



Customer Citizenship Behavior And Service Recovery Strategy: Mediated Model Of Ai-Enabled Crm Technology

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ARTICLE INFO ABSTRACT

Nowadays, service industry is facing a huge competition due to introduction of AI (Artificial Intelligence). Different organizations are working on the interface of AI in service recovery process and, consequently, measuring different customer behaviors. Customer on the basis of different service recovery strategies supported by AI system are generating very positive behaviors. Due to technological advancement organizations are not lagging behind it. The current manuscript measures the impact of service recovery strategy on customer behaviors when AI-powered customer relationship management (AI-CRM) technology mediates the relationship. All this model is measured in accordance with the technology of AI. All the hypotheses are accepted and shows positive results. Healthcare sector was used as population. Data of 320 customers were collected (patients / attendees using healthcare service at time of data collection). This later study presents implications for the service industries and policy makers keeping in context the AI as important tool. Few of AI constraints are also included in future study and limitations of the study.

Keywords: AI (Artificial Intelligence); Service recovery; Customer citizenship behavior (CCB); AI-CRM technology; Healthcare sector

INTRODUCTION

Artificial intelligence (AI) in marketing has been the hot topic of discussion in recent literature (Ameen et al., 2022). Recent studies of Schiessl et al. (2021) centered on the effects of AI on the role of brands, the elements of marketing interactions and the outcomes of those interactions, i.e. different positive customer behavior. Vlacic et al. (2021) studied the TAM (Technology Acceptance Model) model of user acceptance of AI technology in marketing literature, i.e. the ethics, data protection laws, organizational support of marketing AI support systems and marketer and labor competencies. Mustak et al. (2021) and Mariani (2022) studied different customer relationship and interrelated fields of marketing and consumer research, respectively.

Service recovery encompasses “all the actions an organization may take to rectify the failure” (Andreassen, 2000, p. 40). When service failure occurs it is said to be a natural disaster, as no of the organization neither at small scale nor at large make mistakes intentionally. It is of great worth how much flawless and outstanding services are. But some are unable to meet customer expectations and here starts the cycle of service recovery. Mostafa et al. (2014) presented CURE (Customer Recovery Scale) scale for the service recovery and provided implications for the managers in low switching cost industry, i.e. telecommunication. Keaveney (1995) stated that service failure is the main cause of customer switching behavior and successful service recovery, thus proves as prevention of such behavior.

Kim (2009) also highlighted the issue on how service recovery generates customer satisfaction and subsequent positive customer behavior in long term relationship. Today, customers are thought to be “co-producers” of service, so the customer is being placed at higher rank in service personalization. And in failure situation, organizations can not employ all its service recovery strategies due to time and resources constraints, that is why current study uses CURE scale (Mostafa et al., 2014) for measuring the best and effective service recovery strategy in generating customer citizenship behavior (CCB) as an outcome for the organization.

Customer exhibiting CCB are less likely to switch (Liu, Guo & Lee 2011) and maintain long term relationship. Social exchange theory (Blau 1964) is best predictor of CCB as it states that any two interacting individuals or groups depend on the perceptual benefits and cost in the interpersonal relationship (Balaji, 2014). Thus, the current study aims to utilize service recovery strategy from customer perspective and it will yield many practical implications for the managers encountering service failures leading to service recovery process, that is why customer citizenship behavior would be studied in the context of service recovery with AI-powered customer relationship management (AI-CRM) technology.

Different organizations using AI technologies are enjoying along with those developing CRM systems. However, under such markets where companies will have to provide exceptional experiences to their customers, modeling that is largely based on contextual, geographic-location, social and, perhaps, even emotional data would overrun the normal CRM systems. Thus, new CRM systems require crunching that massive amount of data in real-time and would be almost useless without AI (Ledro, 2021).

In fact, new features in CRM applications are so voluminous –from personality insight services to programmatic advertising and added capacities for website morphing, chatbots services, emotions, image and face recognition technologies – that they demand appropriate data processed in real time. This state of affairs is almost impossible without AI developments (Pearson, 2019).

