

Impact of Social Influence on Entrepreneurs to Use e-Commerce in Saudi Arabia

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Abstract— The rapid evolution of technology along with the availability of relevant information and knowledge are key drivers for increasing productivity and improving standards of living and economic growth. The Internet revolutionised how organisations operate and perform around the world; it is used in multiple ways, including sharing information, communicating information, providing information, obtaining information, and collaborating with others. One application of the Internet nowadays is electronic commerce (e-commerce). Entrepreneur could benefit from e-commerce technologies to run the business in a cost-effective and efficient way. This paper seeks to study the impact of social influence on entrepreneurs attention to use e-commerce technology in Saudi Arabia context using TAM..

Keywords— e-commerce, entrepreneur, TAM, Saudi Arabia, social influence.

I. INTRODUCTION

Staying resilient through tough economic times requires entrepreneurs to be talented, efficient, and capable of thinking outside the box in order to succeed and grow. In order to achieve this, entrepreneurs need to utilise the latest technologies: e-commerce is one example of them [61]. Encouraging potential entrepreneurs to start online businesses will contribute to developing the national economy and benefiting themselves.

Recently, the government of Saudi Arabia started paying serious attention to entrepreneurs and ways to create and support them in order to solve unemployment issues among the younger generation, which comprises 30% of the population, and to boost the country's economy. As the numbers of unemployed youth are increasing as a result of yearly high school and university graduations, they are looking for job opportunities that the public and private sectors cannot always provide for them. This makes entrepreneurship seem like an even more attractive option to consider [17].

As a result, different programmes and initiatives from different government and non-government agencies have been established to provide many types of support (financial, legal, consultancy, etc.) to anyone who wants to establish an entrepreneurial business. One of the key players in this field is the BADIR programme for Technology Incubators, a government initiative from King Abdulaziz City for Science and Technology (KACST). In 2013, BADIR supported 67 innovative IT business projects begun by young Saudi entrepreneurs, some of them using e-commerce technologies which show that the Saudi

government is making a great effort to support innovative e-commerce projects created by Saudi entrepreneurs [14].

Furthermore, the Ministry of Labour in the Kingdom of Saudi Arabia introduced a new law called the Nitaqat programme (which means 'ranges' in Arabic) to organise the Saudi labour market and to increase job opportunities for citizens in the private sector. The Nitaqat programme categorises businesses into five different levels. *Micro-entities* have one to nine employees, including the owner. *Small entities* have 10 to 49 employees. *Medium entities* have between 50 and 499 employees. *Large entities* have between 500 and 2999 employees. Finally, *giant entities* have 3000 or more employees. This new law replaced the old one (Saudization) that applied an unconditional quota of at least 30% Saudi employees in all companies regardless of their commercial activities or size. Therefore, under this new law, the smallest firms (micro-entities) are excluded from any obligations to reach a specific number of Saudi employees, whereas the other levels are required to fulfil different quotas based on their categories, which provides small firms with less expensive and easier start-up capabilities [8].

The focus of this research will be on the impact of the social influence factor, which will lead to find out the "the impact of the social influence factor on entrepreneurs in Saudi Arabia who use e-commerce technology". The outcomes of this study will help to create an overall understanding of the elements involved in shaping online businesses for entrepreneurship in Saudi Arabia that can lead to (1) improving the Internet and the information technology environment, (2) training, funds, and awareness programmes, and (3) policies and legislation in Saudi Arabia. The research's outcomes should be used to enable and motivate both existing and beginning entrepreneurs to leverage the benefits of e-commerce and Internet technologies to maintain their businesses, achieve greater success, maximise profits, and reduce costs so they will not be left behind when the Internet becomes the dominant means for commercial trade. In addition, it is another way to maintain the sustainability of their businesses.

II. LITERATURE REVIEW

A. Definition of Entrepreneurs and Entrepreneurship in Saudi Arabia

The term 'entrepreneurs' has a lot of meanings and definitions depending on different perceptions of entrepreneurs and how to grow and develop a business [46].

Lee-Ross & Lashley [46] define entrepreneurs as individuals who start a modest business and convert it into a successful large-scale business. Getz et al. (2006) defines 'entrepreneur' as the primary individuals involved in the process of establishing prosperity for themselves and triggering the creation of prosperity for others.

