# AI ANALYSIS: SITUATIONAL FACTORS AND eServQual ON ONLINE GROCERY ADOPTION IN BANGALORE

**Dr. LAKSHMI. H**

Associate Professor, Department of Management Studies, NITTE Meenakshi Institute of Technology, Bangalore. Email: lakshmi.h@nmit.ac.in

**Abstract**

This paper aims to evaluate the effect AI driven adoption of online grocery buying, by examining the "electronic service quality" (eServQual) offered by Egrocers and situational factors that affects the customers to shop groceries online. Data collection was done by using structured questionnaire circulated to potential respondents who uses online platforms to shop grocery products in and around Bangalore City in Karnataka. Convenience sampling method is used and the data analysis and results of this study were based response from 280 respondents who does grocery shopping through online. The findings shows that consumers level of familiarity towards online grocery shopping has increased. Factors like AI based suggestions, privacy, responsiveness and contact play a vital role towards consumer's increased positive perceptions and favorable attitudes towards purchasing groceries through online medium.

**Keywords:** eServQual, Consumer Perceptions, Online Grocery Adoption, AI Driven Grocery Shopping, Bangalore City.

## 1. INTRODUCTION

With intervention of AI, market activities have undergone a tremendous shift on many levels. There is an upward trend among consumers using online services to meet their needs. Shopping online, convenience, digital payments, health recommendations, has shaped user behaviour to great extent. Thus, consumers are more focused towards their purchase behavior on staples like fresh groceries. The advent of internet and booming phase of e commerce, Indian consumers' shopping pattern has undergone a phenomenal change shifting from traditional shopping to online shopping. (Chu, Arce-Urriza, Cebollada-Calvo & Chintagunta, 2010). Online grocery shopping refers to placing orders for groceries through web based services followed by delivery of goods ordered at the doorstep (Burke, 1998). Web based shopping also provides number of experiences like browsing information, web navigation, search, ordering, payment, customer support, after sales service, customer reviews and satisfaction after every purchase (Sejin Ha, Leslie Stoel 2009). Online grocery shopping is a way of purchasing groceries from home through internet services and choosing them to directly deliver at home or at a pick up point (Anna, 2016).

Shopping on web based services has gained wide acceptance and adoption of shopping grocery products (Bourlakis et al., 2008). This mode of shopping provides consumer more informed choices about products, product comparison, product reviews, convenience and easy to locate anything online (Butler and Peppard, 1998).Young and tech savvy consumers adopt to online grocery retailing more factor due convenience of not having to spend time to shop groceries after their work schedule (Euromonitor International, 2014).

Out of all countries, India peaked e-commerce growth forecast in Business to Consumer (B2C) sector (Payments Trends – Global Insights Report series- J.P. Morgan 2019). Indian market has seen explosive adoption of digital money and smartphones over the last five years and the Covid-19 pandemic has further accelerated this trend. (IMF.com. "India's Strong Economy Continues to Lead Global Growth", August 2018),

Unified Payments Interface (UPI), transactions has increased due to the outbreak of COVID-19.". It has recorded "1.25 billion transactions in March 2020, valued at Rs 2.06 lakh crore (US$ 29.22 billion)". (India Payment Gateway Market 2020- 2025: "Growth, Trends, Forecasts" – Research and Markets.com- (Business Wire) July 31, 2020).

## 2. STATEMENT OF THE PROBLEM

In the past 5 years, online grocery retailing has witnessed an exponential growth, Food and Grocery retailing has become one of the most sought areas of research in India. On the other hand, online penetration still continues to be on the emerging phase. Ai has accelerated the pace of growth multiplefold (Statista 2022). Further, shopping for groceries online is considered as an alternate idea in growing nations like India when compared to other nations. A recent study was by "Mckinsey & Co" on "the impact of Covid-19 on consumer sentiment and behavior" (July 8, 2020) across 12 countries states that 91% of Indians has shown tremendous shift in their shopping behavior post pandemic. Most of the urban consumers opt for working from home and choose to avoid crowded places. They prefer adopting online mode for their shopping needs. (Indian Express, July19, 2020).

