The Impact of Technological and Marketing Innovations on Retailing Industry: Evidence of India

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Abstract: Innovation is usually linked with technology-based change. Retailers form a significant sector in the developed economies and also are picking up in the developing economies. There have been few studies in the area of innovation in the retail industry in both conceptual as well as empirical points of view. The objective of this study is to study the impact of marketing and technological innovations on the retail industry. The sample of the study was drawn from the customers who live in the city of Aligarh in India. The study is conclusive, descriptive and is based on a single cross-sectional research design. Quantitative data was generated on the basis of the research instrument (a questionnaire). The study concluded that technological innovation is more important than marketing innovation with respect to World of Mouth (WOM) referral and satisfaction. Furthermore, the study revealed that technological innovation has an impact on store image, customer value, brand store equity, satisfaction, WOM referral, and WOM activity. The study also recommended that a retailer can take some advantages of introducing new technologies. This means investing in technologies would help in increasing market share and competitiveness of the retail sector in the long-run.

Keywords: Technologies, Innovation, Marketing, Satisfaction, Retailing, Brand Equity.

1. INTRODUCTION

The structure of retailing can be represented by four segments along a continuum, namely, innovative, big middle, and low-price "in trouble". Retailers in the innovative segment set their long term plans towards quality-conscious markets and quest for premium offerings. Low-price retailers find price-conscious markets are the best environment for their activities. Big middle retailers prosper in value offering markets, whereas "in trouble" retailers are unable to deliver high levels of value in comparison with their competitors (Levy *et al*., 2005). Usually, innovation in services is normally not technology based and has received a limited effort in Research and Development (R & D) (Trigo, 2013). For this reason, retail industries' R & D efforts are devoted mainly towards the development of new products rather than towards development of new means for ameliorating the services deliverable to customers. Thus, retailers usually adopt innovations developed by other parties, as they are lacking the capability of creating their own. Therefore, they tend to outsource all the activities devised in R & D. Despite these reverse conditions, the wave of innovative technologies available for channelling merchandise and delivering services is catching up fast, thereby making available many interactive and innovative systems capable of updating information on market dynamics and trends, and supporting consumers while shopping and retailers in scaling heights in business.

These innovations not only pose challenges for the retail industry but also create new effective solutions bound to enhance the experience of consumer and retail management. The level of innovation possible may differ among firms functioning in the same industry in terms of nature and number of innovation that succeed (Cao, 2014). According to Boeck & Fosso Wamba (2010), retailers conducted diverse innovation strategies, such as inventing and introducing self-service technologies for shifting traditional tasks executed by employees to an automated machine. Other retailers introduced technologies by offering new exciting shopping experiences to involve more consumers (Hristov and Reynolds, 2015). Hence, their study encompasses a multiple-case analysis across firms, including many cases from fashion of retail setting.

There have been a number of research studies in retail pertaining to store attributes and level of satisfaction of customer, like quality of goods, retail atmospherics, product display, price charged, assortment of goods provided by store and level of

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satisfaction. There is a dearth of studies on innovation in retail particularly pertaining to technological innovation which brings satisfaction of customers. The present study attempts to fill this gap. The main objectives of this study are:

1. To study the impact of marketing innovation on satisfaction, store image, brand store equity, consumer value WOM referral, and WOM activity.

2. To study the impact of technological innovation on brand store equity, store image, satisfaction, consumer value WOM referral, and WOM activity.

2. LITERATURE REVIEW AND RESEARCH HYPOTHESES

2.1. Technological and Marketing Innovation

The studies on innovation focus on two major dimensions, marketing and technological innovation (Musso, 2010). Innovation in service including retailers' services is an on-going problem and very difficult to define and measure (Tether, 2005). An innovation in service of a retailer is a marketing innovation (MI). The advantage of information and communication technologies has influenced and charged market condition by giving access to new tools which add value to costumer experience (Thiesse, 2009). There are number of benefits that a retailer enjoys by use of such technologies like the reduction in cost, increasing in the level of satisfaction of consumers, introductions of flexible job and ultimately in the areas of market share and improving the competitive advantages of the firms (Gil *et al*., 2014). Technological innovation (TI) is recently come to the surface with promising benefits; but it has such challenges which need to be tested (Renko & Druzijanic, 2014).

