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Management of Service Gaps by Infusion of Technology

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Abstract

The purpose of this research paper is to study infusion of technology in services marketing; and to investigate role of technology as an enabler to manage service gaps. Service gaps are theorized to be arising from internal organizational inconsistencies; and affect service quality perceptions of the customers.

The research design comprised of bibliometric analysis, citation count, and review of literature in services marketing in relation to its engagements with technology aspect. The major findings point to, extensive use of technology by service firms to minimize internal and external service gaps. Various technologies are contributing towards interlinking stakeholders by creating seamless service processes.

Newer technologies has potential of efficiently interlinking stakeholders, thus improving service quality by minimizing external (customer) and internal service gaps.

Technology though being adopted by service industry extensively, its implication in relation to service gaps model has not been discussed by researchers.

Keywords: Service Quality, Service Gaps Model, Technology, Service Triangle, Service Encounter, Services Marketing

Introduction

In recent past, the services concept has received increased attention from academic scholars, and practitioners. However infusion of technology in services marketing has been discussed to a limited extent by research scholars, even though being used extensively by practitioners.

While quality of tangible goods can be measured and maintained; the service quality is a challenge to measure and maintain. Parasuraman et al. conceptualized service quality as a five dimension structure of; tangibles, reliability, responsiveness, assurance, and empathy (Parasuraman, Zeithaml, & Berry, 1988). Parasuraman et al. initially proposed a service quality gaps model comprising of an external customer gap; as a cause of internal service gaps in knowledge, specifications, performance, and communication (Parasuraman, Zelthami, & Berry, 1985). While service gaps are hypothesized to be caused by internal inconsistencies; technology offers away to improve operational performance of organizational functions.

The paper is structured as follows; firstly, it reviews service quality literature related to service gaps model; secondly it identifies conceptual foundation of technology in services marketing; and finally, it identifies and proposes technology infusion as an enabler to reduce service gaps

Objectives

The objective of the paper is; first, to identify service gaps literature in view of service quality measurement; second, to identify literature related to conceptual foundation of technology in services marketing; and third, to identify technologies in services marketing and propose a service gaps model with technology infusion.

Table 1: Top 10, Most Cited Articles in 'Services Marketing & Technology'

No	*Document*	*Authors*	*Year*	*Document source*	*Citations*
1	Marketing models of service and relationships	Rust, R.T., Chung, T.S.	2006	Marketing Science	136
2	Self-service technology adoption: Comparing three technologies	Curran, J.M., Meuter, M.L.	2005	Journal of Services Marketing	128
3	Electronic tickets, smart cards, and online prepayments: When and how to advance sell	Xie, J., Shugan, S.M.	2001	Marketing Science	118
4	The effects of customer participation in co-created service recovery	Dong, B., Evans, K.R., Zou, S.	2008	Journal of the Academy of Marketing Science	91
5	The coming battle for customer information.	Hagel 3rd., J., Rayport, J.F.	1997	Harvard business review	84
6	Addressing the what and how of online services: Positioning supporting-services functionality and service quality for business-to-consumer success	Cenfetelli, R.T., Benbasat, I., Al-Natour, S.	2008	Information Systems Research	82
7	Extending the supply chain: Integrating operations and marketing in the online grocery industry	Boyer, K.K., Hult, G.T.M.	2005	Journal of Operations Management	74
8	Developing reputation to overcome the imperfections in the markets for knowledge	Lichtenthaler, U., Ernst, H.	2007	Research Policy	58
9	IT and the mass customization of services: The challenge of implementation	Peters, L., Saidin, H.	2000	International Journal of Information Management	53
10	The effect of service experiences over time on a supplier's retention of business customers	Bolton, R.N., Lemon, K.N., Bramlett, M.D.	2006	Management Science	42