"Post the pandemic two major shifts are observed in customer behavior: the reluctance to shop in a crowded store and increased propensity towards digital," (The Indian Express, July19, 2020). Covid 19 has resulted in widespread adoption of online for shopping grocery and essentials. E grocers have increased their sales 1.7 times in gross products value (GMV) in June this year in comparison to January 2020. Zero contact and Door delivery are the major factors which resulted in increased use of online grocery shopping during COVID 19. (Absolute Markets Insights, 2020). Top players like Amazon and Reliance have ventured in food and grocery business, this sector is forecasted to have faster growth, going up to over $18 billion by 2024. (Economic times, RedSeer and Bigbasket (Brand Intelligence) September 26, 2020).

Before the pandemic, shopping groceries online was gathering traction in many countries, in addition travel restrictions and infection panic has driven customers to quickly adopt online for purchase of food and groceries (Singh 2019; Debter 2020). E grocers may provide convenience and has given rise to positive externalities that result in lower infection rate. Only limited empirical research has been conducted into the factors attributing to the adoption of AI driven online grocery buying behaviour in a fast growing ecommerce market and smartphones (m commerce) post pandemic.

So it would be interesting to examine the factors influencing the customers' adoption towards online grocery purchase and how AI influence their shopping choice and experience.

## 3. OBJECTIVES OF THE STUDY

The objectives of this study are: 1. to assess the level of AI integration in online grocery shopping adoption among Indian consumers. 2. to investigate the correlation between AI-driven online grocery shopping adoption and electronic service quality. 3. to analyze the impact of situational factors on the adoption of AI-driven online grocery shopping. 4. to find out the most significant factor of electronic service quality influencing the adoption of AI-driven online grocery shopping.

## 4. LITERATURE REVIEW

Parasuraman, Zeithaml and Berry (1985) proposed service quality model and pointed out ten key dimensions of perceived service quality as: access, communication, competence, courtesy, credibility, reliability, responsiveness, security, tangibility, understanding or knowing the customer. Eventually Parasuraman, Zeithaml and Berry (1985) postulated the ServQual scale by reducing ten dimensions to five dimensions of service quality. They were tangibles', 'reliability', 'responsiveness', 'assurance' and 'empathy'.

Parasuraman, Zeithaml and Malhotra (2000, 2002) evolved e-SERVQUAL to determine e-service quality which produced seven dimensions—efficiency, reliability, fulfillment, privacy, responsiveness, compensation, and contact—that forms core service scale and a recovery service scale. Core eServQual scale consist of 4 dimensions—efficiency, reliability, fulfillment, and privacy that is used to assess the customer perception about the quality of service delivered by online retailers.

1. Efficiency refers to the customers ability to access the website, locate the product they want and get the related information, and purchase within minimum effort. 2. Reliability refers to the technical aspects of the website, such as dependability and accuracy. Internet provides the biggest advantage of comparing various product / service offerings with a single click (Peterson, Balasubramaniam and Bronnenberg, 1997). The term fulfillment refers to the Company's promise which includes availability of products and on time delivery. System availability provides convenience and ease of usage for customers to shop online (Riseley and Schehr, 2000). Privacy refers to the level of safety the website offers on its platform for the customers to transact online. Websites must guarantee the protection for the customer information furnished on the website like personal information, credit/debit card number, CVV etc.

Recovery e-SERVQUAL scale consists of three dimensions that become significant only when the online customers have queries or faces problems. (Zeithaml et al. 2002). They are responsiveness, compensation, and contact. Responsiveness is the readiness of e-tailers to help the customers by providing correct information when a problem occurs, have a process to handle returns, and offer online guarantees. Compensation refers to

cash back and shipment returns and handling costs. Contact refers to the facility provided for customers to contact the customer support through mobile phone or website or mobile app.