The Oxford Dictionary of Business and Management defines it as follows:

"An individual who undertakes (from the French entreprendre, to undertake) to supply a good or service to the market for profit. The entrepreneur will usually invest capital in the business and take on the risks associated with the investment. In most modern capitalist economies the initiative of entrepreneurs is regarded as an important element in creating a society's wealth; governments are therefore led to establish conditions in which they will thrive." [45].

Entrepreneurship is gaining momentum in Saudi Arabia, therefore the government is trying to support it in order to solve the unemployment issue affecting the younger generation and to boost the country's economy. As a result, the Saudi government creates, develops, and promotes different types of initiatives, conferences, and competitions that are designed and targeted local entrepreneurs. Initiatives include the Technology Incubator Programme (BADIR) that was launched by King Abdulaziz City for Science and Technology (KACST) in 2007, the National Entrepreneurship Institute (RIYADAH), the MASARAT programme from the Saudi Credit and Savings Bank, and other programmes from different government agencies and not-for-profit organisations. All of these initiatives and programmes are clear indicators of the great attention that the Saudi government is giving to this important and vital segment because of the important role it plays in the growth of the country's economy [12].

B. Definition of e-Commerce and Types of e-Commerce

Electronic commerce is defined in many different ways. One of its definitions could be that e-commerce involves performing different business activities (marketing, promoting, buying, and selling goods and services) over the Internet [49]. According to Henari & Mahboob [36], the e-commerce concept could extend to include selling and communicating between businesses via the Internet. Furthermore, e-commerce covers a variety of business activities such as electronic fund transfers, online transaction processing, Internet marketing, improving organisations' productivity, maintaining customer services, advertising and brand-building, establishing efficient collaboration tools between partners, managing supply chains, and providing information, products, and services [44]. Other items include electronic data interchange (EDI), automated collection systems, and inventory management systems [37].

E-commerce has different forms or types: Business to Business (B2B), Business to Consumer (B2C), Business to Government (B2G), Consumer to Consumer (C2C), and Peer to Peer (P2P) [15].

C. E-Commerce's Impact on the Economy

Firms that utilise e-commerce technologies could improve their overall performance from different aspects:

prospective costs, competitiveness, automated processes, etc. [58]. Any commercial activity must have three main players: seller, supplier, and customer. When e-commerce technologies are used to perform a trade, a fourth player is added automatically: technology. Petras et al [58] found that, by adopting e-commerce, the three traditional trade participants would realise the following new added values:

- 1) *Seller*: e-commerce will smooth the cash flow by executing transactions electronically, as well as other advantages such as: shortening production cycles, disseminating better information, and creating new channels to reach new international markets. All of these are benefits that companies can gain in easy and less costly ways.
- 2) *Supplier*: the first and the most important advantage a firm will gain when applying e-commerce technologies is increasing the quality of communicated information in less time compared to traditional communication media (fax, telephone, post). The second positive impact of e-commerce is that it shortens the supply chain cycle between sellers and suppliers.
- 3) *Customer*: All the previous values of shortening production and supply chain cycles and saving sellers' transaction costs are going to be reflected in the final product or service price, which will be more affordable. Moreover, e-commerce simplifies searching, ordering, and shipping processes for products and services.

D. E-Commerce in Saudi Arabia

According to the latest Information Technologies (IT) report released by the Communications and Information Technology Commission (CITC) in Saudi Arabia about Internet usage in the country, electronic commerce (e-commerce) remains underdeveloped. However, the percentage of businesses that use e-commerce technologies increased from 9% to 12% between 2007 and 2009 [20].

In terms of Internet users, there has been a rapid growth since 2004, when it was 10% of the population, up to more than 55% in 2013 and almost 60% in 2014. This substantial rise in the number of Internet users in Saudi Arabia is due to the increased demand for Internet services to perform e-government activities, gaming, social networking, e-commerce, and video downloading [21].

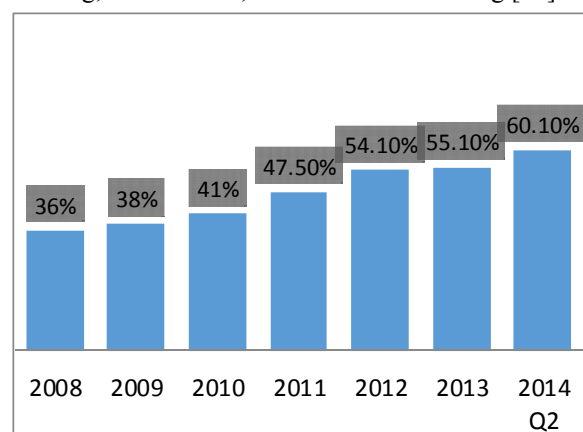


Fig. 1 Internet penetration (%) in Saudi Arabia [21]