Literature Review and Hypothesis

Service Recovery Strategy

It matters not how excellent a service organization's services are for the simple reason that they still error in their path to reaching customer expectations, who are found to be more demanding as well as least loyal than ever. Therefore, service recovery strategy attached the detached customers by generating their positive behavior. So that they can feel they have been listened and noticed.

A service failure is defined to be the situation in which what is delivered falls beneath the customers' expectations, although it has been produced accordingly (Andreassen, 2000). "*No matter how hard firms try, failure is inevitable even for the best of firms with the best of intentions, even for those with world-class service systems*" (Zeithaml et al., 2006, p. 214). Kanousi (2005) offers that service recovery is important in a bid to respond adequately to service failures (Kanousi, 2005) and, also, to build a lasting relationship with customers (Kanousi, 2005), leading to increased profits as well as higher customer satisfaction (McCollough et al., 2000). That most of the time, research was undertaken on effective service recovery actions that could be focused on.

Thus, apology, compensation, speed of response, facilitation, explanation, courtesy, effort for problem-solving and follow-up are all effective responses from an organization perspective (Mostafa et al., 2014; Gelbrich and Roschk 2011; Karatepe 2006; Liao 2007). The expectations of customers who do complain are for a firm to understand and take responsibility, respond promptly, compensate for inconvenience or loss, and treat them well throughout the complaint process (Zeithaml et al., 2006).

Hence, the CURE scale provides a guide for managers in the allocation of scarce resources to specific service recovery actions anchored in their relative weight in the overall service recovery strategy. By use of the CURE scale, therefore, it can be more clearly determined to which overall recovery strategy a customer's complaint pertains.

Customer Citizenship Behavior (CCB)

CCB is defined by Groth (2005) as "*voluntary and discretionary behaviors not required for the successful production and/or delivery of the service but that, in the aggregate, help the service organization overall*" (p. 11). CCB has emerged within the context of OCB (organizational citizenship behavior) as that which deducts from the employee's behaviors for organizational effectiveness. The items in the CCB measure are recommendations, helping customers and providing feedback (Groth, 2005). CCB to date was explained in terms of social exchange theory, by self-serving motive (Bettencourt, 1997; Groth, 2005, Bove et al. 2009) and empathy theory (ET), consciousness, the personality trait and feelings of attachment. From this hybrid theoretical approach, the authors conclude that reasons for customers performing CCB are due to trust and commitment to the service worker.

Ample of research studies are available in service (Bove, et al., 2009) and goods industry but there has been no attempt in explanation of the boundary conditions for understanding the theory and motivation behind extra role behavior (Glide et al., 2011).

Artificial Intelligence (AI) in Marketing

AI has been defined differently according to its technological aspects. In literature, AI is defined as "*machines that exhibit aspects of human intelligence*" (Huang & Rust, 2018). In consumer research, Longoni et al. (2019, p. 630) defined it as "*any machine that uses any kind of algorithm or statistical model to perform perceptual, cognitive and conversational functions typical of the human mind.*" In the era of coronavirus disease 2019 (COVID-19) pandemic, technology have grown massively so as its use (Ameen et al., 2022), so as to reduce cost with efficiency in work through collaboration of human mind and neural networks (Verma & Kenji, Hieu, et al., 2021). Interface of human language, reasoning and emotions (Poria et al., 2015) in AI made it more

acceptable and remarkable to use. So, the current study used the healthcare sector complaint unit data that is supported with AI technology for complaint lodgment to complaint resolution in service recovery strategy, so as to generate positive consumer behavior, *i.e.* customer citizenship behavior.

AI-enabled CRM technology and Healthcare Sector

Vast amounts of data are being generated, increasing at an exponential rate within healthcare. There is a requirement for a strong CRM system to be able to interpret and analyze data on a real-time basis (Kumar et al., 2023). To cover a number of health-related issues from emergency health situations to remote monitoring of the patients, companies combine services of AI and internet of things (IoT) (Wu et al., 2016). AI based-equipment and services on digital infrastructure provide support for service delivery based on the continuous utilization of resources and permit plural flexibilities in augmenting service performance. In both cases, a new logic of service may call for new skills and competences application through AI-based platforms (Mariani et al., 2022).

