

# Consumer adoption of Online Grocery shopping in India during COVID 19

Dr.Lakshmi.H, Assistant Professor, Sir M Visvesvaraya Institute of Technology, Bangalore, India,  
lakshmih\_mba@sirmvit.edu

Dr. Harisha B S, Assistant Professor, NITTE Meenakshi Institute of Technology, Bangalore, India,  
harishgowda22@gmail.com

**Abstract:** This paper empirically examines the online grocery shopping adoption in India during pandemic COVID 19. Data were collected by using self-administered questionnaires from web survey in Bangalore city, 312 valid responses of Indian consumers were analyzed. Based on the survey, the result shows that customer's perception about relative advantage, compatibility of online grocery shopping and social norms has statistically significant positive effect on their online grocery shopping adoption. It was also found that customer's perception on complexity and internet risk negatively affects the adoption of online grocery shopping (OGS).

**Keywords—**consumer adoption, COVID 19, e-commerce, India, mobile phone, online grocery shopping (OGS)

## I. INTRODUCTION

The ongoing corona virus pandemic has impacted almost every sector of Indian economy and the most prominent being retail. The spread of the COVID19 pandemic has disrupted the way people buy products and use services and their perception of e-commerce. Consumers have moved on from supermarkets, stores and shopping malls to online portals to buy products, from branded products to basic products. Before Covid 19, office goers used to shop online after their routine, but grocery shopping was usually done at a nearby grocery store or a trusted vendor. However, since the pandemic, large numbers of people work remotely and their dependence on online shopping has increased to larger extent.

E-commerce industry in India is in the promising growth phase, and it is anticipated to exceed the United States, the 2<sup>nd</sup> largest e-commerce marketplace in the world by 2034. By 2024, India's e-commerce sector to expand from US \$ 30 billion in 2019 to US \$ 99 billion, with a growth rate of 27% CAGR, of groceries and fashion or clothing can become the main drivers of progressive growth. According to Forrester's research, sales of Indian electronic commerce increased from 78% by 2020. Indian Online grocery market is expected to grow from US\$1.9 billion in 2019 to US\$18.2 billion in 2024, with growth rate of 57% CAGR (IBEF 2020)

Companies such as BigBasket, Grofers, Amazon, Jiomart, and emerging retailers, nature basket, DMART, More, Easy day have capitalized on this rapidly changing behavior clocking 70,000 orders per day. The increase in the penetration of the Internet, the improvement of digital literacy and the promotional offers, discounts have wooed the customers. The online delivery service has begun to be considered as a normal new. Covid19 pandemic situation

has forced the customers to consider online platforms as an alternate to shop for food staples and groceries

Retail Giants and convenience stores have associated with food delivery apps to reach maximum customer base and provide mobile based services such as ITC partnered with Swiggy to deliver groceries. Organized retailer such as SPAR and MORE have associated with Amazon to deliver food and groceries. Door step, contactless delivery, near pick up have up surged gaining 70% higher volumes than before the pandemic situation.

Catering to the new needs of the customer, E grocers are offering new options for delivery such as Scheduled delivery, 90 minutes delivery, contactless delivery, in store pick up, 'buy now pay later' (Transfin,2020). Increased usage of Smartphone and internet have also attributed to growth of online grocery shopping. As of September 2020, the aggregate of Internet connections in India increased significantly at 776.45 million times. In addition, Indian online buyers are expected to reach 202 million in 2025. (IBEF, 2020)

### Online Grocery Shopping

Advancement of Internet technology has facilitated companies to easily target the customers despite located in different geographical locations. Online shopping on Internet medium has hugely benefitted the customers, especially with regard to saving time and convenience (Park et al., 1996). Electronic grocery shopping (EGS) or Online grocery shopping (OGS) facilitates buying of food and various household items, often including perishables for business and personal household (Alba et al., 1997). E-commerce is defined as "any exchange of information electronically between an organization and its stakeholders" Chaffey (2011). Placing of orders are usually led by an e-commerce website or mobile application.

The Indian market has the largest consumer group,. "By 2026, the retail industry will exceed the US\$1.75 trillion mark and will thrive at 30% compound annual growth rate. By 2026, the total value of goods will reach US\$200 billion (Invest India, 2020).

The online grocery industry has developing in faster pace, In 2019, startups in the online grocery industry raised \$665.7 million in funding. With the popularization of the Internet, the use of smartphones, disposable income, the adoption of 5G, and the improvement of technological literacy, online grocery industry is expected to \$1.5 billion by 2023 by including Tier II and Tier III cities (Indianretailer.com, February 9, 2021)

Extensive literature on situational factors of online grocery shopping (R .Osman & F. Hwang, 2016, Eriksson, A. Fagerstrom, N. and V. Siguresson, 2017, P. Bryła, 2018), demographic factors, satisfaction level, E service quality (N. S. Muhammad, H. Sujak, and S. A. Rahman 2016), Electronic word of mouth (W. Duan, H. Chen and W. Zhou 2017, Berg & M. Henriksson, 2020), web atmospherics, e-loyalty in grocery retailers (M. Faraoni, R.Rialti, L. Zollo, & A. C. Pellicelli, 2019), technology acceptance model (TAM) utilization of technology to purchase grocery (H S Mukerjee, Deshmukh, G. K.; & Prasad, U. Devi (2019), Shukla, Anuja & Sharma, Shiv Kumar 2018), expansion of the technology acceptance model (Driediger, Fabian & Bhatiasevi, Veera ,2019)

Numerous studies explain the adoption habit by analysing on the attributes of innovative consumers (Langeard and Green, 1975) and the communicative nature of opinion leaders (Mancuso, 1969). Still, only a few researchers have discussed the adoption decisions on innovative characteristics of technology (Kinnear and Labay, 1981;Hirschman, 1980).