Methodology

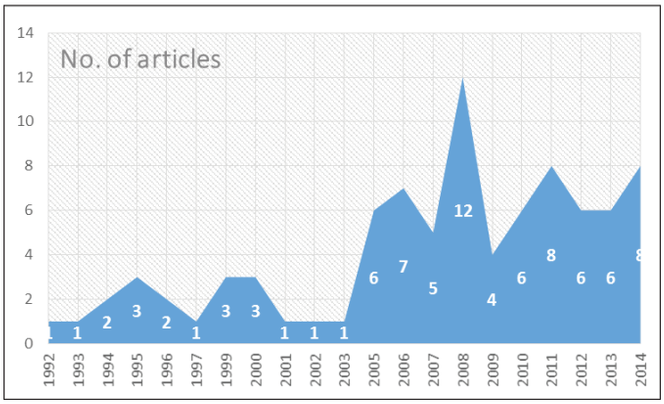
The paper uses bibliometric analysis and citation counts to identify significant literature related to service gaps model. SCOPUS bibliographic database ("Scopus," 2015) is used to identify significant research in the area. Then the research contributing to conceptual importance of technology in services was studied. Later important research related to services marketing & technology was identified suggesting technological applications in service process improvement. Based on the above inputs, an improved service quality model infused with technology is proposed.

Findings and Discussion

Initial search criterion related to 'services management and technology', listed 87 relevant articles, but just 3 articles related to 'service gaps & technology'. Top 10 of 87 most cited articles, are listed in table 1. 'Marketing models of service relationship' by Rust & Chung, 2006, cited 136 times is the most cited article, discusses advancements in information technology facilitating services and relationship management. Second most cited article is 'Self-service technology adoption: Comparing three technologies' by Curran & Meuter, 2005, cited 128 times discusses customer reactions to different technologies serving similar purpose.

Distribution of research articles over the period of time is shown in Figure.1, the topic has been receiving increased attention only since 2003 (12 articles), with continued interest up to 2014 (8 articles).

Figure 1: Distribution of Articles, Search Criteria 'Services Marketing & Technology'



'Journal of Services marketing' carried 5 articles, and Marketing Science has carried4 articles on the topic. Top 10 journals on the topic area are listed in table 2.

Table 2: Top 10 Journals in 'Services Marketing & Technology'

No	*Source*	Count
1	Journal of Services Marketing	5
2	Marketing Science	4
3	Health Marketing Quarterly	3
4	International Journal of Bank Marketing	3
5	Service Industries Journal	3
6	Journal of Business and Industrial Marketing	2
7	International Journal of Services Technology and Management	2
8	International Journal of Research in Marketing	2
9	Journal of Retailing and Consumer Services	2
10	Research Policy	2

Of total 87 articles in; Rust, R.T. of University of Maryland; and Smith, A.D. of Robert Morris University, have contributed maximum number of articles (5 each). Majorly the articles belonged to subject area of 'Business, management, and accounting' (68 articles), and 'Social sciences' (25 articles). Majority of the articles are from US (38) and UK (8)("Scopus," 2015).

Service gaps model

Unlike goods quality management, the service quality management was found to be a challenge for researchers. Parasuraman et al proposed a service gaps model indicating external-customer service gap; a difference between customer expectation and customer perception- is an effect of internal service gaps made of knowledge gap (*customer expectation - management perceptions of customer expectations*), specifications gap (*service specifications - management perceptions of customer expectations*), delivery gap (*service delivery - service specifications*), and communication gap (*service delivery - external communication*) (Parasuraman et al., 1985).

Over the period of time various changes has been suggested by researchers in terms of improvements in the instrument like using SERVPERF scale instead of SERVQUAL scale (Cronin & Taylor, 1992), changes in wording for improving reliability of the instrument (Parasuraman, Berry, & Zeithaml, 1991) etc. Even though the model received criticism on various ground like service gaps construct (Cronin & Taylor, 1992), perception minus expectation framework (Teas, 1993), SERVQUAL score measurement (Brown, Churchill, & Peter, 1993); the model remains the best suitable over three decades.

In service process, customer tends to develop service perception, conflicting with service expectations-the difference in this expectations and perceptions of customer is called customer (external) service quality gap. The differential concept is based on disconfirmation theory proposed by Christian Grönroos in 1982. The concept was furthered by Parasuraman for developing service gaps model, by proposing that, the internal gaps pertaining to the organization are the cause of the disconfirmation. The internal gaps are; knowledge gap (1), specifications gap (2), delivery gap (3), and communication gap (4).

