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# Exploring digital transformation and technological innovation in emerging markets



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## Abstract

**Purpose** – This research aims to fill the research gaps regarding customer preferences for digitalisation to create value for retailers and customers, as well as focus on retail change and shopping behaviour in grocery retail stores in the emerging market.

**Design/methodology/approach** – This paper contributes to the research in this area by evaluating customers' and retailers' attitudes towards digital transformation in retailing through interviews. Methodologically, 200 questionnaires were gathered, and data were analysed with the partial least squared structural equation modelling method.

**Findings** – The findings of this study reveal that the effect of digital transformation in the retail industry will be more apparent in an emerging market.

**Originality/value** – The paper's originality consists in understanding the future retail structure in an emerging market. Notably, focussing on business-to-consumer businesses appears helpful in distinguishing between behavioural (buying) intention and online buying behaviour (actual usage) in an emerging market.

**Keywords** Digital transformation, Grocery retailing, Customer engagement, Emerging markets

**Paper type** Research paper

## 1. Introduction

Retailing is one of the largest industries affected by digital technologies, as it allows consumers to engage in new forms of behaviour, interactions, or experiences (Lamberton and

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Stephen, 2016; Basile, 2019). In emerging markets like Iran, this change is also evident. Iranian consumers rely more on online shopping due to the country's Internet usage dramatically expanding (Etminani-Ghasrodashti and Hamidi, 2020). Therefore, the prevalence of online purchasing is rising quickly (Shaparak, 2017).

Many literature studies (Shankar *et al.*, 2011; Ström *et al.*, 2014; Hagberg *et al.*, 2016) have focused on narrow aspects of digitalisation, like using smartphones for marketing and implementing digital technologies in stores. However, exciting and valuable considerations could be developed by considering concepts like digital transformation and technological innovation applied to emerging markets. This paper mainly focusses on filling the research gaps regarding customer preferences for digitalisation to create value for retailers and customers. Also, it considers changes in the retail sector and shopping behaviour in retail grocery stores in the emerging market. Hence, this paper used UTAUT2 first to investigate influential factors in using e-grocery shopping (Van Droogenbroeck and Van Hove, 2021). Referring to a specific emerging market such as Iran, with a large economy and population of more than 80 million, 63% of them are below 34 years old and also has the highest retail sales for packaged food in the Middle East (Euromonitor International, 2016), is possible to gather valuable data for scholar and practitioners interested in the development of emerging markets. For example, Al Nawayseh and Balachandran (2012) analyse online grocery shopping in a developing country like Jordan.

Iran is the second-biggest country in the Middle East and the world's 18th-largest, with the second-largest economy in the Middle East (Rezaei *et al.*, 2017).

Then, this research, by focussing on business-to-consumer (B2C) businesses, develops an understanding of the future retail structure in emerging markets based on Iran's experience. Current research uses UTAUT2, and the primary research objective of it is to investigate influential factors in the usage of e-grocery shopping. Finally, this paper distinguishes between behavioural (buying) intention and online buying behaviour (actual usage). Finally, reviewing prior studies that used UTAUT shows that this theory is not tested in developing countries (Zhao *et al.*, 2012; Sharma *et al.*, 2021) like Iran.

Among other cases, we can cite the study by Malik (2020), that conducted empirical research on Internet and Mobile banking in emerging markets using the UTAUT Model and Abbad (2021), who studied students' usage of e-learning systems in developing countries.

Moreover, although this model is commonly considered one of the best models for predicting technology acceptance, it has been criticised because it shows some biases in different countries (Teo *et al.*, 2015). Thus, testing this model in Iran is crucial. Therefore, the main research question is: How grocery stores in Iran may be affected by digitalisation? This central question will be asked through two other sub-research questions: (1) What is the customer's attitude towards digitalisation in Iran? (2) What is Iranian retailers' attitude towards digitalisation, and what strategies do retailers need to formulate for survival and success?

The paper is structured as follows. The following section explains theoretical foundations with several sub-points with the hypothesis's development. Then a methodology section will be developed with a specific reference at the beginning to the context of where the research was developed. Then, result sections and hypothesis testing will be developed. Finally, the last sections will be devoted to the discussion, implications and conclusions.

## 2. Theoretical foundations

Thanks to digital innovation, companies have new chances to boost the value they provide to customers by developing innovative goods and services that create new business models and boost the company's long-term success (Felicetti *et al.*, 2023). Ammirato *et al.* (2020) state that digital transformation is essential for global economic growth. In addition, there is an increase in public policies and private initiatives promoting the development of digitalised companies to support this growth.

One of the most critical phenomena in the retail industry is Digital Transformation (PwC, 2019). There are several types of Digital Transformation in various areas. According to Stark (2020), it is categorised into nine types, one of which is the Digital Transformation of industries. Hagberg *et al.* (2016) state that digitalisation is related to integrating digital technologies into retailing. Moreover, the success of technologies in the retail industry depends on the adoption rate by shoppers, retail managers, retail employees, and suppliers (Shankar *et al.*, 2021; Ngo *et al.*, 2022). Reinartz *et al.* (2019) signify the new trend of shifting from traditional stores to more minor, pop-up, or experience stores. Mostaghel *et al.* (2022) state that digitalisation is critical in driving retail business model innovation. In addition, Hänninen *et al.* (2018) provide an overview of how multi-sided digital platforms (namely, Alibaba Group, Amazon.com, eBay and Rakuten Group) are transforming the retail exchange logic and what differentiates them from incumbent business models in retailing. In 2019, e-retail sales in the year 2019, accounted for 14.1% of all retail sales worldwide. This trend is expected to reach 22% in 2023 (Statista, 2022), which aligns with Hagberg *et al.* (2017) opinion that most retail sales will continue to be conducted in Brick-and-mortar stores. This research has investigated the expected evolution of the retail format from customers' and retailers' perspectives. One of the most significant drivers of digital disruption is tech-savvy consumers (Human *et al.*, 2020). Therefore, understanding customers' attitudes towards adopting new technologies or investigating their preferred purchasing channels is needed to predict the impact of digitisation in the retail setting. Customer acceptance has been extensively studied over the last few decades, and researchers have proposed several theoretical models, including the diffusion of innovations (Chang *et al.*, 2016), the Technology Acceptance Model (TAM) (Davis *et al.*, 1989) or Theory of Planned Behaviour (TPB) (Ajzen, 1991). Furthermore, The Unified Theory of Technology Adoption and Use of Technology (UTAUT) (Venkatesh *et al.*, 2003) has better explanatory power in predicting behavioural intentions.

### *2.1 Unified theory of use and acceptance of technology (UTAUT)*

The UTAUT was proposed by Venkatesh *et al.* (2003) for predicting customers' intention to use new technologies. This model illustrates how four core determinants-performance expectance (PE), effort expectancy (EE), and facilitating conditions (FC) influence behavioural intentions (BI). The two models are the most widely used technology acceptance and use models that cover a wide range of applications like online shopping. Van Droogenbroeck and Van Hove (2021) added perceived risk, perceived in-store shopping enjoyment, perceived time pressure, service quality and innovativeness to the original UTAUT2 model.

*2.1.1 UTAUT constructs.* The first determinant of the UTAUT model in the consumer context is Performance Expectancy (PE) which is defined as the degree to get benefits from using IB service, like saving time and money (Venkatesh *et al.*, 2012). We assume the following hypothesis:

*H1.* PE will positively affect online grocery buying intention.

In fact, studies by O. Pappas *et al.* (2014) stated that PE has a positive effect on the satisfaction of high-experienced customers and their intentions in terms of future purchases.

Effort Expectancy (EE) is the individual assessment of the degree of ease associated with individuals' use of technology (Venkatesh *et al.*, 2012) that acts as one of the major motivations for choosing online shopping by customers (Hansen, 2006). The findings of Andronie *et al.* (2021) point out that Ease of use is one of the best predictors of customers' adoption of mobile payment services.