Service failure can lead to serious consequences in any business activities. Therefore, service recovery is very important to continue the service sustainability and also attain sustainable growth in the service industry. Artificial Intelligence or AI refers to one of those terms which can be defined as a feature with programs, algorithms, systems and machines that might have some similarities to some human characteristics. In the healthcare field, service recovery with artificial intelligence is contributing greatly to the boosting of patient satisfaction as well as to improvement of service quality.

Proposed Model:

On the basis of literature review following theoretical model is proposed along with hypothesis.

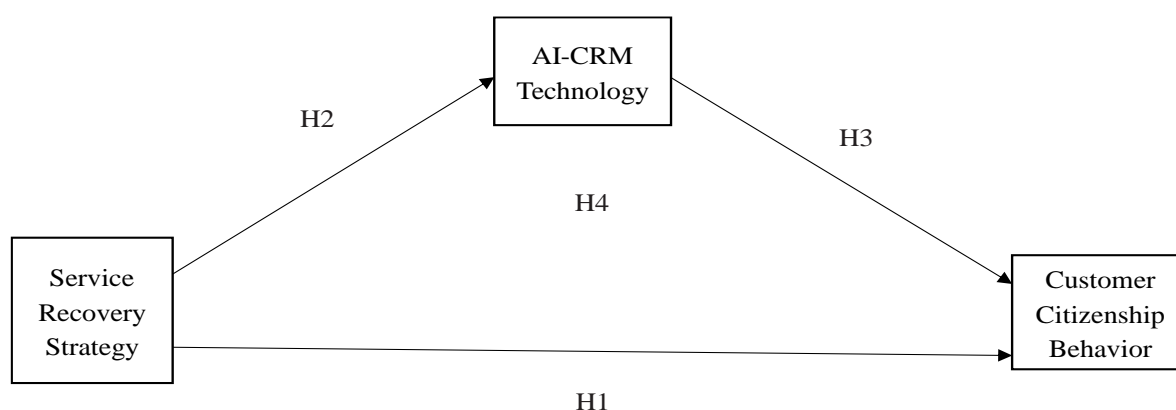


Figure 1. Proposed model for study.

Hypothesis:

H1: Service recovery strategy is positively associated with customer citizenship behavior.

H2: Service recovery strategy is positively associated with AI-enabled CRM technology.

H3: Relationship between service recovery strategy and customer citizenship behavior is significantly mediated by AI-enabled CRM technology.

H4: AI-enabled CRM technology is positively associated with customer citizenship behavior.

Methodology

Below is described the methodology of the current study. Details of instrument used, sample and analysis technique are discussed in the following sub-sections. Data was collected from healthcare sector customers. Customer were taken in confidence that their response will purely be for current study only.

Research Design

This research was a cross-sectional study and it was conducted through a questionnaire. A quantitative design contributes to the possibility that a researcher can generalize the findings from the results of the sample population since the selected variables are measured in a quantitative manner. This lent support to this purpose. The current research was designed to understand and explore customer behaviors in regard to service recovery strategy in higher switching cost industries. Researchers measured data at one point of time and through the use of self-administered questionnaires, thus cross-sectional in nature (Neiswiadomy, 2002).

Population

The population for the current study was the customers of healthcare industry. This included customers of all customers of public and private health care sector using AI technology in their service recovery process and strategy.

Sampling

The research adopted a convenience sampling technique as this sampling technique is less time consuming and does not require obtaining a sampling frame. The sample size is indeed a critical question but McQuitty and Wiley (2000) recommended that the minimum sample size should be larger than 100 for considerable advantages for evaluation so the current study sample size was of 320 respondents for the generalizability of results. Out of 320 respondents 226 were male and 124 were females. The data was collected from the major cities i.e. Islamabad, Rawalpindi, Lahore and Faisalabad. Due to limited resources and these big cities of Pakistan comprises of almost people from all over Pakistan being the business hubs and job positions.