However, few studies are available presently to discuss the decision to espouse online grocery shopping services, considering the innovative characteristics. In order to fill this research gap in current academic literature and to gain deep understanding about OGS adoption in India, this research addresses the following

**RQ: To what extent does perceived innovative characteristics affect the behavioral intentions of individuals to adopt online grocery shopping?**

Validation of these research question will help fill current gaps in the existing literature and help researchers determine the acceptance of online grocery shopping in the Indian context.

This paper discusses the customers' acceptance of innovative characteristics based on Rogers Theory of Innovation and rate of adoption, who buy groceries online. A conceptual framework was developed to explain the behavioral intentions of consumers who adopt online shopping. Further research methodology, data collection

and analysis is discussed followed by the, results, conclusion of the study and practical implication.

## II. RESEARCH MODEL & HYPOTHESES

Several factors affect the adoption of innovation, pertaining to innovation itself and the users. Rogers (1983, 1985) suggested five factors to increase the acceptance and diffusion rate of innovation.

Communicability is the extent to which an innovation can be observed or communicated among potential adopters with ease. Trialability or divisibility refers to the degree to which innovation can be tried without much effort and investment. Complexity refers to the perceived complexity of the innovation or innovative uses by potential adopters. Compatibility is the degree to which the innovation is compatible with existing values and past behavior. The relative advantage is the degree to which consumers perceive the innovation as superior to existing alternatives. Online shoppers often point out that compared to traditional retail formats, products sold online are cheaper and can save a lot of time and effort. (Odekerken-Schroder, G. and Wetzels, M. 2003)

### 1. Perceived social norms (Communicability)

Theory of adoption of innovation (Rogers, 1983) refers that innovation is more likely to spread when it is observed or communicated to other consumers. Online shopping has gained widespread attention across the globe and many people interested in digital technology. Post pandemic the rate of adoption of technology has increased manifold. Therefore, consumers can receive offline communications pertaining to online shopping. This kind of communication can also be carried out between consumers via the Internet (for example, in chat groups, social media, newsgroups). 35.

Giese, J.M. (1996), affirms that, "while it might have been overlooked early on, the internet cannot now be ignored as a cultural phenomenon". Communicability refers to the way how products are used and perceived and communicated through formal and informal networks (Weich and Walchli, 2002). Yet communicability can also be viewed as "social acceptance", which is passed on from other consumers to consumers (Blackwell et al., 2001).

Nationwide lockdowns, social distancing has forced urban consumers to look for an alternate to fulfill grocery needs (Transfin 2020), on this basis of such notions customers may seek guidance and opinion from their family members, peer group and colleagues about placing grocery orders online. In this case, we have found that it is more useful to investigate how much consumers value the perceptions of other consumers. Hence we postulate that

**H1: Perceived Social norm has positive influence on adoption of online grocery shopping**

## 2. Perceived Trialability

Perceived trialability refers to the degree to which online grocery shopping can be tested on a limited basis. Additionally, trialability is positively correlated with technology adoption rate. The rate of technology adoption is faster, when it is tried more Rogers (2003).

Before the pandemic customers opted online grocery shopping to purchase products which they might not get what they need at stores. Visiting retail stores both organized and unorganized formats, used to be a ritual to buy all they need, where products can be touch and felt for its freshness, but now they prefer ordering groceries online to avoid going out. COVID restrictions has forced the users to look for an alternate to shop for their basic needs

Convenience to place order through apps, promotions, offers for first time users, discounts, ease of use of mobile phones and familiarity are the factors that has surged online grocery shopping. Multiple orders are placed in a week through mobile phones in grocery apps and websites. (Economic times, 2021)

Research has shown that customers' online shopping habits can continue even after the pandemic due to a number of reasons, such as promotion offers and discounts, contactless express delivery, and integrated digital payments. All of these are designed to ensure that customers feel safe and confident when shopping online. Therefore we posit

**H2: Perceived trialability has positive influence on adoption of online grocery shopping**

## 3. Perceived Complexity

Perceived complexity (PC) is the extent to which innovation and technology is difficult to understand and use (Rogers, 2003, p.16). A study by Raijas (2002) discovers that the "convenience for placing food orders" can certainly influence the intention of the consumer to opt for online grocery store. Even if the consumer finds his wants, but if he can not complete the transaction process, they will cancel their purchase (Odekerken-Schroder, G. and Wetzels, M. 2003), Similarly, Elliot and Fowell (2000) affirms that customers will be dissatisfied with online grocery shopping if they find difficulties in site navigation and complex procedures while adding address, entering card details. As a result, customers may hesitate to do online grocery shopping Lu, H (2005) studied the impact of perceived complexity on adoption found that perceived Complexity (PC) negatively affects the intention to shop online. Another study by Huang and Li, (2009) supports the negative correlation between online purchase acceptance and PC. Crespo Bosque et al. (2009) affirmed the negative impact of PC affects the

experience of shopping online, although it was pointed out that this effect was not significant among non-buyers. A study by Rose and Fogarty (2006) on advanced consumer self-service banking technology also reported this negative correlation. Although there are some conflicting results, most studies support a negative correlation between PC and online grocery shopping adoption. Therefore the subsequent hypothesis is formed:

**H3: Perceived Complexity has negative influence on adoption of online grocery shopping**

## 4. Perceived Compatibility

Perceived compatibility is the degree to which a new technology is convergent to the habits, values, and needs of potential adopters (Rogers, 1983). Online shopping is very different from physical store shopping in many ways. Online shopping provides less sensory stimulation (through smell, touch, music, in-store décor etc.) when compared with shopping in brick and mortar stores. In addition, there is little or at least reduced consumer interpersonal interaction. To close this gap, e-commerce companies have adopted artificial intelligence to understand customer data and behavior patterns. This helps them save time, money and improve their user experience

Artificial intelligence technology is used by e-commerce companies to provide instant recommendations, product reviews by verified users, photo video reviews about product and packaging are proven to be more useful for the prospective users. It assist in providing customized recommendations based on the users browsing history and previous purchases made. AI algorithms makes search more responsive to products that the users search for, therefore making customer to feel sense of personal touch while shopping online. Multilingual search, image search, voice based search options plays a pivotal role in personalization for customers which can result in more customer retention in India. Search based on location, local shop search in an area or neighborhood provides more convenience and trust to the customers. (Financial express.com, (Sep 2017), Yourstory.com ,April 30, 2021).