Newer studies have found that Saudi Arabia is going to be the next big e-commerce hub in the Middle East. This is due to many reasons, such as the number of individuals who buy goods online, invest in the stock market, and pay bills online, which is higher than in any other Arab countries included in this study (Qatar, Bahrain, Egypt, Lebanon, Jordan, Tunisia, and the UAE). Furthermore, Saudi Arabia has a well-established online payment infrastructure that comes in second place for the highest rate of credit card usage and the lowest rate of online credit card usage. The number of online buyers also increased to 39% in 2011 due to the increase of support towards new e-commerce start-up organisations that motivate e-commerce companies from outside Saudi Arabia to focus on the Saudi market [28].

The exponential increase in e-commerce in Saudi Arabia could attract more entrepreneurs to enter this market and benefit from the increasing number of customers and the variety of online payment options available.

E. E-Commerce and Entrepreneurship

There are increasing numbers of studies that focus on entrepreneurship as entrepreneurs who endeavour to start and maintain businesses are considered one of the best economic catalysts in most countries in the world. If information technologies are adopted, entrepreneurs can be more efficient and innovative, explore new opportunities, and access new markets locally and internationally [53]. For this reason, studying e-commerce adoption factors among entrepreneurs is becoming very important.

This study is concerned with exploring the impact of the social influence factor on entrepreneurs to utilise e-commerce technologies because of two main benefits that e-commerce would bring to an entrepreneur's business. First, e-commerce technologies enhance internal business processes that, in turn, will reduce transaction costs. Second, e-commerce unleashes marketing potential by quickly gathering any required information needed to keep up with the competition [2].

According to Abebe [2], most entrepreneurs' businesses are significantly small, which is considered a drawback compared to large enterprises. Therefore, entrepreneurs' intentions to use e-commerce will increase to overcome this disadvantage, as e-commerce will enable entrepreneurs to gain the following features:

- Expose entrepreneurs to the entire world, and gain new clients.
- Increase customer satisfaction because of efficient and easy access to electronic stores from anywhere over the Internet at any time.
- Acquire a competitive advantage by understanding and adapting to the changing client needs.

Most of the studies that have been conducted about e-commerce adoption in Saudi Arabia did not focus on the entrepreneurial aspect. Al-Otaibi and Al-Zahrani [7] and Sait et al. [64] covered e-commerce adoption in Saudi Arabia in general for all sizes of businesses, focusing on the large enterprises, while Al-maghrabi et al. [6] focused on consumer behaviours, especially their tendency to purchase online, in Saudi Arabia. However, AlGhamdi et al. [10] and Ahmad and Mohan [3] only highlighted the retailers in

general, either small or large, in Saudi Arabia. The adoption factors that were founded by AlGhamdi et al. [10] are: (1) set-up costs, (2) shipment issues, (3) resistance to change, (4) absence of e-commerce experience, (5) poor ICT infrastructure, (6) absence of online payment options, (7) fear of online sales, (8) the habits/culture of people in Saudi Arabia not being favourable towards online purchases, (9) absence of clear regulations for e-commerce in Saudi Arabia, (10) difficulties in offering competitive advantages on the Internet, (11) absence of profitability, and (12) products that are not suitable to be sold online. Ahmad and Mohan [3] found factors that are mostly the same as the factors that were founded by AlGhamdi et al. [10]; however, their study added a few more factors, which are: (1) limited knowledge of available technology, (2) shortage of skilled human resources, (3) difficulty integrating e-commerce with existing systems.

In the context of entrepreneurs, some research focuses on the effects of entrepreneurs' unique characteristics on their intentions to adopt e-commerce technologies. Moghavvemi and Akma Mohd sallah [53] studied the influence of perceived desirability, perceived feasibility, and propensity to use discipline on the intention to use e-commerce. The need for achievement, risk-taking propensity, and locus of control were covered in Lane et al. [43] research using a TAM model, whereas Alam et al. [9] added four more entrepreneurial traits along with the previous three: opportunity, independence, confidence, and innovativeness. All of the previous studies were about entrepreneurs in Malaysia, but there were no studies about entrepreneurs in Saudi Arabia. As Saudi Arabia is considered a conservative and collectivist culture (Al-Gahtani et al. [5]), studying the effect of one of the cultural factors on entrepreneurs' behaviours to adopt e-commerce will add more insight to this area of research. Therefore, social influence was selected to be studied in the context of Saudi culture; this will be covered in greater detail in the following sections.