Instrument and Data collection method

The questionnaires were used for the measurement of customer citizenship behavior, AI-CRM technology and service recovery strategy (healthcare sector, including hospitals of top ranking in Pakistan's major cities i.e. Shifa International in Islamabad, Quaid-e-Azam International in Rawalpindi, Indus Hospital Lahore etc.) . To access service recovery strategy component CURE scale introduced by Mostafa et.al (2014) was adapted keeping in view the AI technology which comprises of all the 9 components, viz.: apology, facilitation, speed of response, courtesy, effort, problem solving, explanation, compensation and follow up having alpha reliabilities 0.97, 0.89, 0.94, 0.95, 0.95, 0.93, 0.95, 0.98 and 0.96, respectively, for service recovery strategy. Customer citizenship behavior comprising of three dimensions, i.e. recommendation, helping customers and feedback providers was measured by the Groth (2005) 12-items on five point Likert scale having alpha (α) reliability of 0.93, 0.92 and 0.83 customer citizenship behavior: recommendation, helping customers and providing feedback, respectively.

Data Analysis

IBM SPSS Statistics, version 24.0 (IBM, Chicago, IL, USA) was used to find descriptive values. Moreover, for path analysis Smart PLS 4 software version 4 (SmartPLS GmbH, Germany) was used to explore the relationships amongst the variables. Smart PLS uses partial least squares (PLS) method by Hair, Ringle and Sarstedt, (2011). Smart PLS confirms the inner and outer model. By inner model we mean the investigation of latent construct, whereas outer mode refers to indicators and construct. The total of 320 questionnaires were distributed out of which 282 were useable – thus, the response rate was 88%. **Table 1** shows the descriptive statistics.

Table 1. Descriptive statistics

Variable	Mean	SD	Cronbach-Alpha	CR	AVE
SRS	3.7498	0.46890	0.782	0.816	0.564
AI-CRM	3.6617	0.59916	0.92	0.871	0.694
CCB	4.3788	0.71280	0.868	0.924	0.514

Note: SRS = Service Recovery Strategy, AI-CRM = Artificial Intelligence CRM technology, CCB = customer citizenship behavior, SD = Standard deviation, CR = Composite reliability.

All the values of mean and SD (Standard Deviation) Cronbach-alpha, composite reliability and average variance extracted (AVE) lies between the acceptable range. Average Variance Extracted shows the acceptable values of convergent reliability. All the values of AVE are above the recommended value, i.e. $AVE > 0.50$ for sufficient convergent validity of the scale (Fornell and Larcker, 1981), whereas composite reliability (CR) is greater than 0.60 and acceptable range is above 0.70 (Fornell & Larcker, 1981). Reliability values above 0.7 are also acceptable (Sekaran, 2000 and Cohen et.al. 2013). **Table 2** shows the path coefficients depicting the hypothesis testing by structural model evaluation. Testing the measurement model was undertaken with the PLS (partial least square) method.

Table 2. Total indirect effects

	Beta (β)	T-Value	P-Value	Results
SRS \rightarrow CCB	0.056	13.55	0.000	Supported
SRS \rightarrow AI-CRM	0.044	10.15	0.001	Supported
SRS \rightarrow AI-CRM \rightarrow CCB	0.028	10.07	0.003	Supported
AI-CRM \rightarrow CCB	0.037	10.01	0.000	Supported

Note: SRS = Service Recovery Strategy, AI-CRM = Artificial Intelligence CRM technology, CCB = Customer Citizenship Behavior.

The values of indirect effects show that all the hypotheses are supported. H1 (**Table 2**) SRS → CCB is accepted as significant T-value and p-values are in acceptable range ($\beta = 0.056$, $t = 13.55$, $p = 0.000$). The H2 shows SRS → AI-CRM technology is also accepted ($\beta = 0.044$, $t = 10.15$, $p = 0.001$). H3 shows the mediation hypothesis ($\beta = 0.028$, $t = 10.07$, $p = 0.003$). H4 shows the relationship between AI-CRM and CCB such that hypothesis is supported ($\beta = 0.037$, $t = 10.01$, $p = 0.000$). This means that AI-CRM technology significantly mediates the relationship between SRS and CCB. More the organization integrating the AI-CRM technology stronger will be the relationship between SRS and CCB.