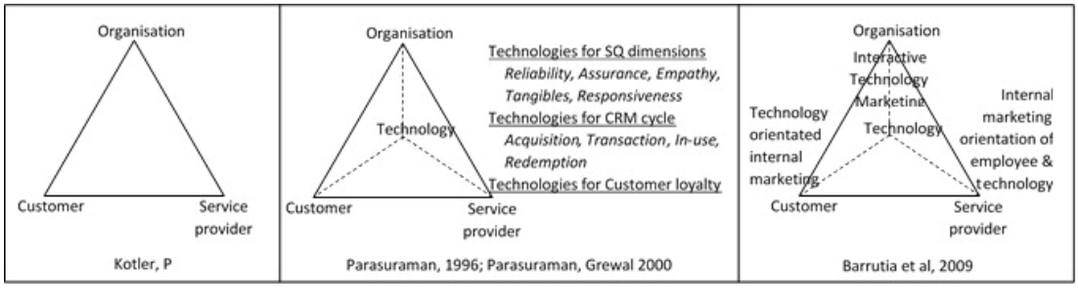
Knowledge gap is accounted for because of reasons like; inadequacy in marketing research (insufficient, unfocused, and inadequate marketing research activities), absence of upward communication (insufficient interactions or layers between employee, customers, and managers), inadequate relationship emphasis (improper market segmentation, excess transaction orientation, neglect of customer relationships), improper service recovery mechanism (neglect of customer complaints, faulty service recovery).

Specification gaps are developed because of reasons like; deficient service design (unscientific, vague, undefined service design & development process, failure in positioning focused service design), absence of customer-driven standards (absence of correct service standards, process management view, and service quality objectives), insufficient physical evidence and services cape (absence of tangibles, faulty services cape design for customer & employee, absence of services cape maintenance).

Service delivery gaps are created because of; inadequacy in human resource policies like recruitment related issues, role ambiguity & conflict, improper employee-technology job fit, employee evaluation & compensation issues, absence of empowerment, perceived control, and teamwork. The gap could be because of customers related issues like; customers lack of knowledge about their roles and responsibilities, customers who affect each other. Problems with service intermediaries because of channel conflict over objectives and performance measures, challenges in controlling quality and consistency, conflicts in intermediary empowerment and control. The issue of demand-supply match like; failure to smoothen fluctuations in demand, complex customer mix, over use of price to control demand.

Communication gaps arise out of; problems in communications like; lack of communication integration, and interaction, lack of internal marketing. Communication gap may arise out of lack of understanding of customer expectations, inadequate customer education,

Figure 2: Versions of Service Triangle



overpromising in advertising, personal sales, and physical evidence. Inadequate horizontal communications in interdepartmental and inter-branch inadequate communication (Zeithaml, Gremler, Bitner, & Pandit, 2011).

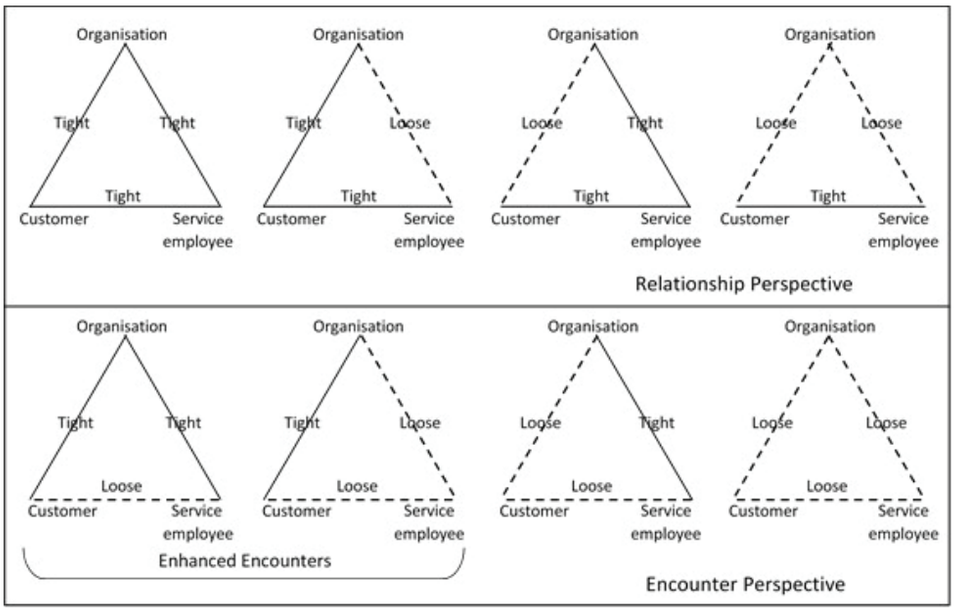
Conceptual Role of Technology in Services Management