Does ServQual actually draw customers to adopt for shopping groceries online? Or is it due to the situation of the customer that urged them to shop groceries online? Hence the in later part of the paper impact of situational factors on adoption of online grocery shopping is discussed. Assessing the impact of situational factors over the consumer's buying behavior has a wide scope for research. There are 5 situational variables that impacts the buying behavior that is "antecedent states", "physical surrounding", "social surroundings", "temporal perspective", and "task definition", Belk (1975). These factors have a huge impact on consumers when they shop in brick & mortar stores. Three factors "antecedent states", "temporal perspective" and "lifestyle changes" are selected which are more relevant to study the consumer buying behavior through web post pandemic. Antecedent states refer to consumers' state of mind which is momentary such as pleasantry mood, exhaustion and sickness that affects their shopping behavior (Solomon, 2009). Temporal aspects refer to the time availability. (Hand et. al., 2009) defined changes lifestyle of customers has made them to try or adopt online grocery shopping.
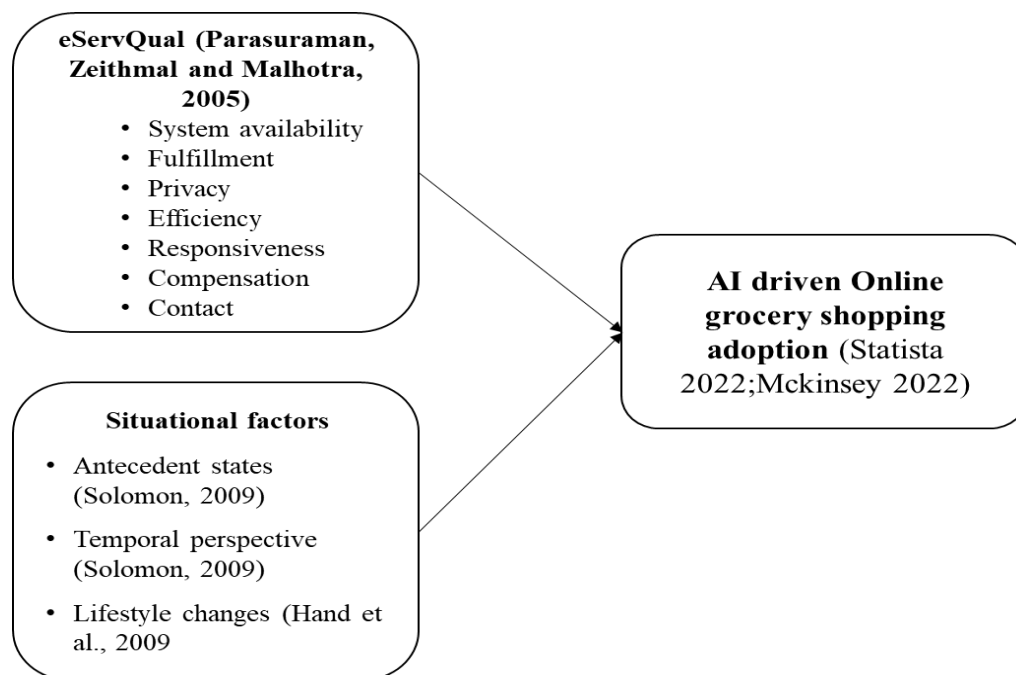


**Figure 1: Association of eServQual elements and situational factors with AI driven online grocery shopping adoption**

## 5. RESEARCHMETHODOLOGY

Data was collected from consumers who shops groceries online, who are aware about grocery products in online stores in and around Bangalore City in Karnataka.. Primary data was collected using convenience sampling technique. A structured non disguised

questionnaire was administered to online grocery consumers. 280 usable, duly filled questionnaire by the respondents were collected online. Correlation was used to inspect the association of eServQaul and situational factors with adoption of online shopping Questionnaire comprised of 4 sections. Section A comprises of 7 questions to assess the customer's awareness about AI driven online grocery adoption. Section B comprises of 20 questions mainly on eServqual attributes. Section C comprises of 15 questions on Situational factors. Section 5 had questions on demographic profile of the respondents. Likert's 5 point scale is used for the questions in the relevant sections

## 6. DATA ANALYSIS

| | | Adoption | System Availability | Fulfillment | Privacy | Efficiency | Responsiveness | Compensation | Contact |
|---|---|---|---|---|---|---|---|---|---|
| Overall | Pearson Correlation | 1 | 0.859 | 0.7 | 0.684 | 0.574 | 0.903 | 0.885 | 0.662 |
| | Sig. (2 tailed) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| IMG | N | 111 | 111 | 111 | 111 | 111 | 111 | 111 | 111 |

Table1: Relationship with eServQual and AI driven online grocery adoption

Table 1 shows strong positive association between eServqual variables system availability, fulfillment, privacy, efficiency, responsiveness, compensation, contact with AI driven online grocery adoption.

