

Co-Creation and Technological Innovation: The Predictors of Guest Satisfaction and Revisit Intention in Hospitality Industry

Vivek Sharma*, Dada Ab Rouf Bhat**

Abstract *The present study empirically explores a theoretical model of co-creation, technological innovation, guest satisfaction and guest revisit intention. For meeting the objectives of the study data was collected using a self-administered questionnaire from 341 customers visiting luxury hotels in Jammu and Kashmir using a non-probability convenience sampling technique. Structural equation modeling has been used to test the relationship between hypotheses. The findings suggest that there is a positive relationship between co-creation, technological innovation, guest satisfaction and revisit intention. It was found that co-creation and technological innovation have a positive influence on the potential decisions and morale of guests to revisit the same hotel again and again in the future period. The direct relationship between guest satisfaction and revisit intention was also examined. The study is confined to the customers visiting luxury hotels in Jammu and Kashmir. Future studies can widen the circle of study to other states and may add more antecedents and outcomes to co-creation and technological innovation for better results.*

Keywords: *Hospitality, Technological Innovation, Guest Satisfaction, Guest Revisit Intention*

INTRODUCTION

Globalization has transformed the worldwide economic system in a relatively short period, introducing with it endless possibilities and challenges. Recognizing the centrality of innovation for businesses to adjust to the worldwide industry and provide customized services to customers, it deserves special attention today (Sharma & Bhat, 2020). Customers are now more specialized, stratified, and unpredictable, with higher expectations for customization, novelty, quality, and price (Stark, 2011; and Sharma & Bhat, 2019). To meet these customers' demands, businesses must offer high-quality, standardized goods that are both innovative and environmentally responsible (Stark, 2011; and Simon & Yaya, 2012). The hospitality sector must consider how to tempt consumers to stay competitive in the business (Weng et al., 2012). They require coming across the task of determining those services which guests prefer to add worth

to their experience (Olsen & Connolly, 2000; Victorino et al., 2005; and Andotra & Bhat, 2017). This can be achieved by involving customers in producing goods and services, i.e. co-creation. Bettencourt et al. (2014) describe co-creation as the interactions and actions of firms, customers and other stakeholders to take part and work on available resources to come to an intentional value-in context (Sharma & Bhat, 2020a). Engagement in co-creation practices boosts customer satisfaction, especially the involvement of customers in shaping an offering more likely results in value-in-context (Hoyer et al., 2010; and Vargo & Lusch, 2008) for all interested parties (Coviello & Joseph, 2012; and Ramani & Kumar, 2008). Even though the agenda and analysis of co-creation have received a lot of attention in the services marketing research, its debate in the hospitality and tourism sphere needs further research (Neuhofer, 2016). Service literature exhaustively debated the customer's role in building value (Gronroos & Voima, 2013; and Vargo &

* Sr. Assistant Professor, Department of Lifelong Learning, University of Jammu, Jammu & Kashmir, India.
Email: sharmavivek19@gmail.com

** Doctoral Fellow, Department of Commerce, University of Jammu, Jammu & Kashmir, India.
Email: d.a.roufbhat@gmail.com

Lusch, 2004; 2008) but co-creation enabled technological innovation remains largely unexplored. With this research idea in mind, the study will look at innovation via co-creation, connecting the concepts of customer engagement and technology to see how the two can work together to drive innovation in the hospitality and tourism industry. Further, it is not clear whether technological innovations are vital to visitors while determining hotel stay and their future visits. Customers with varying levels of technological competence may have varying levels of satisfaction or disappointment with the hotel, and this issue requires further research (Pham et al., 2018). Therefore, regardless of numerous uses of technological innovations, this study examined whether hotel business that involves guests in co-creating technological services has a significant impact on customer satisfaction and their revisit intention. Services have received much less attention in innovation research than goods (Carlborg et al., 2014). Furthermore, considering the consensus that technological developments are essential to modern travelers (Onojaefe & Nhepera, 2017), it is unclear whether co-creation and technological innovations can affect consumer confidence and retention decisions in practice. It's also unclear if technological advancements are essential to guests when choosing a hotel and planning future travels. As a result, we aim to see how guests' participation as co-creators in technological innovation affects their satisfaction and return purpose in the hospitality industry.