Relationship between the customer, employee, and the company is modeled as service triangle (Figure 2). Three stakeholders are interconnected through interactive marketing, internal marketing, and external marketing. Though earlier proposed by Kotler, P. this concept was further improved by Parasuraman, by adding the fourth component of technology at the center of the triangle holding up the links with three stakeholders (Parasuraman & Grewal, 2000).

The model is further refined by Barrutia et al, by defining three links;-customer-technology link as interactive technology marketing,-employees-technology link as internal marketing oriented towards technology, and-technology-company link as technology oriented internal marketing(Barrutia, Charterina, & Gilsanz, 2009). The model identifies importance of technology in linking customer, service employee and the firm.

Figure 3, shows, interlinking of stakeholders in a service triangle with loose or strong links. The strength of the link can strategically be designed for expected outcome. Depending upon the interlinking of stakeholders, relationship management and encounter management can take different approaches to customer handling. Relationship management is when service employee knows the customer personally, establishing tight link between customer and the service employee. The relationship management is a difficult challenge, as it needs the same employee to interact repeated with the

Figure 3: Relationship & Encounter Perspective, Gutek, 2002 et al.



same customer. On the contrary, service encounter is when the employee and the customer are interacting, and may not be seeing each other again. Enhanced encounters using technologies can be created by developing tight link between the organization and the customer, while loosening links between service employee and the customer. Most services today are encounter managed using technologies rather than relationship oriented (Gutek, Gioth, & Cherry, 2002).

Technologies for Managing Service Gaps

Introduction of technological solutions to service gaps may need reworking of service development as Multi-actor New Service Development (NSD) process, to integrate into customer activities, by involving all stakeholders involved in service delivery (Makkonen & Komulainen, 2014).

Services are different from goods for its characteristics of intangibility, heterogeneity, inseparability, and perishability (Zeithaml, Parasuraman, & Berry, 1985). Various technologies can be effectively used to handle challenges of these service characteristics. Technologies like automated services, internet or mobile interface are empowering customers to transact online, thus positively affecting intangibility characteristic of services. Technologies can consistently perform repetitive tasks, standardizing the output and reducing heterogeneity in service delivery. Technological interface is able to separate many of the back-office services from customers, thus effectively controlling inseparability characteristics. Technology can memories customer preferences, requirements, and likes-dislikes and recreate the experiences; thus handling perishability characteristic of services as well.

Exploratory Factor analysis (EFA) research in service quality suggests five service dimensions as; reliability, assurance, tangibles, empathy, and responsiveness (Zeithaml et al., 1985). Every dimension is a challenge to services management, and technology can be effectively used to handle these challenges. Technologies are used effectively over the CRM cycle of; acquisition, transaction, in-use, and redemption. Technologies are also be used for running customer loyalty programmes (Parasuraman & Grewal, 2000). Effective use of technology can be applied at service encounters for; customization & flexibility, service recovery process, and crafting delights (Bitner, Brown, & Meuter, 2000). While CRM architecture can consist of operational, collaborative, and analytical CRM; it can integrate perspectives of business, technology, and customer (Teo, Devadoss, & Pan, 2006).

