automated software have agreed that it provides consistent service delivery, reduces errors, helps to provide prompt service, and maintain accurate records, better job satisfaction and hence better performance of staff. Survey results also indicate that the executives were able to combat their day to day operations efficiently resulting in better business, enhanced customer satisfaction. This will automatically retain old customers and attract new customers.

XI. CONCLUSION

This study indicates clearly that there is a high prevalence of usage of function-based software among executives in their respective domains. The benefits of automation through software clearly indicates that it helps in maintaining accurate records, deliver prompt service, reduce guest complaints reduce errors and reduce time and energy thereby increasing customer satisfaction. Only a small percent of the population wanted training, for better usage of automation.Usage of Integrated process approach through automation has resulted not only in better job satisfaction and better performance of staff but also had enhanced their team work and hence customer satisfaction. It also shows that automation of activities streamlines the processes without compromising on quality and accuracy with timely analysis and corrective measures employed and accurate backend records maintained for all processes on a real-time basis.

Majority of the executives had endorsed that usage on GDS had resulted in profitability, expanded customer profile and enhanced business across the globe. Overall, response to automation is positive nevertheless the challenges need to be addressed.

With efficient use of automation with human intervention hotels will be able to be more productive and will reduce the employee attrition rate by removing the work pressure. Use of automation in areas such as reservations, payments, revenues, folio generation, housekeeping task assignment and processes at various POS outlets like restaurants frees up staffs time and eliminates errors and results in flawless execution of operation. Automation helps staff spend more time in interacting with guests from around the globe, providing better work environment. Training of employees in using automated software is much easier and doesn't cost much as the systems are much easier to learn and training manuals are available online. Automation enables employees to deliver exceptional service every time a guest arrives with a positive approach.

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