THEORETICAL BACKGROUND

Co-Creation

Co-creation can be defined as a collaborative process involving a customer and an entity that results in a valuable output (Pralhad & Ramaswamy, 2004; and Sharma & Bhat, 2020a). Co-creation allows and even enables more efficient customer participation (Harkison, 2016) which is important for businesses because it ensures that any social interaction their consumers have actually, adds to their observation (Chathoth et al., 2016). If co-creation is used to its highest capacity, it can provide a competitive advantage to a company by increasing customer satisfaction and thereby increasing customer loyalty (Oyner & Korelina, 2016). Co-creation will also provide ongoing feedback for improving existing services, giving a company a steady stream of opportunities to expand its revenue and excellence (Thomas et al., 2013). It implies that, while companies take into account the experiences conveyed by their customers, they may also understand and incorporate these experiences into the renovation of their goods or services to better meet and fulfill the customer's preferences (Vargo & Lusch, 2008; Suntikul & Jachna, 2016; and Andotra & Bhat, 2017; Sharma & Bhat, 2020a).

Technological Innovation

Damanpour and Evan, (1984, p. 394) states that technological innovation is "the implementation of an idea for a new product or a new service or the introduction of new elements in an organization's production process or service operation." Technological innovation provides companies with equipment and technology that introduce newly designed techniques that increase production and management effectiveness (Sheldon, 1983; and Sharma & Bhat, 2020a). It contributes to higher levels of economic performance and the delivery of new goods and services that have the ability to revolutionize people's lives (Naude & Szirmai, 2013). As a result, technological innovation is the act of putting technical expertise into practice in the form of better tools/machines with better performance attributes in order to find an effective solution to a customer's perceived desire.

Guest Satisfaction

Guest/customer satisfaction indicates that the guest/customers stay satisfied with the way the business concern acts and delivers services (Rajput & Gahfoor, 2020). It is considered as one of the vital factors affecting the materialization of guests/customer's intention of purchase in the future (Daragahi, 2017). Many specialists concluded that delivering superlative services to guests/customers and at the same time satisfying them are precarious missions for hotels (Horng et al., 2016). That is why it is maintained that the cost incurred on gaining a new customer is five times the charge of retaining current customers (Daragahi, 2017). Moreover in the hotel industry, solidifying customer satisfaction impacts may prove valuable to hoteliers in enlarging their reputations, building positive corporate images as well as consolidating growth and stability (Gruca & Rego, 2005; Homburg et al., 2005; and Cooil, et al., 2007). Hence, hotels have to pay attention to innovative services which add more concern about customer's emotional state, fulfilling their expectations and improving their intentions to repurchase (Wang, 2014; and Horng et al., 2016).

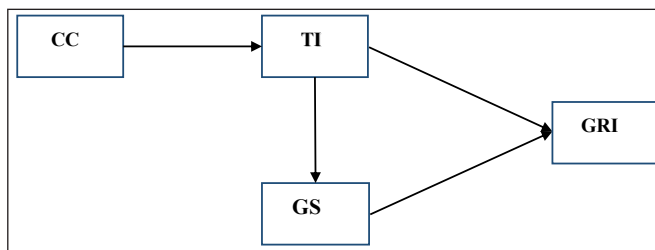
Guest Revisit Intention

Re-visit intention is described as the probability the user will visit the same hotel again (Rajput & Gahfoor, 2020). As evident from the studies repetitive visitation is essential in the tourism industry as most of the visiting places largely depend on repeat visitors (Bigne et al., 2001; and Htun et al., 2015). Further, the review of repurchase intention is understood to be imperative due to its elongated implications (Yan et al., 2015). Therefore, the way to maintain existing customers and gain their repeat purchases has not only assumed a

vital concern for practitioners but has also appealed to researcher's interests (Han et al., 2009; Kim et al., 2009; and Kim & Moon 2009). Customers nowadays have various substitutes because there are lots of similar goods or services available in the market offered by rivals (Bhat & Sharma 2021). Therefore, to survive in the market businesses need to increase the value of prevailing users, and make every effort to appeal their repurchase behaviors in addition to attracting new customers (Hanai et al., 2008; and Yan et al., 2015).