When choosing shopping websites it can be assumed that consumers expect value addition in exchange of the purchase made, and consumers choose for E grocers who are more congenial with existing needs and wants Wetzels, M. and Odekerken-Schroder, G. (2003). Therefore, we expect perceived compatibility to affect consumers' online grocery shopping behavior:

**H4: Perceived Compatibility has positive influence on adoption of online grocery shopping**

## 5. Perceived Relative Advantage

The perceived relative advantage extent to which potential adopters believe that innovation is superior to the idea, product or service it takes place of (Black et al., 2001).

Factual data shows that customers' perceptions of relative advantage influence their willingness to adopt e-grocery shopping (Langerak and Verhoe, 2001). Previous studies have shown that the major advantages of online shopping include the time advantage and lower prices due to lower operating costs. Manufacturers internalize the commercial activities carried out by retailers. (Economic Times) (Keh and Shieh, 2001, Lindquist and Kaufman Scarborough 2002, Anckar et al., 2002, Raijas 2002).

Based on a extensive wide range research tracking on the organized retail formats like supermarket and hypermarket Tigert and Ring (2001) confirms that prices, discounts and promotional offers are important determinants grocery store choice. Taking into account the restrictions of Covid 19, the safety and the social distance of in public places (including grocery stores), the needs of daily purchases become more tedious and time consuming. Instead, consumers find that online shopping as a best alternate as it is time saving and contactless delivery to be more safer option. Additionally, work from home individuals find online grocery shopping to be more convenient with just a few clicks on their handheld device and safe option. Pandemic has also promoted the adoption of digital payments in India and consumers are increasingly embracing digital transactions through mobile devices. Digital payments like mobile wallets, rewards, digital gift cards credit cards, debit cards and loyalty points have brought a transformation at all levels, and during the pandemic, orders are received through messaging apps such as WhatsApp (Indiaretailing Bureau, July 8, 2021). It is therefore vital to understand the perceived relative advantages of the consumers using online grocery shopping. Hence we posit that

**H5: Perceived Relative Advantage has positive influence on adoption of online grocery shopping**

**6. Perceived Internet Risk**

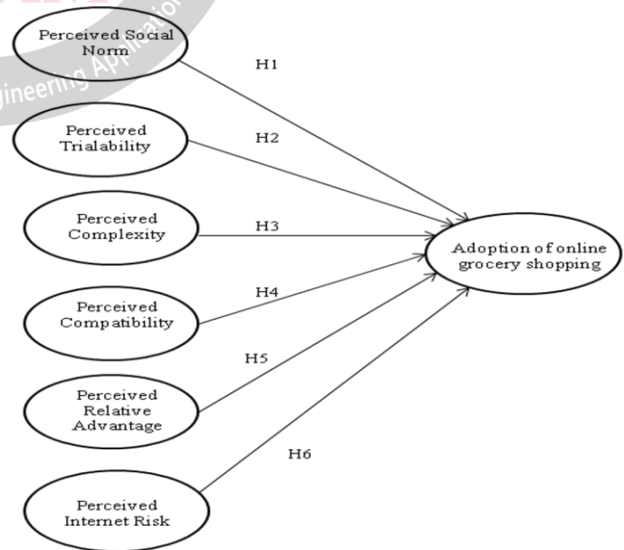
Perceived Internet risk is a multifaceted structure because it involves, say, perceived risk for product (Lim, 2003; Geuens et al.,2003), perceived risk for vendor/retailer (Lee and Cheung, 2000; Lim 2003), perceived risk associated with technology (Lim, 2003) and perceived social risk (Venkatesh and Davis, 2000).

From the customers' perspective, preferring to shop online depicts acceptance of new and unknown technology and it is required to overcome functional and psychological barriers (Kraeuter Grabner, 2002). Although dysfunction (i.e. trialability and complexity) is associated to the changes of perception on adoption of innovation, psychological barrier (i.e., norms and risks) refer to buyers' internal discord in belief about innovation (Grabner et.al 2003). The online shopping innovation brings unpredictability to previously known routinized behaviors (Grabner Kraeuter, 2002) and leads to higher

levels of perceived risk (Miyazaki and Fernandez, 2001), suspicion and distrust (Grabner Kräuter et.al 2003). Consumer trust can minimises the complexity of human behavior situations where they face ambiguity (Luhmann, 2000), and thus promote technological innovation adoption (Gefen, 2000; Gefen, Karahanna and Straub, 2004). Trust and perceived risk of the innovation characteristics are closely related (Kim, Ferrin & Rao, 2007). However, the problem of adopting online shopping is not static, because consumer awareness and familiarity with innovation tend to increase, and the factors influencing innovative adoption also changes accordingly (Van Everdingen, Waarts, and van Hillegersberg, 2002). Therefore, with more usage of online platform to shop, the problem encountered by consumers adopting online shopping is expected to decrease. Hansen (2005) considered risk as a secondary identification factor, but considered complexity as one of the main factors in the adoption of online shopping. However growth of online grocery industry is promising in India so it can be considered that perceived risk is not a barrier for early adopters. The effect of existing literature on perceived risk is still inconclusive. Study by Kurnia and Chien (2003) shows an insignificant negative correlation, while other studies, in the broader e-commerce context, support a negative correlation (Tan and Teo, 2000). Although there are some conflicting studies, most studies confirms the negative correlation between Perceived Risk and adoption from online grocery stores, thus we hypothesize as:

**H6: Perceived risk negatively influence the adoption of online grocery shopping**

**Fig 1: Proposed Research Model & Hypotheses**



### III. HYPOTHESES TESTING

#### A. Validity and Reliability

Cronbach's alpha is used to measure the reliability of each construct. If the alpha value of a structure is greater than 0.7, the structure is considered reliable (Pallant, 2001). The Cronbach's  $\alpha$  coefficient ( $\alpha$ ) of each construct is greater than 0.7, as shown in Table 2. Therefore, all the constructs of the research model are considered reliable.

**Table1: Reliability and Validity Test Measures**

Construct	Cronbach's Alpha ( $\alpha$ )
Perceived Social Norm	0.8732
Perceived Trialability	0.8423
Perceived Complexity	0.8488
Perceived Compatibility	0.8742
Perceived Relative Advantage	0.8921
Perceived Internet Risk	0.7937

Table 1 demonstrates the Cronbach's alpha value for each of the variables in this study. From the above table, Perceived relative advantage has highest Cronbach's alpha value of 0.8921, and perceived risk has the minimal Cronbach's alpha value 0.7937. Hair et al. (2006) confirms that variables are reliable and stable if the cronbach's alpha value is at least 0.7. Table 1 shows that all listed variables have values greater than 0.7.

#### B. Hypotheses Testing:

Hypotheses were analyzed using multiple regression. Perceived Social norm, Perceived Trialability, Perceived Complexity, Perceived Compatibility, Perceived Relative Advantage and Perceived Risk were the independent variables and Online Grocery Shopping (OGS) adoption the was dependent variable. The result of multiple regression analysis is summarized in the below Table 2

**Table 2: Multiple Regression Analysis Online Grocery Shopping adoption**

Variables	B	Std Error	Beta	t	P-value
Perceived Social Norm	0.604	0.052	0.572	11.774	0.000
Perceived Trialability	0.357	0.051	0.363	4.772	0.000
Perceived Complexity	0.021	0.037	0.227	0.231	0.077
Perceived Compatibility	0.612	0.051	0.563	2.056	0.000
Perceived Relative Advantage	0.726	0.057	0.541	5.862	0.000
Perceived Internet Risk	0.035	0.043	0.312	0.578	0.092

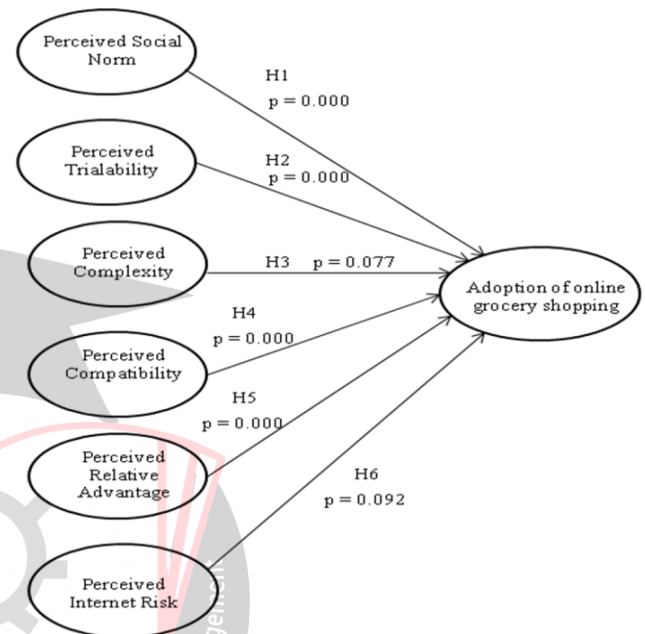
R2(adj)= 0.559 Std. Error= 0.98 F=57.87 p=0.000

Perceived Social norm, Perceived Trialability, Perceived Compatibility, Perceived Relative Advantage were found to be statistically significant with standardized regression

coefficients (p-value= 0.000), whereas Perceived Complexity and Perceived Internet Risk, are not significantly related to the adoption of online grocery shopping.

Therefore, people who believe that online grocery shopping is useful convenient, easy to use and less complex will be more favorable in adopting online for shopping groceries. On the contrary, people who consider Online Grocery Shopping to be risky, need not necessarily be critical about buying grocery online. So to conclude, hypotheses H1, H2, H4, H5 are accepted, while H3, H6 are rejected.

**Fig 2: Revised model and Hypotheses testing results**



### IV. DISCUSSION AND CONCLUSION

This study mainly focused on examining consumer adoption of online grocery shopping. Although many studies have considered customers future online grocery shopping intentions, this study explored whether online grocery shoppers viewpoint of this innovation from other consumers. Constructs are developed using multiple item scales, mainly based on the Rogers, (1983), theory of attributes of innovation and rate of adoption. Constructs considered may affect consumers' adoption of the online grocery shopping The empirical data is collected by using self administered questionnaires through web survey of Indian customers.