2.2. Consumer Value and Customer Satisfaction

Consumers expected to find more supporting and interactive tools that increase the knowledge of shopping (Pantano, 2014). The satisfaction of the store indicated a self-assessment that the store exceeds or meets expectations (Helgesen *et al*., 2010). The theory of expectation had the extensive acceptance in the literature.

2.3. Store Image and Store Brand Equity

In retailing industry, store image plays a very important role (Jayawardhena *et al*., 2016). It is a reflection of the store's identity and is a reflection of what consumer perception and beliefs is about the store and as such also their expectation from the stores (King *et al*., 2014). Traditionally brand equity as a concept focuses on the product (Rust *et al*., 2000), the increase in value derived from the existence of the brand (Yoo *et al*., 2000) and takes place often when customer show a positive association with a known brand.

2.4. WOM Referral and Activity

More recent work had been identified for dimensions of WOM. Sweeney *et al*. (2012) included the cognitive element that refers to what is said and the emotional component that reflects the emotions in how they are said to be (Mazzarol *et al*., 2007). Activity and Referral are also considered to be dimensions of WOM (Gelbrich, 2011). It has discussed that "both dimensions may become salient when customers experience particular emotions (Gelbrich, 2011). Some of the most important literature are summarized in the Table **1**.

This study focuses on marketing and technological innovations. It identifies various variables of marketing and technological innovations and assesses its impact on level of satisfaction of consumers in the context of a retail set up. The study hypotheses are formulated below.

Ho_1: There is no significant impact of marketing & Technological innovations (MI&TI) on WOM Referral.

Ho_2: There is no significant impact of marketing & Technological innovations (MI&TI) on WOM Activity.

Ho_3: There is no significant impact of technological & marketing innovations (MI&TI) on satisfaction.

Ho_4: There is no significant impact of marketing & Technological innovations (MI&TI) on store image.

Ho_5: There is no significant impact of marketing and technological innovations (MI&TI) on brand store equity.

Ho_6: There is no significant impact of marketing and technological innovations (MI&TI) on consumer values.

3. RESEARCH METHODOLOGY

Experimental research has been developed in the context of shopping experiences in electronic products, clothing, grocery and furniture stores. Information had

Table 1: Summary of Prior Research Studies

Concept	Citation	Sampling	Type of data	Outcomes
Application of different ideas which stimulate the performance of the retailer	Hristov and Reynolds (2015)	Retail executives and other industry experts	Primary	Innovation in retailing possesses a range of sector specific meanings and measurement approaches that are distinct from more generic understandings of the phenomenon
Forms of modern technology used to exchange, create, manipulate , capture, connect, present & use information	Gil *et al.* (2014)	Retail stores (grocery, textile, electronics and furniture)	Secondary	ICTs develop store capability and competiveness
Creation of modern Technologies	Mihajlović (2012)	Travel agencies	Secondary	ICTs develop efficiency, facilitate activities and offer added value for Transactions.
Implementation of a modern concept	Bomfim *et al.* (2012)	Industrial, trade and services firms	Secondary	Marketing innovation has ability to provide a sustainable competitive Benefit
Study in Strategic perspective focus on competitive advantage along distribution channel Study in Operational perspective: offer of new services	Musso (2010)	Marketing Channels	Review of Literature	Marketing innovation classification: Structural, technological and relational.
Concentrated on the usage of the RFID Technology	Thiesse *et al.*(2009)	Apparel retail	Secondary	ICTs could provide competitive advantage by creating value to consumer
Variations in processes and products which decreases cost or increases efficiency, and improve customer satisfaction	Ganesan *et al*. (2009)	Retailers	Review of Literature	Three trends: relationship-based Innovation, Multichannel routes to market and global sourcing practices
modern common of Methods and ideas	Anselmsson and Johansson (2009)	Household	Secondary	An important connection found between growth in the level of innovativeness in the group and the retailer market share in a group

been collected using quantitative research method based on structured questionnaire. The survey had been developed with a cautiously selected collection metrics, tested in the latest literature, adapted to the retail context. The 5-point Likert scale was used to measure all variables. SPSS version 22.00 is used for the analysis.

There are two independents variable which they are technological innovation and marketing innovation. There are six dependent variables (store image, consumer value, brand store equity, satisfaction, WOM referral and WOM activity. The variables of study have been described in brief in Table **2**.