Therefore, this study postulates the following hypothesis:

*H2.* EE will positively influence customers' behavioural intention to adopt e-grocery shopping.

Social Influence (SI) defines as the extent to which a customer is influenced by what others (friends, family) think about the use of technology (Venkatesh *et al.*, 2012). It should be mentioned that the role of the perceived opinion of important reference groups including friends, colleagues or family members has been confirmed in several studies (e.g. Piroth *et al.*, 2020). Andronie *et al.* (2021) in their research have emphasised the role of social influence on human behaviour and mobile shopping. Thus, we formed a new hypothesis:

*H3.* SI will positively influence the behavioural intention of customers in e-grocery shopping.

Facilitating condition (FC) is related to consumers' perceptions about the availability of external support when he (she) is using new technology (Venkatesh *et al.*, 2012). The findings of Tak and Panwar (2017) confirm that facilitating conditions enhance the behavioural intention to use online shopping. However, there is other research with different results, more specifically in e-grocery shopping. For example, Hansen (2008), found a positive relationship between FC and the actual use of e-grocery services, while Piroth *et al.* (2020), did not find any relationship. Therefore, we propose that:

*H4a.* FC affects the behavioural intention to use e-grocery shopping.

*H4b.* FC positively affects online grocery buying behaviour.

*2.1.2 UTAUT2 constructs.* Van Droogenbroeck and Van Hove (2021) stated that not only utilitarian motivations lead to technology adoption, but also Hedonic Motivation (HM) acts as a significant factor. Venkatesh *et al.* (2012) define hedonic motivations as the pleasure and/or enjoyment derived from using new technology. The effect of this determinant on customer's behavioural intention is found by prior studies (e.g. Kim *et al.*, 2021; Tarhini *et al.*, 2019) However, in the field of e-grocery shopping, just some limited studies investigated the effect of perceived enjoyment on behavioural intention (Human *et al.*, 2020). Therefore, these studies have shown that e-grocery shopping is fun. Hence, we formed the fifth hypothesis of our research:

*H5.* HM positively affects online grocery buying intention.

Price value (PV) compares the perceived benefits of using new technologies with their monetary cost (Venkatesh *et al.*, 2012). Against the important role of price in online shopping, there are some limited studies focussed on the effect of this factor in grocery shopping. However, the findings of these studies have mixed results. Some of them found a positive impact of this construct on behavioural intention (Human *et al.*, 2020). But others (e.g. Van Droogenbroeck and Van Hove, 2021) depicted that PV has no direct impact on BI. Therefore, considering this construct is needed:

*H6.* PV positively influences online grocery buying intention.

Tak and Panwar (2017) define Habit (HB) (addiction) as exploring new products on online channels. Prior research (Kim *et al.*, 2008; Cooper *et al.*, 2021; Zafar *et al.*, 2021) has shown the positive impact of habit on behavioural intention in using new technologies.

Additionally, this construct has a positive effect on actual usage. Therefore, two hypotheses were formed:

*H7a.* HB will positively influence online grocery buying intention.

*H7b.* HB will positively influence online grocery buying behaviour.

Moreover, Chiu *et al.* (2012) suggest that habit acts as a moderator between trust and repeat purchase intention. So, a higher level of habit reduces the effect of trust on repeat purchase intention.

*2.1.3 Extending UTAUT2 (suggested variables added to UTAUT2).* Some widely used technology adoption model like UTAUT or TAM has shown that these models have overlooked a significant Perceived Risk (PR) (Pascual-Miguel *et al.*, 2015), while this construct is an important factor in online shopping. Prior research that has focused on this issue (Mitchell, 1991) points out that perceived risk is a multidimensional construct including product risk (Dai *et al.*, 2014), financial risk (Popli and Mishra, 2015), social risk (Zielke and Dobbelstein, 2007), convenience risk (Li and Huang, 2009), security risk (Almousa, 2011) and time risk (Zhang *et al.*, 2012). The findings of prior studies confirm the crucial effect of PR on grocery online shopping (Pauzi *et al.*, 2017). On the contrary, more recently, Van Droogenbroeck and Van Hove (2021) explained that participants in their research do not perceive e-grocery purchasing as a risky activity. Therefore, according to the important role of this construct, we would like to consider it and hypothesise that this factor will affect both the behavioural intention.

*H8.* PR will negatively affect online grocery shopping intention.

Following prior research, this study adds some mental perceptions with technological perceptions such as trust (Zhao and Bacao, 2020; Lăzăroiu *et al.*, 2020). Perceived Trust (PT) acts as one of the strongest predictors of the BI of e-commerce (Kim *et al.*, 2008) due to the different types of risk that people will be encountered when they are shopping online (Pauzi *et al.*, 2017). Lăzăroiu *et al.* (2020) findings emphasise the important role of psychological factors like trust and perceived risk in online shopping decision-making and repurchasing behaviour. Walsh *et al.* (2017) underline that a positive reputation of an online website may reduce customer-perceived risk and create trust, which in turn fosters consumer commitment. However, the finding of some studies (Human *et al.*, 2020) did not support this relationship. Therefore, according to the mixed results, the following hypothesis is formed:

*H9.* PT positively influences online grocery buying intention.

Perceived Time Pressure (PTP), for most customers, timesaving is one of the most significant aspects of e-grocery shopping (Van Droogenbroeck and Van Hove, 2017). However, against the important role of this construct, just a few studies added this factor to their research model (Pernot, 2021). Thus, this study added it to the research model and hypothesises:

*H10.* PTP will positively affect online grocery buying intention.

Service Quality (SQ), some factors like late orders, incomplete orders, low quality of delivery, bad picking (Van Droogenbroeck and Van Hove, 2021) and friendliness of the staff in online shopping (Colla and Lapoule, 2012), lead to a re-evaluation of customers regarding their e-grocery shopping decision. The perceived system and service quality are important antecedents of consumer satisfaction that influence trust, and customer intent to purchase (Lăzăroiu *et al.*, 2020). However, the finding of Van Droogenbroeck and Van Hove (2021) did not support the effect of this factor on BI. We assume that:

*H11.* SQ positively affects online grocery shopping intention.

Perceived in-store Shopping Enjoyment (PSE), customers have different attitudes towards grocery shopping in terms of being pleasant or not. Some of them think online grocery shopping is enjoyable (Blitstein *et al.*, 2020). Maybe others perceive grocery shopping as an unpleasant (Kim *et al.*, 2008) task. However, it seems PSE acts as a predictor of BI as well as of actual behaviour, then, this research adds this construct to the research model:

*H12a.* PSE will negatively affect online grocery buying intention.

*H12b.* PSE will negatively affect online grocery buying behaviour.

Actual usage (online grocery buying behaviour).

According to prior studies (e.g. Driediger and Bhatiasevi, 2019), BI acts as a predictor for actual use. Therefore:

*H13.* BI positively affect online grocery buying behaviour.

## 3. Methodology

### *3.1 Context: Iran as an emerging market*

Considering Iran as a rich country in the emerging market with a young population with different consumption patterns is extremely important. The projection of new trends in grocery stores in Iran emphasises the issue of Iran as an emerging market. Iran is a powerful country in the Middle East with a developing economy that may now be more important to international companies looking to sell their products in this attractive emerging market (Just Food, 2015). These features weigh up the market's potential for international food manufacturers, and many are interested in entering Iran after the lifting of sanctions. Moreover, Iran is the second-most internet-connected country in the Middle East (Internet World Stats, 2019), and due to using the Internet very extensively, digital businesses are proliferating (Emami, 2017), and online purchasing has an annual growth rate of 60%, and e-grocery is also growing in popularity. However, Iran's online grocery market share accounted for approximately 1% of the total grocery market in 2021 (Parsapour, 2022). Grocery sales through online channels in emerging markets, except for China (Alaimo *et al.*, 2020), have remained lower due to consumers' limited experience with using technology for shopping (Vardhan, 2020). Therefore, getting emerging market customers like Iranian customer insight into grocery shopping is beneficial.