Depending on the objectives, organizations use technologies differently; while few work on automation with aim of reliability, competence, credibility, and communication; other may use technologies to understand customers and improve profitability (Smith, 2006). Information technology is being effectively used in-managing services by; demand management, pricing, guarantees & complaint management, and employee management or-customizing services by;-service design, satisfaction-productivity trade-off, e-services; thus improving customer satisfaction, relationship, and impacting financials (Rust & Chung, 2006).

Research indicate technology can create opportunity of advance selling by electronic ticketing, smart card, online prepayments; thus lowering the cost of transactions, improving operations, and capacity utilization by effective price control. Service organizations like airlines, railroad, and sports & entertainment industry like multiplexes are effectively using advance selling technologies (Xie & Shugan, 2001).

Self-service technologies (SST) are customer interface technologies developed by organizations so that the customer can produce their own service using the technology interface with company systems. Usually, customer are receptive to SST for its; ease of use, reduced personal interactions, time saving, availability as required-where required, cost saving, and better outcome (Meuter, Ostrom, Roundtree Robert I., & Bitner, 2000). Successful SST's can effectively reduce costs, add to customer satisfaction, & loyalty, and bring new customer segments. SST's improve customer service, through transactions, and education (Bitner, Ostrom, & Meuter, 2002). SST's increase customer participation in service co-creation during service recovery process as well (Dong, Evans, & Zou, 2008). Customer is induced to SST trial over,-antecedents to innovative characteristics of compatibility, comparison of advantages, complexity, observability, trialability, and risk perceived;-individualistic differences in inertia, technology anxiety, interaction need, earlier experience, and demographic factors,-and mediator of consumer readiness like role clarity, motivation, and ability (Meuter, Bitner, Ostrom, & Brown, 2005). Deployment of self-service technologies (SST) using mobile technologies mediated services (MTMS) could seamlessly connect customer to the organizations creating service value for the customers through continued use (Dai, Hu, & Zhang, 2014). Such technologies may involve monetary or non-monetary cost to the customer,

it may create hedonic as well as utilitarian benefit to the customer (Dai et al., 2014). Wireless technologies of mobile phones are able to add quality to internal system, speed up the processes, improve internal planning, and enhance customer experience (Aungst & Wilson, 2005).

Relationships in services are developed around technologies of computing, database management, and communication by analytical and empirical modeling (Rust & Chung, 2006). Market oriented organizations are effectively using CRM technologies for customer management (Richard, Thirkell, & Huff, 2002). New improvements in technologies will connect customer, employees, and the organization tighter, technologies like cloud computing are decentralizing business models and taking CRM and communication to a higher-desired level (Hmoof & Al-Madi, 2013) reducing service quality gaps.