3.1. Scope of Study

The study utilized both Technological Innovation and Marketing Innovation. It studies these variables with reference to WOM referral and activity, brand equity, store image, consumer value and satisfaction. The study was conducted in the city of Aligarh, India.

3.2. Data Collection

The sample of the study was drawn from those customers who live in Aligarh city. Questionnaires were electronically mailed to the respondents. The questionnaires were distributed physically among the respondents at different retail set up in Aligarh. Respondents were randomly selected at the retail canters as shown in Table **3**.

3.3. Sample Size

The sum total of questionnaires which were distributed online and offline was three hundred and forty-one (341). The completed collected questionnaires were two hundred and seventy-six (276) (offline) and forty-one (41) online which means 317 questionnaires were collected. 10 questionnaires are excluded due to incompleteness information. Therefore, the response rate was ninety percent (90%) and is suitable for the study.

Table 2: Study Variables

Variable names	No. of items	Interpretation	Evidence
Technological innovation	Four items	Measures the perception of consumers of retail use and ICT development.	Wu *et al*. (2006)
Marketing innovation	Three items	Representing one of the centennial attempts. This limitation is studied. This idea has new ideas about marketing or services, which provides a benchmark includes number of approved innovations	Homburg *et al*. (2002)
Store image	Four items	Organization, comfort facilities and retaining access features,.	Chowdhury *et al*. (1998)
Consumer value	Four items	Adopted the economic concentration using the economic measurement value proposed by Sweeney, (2001).	(Sullivan *et al*., 2012)
Brand store equity	Four items	Evaluated from the purchase, intention or preference of a given store compared to a fictional store.	(Hartmann and Spiro, 2005)
Satisfaction	Five items	Reverses the cognitive component, and empathy component based on Oliver.	(Gelbrich, 2011)
WOM Referral and WOM activity	Six items	The behavior of WOM Referral and Organization activity	(Harrison Walker, 2001)

Table 3: Number of Respondents and Response Rate

No. of questionnaire distributed		
Online	41	
Offline	300	
Total No. of questionnaire distributed		341
No. of Questionnaire returned		
Online	41	
Offline	276	317
No of incomplete questionnaire		
Online	2	
Offline	8	10
Total of usable questionnaires		307
Response Rate		90%

4. DATA ANALYSIS

4.1. Respondents Profile

All the demographics about the study sample of 307 respondents are shown in Table **4** with interpretations for each item.

4.2. Normality Test and Checking the Reliability Analysis

Normality of data has been checked by skewness and kurtosis and it was found that all variables are normally distributed. If skewness values fall in the range +3 to -3, it means the normality of the data. The result in Table **5** shows that the outcomes of the skewness values are within the range of +3 and -3. Table **6** provides the reliability analysis to assess the level of internal consistency among multiple measurements. Cronbach's Alpha was used to assess the reliability. The score of Cronbach's Alpha for all variables is greater than 0.70 which assures the reliability of the data.

4.3. Descriptive Analysis

Table **6** presents the results of a descriptive statistic for variables of the study. A descriptive statistic in the form of means, standard error and standard deviation

Table 4: Respondents Profile

Respondent profile	Items	Frequency	Percent	Interpretation
Gender	Male	185	60.3	68 out of 100 respondents were males while 122 respondents were females.
	Female	122	39.7	
	Total	307	100	
Age	15-25	131	42.7	131 respondents belonged to 15-25 yrs 126 respondents belonged to 25-35 yrs 43 respondents belonged to 35-45 yrs 7 respondents belonged to above 45 yrs
	25-35	126	41	
	35-45	43	14	
	above 45	7	2.3	
	Total	307	100	
Education	10+2	54	17.6	Majority of respondents were graduate 126 respondents were post graduate 85 respondents were under graduates 45 respondents were Ph.D students
	Graduate	123	40.1	
	Post graduate	85	27.7	
	Ph.D.	45	14.7	
	Total	307	100	
	10+2	54	17.6	
Occupation	Student	150	48.9	Majority of respondents were students 100 respondents were unemployed 49 respondents were in service and 8 respondents are housewife.
	Unemployed	100	32.6	
	in service	49	16	
	Housewife	8	2.6	
	Total	307	100	
Retail store	Food	99	32.2	38% of the respondents choose textile store, 32% choose food store and 19%, 10 of the respondents choose electronic and household respectively.
	Textile	117	38.1	
	Electronic	60	19.5	
	Household	31	10.1	
	Total	307	100	