Research Model and Hypothesis Development

A conceptual model was built based on the literature review, and hypotheses were developed accordingly. Co-creation, according to the proposed model, is a predictor of technological innovation, which in-turn improves guest satisfaction and guest revisit intention (Fig. 1).



CC- Co-creation, TI- Technological Innovation, GS- Guest Satisfaction, GRI- Guest Revisit Intention.

Fig. 1: Structural Model

Co-Creation and Technological Innovation

Co-creation is a type of user participation in which active users actively participate in an innovation process and voluntarily provide feedback in the form of information, educated opinions, expertise, or wealth, resulting in a stronger and more market-focused outcome (Russo-Spena & Mele, 2012; and Hamidi & Gharni, 2017). According to Lusch et al. (2007), co-creation with consumers just for innovation is a central element of today's marketing, which often involves mutual inventiveness. Furthermore, consumer participation in innovation is seen as offering critical value to both the company and the customer (Raeisi & Lingjie, 2017). In support of this, Mathieu (2001) noted that the more an organization is oriented toward interactivity and improving its relations with customers, the greater is its potential for service innovation. As a result, the majority of previous work concluded that consumer participation and the subsequent co-development within the cooperative sphere contribute to the emergence of original and unexpected ideas (Essen & Ostlund 2011; and Witell et al. 2011). Drawing from this we hypothesize that:

Hypothesis 1: Co-creation has a positive impact on Technological innovation.

Technological Innovation and Guest Satisfaction

Previous studies specify that hotel technology implementations can improve guest satisfaction, boost output and trim down the costs which can yield a competitive advantage (Camison, 2000; Collins & Cobanoglu, 2008; and Cobanoglu et al., 2011) and some studies concluded that several in-room technologies are being unveiled to offer superior guest experience (Cobanoglu et al., 2011; and Erdem et al., 2009). Supporting this, the latest study by Deependra (2016) has revealed a positive role of technological innovation on guest experience in the hotel industry and its contribution towards improved competitiveness and differentiation of the hotel industry (Onojaefe & Nhepera, 2017). Furthermore, a study by Siguaw and Enz (1999) also supported that technological innovations have more influence on customer satisfaction which ultimately increases their return intention. Innovative technologies in the hospitality industry aimed at the valuable satisfaction of the desires of visitors and the enhancement in the competitiveness of services organization (Dzhandzhugazova et al., 2016). Moreover, hotel guest's nowadays wish for attention, affectionate welcome and care but those desires are satisfied only using innovative solutions affecting an array of human feelings and emotions (Dzhandzhugazova et al., 2016). Therefore based on this, we framed the hypothesis that:

Hypothesis 2: Technological innovation has a positive impact on guest satisfaction.

Technological Innovation and Guest Revisit Intention

Technological innovation nowadays is acknowledged as one of the determining factors for the business's competitive advantage as well as a critical aspect in maximizing the economic and financial outcome of firms. Modern guests make use of smartphones, tablets, and laptop computers for communicating their intentions. At the same time, these devices necessitate wireless internet connections which may generate a bigger influence on hotel selection and guest experiences during stay (Onojaefe & Nhepera, 2017). This is attained by anticipating customer requirements and desires, escalating loyalty through diverse programs, expanding customer base while dipping unused capacities and increasing competence and productivity (Bilgihan & Nejad, 2015). The hospitality industry should put greater emphasis on innovative services that have a feature of inculcating more concern regarding customer's mindset, fulfilling their expectations and boosting their intention to repurchase (Horng et al., 2016; and Wang, 2014). Technological innovation is considered to have a large amount of influence

on hotel choice by guests, leaving behind marketing and human resource innovations (Onojaefe & Nhepera, 2017). Concurring this, Siguaw and Enz (1999) maintained that technological innovation has more impact on guest satisfaction and enhances their return intention. In a special study, studies by Siguaw and Enz (1999) it was found that technological innovations exert more influence on customer satisfaction and their intention to return to the same place. Thus we draw the following hypothesis:

Hypothesis 3: Technological innovation has a positive impact on guest revisit intention.