### *3.2 Materials and methods*

This study deploys a mixed-methods approach (Johnson and Onwuegbuzie, 2004). In the first step of this research (quantitative phase), the authors created a Google Form-based questionnaire to study customers' behaviour. After data collection, the partial least squares structural equation modelling (PLS–SEM) technique was used to analyse research results using SmartPLS 3.0. According to literature (Sedighi *et al.*, 2018, p: 1272), "PLS–SEM is used to analyse results as it is a type of SEM approach, which supports formative constructs". In the second step, a qualitative study focused on grocery retail managers' attitudes towards digitalisation was carried out.

### *3.3 Data collection of the first step*

Before starting data collection, a pre-test was conducted on six chosen participants to assess the clarity of the items on the questionnaire, and only minor corrections were made due to spelling mistakes. Between July 2nd and August 10th, 2022, 231 surveys by non-probability convenience sampling were distributed for this study to reach the standard for validity and reduce the error rate. 200 qualified questionnaires were used in the analysis, with a response rate of 86%. To provide a relevant research sample of respondents from most customers, three screening questions were used in the first section of the questionnaire. One question was ensuring that respondents were 18 years or older. The next question was asked to identify the primary adult grocery shopper in the household by this question; "Do you go often grocery shopping in your household?" The last screening question was asked to select those who

shopped from both online and offline channels and ran as follows: "Familiarity with buying food groceries online?" The second or central section of the questionnaire included 53 closed-ended questions adopted from the Extended UTAUT2 model (Venkatesh *et al.*, 2012) to measure various factors that affect grocery shopping intentions (Table 1). For instance, four variables for measuring Performance Expectancy (PE) (Celik, 2016) are used in this questionnaire. Other factors are illustrated in Table 1. As is observed, all items were validated in prior studies. The respondents were asked to indicate their level of agreement for each item using a five-point Likert scale anchored by totally disagree (1) and agree (5). Lastly, the participants were asked to respond to seven demographic questions. Tables 1 and 2 depict customer questionnaire constructs and the demographic attributes of the respondents, respectively.

### *3.4 Data analysis (respondents of the first step)*

The summary of demographic profiles for respondents presented in Table 2 indicates that 62% of respondents were females. The plurality (75%) of the participants were between 28 and 41 years old. In terms of academic qualifications, 56% of them had a post-graduate degree. Nearly 50% of participants have been employed and more than 40% of them had more than 40 h working hours weekly. Overall, 90% of respondents resided in households with 2 (32%), three (38%), or four and more persons (21%).

PLS–SEM method includes the two-step analysis method; the first step is evaluating of the measurement model and the second phase is related to the assessment of the structural relationship between research constructs (Hair *et al.*, 2011).

*3.4.1 Phase 1: quantitative phase (customer's viewpoints).* After completing and receiving all questionnaires, the data were copied into a Word file and all analyses were performed using SmartPLS 3.0. The research area consists of two cities in Iran that were selected based on their urbanisation and online shopping availability for groceries. This city has a high level of online and in-store grocery shopping availability. It should be remembered that Iran has a traditional retail structure, more than 85% of all grocery trade sales are done by small retail stores, and just below 15% of total market sales go through hypermarkets, discounters and online channels (EMRC, 2020).

*3.4.2 Phase 2: qualitative phase (retailers' point of view).* In the second stage, due to the exploratory nature of this study, a qualitative approach using in-depth interviews was employed to understand retailers' attitudes towards the future of retailing in Iran and employing digital technologies in physical stores. It is based on naturalistic enquiries that take place without any interference from the researcher (Dana and Dana, 2005).

This group was considered industry experts and a great source for collecting rich data (Bethan and Cano, 2020). A prior appointment was taken for interviews, and the interview time was between 4 p.m. and 6 p.m. because few customers came to the stores (Kureshi and Thomas, 2019). Every interview lasted, on average 35 min and was audio-recorded with the permission of the study participants. Two screening questions were used one of them was about being a market leader and the second one was about having sufficient knowledge and awareness about all shopping channels and exposure to the online grocery setting (Cresswell and Clark, 2011). The geographical specifications criteria included local grocery retailers in two cities both of which were located in the North of Iran. Two cities had all types of purchasing channels like small and large local grocery stores and also online grocery players. It should be mentioned that there was a high level of trust between the researchers and the grocery retailers that made it possible to get access to key personnel for interviews (Patton, 2002). To select the sample of market leader stores, the authors first identified a group of successful grocery stores located in Iran. The retail managers of these stores were contacted and asked about their willingness to participate. Finally, six of the successful market leader

| Constructs | Items | Sources |
|---|---|---|
| Actual usage | AU1: E-grocery shopping is my first choice when I need to by grocery items<br>AU2: I will recommend to my friends to use e-grocery channels<br>AU3: I often do grocery shopping online<br>AU4: I regularly do grocery shopping online | Venkatesh *et al.* (2012), Zhou *et al.* (2020), Tak and Panwar (2017) |
| Behavioural (buying) intention | BI1: I intend to use online grocery channels in the next six months<br>BI2: I plan to make purchases via e-grocery channels at every opportunity<br>BI3: I will try to use online grocery channels in my daily life | Venkatesh *et al.* (2012), Kurnia *et al.* (2003) |
| Effort expectancy | EE1: Finding a needed grocery product via the Internet is hard for me<br>EE2: ordering my needed grocery items via the Internet is difficult for me | Venkatesh *et al.* (2012), Van Droogenbroeck and Van Hove (2021) |
| Facilitating conditions | FC1: I have the resources necessary to use an online grocery service<br>FC2: I know necessary to use an online grocery service<br>FC3: Online grocery service is compatible with other technologies I use | Venkatesh *et al.* (2012) |
| Habit | HA1: The use of e-grocery shopping has become a habit for me<br>HA2: I would be addicted to using e-grocery shopping<br>HA3: I use e-grocery frequently<br>HA4: E-grocery shopping is something I do without thinking | Zhou *et al.* (2020), Tak and Panwar (2017) |
| Hedonic motivation | HM1: Ordering grocery items via the Internet is fun<br>HM2: Ordering grocery items via the Internet is enjoyable<br>HM3: Ordering grocery items via the Internet is very entertaining | Venkatesh *et al.* (2012) |
| Perceived in-store shopping enjoyment | PSE1: I find grocery shopping from a physical store is dull/exciting<br>PSE2: I find grocery shopping from a physical store is not fun/fun<br>PSE3: I find grocery shopping from a physical store is not amusing/amusing<br>PSE4. I find grocery shopping from a physical store is not enjoyable/enjoyable | Van Droogenbroeck and Van Hove (2021) |
| Perceived risk | PR1: I am concerned about receiving incorrect products when I do e-grocery shopping<br>PR2: I am concerned about returning and exchanging products when I do e-grocery shopping<br>PR3: I am concerned about receiving low-quality products when I do e-grocery shopping<br>PR4: I am concerned about receiving out-of-date products when I do e-grocery shopping | Tsiros and Heilman (2005) |