Table 5: Normality Test and the Reliability

Variables	N	Skewness		Kurtosis		Cronbach's Alpha
	Statistic	Statistic	Std. Error	Statistic	Std. Error	
MI	307	0.434	0.139	0.159	0.277	0.898
TI	307	0.816	0.139	0.549	0.277	0.889
SI	307	1.131	0.139	2.042	0.277	0.888
CV	307	1.068	0.139	1.113	0.277	0.88
BSE	307	1.089	0.139	1.797	0.277	0.891
S	307	1.242	0.139	1.481	0.277	0.888
WOMR	307	1.083	0.139	1.628	0.277	0.887
WOMA	307	1.838	0.139	3.009	0.277	0.895

were computed. All the constructs in the study were measured using a five Likert scale anchored by the value of (1) which represent the minimum value and five which the maximum value. The results were shown in Table **6** reported that the mean value for 307 respondents which ranges from1.8 to 2.3, revealing

Table 6: Descriptive Statistics

Variables	N	Mean		Std. Deviation
	Statistic		Std. Error	Statistic
MI	307	2.2248	0.03486	0.61079
TI	307	2.3453	0.04271	0.74842
SI	307	2.373	0.0419	0.73414
CV	307	2.2378	0.04615	0.80863
BES	307	2.158	0.03752	0.65732
S	307	2.2463	0.04154	0.72784
WOMR	307	2.3485	0.03887	0.68104
WOMA	307	1.8111	0.0518	0.90756

Note: MI=marketing innovation , TI=technological innovation, SI=store image, CV=consumer value, BES=brand store equity, S=satisfaction, WOM referral, WOM activity.

that most of the respondents where either strongly agree or disagree that innovation on retail sector has a significant impact. Further, there are no variations between the mean score for the variables of the study.

4.5. Correlation Analysis

Table **7** present correlation matrix and multicollinearity diagnostics. As shown in panel A there is a positive correlation among the independent variables. There is no variable which has a correlation more than 0.80. All variables have correlation less than 0.80. Furthermore, as shown in panel B, VIF is less than 3 and the tolerance is not less than 0.20 which is considered good values and indicates the absence of multicollinearity problem.

4.6. Regression Analysis

Table **8** illustrates the regression results between dependent and independent variables. It is clearly seen from the results of Table **6** that all models are fit (sig. less than 0.01).

Regarding model (1) which examines the impact of marketing innovation on store image, it is clear from Table **8** that the model is significant (P. value0.002). Further, the adjusted R square is 0.56, which means that the independent variables marketing innovation contribute only 0.56 to the total variation in the dependent variable. Moreover, the model reveals that marketing innovation positively and significantly impacts store image; the coefficient is 0.22 which

Table 7: Correlation Matrix

Panel A: Spearman Correlation								
	MI	TI	SI	CV	BES	S	WOMR	WOMA
MI	1							
TI	.628*	1						
SI	.475*	.558*	1					
CV	.511*	.557*	.525*	1				
BES	.393*	.372*	.319*	.641*	1			
S	.384*	.498*	.466*	.473*	.545*	1		
WOMR	.422*	.446*	.363*	.434*	.440*	.486*	1	
WOMA	.223*	.320*	.264*	.364*	.333*	.400*	.587*	1
Panel B: Multicolinearity Diagnostics								
VIF	1.723	1.723						
Tolerance	0.58	0.58						

*correltion is significant at the level of 0.01.
Note: MI=marketing innovation , TI=technological innovation, SI=store image, CV=consumer value, BES=brand store equity, S=satisfaction, WOM referral, WOM activity.