All of the attributes proposed by Rogers (1983,1995) and their relationships on online grocery shopping adoption are relevant to this research. The Perceived Social norm, Perceived Trialability, Perceived compatibility, Perceived relative advantage have found have positive influence towards adoption of Online Grocery Shopping OGS. This study has showed that perceived social norm communicability of OGS positively affect its adoption. It shows that the more potential adopters observe online

grocery purchases used by others, the more likely they are to develop a positive attitude towards their use.

Online Grocery Shopping is still at a nascent stage in India and shopping food and grocery online is relatively new for the customers. Driven by growing digital adoption the number of first time online users shopping across various categories has increased manifold in tier 2 and tier 3 cities in India (E-commerce and consumer internet sector India Trendbook 2021), In this study, perceived trialability supports the adoption of online grocery shopping.

Presently, consumers are now becoming more acquainted with shopping via internet medium and also they do not perceive online platform to have higher risk to shop grocery and essentials compared to other kinds of online purchases (Statista ,2021). Interestingly, this study also shows that perceived risk which was considered to be one of the main obstacles to the adoption of e-commerce technology (Ostlund, 1974; Johnston and Kurnia, 1999), did not affect the adoption of customers online grocery shopping. This result shows that, in general, consumers are now familiar with e commerce, considers it as next best substitute for shopping essentials.

Voice and image search facilities, support people who are not fluent in English, to find products on e commerce platforms. E-commerce giant Amazon India has added four new local languages Tamil, Telugu Kannada and Malayalam to its platform. This measure will help the ecommerce companies to expand upto 200-300 million customers. Previously, Indian shoppers could search and buy products in Hindi and English on Amazon (Business Standard September 22, 2020). Our study also shows that perceived complexity which was considered as blockage for adopting technology Odekerken-Schroder, G. and Wetzels, M. (2003), Elliot and Fowell (2000) were found to have no influence on the adoption of OGS.

Safe and competitive prices, easy returns, product selection, faster delivery, product information and reviews are the main reasons for customers to trust e-commerce services more than before (Economic times, Mar 15, 2021). This study shows that perceived compatibility and relative advantage are well supported and has positive influence on OGS adoption.

This study, thus, will augment the literature on the innovation characteristics and adoption of technology proposed by Rogers (1983,1995) which is presently still limited (Gefen and Straub, 2000).

## V. LIMITATION & FUTURE RESEARCH:

This research is limited by several factors that should be addressed in future studies. First, the sample population of the study is Bangalore which is a metropolitan city. Since India is a country of diverse culture and people from

different states migrate due to various reasons like job, education etc, and this study cannot be generalized to customers from non metro cities. Second Diffusion of innovation and rate of adoption study can be carried out further research to explore differences in consumers with respect to gender, age group, income, occupation and education, type of gadgets used, internet usage purpose to better understand the rate of adoption. Third, this study was conducted during this ongoing pandemic situation. Longitudinal study can be conducted on the same to know whether customers adopt online grocery shopping because of situational factors like lockdown, social distancing or they actually find online shopping to be more convenient and profitable than shopping in physical stores. Fourth, food and grocery was mainly focused in this study, further it would be very interesting to test this model for more utilitarian categories like clothing and medicines also.

## REFERENCES

- [1] Alba, J., Lynch J., Weitz, B., Janiszewski, C., Lutz, R., Sawyer, A., & Wood, S. (1997). Interactive home shopping: consumer, retailer, and manufacturer incentives to participate in electronic marketplaces. *Journal of Marketing*, 61 (3), 38–53.
- [2] Anckar, B., Walden, P. and Jelassi, T. (2002), "Creating customer value in online grocery shopping", *International Journal of Retail & Distribution Management*, Vol. 30 No. 1, pp. 211-20.
- [3] Belanger, F., Hiller, J.S. and Smith, W.J. (2002), "Trustworthiness in electronic commerce: the role of privacy, security, and site attributes", *Strategic Information Systems*, Vol. 11, pp. 245-70.
- [4] Bhatiasevi, V., Naglis, M., 2015. Investigating the structural relationship for the determinants of cloud computing adoption in education. *Educ. Inf. Technol.* 1–27.
- [5] Bhatti, T., 2015. Exploring factors influencing the adoption of Mobile commerce. *J. Internet Bank. Commer.* 2007 (Retrieved from). [http://www.icommercecentral.com/abstract.php?abstract\\_id=38513](http://www.icommercecentral.com/abstract.php?abstract_id=38513).
- [6] Black, N.J., Lockett, A., Winklhofer, H. and Ennew, C. (2001), "The adoption of internet financial services: a qualitative study", *International Journal of Retail & Distribution Management*, Vol. 29 No. 8/9, pp. 390-8.
- [7] Blackwell, R.D., Miniard, P.W. and Engel, J.F. (2001), *Consumer Behavior*, 9th ed., Harcourt, San Diego, CA. Bollen, K.A. and Long, J.S. (1993), *Testing Structural Equation Models*, Sage Publications, London.
- [8] Business Standard [https://www.business-standard.com/article/companies/amazon-india-adds-4-languages-to-woo-shoppers-ahead-of-festive-season-120092201145\\_1.html](https://www.business-standard.com/article/companies/amazon-india-adds-4-languages-to-woo-shoppers-ahead-of-festive-season-120092201145_1.html)
- [9] Business Standard, 2020 [https://www.business-standard.com/article/companies/amazon-india-to-integrate-pantry-fresh-services-to-simplify-grocery-121021201672\\_1.html](https://www.business-standard.com/article/companies/amazon-india-to-integrate-pantry-fresh-services-to-simplify-grocery-121021201672_1.html)
- [10] C. Kang, J. Moon, T. Kim, and Y. Choe, "Why consumers go to online grocery: Comparing vegetables with grains," in *Proceedings of the Annual Hawaii International Conference on System Sciences*, 2016, vol. 2016-March, pp. 3604–3613.
- [11] Chaffey, D., 2011. *E-Business and E-Commerce Management: Strategy, Implementation and Practice*, 4 ed. Prentice Hall.
- [12] Cheung, C. and Lee, M.K.O. (2000), "Trust in internet shopping: a proposed model and measurement instrument", *Proceedings of the 6th Americas Conference on Information Systems*, pp. 681-9.