**Table 1.**
Construct and questionnaire sources

(*continued*)

| Constructs | Items | Sources |
|---|---|---|
| Perceived time pressure | PTP1: I am frequently pressed for time<br>PTP2: I am often hurried<br>PTP3: Most of the time, I wish I had more time because there is so much to do<br>PTP4: I do not have enough time for retail grocery shopping for a variety of reasons | Van Droogenbroeck and Van Hove (2021) |
| Perceived trust | PT1: I think the online grocers will be honest<br>PT2: I think online grocery channels will provide good customer service<br>PT3: I think online grocery channels will keep customers' interests in mind | Kurnia *et al.* (2003) |
| Perceived value | PV1: Grocery items on online channels are reasonably priced<br>PV2: Grocery items on online channels are good value for the money<br>PV3: At the current price, e-grocery will provide a good value for money | Venkatesh *et al.* (2012) |
| Performance expectancy | PE1: I find online grocery channels useful for shopping tasks<br>PE2: using e-grocery shopping enables me to accomplish shopping tasks more quickly and saves much time<br>PE3: E-grocery shopping groceries is favourable as it makes me less dependent of opening hours<br>PE4: Shopping for groceries via the internet leads to increase my chances of getting better deals and save my money | Celik (2016), Venkatesh *et al.* (2012) |
| Service quality | SQ1: The employees at my online grocery channel are friendly and helpful<br>SQ2: Online grocery channels that I have purchased from them have fast check-out<br>SQ3: Online grocery channels where I have purchased from them provide adequate services | Van Droogenbroeck and Van Hove (2021) |
| Social influence | SI1: My family members think that I should use online channels for grocery shopping<br>SI2: most of my friends think that it is a good idea that I use e-grocery shopping | Celik (2016), Venkatesh *et al.* (2012), Human *et al.* (2020) |

**Source(s):** Authors' compilation based on literature review

**Table 1.**

stores were selected. Interviewees were engaged in in-depth interviews on a set of predetermined open-ended questions which were defined by the study and allowed for guided open discussion and opinion sharing in three sections: The survey was conducted during the summer of 2022, and it was run by an experienced interviewer with the support of an assistant who took notes. All six interviews were transcribed. The original language was Persian, and it was translated into English.

*3.4.3 Findings and analysis profile of retail managers.* Six local grocers were approached to demonstrate their point of view towards online grocery shopping. All of these stores were market leaders in their city, and their store managers were male. Most stores had home delivery except for one store. The average age of participants was 37 years. In terms of educational level, three of them were college graduates and others had high school diplomas.

**Table 2.** Demographic profile of respondents

| Demographic | Frequency | Percentage | Demographic | Frequency | Percentage |
|---|---|---|---|---|---|
| Gender | | | Work status | | |
| Male | 76 | 38% | Student | 23 | 12% |
| Female | 124 | 62% | Employed | 96 | 48% |
| Age | | | Freelancer | 31 | 16% |
| 27 years old and younger that it | 21 | 11% | Manager | 22 | 11% |
| 28–41 years old | 149 | 75% | Housewife | 23 | 12% |
| 42–57 years old | 29 | 15% | Unemployed | 3 | 2% |
| 58–76 years old | 1 | 1% | Medical doctor | 2 | 1% |
| Education | | | Weekly working hours | | |
| Lower secondary school diploma | 1 | 1% | If were equal to 0 h | 29 | 15% |
| High school diploma | 8 | 4% | If were between 0 and 40 h | 49 | 25% |
| Bachelor's Degree | 79 | 40% | If were equal to 40 h | 36 | 18% |
| Post-graduate degree (Master and PhD) | 112 | 56% | If were higher than 40 h | 86 | 43% |
| Number of household members | | | Car | | |
| 1 | 20 | 10% | the respondent possessed a car | 135 | 68% |
| 2 | 63 | 32% | Otherwise | 65 | 33% |
| 3 | 76 | 38% | Total | 200 | 100% |
| 4 and more | 41 | 21% | | | |

**Source(s):** Authors' own calculation

Stores sizes ranged from 80 to 1,000 $M^2$. Additionally, most of the considered stores created online websites for customers' online shopping except in the case of two retail stores.

## 4. Results on customer's data section

### *4.1 Measurement model of customer's data*

The measurement model, which assesses the validity and reliability of the constructs of customer questionnaires, was evaluated as the first step of the analysis.

(1) *Reliability*

Cronbach's alpha and Composite Reliability (CR) were used to test the reliability of the constructs (Table 3). According to the literature (Bagozzi, 1994), a value of Cronbach's alpha greater than 0.7 is satisfactory and as is illustrated in Table 3, Cronbach's α for SQ, PE, PV, PT, PTP, PR, PSE, HM, HA, FC, EE, BI, AU and SI were 0.737, 0.809, 0.879, 0.756, 0.839, 0.828, 0.91, 0.925, 0.884, 0.717, 0.818, 0.825, 0.884 and 0.561 respectively. According to the data, all CRs values and Cronbach's alpha values are higher than 0.70 except for social influence, which indicates that the measurement model was reasonably reliable. Moreover, according to Hair *et al.* (2014), outer loadings of manifest variables must be higher than 0.708 which as illustrated in Table 3, all factor loadings had a value greater than 0.708 except for PR1 and PR6 were 0.584, 0.639.

(2) *Validity*

According to the literature (Hair *et al.*, 2014), average variance extracted (AVE) and heterotrait-monotrait ratio (HTMT) were used to analyse validity. Hair *et al.* (2017) point out

| Constructs | Indicators | Factor loading | α | rho_A | CR | AVE |
|---|---|---|---|---|---|---|
| Actual usage | AU1 | 0.874 | 0.884 | 0.884 | 0.92 | 0.742 |
| | AU2 | 0.856 | | | | |
| | AU3 | 0.866 | | | | |
| | AU4 | 0.849 | | | | |
| Behavioural (buying) intention | BI1 | 0.795 | 0.825 | 0.829 | 0.897 | 0.745 |
| | BI2 | 0.943 | | | | |
| | BI3 | 0.844 | | | | |
| Effort expectancy | EE1 | 0.861 | 0.818 | 1.063 | 0.909 | 0.834 |
| | EE2 | 0.963 | | | | |
| Facilitating conditions | FC1 | 0.758 | 0.763 | 0.792 | 0.862 | 0.676 |
| | FC2 | 0.838 | | | | |
| | FC3 | 0.868 | | | | |
| Habit | HA1 | 0.866 | 0.884 | 0.887 | 0.92 | 0.742 |
| | HA2 | 0.87 | | | | |
| | HA3 | 0.884 | | | | |
| | HA4 | 0.825 | | | | |
| Hedonic motivation | HM1 | 0.935 | 0.925 | 0.929 | 0.953 | 0.871 |
| | HM2 | 0.96 | | | | |
| | HM3 | 0.904 | | | | |
| Perceived in-store shopping enjoyment | PSE1 | 0.883 | 0.91 | 0.919 | 0.936 | 0.786 |
| | PSE2 | 0.926 | | | | |
| | PSE3 | 0.885 | | | | |
| | PSE4 | 0.852 | | | | |
| Perceived risk | PR1 | 0.797 | 0.852 | 0.881 | 0.899 | 0.691 |
| | PR2 | 0.842 | | | | |
| | PR3 | 0.89 | | | | |
| | PR4 | 0.792 | | | | |
| Perceived time pressure | PTP1 | 0.844 | 0.839 | 0.842 | 0.892 | 0.674 |
| | PTP2 | 0.836 | | | | |
| | PTP3 | 0.819 | | | | |
| | PTP4 | 0.783 | | | | |
| Perceived trust | PT1 | 0.72 | 0.756 | 0.817 | 0.855 | 0.665 |
| | PT2 | 0.895 | | | | |
| | PT3 | 0.822 | | | | |
| Perceived value | PV1 | 0.906 | 0.879 | 0.883 | 0.925 | 0.805 |
| | PV2 | 0.911 | | | | |
| | PV3 | 0.875 | | | | |
| Performance expectancy (PE) | PE1 | 0.756 | 0.809 | 0.811 | 0.875 | 0.637 |
| | PE2 | 0.803 | | | | |
| | PE3 | 0.841 | | | | |
| | PE4 | 0.789 | | | | |
| Service quality | SQ1 | 0.767 | | | | |
| | SQ2 | 0.828 | 0.737 | 0.743 | 0.85 | 0.655 |
| | SQ3 | 0.832 | | | | |
| Social influence | SI1 | 0.832 | 0.561 | 0.561 | 0.82 | 0.695 |
| | SI2 | 0.835 | | | | |

**Note(s):** AU (Actual usage), BI (Behavioural (buying) Intention), EE (Effort expectancy), FC (Facilitating conditions), HA (Habit), HM (Hedonic motivation), PSE (Perceived in-store _shopping enjoyment), PR (Perceived risk), PTP (Perceived time pressure), PT (Perceived trust), PV (Perceived value), PE (Performance expectancy), SQ (Service quality), SI (Social influence), α, (Cronbach's α), CR (composite reliability)), AVE (average variance extracted)
**Source(s):** Authors' own calculation

**Table 3.**
Factor analysis

that if the average variance extracted (AVE) is higher than 0.50, convergent validity will be satisfactory. Therefore, Table 3 illustrates that convergent validity is established. In the next step, for ensuring discriminant validity, the heterotrait-monotrait ratio (HTMT) was used. According to the illustration (Table A1), it is obvious that HTMT ratios were below 0.85, a satisfactory level for assessing discriminant validity (Kline, 2011). Thus, these results depict good reliability as well as validity (see Appendix).