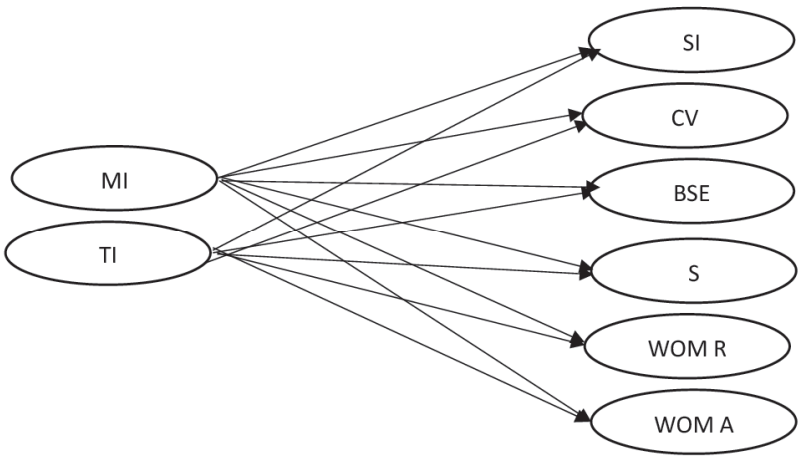

Figure 1: Model of the study.

indicates that when marketing innovation increase by one unit, store image will increase by 0.22 unit. This result consistent with Fuentes-Blasco, *et al*., (2017) who found that marketing innovation has a positive impact on store image (P. value0.002). Similarly, the model demonstrates that technological innovation has a positive and significant impact on store image (P. value 0.00). The coefficient values suggest that an increase in technological innovation by one unit results in 0.507 increase in store image.

Concerning the impact of technological innovation on customer value in model 2, Table **8** shows that the adjusted R square is 0.41, which means the technological innovation contributed only 0.41 to the total variation in the consumer value. Furthermore, the model reveals that technological innovation has a positive and significant impact on consumer value (P. value 0.00). The coefficient is 0.32 which indicate that when technological innovation increases by one unite consumer value will increase by 0.32 units. These outcomes consistent with (Christofi, *et al*., 2015, Djellal *et al*., 2013; Musso, 2010) who found that technological innovation has a positive impact on consumer value. Similarly, the model demonstrates that marketing innovation positively and significantly impacts on consumer value (P. value 0.00). The coefficient values suggest that an increase in technological innovation by one unit results in 0.32 increasing in consumer value. The adjusted R square of the models 3 is 0.24 which suggests that marketing and technological innovation are contributing and explaining about 56% of the variability of, 24% to brand store equity as shown in model 3, the results of the study show that marketing innovation has an impact on brand store equity (p. value 0.001). Similarly, technological innovation has s significant impact on brand store equity (p. value 0.000) as shown in Table **8**. The adjusted R square of the models applied is 0.27, 0.31 and 0.19, for model 4,5 and 6 respectively which suggests that marketing and technological innovation are contributing and explaining about 56% of the variability of 27% to satisfaction as the case of model 4 and 31% and 19% to WOM referral and WOM activity as shown in model 5 and 6 respectively.

With regard the impact of MI and TI, the results of the study affirm statistically both Marketing Innovation and Technological Innovation on satisfaction, WOMR and WOM A ($p<0.010$). Concerning the impact of marketing innovation and technological innovation on WOM activity and satisfaction, the result shows that only technological innovation has a significant impact on both satisfaction and WOM activity ($p<0.01$). But there is no significant impact of marketing innovation on satisfaction and WOM activity ($p>0.05$). Finally, the results of this study reveal a significant impact of Marketing Innovation and Technological Innovation on retail. This leads the study to reject the null hypothesis as value of all variables is less than 1%. The outcomes of this study indicate that marketing and technological innovation help to develop image of the consumer store. The findings of this study is consistent with (Fuentes-Blasco, *et al*., 2017) who found that marketing and technological innovation impacts the image of the store and also has influence on consumer value and satisfaction. Further, technologies also improve customer satisfaction and consumer value with the store. The results of this study contradicts the study of Fuentes-Blasco, *et al*., (2017) which find that marketing innovation has an impact on WOM activity and satisfaction. The study is relevant to retailers in India who are in a dilemma about the role of technology in the retail sector. The summary of accepted/rejected hypotheses is shown in Table **9**.

Table 8: Regression Analysis

Variable	$SI = \beta_0 + \beta_1 MI + \beta_2 TI + \varepsilon$ (1)		$CV = \beta_1 MI + \beta_2 TI + \varepsilon$ (2)		$BES = \beta + \beta_1 MI + \beta_2 TI + \varepsilon$ (3)	
	SI		CV		BES	
	C	Sig.	C	Sig.	C	Sig.
C	0.695	0	0.32	0.021	0.968	0
M. I.	0.22	0.002	0.384	0	0.247	0.001
T. I.	0.507	0	0.454	0	0.273	0
Adjusted R Square		0.55954		0.414		0.237
Prob.		.000a		.000a		.000a

Note: MI=marketing innovation , TI=technological innovation, SI=store image, CV=consumer value.