Guest Satisfaction and Guest Revisit Intention

Satisfaction shows a very significant role to seduce the guests/visitors to approach the same destination again and again (Alexandris et al., 2006). Many researchers have indicated that customer satisfaction acts as a precursor of behavioral intention (Westbrook & Oliver 1991). Satisfaction not only produces a better image for attracting potential visitors but will also attract the guests who are fully satisfied during their first trip (Htun et al., 2015; and Kneesel et al., 2009). Revisit intention always finds association with satisfaction. The greater the satisfaction a restaurant/hotel provides, the greater is the likelihood that guests will revisit (Han et al., 2009; and Oh, 2000). Previous researches had studied various factors contributing to guest revisit intention using structural equation modeling or logistic regression. Among those factors like trust, satisfaction, several preceding trips, perceived switching cost, etc. considerable revisions supported satisfaction as a determinant factor of revisit intention (Alegre & Cladera 2006; 2009; Campo-Martinez et al., 2010; Han et al., 2009; Hui et al., 2007; Um et al., 2006; and Yan et al., 2015). Furthermore, the analysis of repurchase intention is also important due to its long-term consequences. Therefore, to survive in the market businesses need to increase the value of prevailing users, and make every effort to appeal their repurchase behaviors in addition to attracting new customers (Hanai et al., 2008, and Yan et al., 2015). Hence we hypothesize that:

Hypothesis 4: Guest satisfaction has a positive impact on guest revisit intention.

METHODOLOGY

Sample Design and Data Collection

The target populations for this research were guests visiting luxury hotels located in Jammu and Kashmir. The survey was conducted through face-to-face interaction with the

guests from national and international states at the selected hotels to collect the data. Non-probability convenience sampling technique was used to collect the data. A total of 341 questioners were distributed and after proper inspection, 41 questioners were not considered for analysis due to incomplete responses or with extreme responses resulting in 300 valid questioners giving the response rate of 87.97%. Out of these 300 respondents, 36% were female and 64% were male. From the educational level of respondents, it was revealed that the majority (72%) were university graduates, 19% were senior secondary school pass outs and the rest 9% went to technical college. In terms of nationality, 75% were Indian and 25% belong to the rest of the world.

Scale Items

The study derives items from previous existing literature. The items of co-creation are derived from the literature of Diaz et al. (2016) and Mathis et al. (2016). Items from Chen et al. (2009), Margarido, (2015), and Kiarie, (2014) were used to assess the technical innovation construct. Guest satisfaction was measured using scale items from Karakas, (2014) and Diaz et al. (2016) and items for guest revisit intention were measured using the literature of Karakas, (2014) and Diaz et al. (2016). The items were slightly changed to meet the objectives of the study. All the items were operationalized by using a 5-point Likert scale where 1 = strongly disagree and 5 = strongly agree.

RESULTS

Confirmatory Factor Analysis (CFA)

CFA is operated on the constructs of Co-creation, Technological innovation, Guest satisfaction and Guest revisit intention and on an overall scale to test the robustness of the measurement model through investigating the construct reliability, convergent validity and discriminant validity. The items depicted a high loading which was all within the acceptable criteria (Table 1). The model appropriateness of the constructs i.e., co-creation, technological innovation, guest satisfaction and guest revisit intention fall under the appropriate category (Table 2) as every one of the fit indices such as chi-square came to be less than 5, the goodness of fit index (GFI), normed fit index (NFI), relative fit index (RFI) and comparative fit index are all found to be greater than the set criteria of .90. Further, the root mean square error of approximation (RMSEA) also met the criterion recommended by Hair et al. (2009) (Table 2).