(3) *Structural model assessment*

Using structural equation modelling, a hypothesis was evaluated (refer to Figure 1). Coefficient of determination (R2) and cross-validated redundancy (Q2) are two important ways to evaluate inner models in the PLS-SEM approach (Hair *et al.*, 2014). In addition, before the assessment of the structural model, VIF values would be measured.

(4) *VIF values*

Multicollinearity was examined through VIF values. It ranged from 1.044 to 2.105, below the threshold of 3 which depicts there are no collinearity issues (Gujarati, 2003).

(5) *R2*

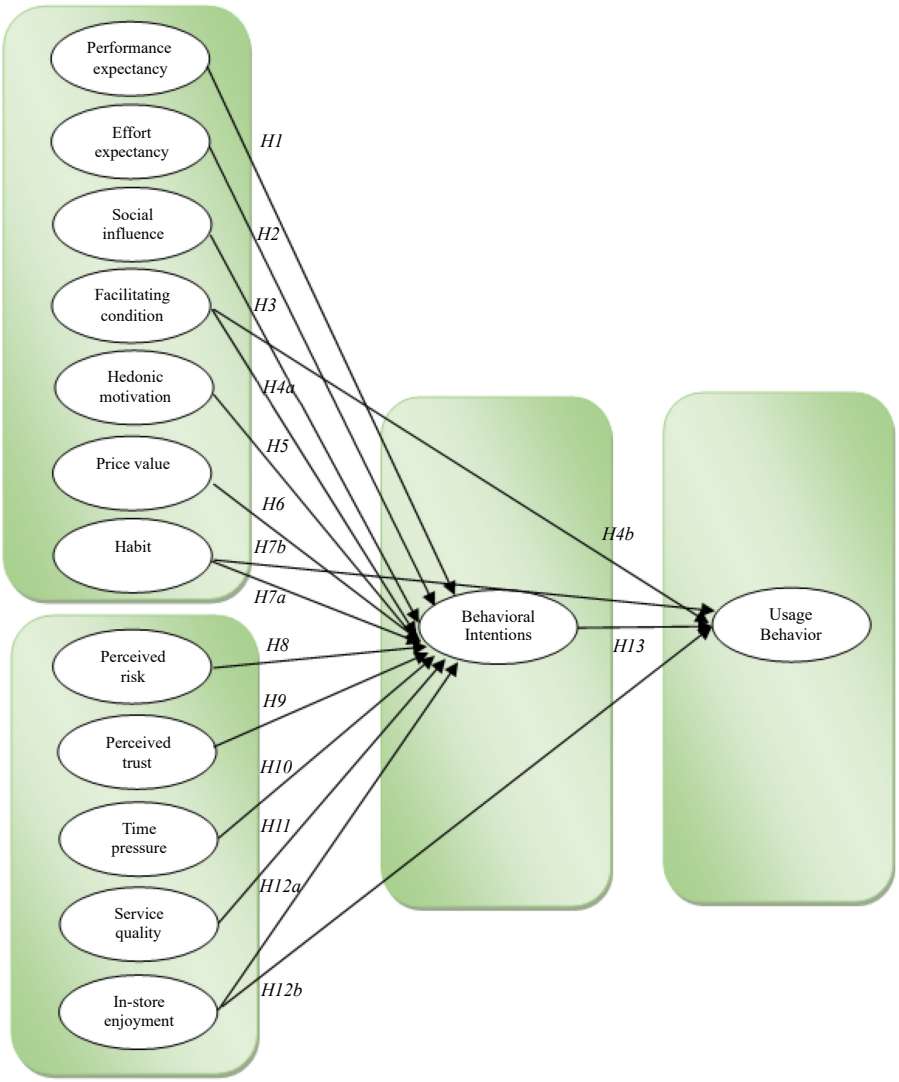
According to Shmueli and Koppius (2011), the coefficient of determination (R2) shows the model's explanatory power and measures the model's in-sample predictive power (Rigdon, 2012). The inner path model for AU and BI are 0.614 and 0.473 respectively meaning it successfully explained 61 and 47% of the variation in the construct of AU and BI. Thus, aforementioned items like EE, FC, HA, HM, PSE, PR, PTP, PT, PV, PE, SQ, and SI moderately contributed to the explanation of grocery shopping intentions (Hair *et al.*, 2014).

(6) *Predictive relevance Q2*

The Stone and Geisser Q2 was measured as a criterion of the model's predictive relevance of latent constructs. It is calculated by using the blindfolding procedure. Sarstedt *et al.* (2014) point out that a Q2 greater than zero has a satisfactory level of predictive accuracy. Table A2 depicts Stone–Geisser's Q2 for the endogenous constructs are ranged from 0.04 to 0.763, indicating acceptable predictive relevance for these constructs (see Appendix).

## 5. Hypotheses testing

Subsequently, we assessed the significance and relevance of the path coefficient using bootstrapping, with 5,000 subsamples (Hair *et al.*, 2017). A $p$-value of 0.05 is used to confirm the significant relationship between variables and for evaluating the significance of the hypotheses (Chin, 1998). If $p \leq 0.05$, the hypothesis will be accepted, otherwise it will be rejected. Bootstrapping procedure is presented in Table 4. It should be mentioned that according to the literature (Faqih, 2016), there is a significant relationship in paths with t-values higher than or equal to 1.96 (with a significance level of 0.05). Evaluation of this research structural model is shown in Figure 2, which shows that all path coefficients were significant. Four constructs of current research, hedonic motivation (HM) ($\beta = 0.161$, $T = 2.423$, $p < 0.05$) and perceived value (PV) ($\beta = 0.153$, $T = 2.423$, $p < 0.05$) significantly influenced behavioural (buying) intention supporting H5 and H6. Habit (HA) was significantly and positively related to behavioural (buying) intention ($\beta = 0.224$, $T = 3.055$, $p < 0.01$). And actual usage ($\beta = 0.557$, $T = 10.337$, $p < 0.001$) Thus, H7a and H7b are supported. In terms of facilitating conditions (FC) factor, this item is significantly and positively related to the actual usage ($\beta = 0.120$, $T = 2.362$, $p < 0.05$) but not to behavioural intention ($\beta = -0.016$, ns). Therefore, H4b is supported but not H4a. Likewise, perceived time




**Source(s):** Extended UTAUT2 model adopted from Venkatesh *et al*. (2012); Zhou *et al*. (2020); Van Droogenbroeck and Van Hove (2021); Tsiros and Heilman (2005); Kurnia and Chien (2003)