- [13] Childers, T.L., Carr, C.L., Peck, J., Carson, S., 2001. Hedonic and utilitarian motivations for online retail shopping behavior. *J. Retail.* 77 (4), 511–535. [https://doi.org/10.1016/S0022-4359\(01\)00056-2](https://doi.org/10.1016/S0022-4359(01)00056-2).
- [14] Cho, J. (2004), “Likelihood to abort an online transaction: influences from cognitive evaluations, attitudes, and behavioral variables”, *Information and Management*, Vol. 41 No. 7, pp. 827-38.
- [15] Crespo, A.H., Bosque, I.R. del, Sanchez, M.M.G. de los S., 2009. The influence of perceived risk on Internet shopping behavior: a multidimensional perspective. *J. Risk Res.* 12 (2), 259–277. <https://doi.org/10.1080/13669870802497744>.
- [16] Dan J.Kim, Donald L.Ferrin, H. Raghav Rao (2007) “A trust-based consumer decision-making model in electronic commerce: The role of trust, perceived risk, and their antecedents”, <https://doi.org/10.1016/j.dss.2007.07.001>
- [17] Donthu, N. and Garcia, A. (1999), “The internet shopper”, *Journal of Advertising Research*, Vol. 39 No. 3, pp. 52-8.
- [18] E. Kim, M.-C. Park, and J. Lee, “Determinants of the intention to use Buy-Online, Pickup In-Store (BOPS): The moderating effects of situational factors and product type,” *Telemat. Informatics*, vol. 34, no. 8, pp. 1721–1735, Dec. 2017.
- [19] E-commerce and consumer internet sector India Trendbook 2021, March 2021
- [20] <https://economictimes.indiatimes.com/news/economy/policy/government-notifies-new-rules-for-e-commerce-entities-heres-what-changed/articleshow/77153077.cms?from=mdr> Economic Times, 2021
- [21] “E-commerce is fast becoming the default option for shopping in India”, *Economic Times*, Mar 15, 2021
- [22] Elliot, S. and Fowell, S. (2000), “Expectations versus reality: a snapshot of consumer experiences with internet retailing”, *International Journal of Information Management*, Vol. 20, pp. 323-36.
- [23] F. Driediger and V. Bhatiasevi, “Online grocery shopping in Thailand: Consumer acceptance and usage behavior,” *J. Retail. Consum. Serv.*, vol. 48, no. December 2018, pp. 224–237, 2019.
- [24] Eriksson, Fagerstrom, N. and V. Sigursson, “What’s the ‘thing’ in Internet of Things in Grocery Shopping? A Customer Approach,” *Procedia Comput. Sci.*, vol. 121, pp. 384–388, 2017.
- [25] Financial express (2017), <https://www.financialexpress.com/industry/ai-trends-that-will-reshape-indian-e-commerce/841231/>
- [26] Financial Express, <https://www.financialexpress.com/industry/sme/amazon-integrates-pantry-within-fresh-to-create-a-single-online-grocery-store/2193703/>
- [27] Fishbein, M. and Ajzen, I. (1975), *Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research*, Addison-Wesley, Reading, MA.
- [28] Forsythe, S.M. and Shi, B. (2003), “Consumer patronage and risk perceptions in internet shopping”, *Journal of Business Research*, Vol. 56, pp. 867-75.
- [29] Gefen, D. (2000), “E-commerce: the role of familiarity and trust”, *Omega – The International Journal of Management Science*, Vol. 28, pp. 725-37.
- [30] Gefen, D. and Straub, D.W. (2004), “Consumer trust in B2C e-commerce and the importance of social presence: experiments in e-products and e-services”, *Omega – The International Journal of Management Science*, Vol. 32, pp. 407-24.
- [31] Gefen, D., & Straub, D. W. (2003). Managing user trust in B2C e-services. *E-Service Journal*, 2(2), 7–24. Retrieved from [https://muse.jhu.edu/journals/eservice\\_journal/v002/2.2gefen.html](https://muse.jhu.edu/journals/eservice_journal/v002/2.2gefen.html)
- [32] Gefen, D., Karahanna, E. and Straub, D.W. (2003), “Trust and TAM in online shopping: an integrated model”, *MIS Quarterly*, Vol. 27 No. 1, pp. 51-90
- [33] Gefen, D., Straub, D.W., 2000. The relative importance of perceived ease of use in IS adoption: a study of e-commerce adoption. *J. Assoc. Inf. Syst.* 1 (1), 8.
- [34] Geuens, M., Brengman, M. and S’Jegers, R. (2003), “Food retailing, now and in the future: a consumer perspective”, *Journal of Retailing and Consumer Services*, Vol. 10 No. 4, pp. 241-51.
- [35] Giese, J.M. (1996), “Place without space, identity without body: the role of cooperative narrative in community and identity formation in a text-based electronic community”, dissertation, State College, Pennsylvania State University, PA.
- [36] Kräuter S Grabner,., & Kaluscha, E. A. (2003). Empirical research in on-line trust: A review and critical assessment. *International Journal of Human-Computer Studies*, 58(6), 783–812. doi:10.1016/S1071-5819(03)00043-0
- [37] Langeard, E, Green, R.T, 1975. A cross-national comparison of consumer habits and innovator characteristics. *Journal of Marketing* 39, 34- 41.
- [38] W. Duan, H. Chen, and W. Zhou, “The interplay between free sampling and word of mouth in the online software market,” *Decis. Support Syst.*, vol. 95, pp. 82–90, Mar. 2017.
- [39] H. S. Mukerjee, G. K. Deshmukh, and U. D. Prasad, “Technology Readiness and Likelihood to Use Self-Checkout Services Using Smartphone in Retail Grocery Stores: Empirical Evidences from Hyderabad, India,” *Bus. Perspect. Res.*, vol. 7, no. 1, pp. 1–15, 2019.
- [40] Hair, J., Anderson, R.E., Tatham, R.L. and Black, W.C. (1998), *Multivariate Data Analysis*, 5th ed, Prentice-Hall, Englewood Cliffs, NJ.
- [41] Hansen, T. (2003), “The online grocery consumer”, Working Paper No. 1, March, Department of Marketing, Copenhagen Business School, Frederiksberg.
- [42] Hirschman, E.C., 1980. Innovativeness, novelty seeking, and consumer creativity. *Journal of Consumer Research* 40, 283- 292. <http://dx.doi.org/10.1108/09590550510581449>
- [43] <https://thebrandhopper.com/2021/01/02/featured-startup-big-basket/>
- [44] <https://towardsdatascience.com/top-12-ways-ai-is-revolutionizing-the-online-shopping-e-commerce-trends-9c3e98ef519c>
- [45] <https://www.grandviewresearch.com/industry-analysis/india-online-grocery-market> India Online Grocery Market Size, Share & Trends Analysis Report By Product Type (Staples & Cooking Essentials, Breakfast & Dairy), By Payment Method, By Region, And Segment Forecasts, 2021 – 2028, Published Date: Dec, 2020 , Report ID: GVR-4-68039-316-6 Number of Pages: 110
- [46] <https://www.themarcomavenue.com/blog/how-big-basket-became-peoples-favourite-online-grocery-marketplace/>
- [47] Indian Brand Equity foundation (IBEF) 2020 <https://www.ibef.org/>
- [48] Indianretailer February 9, 2021 <https://www.indianretailer.com/article/sector-watch/food-and-grocery/how-pandemic-has-changed-grocery-retailing-in-india.a6834/>
- [49] Indiaretailing Bureau, July 8, 2021, <https://www.indiaretailing.com/2021/07/08/latest-news/indian-shoppers-overwhelmingly-vote-for-convenience-of-digital-wallets-report/>
- [50] Invest India, 2020 <https://www.investindia.gov.in/policies-research-reports>
- [51] J. Berg and M. Henriksson, “In search of the ‘good life’: Understanding online grocery shopping and everyday mobility as social practices,” *J. Transp. Geogr.*, vol. 83, no. December 2017, p. 102633, 2020.
- [52] Kaufman-Scarborough, C.K. and Lindquist, J.D. (2002), “E-shopping in a multiple channel environment”, *The Journal of Consumer Marketing*, Vol. 19 No. 4/5, pp. 333-50.