| | | Adoption | Antecedent states | Temporal perspectives | Lifestyle Changes |
|---|---|---|---|---|---|
| Overall | Pearson Correlation | 1 | 0.205 | 0.355 | 0.378 |
| IMG | Sig. (2 tailed) | | 0.000 | 0.125 | 0.247 |
| | N | 111 | 111 | 111 | 111 |

Table 2: Relationship with situational variables and AI driven online grocery adoption

Table 2 shows that antecedent states, temporal perspectives and lifestyle changes have positive association with adoption of online grocery shopping. Antecedent states is weakly associated to online grocery shopping adoption, while, temporal factors and lifestyle changes are strongly associated to online grocery shopping adoption. This analysis confirms that the temporal perspective and lifestyle changes have strong influence on the

respondents to adopt AI driven online grocery shopping post pandemic.

| Model | Standardized Coefficient | t | Sig. |
|---|---|---|---|
| **(Constant)** | | -2.753 | 0.004 |
| **System Availability** | 0.215 | 3.124 | 0.103 |
| **Fulfillment** | 0.184 | 2.419 | 0.334 |
| **Privacy** | 0.366 | 4.022 | 0.004 |
| **Efficiency** | 0.175 | 2.411 | 0.013 |
| **Responsiveness** | 0.366 | 4.127 | 0.004 |
| **Compensation** | 0.472 | 6.466 | 0 |
| **Contact** | 0.143 | 2.043 | 0.233 |

**Table 3. Coefficients of the regression of eServQual**
**with AI deiven online grocery shopping adoption**

From the above table 3, it is evident that Compensation has the highest beta value, which is significant at the .000 level, followed by Responsiveness with significance at the .004 level and Privacy which is significant at the .004 level. All these 3 factors are strongly associated with AI driven online grocery shopping adoption post pandemic. Out of 7 eServQual variables, Privacy has the strongest influence on adoption of online shopping.

## 7. CONCLUSION & RECOMMENDATION

AI has toppled May industries and has pushed various sectors of business to adopt to new business model. Due to the repetitive directions by the government, to stay at home and about social distancing, frequency of shopping has undergone a drastic change. Consumers started purchasing in bulk with less frequency has become the norm now for grocery shopping to avoid outside unnecessary visits According to Capgemini Research Institute (April,2020) 64% of Indians prefers online shopping for purchasing essentials. COVID 19 and post pandemic has opened up new avenues for various set of consumers to adopt online shopping

Among the eservqual variables considered like privacy, responsiveness and compensation, has the strong influence on with AI driven online grocery shopping adoption. Even though responsiveness, compensation are considered significant only when customers face problems online, these factors have a vital role for consumers to adopt online grocery shopping during the pandemic. Temporal factors and lifestyle changes are significant situational variables which made respondents to opt for to online grocery shopping. Extensive growth of smartphones has made internet access simpler. Easy returns at no cost, same day delivery, customer care support 24*7, mobile app, Trust worthy transactions, refund in case of out of stock or failed payment has played a vital role for the consumers to opt online for shopping food and groceries. In addition to that, factors like convenience, access to shop online 24*7 on all days, price promotions, offers and discounts, no waiting time and importantly stay at home concept has urged

consumers to try grocery shopping online during the pandemic.

Online grocers namely Big basket, Grofers, Amazon pantry offers more interactive methods to maintain customer relationship and customer loyalty. These strategies have widely increased the customer's convenience during online shopping and, therefore, there is a high possibility that they will return to the same site for the next purchase.

Results of this study substantiate that consumers have positive approach towards online grocery shopping, which shows that consumers have increased level of familiarity with the online grocery stores. Factors like home delivery, quality service support, low price, promotions, offers and discounts which have greatly impacted of consumers' online grocery buying behavior. Precautionary measures towards Covid 19, convenience, ease of use, user friendly suggestions have added further to the quick adoption of AI driben online grocery shopping in cities like Bangalore.

This study is primarily focused on online grocery adoption so longitudinal study can be incorporated to understand the actual driving factors for AI driven online grocery shopping. This study can also be generalized to other online adoption process like online food ordering, internet banking, online payment apps and use of mobile phones.

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