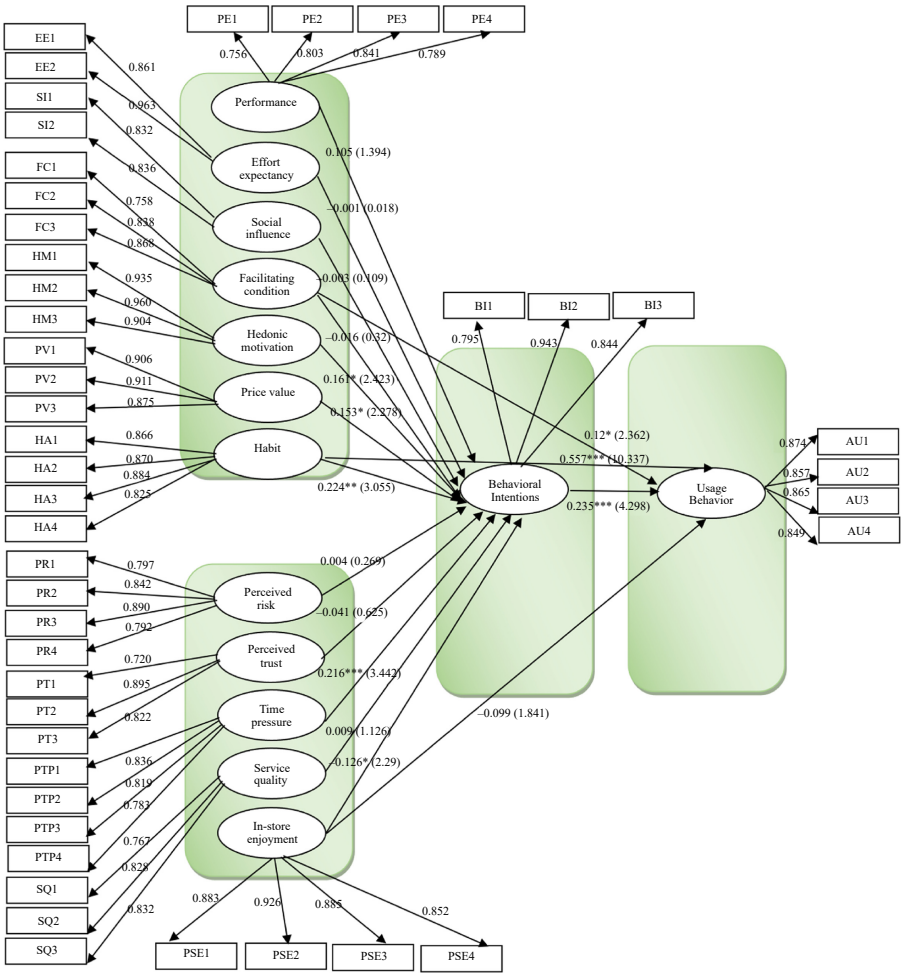
**Figure 1.**
Research model

pressure (PTP) ($\beta = 0.216$, $T = 3.442$, $p < 0.05$) had a strong and positive relationship with behavioural (buying) intention ($\beta = 0.135$, $T = 5.590$, $p < 0.05$), supporting H10. Perceived in-store shopping enjoyment was significantly and positively related to behavioural (buying) intention ($\beta = 0.135$, $T = 5.590$, $p < 0.001$) but not actual usage ($\beta = -0.041$, ns). Therefore, H12a was supported but not H12b. The relationship between behavioural (buying) intention

**Table 4.**
Hypotheses testing

| Hypothesis | Hypothesised path | Std beta | Standard deviation (STDEV) | T statistics (\|O/STDEV\|) | $p$ values | Lower 95% | Upper 95% | Decision |
|---|---|---|---|---|---|---|---|---|
| H1 | PE → BI | 0.105 | 0.078 | 1.394 | 0.163 | −0.044 | 0.259 | Unsupported |
| H2 | EE → BI | −0.001 | 0.062 | 0.018 | 0.986 | −0.122 | 0.127 | Unsupported |
| H3 | SI → BI | −0.003 | 0.071 | 0.109 | 0.913 | −0.138 | 0.14 | Unsupported |
| H4a | FC → BI | −0.016 | 0.06 | 0.32 | 0.749 | −0.136 | 0.101 | Unsupported |
| H4b | FC → AU | 0.12 | 0.05 | 2.362* | 0.018 | 0.024 | 0.221 | Supported |
| H5 | HM → BI | 0.161 | 0.072 | 2.423* | 0.015 | 0.018 | 0.301 | Supported |
| H6 | PV → BI | 0.153 | 0.071 | 2.278* | 0.023 | 0.016 | 0.29 | Supported |
| H7a | HA → BI | 0.224 | 0.074 | 3.055** | 0.002 | 0.084 | 0.37 | Supported |
| H7b | HA → AU | 0.557 | 0.054 | 10.337*** | 0 | 0.451 | 0.662 | Supported |
| H8 | PR → BI | 0.004 | 0.072 | 0.269 | 0.788 | −0.128 | 0.163 | Unsupported |
| H9 | PT → BI | −0.041 | 0.077 | 0.625 | 0.532 | −0.187 | 0.117 | Unsupported |
| H10 | PTP → BI | 0.216 | 0.061 | 3.442*** | 0.001 | 0.092 | 0.335 | Supported |
| H11 | SQ → BI | 0.09 | 0.077 | 1.126 | 0.26 | −0.061 | 0.241 | Unsupported |
| H12a | PSE → BI | −0.126 | 0.055 | 2.29* | 0.022 | −0.234 | −0.017 | Supported |
| H12b | PSE → AU | −0.099 | 0.054 | 1.841 | 0.066 | −0.208 | 0.007 | Unsupported |
| H13 | BI → AU | 0.235 | 0.054 | 4.298*** | 0 | 0.126 | 0.339 | Supported |

**Note(s):** *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$, n.s. = not significant
**Source(s):** Authors' own calculation




**Note(s):** SEM, Structural equation modelling; AU (Actual usage), BI (Behavioural (buying) intention), EE (Effort expectancy), FC (Facilitating conditions), HA (Habit), HM (Hedonic motivation), PSE (Perceived in-store _shopping enjoyment), PR (Perceived risk), PTP (Perceived time pressure), PT (Perceived trust), PV (Perceived value), PE (Performance expectancy), SQ (Service quality), SI (Social influence),
*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

**Source(s):** Authors' own calculation

**Figure 2.** Overview of SEM model

and actual usage was supported ($\beta = 0.235$, $T = 4.298$, $p < 0.001$), supporting H13. In terms of other constructs mentioned in this research, there was no relationship between PE and BI ($\beta = 0.105$, ns), EE and BI ($\beta = -0.001$, ns), SI and BI ($\beta = -0.003$, ns), PR and BI ($\beta = 0.004$, *ns*), PT and BI ($\beta = -0.041$, ns) and SQ and BI ($\beta = 0.09$, ns), therefore, H1, H2, H3, H8, H9 and H11 were not supported.

*5.1 Analysis of grocer's data*

By asking 25 open-ended questions, the authors investigated retail managers' beliefs about e-grocery shopping. These questions are classified into; (1) the grocer's general point of view about online grocery shopping, (2) their business expansion, (3) the effect of online shopping on their business, their profit and the prediction of future profit, (4) customer's feelings and expectations, (5) their satisfaction level with their current business and (6) investigation about their concerns towards e-grocery shopping phenomenon.

*Grocer's general point of view about online grocery shopping.* As mentioned above, four of six considered stores offered online shopping services. However, they were not successful with their online business and their e-grocery business was little, but they believe that in the future, this new business besides their physical stores will add profit to their business.

Retail manager No. 4 said: *"Around the world, online grocery shopping is increasing but this new trend is new in Iran, and it will take more time for our customers to purchase online"*. Grocers No.1 expressed a similar point of view towards e-grocery purchasing and said, *"I agree with online grocery shopping, but Iranian customers enjoy in-store purchasing"*. Regarding investigating the main reasons for starting online services, all local grocers mentioned that being perceived as a modern store is so important for them and by online grocery services, they will be perceived as a prestigious store from the customer's lens. Another reason that was mentioned by Grocer No. 1 and 4 was the fear of losing existing customers. Three of six participants said: "*Currently, e-grocery shopping in Iran has too many troubles for running it for lesser profits*" (Grocers No. 2, 3, 6).