- [53] Keh, H.T. and Shieh, E. (2001), "Online grocery retailing: success factors and potential pitfalls", *Business Horizons*, Vol. 44 No. 4, pp. 73-83.
- [54] Johnston, R.B. and Kurnia, S (1999) *The Mutuality of ECR Benefits, Costs and Risks in Supply Chain Reform*, The third Collaborative Electronic Commerce Technology and Research, Wellington, New Zealand, CD ROM.
- [55] Johnston, R.B and Kurnia, S (2000) *The Need for a Processual View of Inter- Organizational Systems Adoption*, *Journal of Strategic Information Systems*, 9, 295-319.
- [56] Kurnia, S., Chien, J.A.W., 2003. The acceptance of the online grocery shopping. In: *Proceedings of the 16th Bled Electronic Commerce Conference*, Bled, Slovenia. Citeseer. Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?Doi=10.1.1.529.7050&rep=rep1&type=pdf> .
- [57] D.G. Kinnear T.C. and LaBay (1981), "Exploring the consumer decision process in the adoption of solar energy systems", *Journal of Consumer Research*, Vol. 8, pp. 271-8.
- [58] Li, Y.-H., Huang, J.-W., 2009. Applying theory of perceived risk and technology acceptance model in the online shopping channel. *World Acad. Sci., Eng. Technol.* 53 (1), 919-925.
- [59] Lim, N. (2003), "Consumers' perceived risk: sources versus consequences", *Electronic Commerce Research and Applications*, Vol. 2 No. 3, pp. 216-28.
- [60] Lu, H.-P., Hsu, C.-L., Hsu, H.-Y., 2005. An empirical study of the effect of perceived risk upon intention to use online applications. *Inf. Manag. Comput. Secur.* 13 (2), 106-120
- [61] Luhmann, N., "Familiarity, Confidence, Trust: Problems and Alternatives" (2000), in Gambetta, D. (Ed.), *Trust: making and breaking cooperative relations*, Blackwell, New York,
- [62] M. Faraoni, R. Rialti, L. Zollo, and A. C. Pellicelli, "Exploring e-Loyalty Antecedents in B2C e-Commerce: Empirical results from Italian grocery retailers," *Br. Food J.*, vol. 121, no. 2, pp. 574-589, 2019.
- [63] Mancuso, J.R., 1969. Why not create opinion leaders for new product introductions? *Journal of Marketing* 33, 2025.
- [64] Martinez, E., Polo, Y. and Flavia'n, C. (1998), "The acceptance and diffusion of new consumer durables: differences between first and last adopters", *Journal of Consumer Marketing*, Vol. 15 No. 4, pp. 323-42.
- [65] McKnight, D.H., Choudhury, V. and Kacmar, C. (2002), "The impact of initial consumer trust on intentions to transact with a web site: a trust building model", *Strategic Information Systems*, Vol. 11, pp. 297-323.
- [66] Morganosky, M.A. and Cude, B.J. (2000), "Consumer response to online grocery shopping", *International Journal of Retail & Distribution Management*, Vol. 28 No. 1, pp. 17-26.
- [67] N. S. Muhammad, H. Sujak, and S. A. Rahman, "Buying Groceries Online: The Influences of Electronic Service Quality (eServQual) and Situational Factors," *Procedia Econ. Financ.*, vol. 37, no. 16, pp. 379-385, 2016.
- [68] Wetzels, M and Odekerken-Schroder, G. (2003), "Trade-offs in online purchase decisions: two
- [69] Ostlund, L.E. (1974) *Perceived Innovation Attributes as Predictors of Innovativeness*, *Journal of Consumer Research*, 1, 23-29.
- [70] P. Bryła, "Organic food online shopping in Poland," *Br. Food J.*, vol. 120, no. 5, pp. 1015-1027, May 2018.
- [71] Pallant, J. (2001) *SPSS Survival Manual: A Step by Step Guide to Data Analysis Using SPSS*, Crows Nest, Allen and Unwin.
- [72] Park, C., Jun, J.-K., 2003. A cross-cultural comparison of Internet buying behavior: effects of Internet usage, perceived risks, and innovativeness. *Int. Mark. Rev.* 20 (5), 534-553.
- [73] Park, K., Perosio, D., German, G.A., McLaughlin, E.W., 1996. What's in store for home shopping? Retrieved from <http://ageconsearch.umn.edu/handle/186335>.