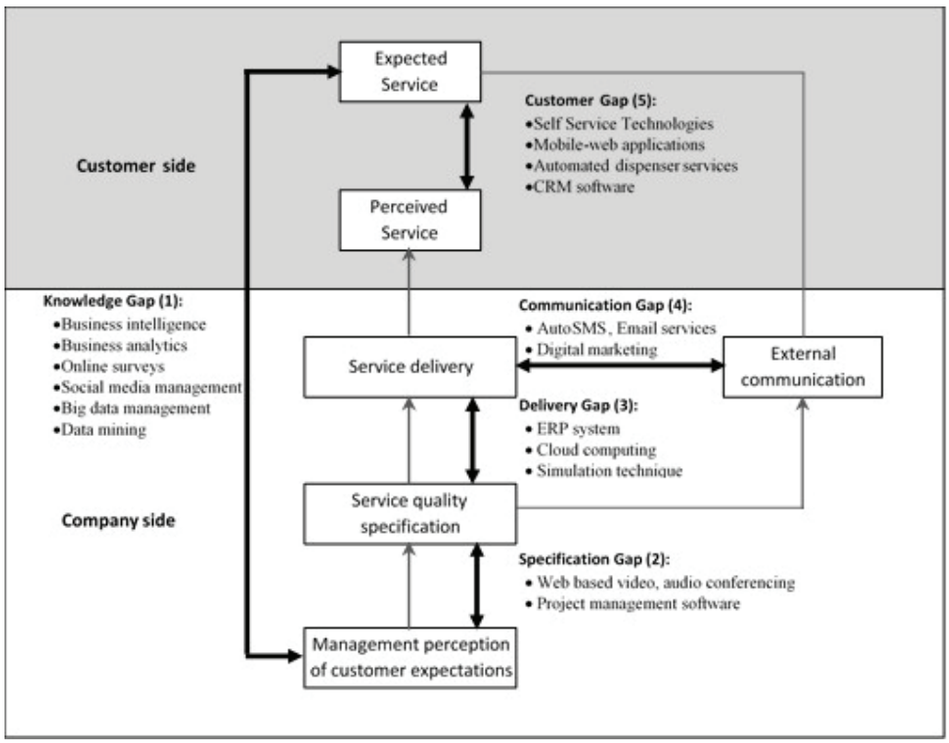
Beyond core services, service companies are using technologies in Supporting Service Functionality (SSF) as well to augment their services (Cenfetelli, Benbasat, & Al-Natour, 2008). Organizations are also using Automatic Identification, and Data Capture (AIDC) technologies like barcodes, RFID, Enterprise Resource Planning (ERP) System, fraud-detection technology using image files, magnetic ink character recognition, six-sigma methodology etc. (Smith, 2006).

TECHNOLOGY AS A DISSATISFIER

Technologies has its flip side as well; customers has differing level of acceptance to various technologies; ATM, mobile banking, and on-line banking has varying dynamics with customers based on factors like; ease-of-use, usefulness, need of interactions, and risk perception (Curran & Meuter, 2005). SST's like telephone banking, automated checkouts, online investment trading, also has varying degree of customer attitude (Meuter et al., 2005).

Dissatisfaction related to technology could be factors like, failure of technology to operate, failure of technical process, technology and service design related problems, or customer caused technology failures (Meuter et al., 2000). Customers has concerns related to; failure of technology, poordesign, and possibility of customer messing up the technology (Bitner et al., 2002). Wireless technologies still has issues related to coverage, technology platform, upgrades, applications, enterprise mobile integration, administration & maintenance, security, scalability, prototyping & development costs, cost of ownership, and interoperability & interconnections (Aungst & Wilson, 2005). Though technological tools effectively collect information about customers, increasing privacy backlash of customers could set a new trend in limiting technology use (Hagel & Rayport, 1997).

Figure 4: Service Gaps Model Enabled with Technologies



Based on the research in the field the researcher proposes various technologies to be used for managing service gaps. Knowledge gap could be managed using technologies in business intelligence, business analytics, online surveys, social media management, big data management, and data mining. Improving in specifications gap could be by better internal engagements using technologies like; web based video-audio conferencing, project management software etc. Delivery gaps in service process can be managed using technologies like ERP system, cloud computing, simulation technique. Communication gap could be improved by technologies of; auto SMS, email services, digital marketing etc. Finally for customer gap; self-service technologies, mobile-web applications, automated dispenser services, CRM software could be useful. The list may not be complete and limited to the said gaps but wide spread over the model.

Conclusion

Technologies are being infused around service gaps of; knowledge, specifications, performance, communication, and customer gap. Service triangle connecting stakeholders can be tightened using technology, to enhance service encounters. By replacing humans, self-service technologies (SST) are interacting with customers. Technologies of business intelligence & analytics, online surveys, social media engagement, big data management & data mining, web-based-video-audio conferencing, project management software, ERP system, cloud computing, simulation techniques, auto SMS-email, digital marketing, mobile-web applications, automated dispensers, CRM are being employed around service gaps. Even the service development is suggested to be multi actor process integrating into all stakeholders. Customer's may not be always accepting technologies and may resist use of technologies for various reasons. Technologies also have coverage, administration-maintenance, security, and costing related issues. Lately there has been a privacy backlash from customers too.

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