*Business expansion.* They predicted a 15% increase in their profit with online grocery shopping in the future. Nearly all of them had considered the phenomenon of online grocery shopping as an opportunity for improving their business except for one case (Grocer No. 3) who said: *"If other grocers in the future add online shopping to their business and work for expanding it seriously, it will act as a treat for our physical stores"*. The majority of them agreed with online purchasing but they believe in Iran, we will witness this phenomenon in the future not now.

*The effect of online shopping on a grocer's business, profit, and the prediction of future profit.* Participants were asked to respond to this question: Have you lost any customers because of this? All of them conveyed that starting e-grocery shopping had not had any effect on our business yet. For instance, one of them mentioned that: *"we have local customers who purchase just from our store"* (Grocer No. 1).

*Customer's feelings and expectations.* Two of the considered grocers mentioned that their customers are interested in online shopping, and they have asked for starting online services (Grocers No. 2 and 4) and one of them (No. 2) said that "young customers are tech-savvy and like to purchase online, however, I am not sure about the amount of online shopping by them". Grocer No. 1 said: "*We have a website for online shopping by customers, however, just small things like snacks are purchased by our customers*". Another question that was asked from participants was: "*What kind of customers do you think will shift towards online buying?*" Young customers were mentioned by all of them. Grocer No. 2 said, "Employees with more workloads are interested to purchase their needed grocery items online. Another group is some customers after Covid-19 prefer to purchase online".

*Grocer's satisfaction level with their current business.* Most retail managers except for Grocer No. 5, strongly felt that grocery shopping in physical stores is a delightful family activity and now, seems very hard to be replaced online shopping. Regarding these stores' current services, five out of six stores had home delivery services. One of the retail managers (Grocer No. 3) stated: *my store offers home delivery service. "We deliver grocery items in nearly 20 min. I agree with online shopping, but I think it will not add any new value for my customers"*.

*Investigation about their concerns towards e-grocery shopping.*

"*Several years ago, I started my online service beside my physical operations just because my store is considered a modern store in my region. However, it didn't add any profit to my business*" (Grocer No. 1). "*I believe in the big cities of Iran, the more specific capital city (Tehran), online shopping has been created many challenges to physical stores, however, in small cities this scenario in new and it is too early that online groceries put pressure on our business*" (Grocer No. 2).

## 6. Discussion

The primary aim of the current research was to validate extended UTAUT2 in e-grocery shopping in emerging countries by investigating customers. As it was observed, our research model could explain 61% of the variation of BI ($R^2 = 0.614$) and 47% of the variation for AU ($R^2 = 0.473$) regarding online grocery shopping. The findings of current research suggest that some of the variables like performance expectancy (PE), effort expectancy (EE), perceived trust (PT), perceived risk (PR), facilitating conditions (FC), service quality (SQ), and social influence (SI) in this research model did not exhibit the significance that was observed by the constructs on behavioural (buying) intention. Turing to detail about the extended UTAUT2 model, findings of earlier research focussing on online grocery shopping have shown similar results. For example, Van Droogenbroeck and Van Hove (2021) found no significant impact of PE on BI and mentioned that it is more likely that PTP replaces this construct. Current research findings are consistent with mentioned study, and PE had no positive effect on BI, but similarly to Van Droogenbroeck and Van Hove (2021)'s research, PTP had a positive relationship with BI. Looking at Habit (HA)'s results (as the most critical determinant of BI for Iranian participants depicts that these findings are in line with recent studies by Van Droogenbroeck and Van Hove (2021) in Belgium that this variable was the most significant determinant of Behavioural intention. This significant relationship was also found by Human *et al.* (2020). Reviewing prior studies illustrates mixed results regarding the relationship between SI and BI. For example, Gupta *et al.* (2018)'s research depicts its positive relationship. However, this research result is inconsistent with Human *et al.* (2020)'s study, which found no relationship between SI and BI. Turning to another construct, FC, some prior studies have confirmed the influence of FC on BI (e.g. Zhou *et al.*, 2020). However, others have shown an insignificant relationship between these two constructs (e.g. Human *et al.*, 2020). Our finding aligns with the second group of studies with robust mixed results. Following earlier studies, we added perceived trust to our research model and considered its effect on BI. However, our data do not confirm this relationship. This result aligns with Human *et al.* (2020)'s finding.

Regarding actual usage, perceived in-store shopping enjoyment (PSE) did not significantly influence AU among Iranian grocery shoppers. Overall, the observations of this research depict that 86% of participants had an online grocery shopping experience, reflecting that the adoption of e-grocery shopping is increasing in Iran. In the representative Iranian sample, we find that nearly 35% of participants mentioned that e-grocery shopping is their first choice when buying grocery items. We found a positive and robust relationship between FC (facilitating condition) and AU. A similar result was confirmed for Habit (HA) and AU. Additionally, against the majority of prior studies that had investigated e-grocery shopping from a customer's point of view (Van Droogenbroeck and Van Hovem, 2021) and following to recent study (Kureshi and Thomas, 2019) that examined local grocery viewpoints about e-grocery shopping, this study focused on considering customer as well as grocery retailer's viewpoints. The finding of retailers' interview has shown that e-grocery shopping in Iran has pressured local grocers to start their online selling.

## 7. Conclusion

This paper, following prior studies, applies the extended UTAUT2 model by focussing on Iranian grocery shoppers and retail managers. The model incorporates all of the variables in the UTAUT2 model with some additional constructs like perceived trust (PT), perceived time pressure (PTP), etc. This study collected two data sources. The first part of the data was gathered through 200 grocery shoppers in Iran who had an online shopping experience. The second part was related to Iranian grocers. Our suggested model predicts BI and AU well. The effect of HA, HM, PSE, PTP and PV on BI was confirmed by our model.

Regarding AU, HA and FC constructs depict a positive relationship with actual usage. According to our data, the most significant drivers of online grocery shopping are habit and perceived time pressure. In the second data collection section, six in-depth interviews were conducted to consider local grocery retailers' points of view towards online shopping. Most of the grocers interviewed had an optimistic viewpoint toward online grocery shopping. However, at the same time, they were satisfied with their current business and mentioned that having online shopping services besides their physical store had no effect on their profit. They thought that more customers would purchase their grocery items online in the future. However, now, their customers think in-store shopping is an entertainment activity for them. They had a home delivery service, and some believed e-grocery shopping would not create more value for their business and customers. As all six grocers were below 45 years old, they knew online grocery shopping was the future of retailing. However, they were not interested in investing in it now because they believed there was more time to start this business. However, their fear of losing their customers in the future, or will not be perceived as a modern store, will lead them to focus more on their online channels soon. Iran has a traditional structure in its retail setting. However, as mentioned by our participants, many are starting to purchase online, which is evident in Iranian reports. Online purchasing has nearly 60% annual growth, and e-grocery is growing fast. The findings of this study reveal that the effect of digital transformation in the retail industry will be more apparent in an emerging market like Iran very soon. Kraus *et al.* (2021) discuss the need for the online presence of organisations in order to connect with digitalised customers. Therefore, it is a must for grocers to follow the new rule and bring physical and online channels under one roof.