Discussion

Boustani, (2022) worked on the AI in healthcare sector's employees and customer behavior of Asian countries. The current research results are in accordance with the results of Boustani (2022), *i.e.* AI provides the support system to the healthcare operations as emotional intelligence for stronger relationship between banks, and customer AI cannot be replaced. According to Olan et al. (2021) the utilization of digital technologies has heavily reshaped marketing and consumer behavior. The advancements in cutting-edge technologies like artificial intelligence have disrupted and improved consumer attitudes towards certain products and services. Mostafa and Rifi, (2021) have associated perceived justice with service recovery and have shown that the role of the perception of justice may actually improve not only brand credibility for Lebanese banks but also customer-based brand equity.

Charles and Agu (2022) found that service recovery drives different positive customer behaviors, *i.e.* customer loyalty and satisfaction. Qui and Dooley (2022) studied the impact of customer procedural justice on customer oriented citizenship behavior. The major of past studies were conducted in different context, *i.e.* hospitality industry, online shopping, education sector, *etc.*, but the current study provides the novelty by studying current model in new setting of healthcare customers where AI supported service recovery policies and strategies are enabled.

Sui Zhang and Yau (2013) proposed that service recovery is not only crucial for satisfaction of existing customers but also for long term relationship, enabling moment of truth for the service provider. Thus, it is obvious to say that the main function of service recovery is to satisfy dissatisfied customers and compensate them by appropriate service recovery strategies (Ha & Jang 2009).

Implications

The current study was focused on the Pakistan's healthcare customers which is under the developing country title. Here the technology acceptance is at certain level but still results shows the positive impacts. Such a current study can benefit both the strategy makers and customer of the healthcare sector of Pakistan. The service recovery is very crucial for any organization. When customer encounter any service failure and intend to complaint the service recovery strategy can save the face. By the integration of technology advancement and its implementation can lead positive results in service recovery and customer citizenship behavior. The service recovery plays a key-role in customer long-term relationship. So, the organizations should focus on the service recovery strategies. Educators and businesses in cooperation are a model to follow. Majority of organizations shared the knowledge to implement AI in future sales and purchase processes.

Limitations and Future Study

The current research effort has few of limitations along with novelty of work. Firstly, the current study was conducted in the country Pakistan where the literacy rate is low, so people are mostly unaware of AI enabled CRM technology, especially the features and use of AI. Therefore, the current study recommends future study to be conducted in any developed country, from the research point of view. It is very important to study AI along with marketing intelligence (MI), so the current study provides a future domain to link both while studying customer responses in different organizations.

Now a day, AI-powered customer relationship management (AI-Enabled CRM) is one of the emerging technological integration in different service industries. Therefore, AI gives to the studies two functions: first, it can replace the previous methods and, second, it can supplement the studies by adding more learning aspect to the educational platforms (Li & Xu, 2022) already appeared to be transitioning into a different phase, and was projected to undergo a major shift very soon. Sadly, lots of the business can simply survive due to the influx of the AI's system, as well as those who are starting up their own businesses. In other studies, the technologies of the AI could be reviewed and their performance could be compared them to one other. Quite opposite, the utility of the Internet of Things can research effective CX (Customer Experience) strategies. The significance of the fact that it is possible to investigate the demographic effect and connection are huge in the future.

Further enabling the development of AI in the CRM domain (Donthu et al., 2021) pave the way for some promising future research. This study also provides practitioner contributions. Future research could examine the role played by AI in influencing customer citizenship behavior to better comprehend how that condition impacts consumer practices. Researchers might explore how AI impacts CCB under various settings, such as e-commerce, social media and customer service interactions. A research question to delve into how AI can

support or hinder the increase of positively shared CCBs. Additionally, studies could examine the ethical implications of AI in shaping consumer behavior, particularly in terms of transparency and privacy concerns. Overall, future research on AI and CCB can provide valuable insights for businesses and policymakers in creating ethical and responsible practices in the use of technology for marketing and consumer engagement.

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