Table 1: CFA Results

Construct	Indicators	Loading	Cronbach's α	CR	AVE
Co-creation	CC1	.923	.894	.841	.764
	CC2	.919			
	CC3	.904			
	CC4	.924			
Technological Innovation	TI1	.829	.850	.912	.742
	TI2	.836			
	TI4	.842			
	T15	.853			
	T16	.812			
	T18	.826			
Guest Satisfaction	GS1	.941	.831	.876	.728
	GS2	.921			
	GS3	.884			
	GS4	.821			
	GS5	.852			
Guest Revisit Intention	GRI1	.898	.910	.851	.702
	GRI2	.832			
	GRI3	.820			
	GRI5	.832			
	GRI6	.814			

Table 2: Measurement Model Fit Indices

Measures	χ^2/df	GFI	NFI	CFI	RMSEA
Co-creation	2.121	.928	.944	.953	.038
Technological innovation	2.326	.934	.945	.944	.056
Guest satisfaction	2.254	.956	.938	.912	.037
Guest Revisit intention	2.123	.939	.972	.944	.039
Overall Model Fit	3.011	.948	.941	.932	.042

Composite Reliability

In order to find out the internal consistency of the data composite reliability was checked which indicated a positive sign as all the constructs co-creation (.841), technological innovation (0.912), guest satisfaction (0.876) and guest revisit intention (0.851) were above the benchmark of 0.70 (Table 1) as indicated by Hair et al. (2009).

Convergent and Discriminant Validity

Convergent and discriminant validity are examined to test the validity of the scale. The SRW values of all the items are found to be greater than the threshold limit of .50 which indicated the existence of convergent validity (Table 1). Further discriminant validity was assessed by comparing the variance extracted of all the constructs with the squared

correlation between constructs (Fornell & Larcker, 1981). AVE of all the scale constructs is greater than the squared

correlation estimates indicating the distinction between the scales (Table 3).

Table 3: Convergent and Discriminant Validity

Measures	Co-Creation	Technological Innovation	Guest Satisfaction	Guest Revisit Intention
Co-Creation	.723			
Technological innovation	(.423)	.745		
Guest Satisfaction	(.454)	(.444)	.738	
Guest Revisit Intention	(.423)	(.535)	(.476)	.722

Note: In the table, the values in bold represent AVE and values in brackets represent Squared Correlation.

Hypothesis Testing using Structural Equation Modeling

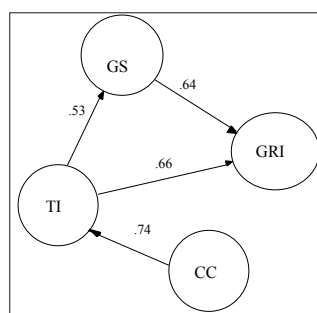
After confirming the measurement models SEM has been applied to check the hypothesis. The overall fitness of the model came to be considerable with χ^2/df (3.011), GFI (.948), NFI (.941), CFI (.932) and RMSEA (.042) (Fig. 2). The analysis revealed a good theoretical relationship between co-creation and technological innovation (SRW = .745, $p = .000$) indicating how productive can a guest be when he is considered in designing the services. At the same time results demonstrated that technological innovation is outstandingly and positively (SRW = .533, $P = .000$) contributing to guest satisfaction in the hotel industry (Table 4) which is also supported by (Onojaefe & Nhepera, 2017). Thus we accept the second hypothesis. From the results, it is

also evident that technological innovation is also influencing guests to revisit intention (Siguaw & Enz, 1999). The relationship between technological innovation and guest revisit intention came to be significant (SRW = .663, $p = .000$) indicating the significance of technological innovation in tempting the customers to revisit the same hotel again and again. Thus, confirming the third hypothesis. Similarly, after applying structured equation modeling the fourth hypothesis is also found to be accepted as it revealed the positive influence of guest satisfaction on guest revisit intention (SRW = .647, $p = .000$) (Table 4) giving the inference that when hotel managers satisfy their guests they will be inclined to revisit the same hotel next time (Alexandris et al., 2006; Htun et al., 2015). Therefore, managers need to utilize or generate unique resources to supplement their primary competencies which can be diverse and should change over time.

Table 4: Hypotheses Result (Direct Effect)

Parameters	SRW(β)	P-Value	Hypothesis	Conclusion
Co-creation \rightarrow Technological Innovation	.745	***	H1	Supported
Technological Innovation \rightarrow Guest Satisfaction	.533	***	H2	Supported
Technological Innovation \rightarrow Guest Revisit Intention	.663	***	H3	Supported
Guest Satisfaction \rightarrow Guest Revisit Intention	.647	***	H4	Supported

Note: (***) $p < .001$



Note: TI = Technological Innovation, GS = Guest Satisfaction, GRI = Guest Revisit Intention and e_1, e_2, e_3 are error terms.