- [74] R. Osman and F. Hwang, "A method to study how older adults navigate in an online grocery shopping site," in 2016 4th International Conference on User Science and Engineering (i-USEr), 2016, pp. 247-252.
- [75] Rajias, A. (2002), "The consumer benefits and problems in the electronic grocery store", *Journal of Retailing and Consumer Services*, Vol. 9, pp. 107-13.
- [76] Ranganathan, C. and Ganapathy, S. (2002), "Key dimensions of business-to-consumer web sites", *Information and Management*, Vol. 39, pp. 457-65.
- [77] Ring, L.J. and Tigert, D.J. (2001), "Viewpoint: the decline and fall of internet grocery retailers", *International Journal of Retail & Distribution Management*, Vol. 29 No. 6, pp. 266-73.
- [78] Robertson, T.S. (1967), "The process of innovation and the diffusion of innovation", *Journal of Marketing*, Vol. 31, pp. 14-19.
- [79] Rogers, E.M. (1983), *Diffusion of Innovations*, 3rd ed., The Free Press, New York, NY.
- [80] Rogers, E.M. (1995), *Diffusion of Innovations*, 4th ed., The Free Press, New York, NY.
- [81] Rogers, E.M. (2003). *Diffusion of innovations* (5th ed.). New York: Free Press
- [82] Rose, J., Fogarty, G.J., 2006. Determinants of perceived usefulness and perceived ease of use in the technology acceptance model: senior consumers' adoption of self-service banking technologies. In: *Proceedings of the 2nd Biennial Conference of the Academy of World Business, Marketing and Management Development: Business Across Borders in the 21st Century* (Vol. 2), pp. 122-129. Academy of World Business, Marketing and Management Development. Retrieved from ( <http://eprints.usq.edu.au/1649> ) .
- [83] Shih, H.P. (2004), "An empirical study on predicting user acceptance of e-shopping on the Web", *Information and Management*, Vol. 41, pp. 351-68.
- [84] Shukla and S. K. Sharma, "Evaluating Consumers' Adoption of Mobile Technology for Grocery Shopping: An Application of Technology Acceptance Model," *J. Bus. Perspect.*, vol. 22, no. 2, pp. 185-198, Jun. 2018.
- [85] Statista Research Department, Mar 24, 2021, <https://www.statista.com/statistics/905167/india-factors-influencing-online-grocery-shopping-by-food-group/>
- [86] Tan, M., Teo, T.S., 2000. Factors influencing the adoption of Internet banking. *J. AIS* 1 (1es), 5.
- [87] Torben Hansen, (2005), "Consumer adoption of online grocery buying: a discriminant analysis", *International Journal of Retail & Distribution Management*, Vol. 33 Iss 2 pp. 101 - 121
- [88] Van den Poel, D. and Leunis, J. (1999), "Consumer acceptance of the internet as a channel of distribution", *Journal of Business Research*, Vol. 45 No. 3, pp. 249-56.
- [89] Venkatesh, V. and Davis, F.D. (2000), "A theoretical extension of the technology acceptance model: four longitudinal studies", *Management Science*, Vol. 46 No. 2, pp. 186-204.
- [90] Langerak, F. and Verhoef, P.C. (2001), "Possible determinants of consumers' adoption of electronic grocery shopping in the Netherlands", *Journal of Retailing and Consumer Services*, Vol. 8, pp. 275-85.
- [91] Eric & Everdingen, Waarts, Yvonne & Hillegersberg, Jos. (2002). *The Dynamics of Factors Affecting the Adoption of Innovation*. *Journal of Product Innovation Management - J PROD INNOVAT MANAGE.* 19. 412-423. 10.1016/S0737-6782(02)00175-3
- [92] Weich, C.W. and Walchli, S.B. (2002), "Genetically engineered crops and foods: back to the basis of technology diffusion", *Technology in Society*, Vol. 24 No. 3, pp. 265-83.
- [93] Yourstory.com (2021) <https://yourstory.com/2021/04/ai-trends-revolutionise-online-aggregation-india/amp>