## 8. Theoretical contributions

This study analyzes customer and grocery retailers' opinions towards e-grocery shopping. Most of the prior studies just focused on customers' points of view about online grocery shopping (e.g. Van Droogenbroeck and Van Hovem, 2021; Frank and Peschel, 2020). However, contrary to prior studies and following Kureshi and Thomas (2019), this study wanted to know grocery retailers' points of view about online shopping because the authors believed their perceptions considerably impact their behaviour and decision towards this phenomenon. This study applied the extended UTAUT2 model incorporating all the variables in the UTAUT2 model with some additional constructs like perceived trust (PT), perceived time pressure (PTP), service quality (SQ), and perceived in-store shopping enjoyment (PSE). Our suggested model predicts BI and AU well. The effect of HA, HM, PSE, PTP, and PV on BI was confirmed by our model. Regarding AU, constructs of HA, and FC depicts a positive relationship with actual usage, and the most significant drivers of online grocery shopping, according to our data, are habit and perceived time pressure.

## 9. Managerial implications

Our results have managerial implications. We found the difference in Iranian grocery shoppers' preference regarding online shopping and how grocery managers perceive it. For

example, over one-third of our participants mentioned that e-grocery shopping is their first choice when buying groceries. However, when we asked about it, grocery managers stated that we were unsure about the amount of online shopping by customers. They believed that online grocery shopping would be a phenomenon in the future. According to the data, Iranian grocery managers' perceptions regarding online shopping are based on their personal experiences. Another example regarding the difference between grocery managers' feelings and customers' actual behaviour is perceived in-store shopping enjoyment (PSE). Our finding depicts that perceived in-store shopping enjoyment (PSE) did not significantly influence actual usage among Iranian grocery shoppers. However, grocery managers think in-store shopping is entertainment for their customers. The observations of this research depict that 86% of participants had an online grocery shopping experience, which is pictured as a pleasant shopping channel for them. However, according to interviews with grocery managers, they seem less concerned about focussing on and investigating online channels. Therefore, current research provides Iranian grocers with a better understanding of customer expectations and suggests that the managers of physical stores could benefit from emphasising online shopping because it is an attractive channel for their customers. It is a fact that currently, most Iranian people are purchasing groceries from physical stores. However, one of the most important reasons is the limited availability of online grocery channels in many cities except for Tehran. Hence, the market leader supermarkets that can invest in their online channel should develop their websites. As grocery managers mentioned in our research, they should target the young generation to adopt it.

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## Appendix

**Table A1.** Discriminant validity (HTMT)

| | AU | BI | EE | FC | HA | HM | PSE | PR | PTP | PT | PV | PE | SQ | SI |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AU | | | | | | | | | | | | | | |
| BI | 0.691 | | | | | | | | | | | | | |
| EE | 0.167 | 0.115 | | | | | | | | | | | | |
| FC | 0.333 | 0.211 | 0.343 | | | | | | | | | | | |
| HA | 0.828 | 0.637 | 0.131 | 0.232 | | | | | | | | | | |
| HM | 0.501 | 0.567 | 0.358 | 0.31 | 0.514 | | | | | | | | | |
| PSE | 0.377 | 0.39 | 0.038 | 0.123 | 0.301 | 0.274 | | | | | | | | |
| PR | 0.337 | 0.125 | 0.309 | 0.125 | 0.22 | 0.168 | 0.041 | | | | | | | |
| PTP | 0.352 | 0.46 | 0.191 | 0.099 | 0.303 | 0.19 | 0.24 | 0.101 | | | | | | |
| PT | 0.426 | 0.373 | 0.309 | 0.213 | 0.432 | 0.466 | 0.151 | 0.473 | 0.086 | | | | | |
| PV | 0.463 | 0.559 | 0.205 | 0.212 | 0.577 | 0.526 | 0.241 | 0.232 | 0.225 | 0.671 | | | | |
| PE | 0.566 | 0.6 | 0.3 | 0.288 | 0.649 | 0.718 | 0.26 | 0.289 | 0.221 | 0.525 | 0.594 | | | |
| SQ | 0.665 | 0.491 | 0.192 | 0.331 | 0.481 | 0.499 | 0.237 | 0.379 | 0.229 | 0.813 | 0.517 | 0.564 | | |
| SI | 0.779 | 0.557 | 0.215 | 0.42 | 0.699 | 0.606 | 0.239 | 0.338 | 0.311 | 0.478 | 0.634 | 0.721 | 0.55 | |

**Note(s):** AU (Actual usage), BI (Behavioural (buying) intention), EE (Effort expectancy), FC (Facilitating conditions), HA (Habit), HM (Hedonic motivation), PSE (Perceived in-store shopping enjoyment), PR (Perceived risk), PTP (Perceived time pressure), PT (Perceived trust), PV (Perceived value), PE (Performance expectancy), SQ (Service quality), SI (Social influence)

**Source(s):** Authors' own calculation

**Table A2.** Blindfolding test for predictive accuracy

| | ∑SSO | ∑SSE | $Q^2$ | | ∑SSO | ∑SSE | $Q^2$ |
|---|---|---|---|---|---|---|---|
| *AU1* | 200 | 83.679 | 0.58 | *PR1* | 200 | 104.037 | 0.48 |
| *AU2* | 200 | 91.344 | 0.543 | *PR2* | 200 | 111.814 | 0.441 |
| *AU3* | 200 | 86.758 | 0.566 | *PR3* | 200 | 97.196 | 0.514 |
| *AU4* | 200 | 93.086 | 0.535 | *PR4* | 200 | 119.485 | 0.403 |
| *BI1* | 200 | 135.802 | 0.321 | *PSE1* | 200 | 79.204 | 0.604 |
| *BI2* | 200 | 63.296 | 0.684 | *PSE2* | 200 | 60.498 | 0.698 |
| *BI3* | 200 | 115.966 | 0.42 | *PSE3* | 200 | 73.594 | 0.632 |
| *EE1* | 200 | 106.898 | 0.466 | *PSE4* | 200 | 86.112 | 0.569 |
| *EE2* | 200 | 128.080 | 0.360 | *PT1* | 200 | 141.69 | 0.292 |
| *FC1* | 200 | 147.607 | 0.262 | *PT2* | 200 | 116.782 | 0.416 |
| *FC2* | 200 | 115.922 | 0.42 | *PT3* | 200 | 139.013 | 0.305 |
| *FC3* | 200 | 127.532 | 0.362 | *PTP1* | 200 | 102.038 | 0.49 |
| *HM1* | 200 | 61.595 | 0.692 | *PTP2* | 200 | 96.296 | 0.519 |
| *HM2* | 200 | 47.459 | 0.763 | *PTP3* | 200 | 108.97 | 0.455 |
| *HM3* | 200 | 74.152 | 0.629 | *PTP4* | 200 | 135.172 | 0.324 |
| *HA1* | 200 | 88.902 | 0.555 | *PV1* | 200 | 75.24 | 0.624 |
| *HA2* | 200 | 83.155 | 0.584 | *PV2* | 200 | 77.494 | 0.613 |
| *HA3* | 200 | 79.8 | 0.601 | *PV3* | 200 | 102.037 | 0.49 |
| *HA4* | 200 | 102.755 | 0.486 | *SI1* | 200 | 174.872 | 0.126 |
| *PE1* | 200 | 143.932 | 0.28 | *SI2* | 200 | 174.906 | 0.125 |
| *PE2* | 200 | 115.878 | 0.421 | *SQ1* | 200 | 151.032 | 0.245 |
| *PE3* | 200 | 106.2 | 0.469 | *SQ2* | 200 | 126.47 | 0.368 |
| *PE4* | 200 | 121.469 | 0.393 | *SQ3* | 200 | 136.109 | 0.319 |

**Note(s):** ∑SSO (sum of the squared observations), ∑SSE (sum of the squared prediction errors), Q2 (predictive relevance), AU (Actual usage), BI (Behavioural (buying) intention), EE (Effort expectancy), FC (Facilitating conditions), HA (Habit), HM (Hedonic motivation), PSE (Perceived in-store shopping enjoyment), PR (Perceived risk), PTP (Perceived time pressure), PT (Perceived trust), PV (Perceived value), PE (Performance expectancy), SQ (Service quality), SI (Social influence)
**Source(s):** Authors' own calculation

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