Fig. 2: Final Model

DISCUSSION AND CONCLUSION

Guest satisfaction is a key success aspect in the performance of the hotel industry. As a result, most hoteliers have sought ways to develop the level of service offered to their guests. This study has been investigated from the perspective of guest’s attitude towards the hotel industry when being involved in co-creating the services. It is in context with this background that the study examined whether the technological innovation introduced by the hotel industry, taking into view the suggestions and views from the guests, has any effect on guest satisfaction and their revisit intention. The data were purified through exploratory factor analysis (EFA) where confirmatory factor analysis (CFA) confirmed

the factorial structure. For hypotheses testing, structural equation modeling was used. The analysis is done not only to discover to what extent technological innovation is affecting guest satisfaction but also to examine how co-creation of technologies and other services between the service provider and service consumer exerts the extent of influence towards guest satisfaction and their revisit intention. The user's contribution through co-creation played an imperative part by willingly contributing input, in the form of knowledge, informed views, experience, or wealth, into an innovation process, which results in better, more market-focused and more importantly guest satisfaction. It was found out that it is the technological innovation that makes the guests feel satisfied and positively influences their potential decisions and morale to revisit the same hotel again and again in the future period. The positive impact of technological innovation on guest satisfaction and guest revisit intention in the Indian hospitality industry proved technological innovation as an effective strategy to generate a win-win situation for hoteliers and to enhance the customer-brand relationship.

PRACTICAL IMPLICATIONS

The study has several contributions for practical implications. Practically, this study intends to offer a guiding principle to executives on how to gain value from engaging customers in technology-enabled services. To mitigate the swiftness of robustly changing markets, the use of co-creation for technological innovation via customer satisfaction needs to be a tactical objective in fresh service development and innovation in hospitality and tourism. With co-creation booming over the years to arrive, managers require to set up their full strength taking co-creation to the next level (Neuhofer et al., 2012). Further, regular consideration and re-evaluation of existing processes are required to triumph over technological challenges, snatch opportunities and facilitate innovation through co-creating experiences with clients successfully. If visitants do not contribute to the innovation framework, they may perhaps see the innovations as too novel and unusual and will be reluctant to adopt those innovations (Rindova & Petkova, 2007; Sharma & Bhat, 2020a). Based on the findings of the study, management may detect areas that might be lacking and cultivate capabilities for improving service innovation experience in the hospitality and tourism industry. The path coefficients between all the examined constructs were both positive and statistically significant. The positive impact of technological innovation on guest satisfaction and guest revisit intention in the Indian hospitality industry proved technological innovation as an effective strategy to generate a win-win situation for hoteliers and to enhance the customer-brand relationship. Hospitality players should be

alert to integrate their business with information technology to enhance their services for customers which will, in turn, give a boost to their mark performance as well as employee productivity (Sharma & Bhat, 2020a). Some hotel workers lack the necessary skills and experience to provide excellent customer service. Customers may have to wait a long time for services, and some customers requested to be served while the hotel's facilities were down. Hotels can bypass these constraints by adopting and deploying technology to have excellent quality services for customers and increase satisfaction. In conclusion, from a management standpoint, the findings of this study will assist business owners in better understanding the critical role of technological innovation and co-creation as a tool for customer retention and satisfaction.

LIMITATIONS AND FUTURE RESEARCH

This study has some limitations which may influence generalizing the results. The study is limited to the guest experience of luxury hotels in Jammu and Kashmir. Further studies can widen the circle of research by taking into account the guests visiting luxury hotels in other states. Besides a comparative study between the public sector and private sector hotels is also required to assess which sector is more prone to technological adoption for giving a better experience to guests. Lastly, the present study examined the relationship between co-creation, technological innovation, guest satisfaction and guest revisit intention. Future research is required to find out the relationship between technological adoption, customer loyalty and competitive advantage.

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