Variable	$S = \beta + \beta_1 MI + \beta_2 TI + \varepsilon$ (4)		$WOMR = \beta + \beta_1 MI + \beta_2 TI + \varepsilon$ (5)		$WOMA = \beta + \beta_1 MI + \beta_2 TI + \varepsilon$ (6)	
	S		WOMR		WOMA	
	C	Sig.	C	Sig.	C	Sig.
C	0.946	0	0.981	0	0.002	0.002
MI	0.117	0.127	0.209	0.003	0.851	0.851
TI	0.444	0	0.385	0	0	0
Adjusted R Square		0.271		0.312		0.187
Prob.		.000a		.000a		.000a

Note: BES=brand store equity, S=satisfaction, WOM referral, WOM activity.

Table 9: Summary of the Hypothesis Testing

Variables	Model 1 (SI)	Model 2 (CV)	Model 3 (BSE)	Model 4 (S)	Model 5 (WOM R)	Model 6 (WOM A)
MI	Sig. (Rejected)	Sig. (Rejected)	Sig. (Rejected)	Insig. (Accepted)	Sig. (Rejected)	Insig. (Accepted)
TI	Sig. (Rejected)	Sig. (Rejected)	Sig. (Rejected)	Sig. (Rejected)	Sig. (Rejected)	Sig. (Rejected)

5. CONCLUSION AND IMPLICATIONS OF THE STUDY

This study aims to go deeply into the innovation of retail industry, both in technological and marketing aspects, and their direct and indirect impact on satisfaction. The study gives recommendation over consumer value, store image and store brand equity. It is a different line of learning (Fuentes Blasco, 2017; Christofi, *et al*., 2015, Djellal *et al*., 2013; Musso, 2010). This study is in lines with the study undertaken by Fuentes Blasco, (2017) who has done a study in Spain and found that marketing and technological innovation effects the image of the store, satisfaction, consumer value and also WOM activities. Further, technologies also improve customer satisfaction with the store. The study concluded that technological innovation is more important than marketing innovation in WOM referral, and satisfaction. Technological innovation has an impact on store image, customer value, brand store equity, satisfaction, WOM referral and WOM activity. This explains that behaviour of customer in India is similar to behaviour of consumer in Spain. Therefore, it is recommended that a retailer can take benefit from introducing technologies and therefore invest in technologies which in the long run would help in increasing market share and competitiveness. This is from the fact that customers have motivations which go beyond the purchase of the product. Marketing innovation has no impact on WOM activity and satisfaction while it has an impact on store image, customer value, WOM referral and brand store equity. Retailers are at a stage where they are still assessing the impact of Information technology (IT) on the retail

set up and need to understand the level of investment (how much to spend). The study reveals that technological innovation has an impact on store image, customer value, brand store equity, satisfaction, WOM referral and WOM activity. Therefore, it is recommended that a retailer should take benefit of technology and introduce technologies and therefore invest in technologies which in the long run would help in increasing market share and competitiveness. This follows from the fact that customers have motivations which go beyond the purchase of the product. This study contributes to the literature on loyalty and satisfaction in retailing by studying the impact of innovation. The study found that technological (TI) and marketing innovation (MI) increase the level of satisfaction indirectly and directly over consumer value, brand equity, and store image, and that satisfaction motivates suggestions for another consumer. From an academic viewpoint, these outcomes give a broader approach by incorporating new precedents into complacency and loyalty processes.

These outcomes enable us to suggest recommendations for the management of retail companies. These recommendations can help the retail centres to invest in innovation. Innovation is primarily related to the industrial sector, but our work shows that innovation in the service sector can also improve the competitiveness of the company and assist to meet the necessities of customers better. In particular, it is mainly important to invest in information and communication technology, because consumers easily determine the results and estimate them significantly. Marketing innovation, understood as service improvements, can also provide competitive advantage, especially with regard to improving the image of the store and thus increasing satisfaction and further recommendations. Companies must innovate in marketing by emerging new service-related ideas that generate greater customer value. Companies should also focus their efforts on making customers aware of the developments made to marketing and how they affect their shopping experience, for example, by lowering prices and making shopping easier.

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