F. TAM and E-Commerce

Information technology (IT) adoption has been studied intensively to determine the factors behind intentions to use IT. Therefore, many models have been developed to explore these contributions. The most common models in this area are: the Technology Acceptance Model (TAM), introduced by Davis [24]; the Theory of Reasoned Action (TRA), suggested by Fishbein and Ajzen [26]; the Theory of Planned Behaviour (TPB), proposed by Ajzen [4]; the Perceived Characteristics of Innovation (PCI), developed by Moore and Benbasat [55], and the Diffusion of Innovation Theory (DOI), proposed by E.M. Rogers [59].

The Technology Acceptance Model (TAM), introduced by Davis [24], is one of the most-used models in the wide range of IT acceptance research. Davis [24] developed TAM from TRA, which was introduced by Fishbein and Ajzen [26], and modified it to fit information technology filed. Davis [24] replaced subject norms with two main constructs (perceived usefulness and perceived ease of use), which influence attitudes towards using IT. The TAM variables are perceived usefulness, perceived ease of use, attitude towards using IT, behavioural intention to use, and actual use of information systems. As Figure 2 shows,

perceived ease of use influences perceived usefulness while both perceived ease of use and perceived usefulness influence attitudes towards using IT. Perceived usefulness influences behavioural intention to use, which influences actual use of IT.

Perceived usefulness (PU) is defined as the degree to which an individual conceives that using a specific IT system or application will improve the task and process performance [13].

Perceived ease of use (PEOU) is defined as an individual's assessment of using a specific IT system or application based on whether or not it might be free of mental or physical effort. Perceived ease of use influences attitudes towards using IT indirectly through perceived usefulness [13].

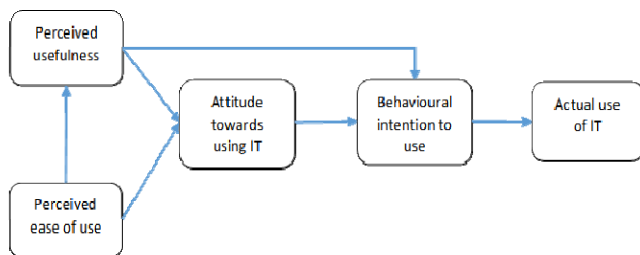


Fig. 2 TAM model [24]

TAM was developed and updated over time to include more influencing variables. According to Davis [24], the two main constructs that determine individual intention to use IT are perceived ease of use and perceived usefulness. Any other external variables influencing intention to use are directed by perceived ease of use and perceived usefulness [75]. TAM2 (Figure 3) was introduced by Venkatesh and Davis [75] as an extension of the original TAM to add more constructs to the model to study their effects on IT adoption; these constructs are 'social influence processes' and 'cognitive instrumental processes'. Each one of these constructs contains influential factors as shown and defined in Table 2.2.

Several studies have revealed that TAM is able to explain about 40% of behavioural intention to use [59]. Gentry and Calantone [30] found that TAM was superior in explaining behavioural intentions in comparison with the TRA and TPB models. According to Han and Jin [35], TAM has proven to be an effective way to study e-commerce adoption behaviours.

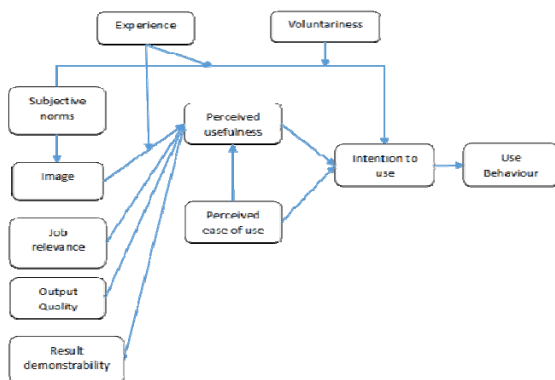


Fig. 3 TAM2 model [72]

G. Culture Impact

Previous research has indicated that sociocultural factors influence IT usage acceptance [11] and the Internet [48]. Leidner and Kayworth [47] found that culture is a main determining factor in the acceptance and adoption of technology. Furthermore, the literature has indicated a positive relationship between cultural factors and the adoption of information systems [52], [74], information technology [67], and information technology and communications [25], [78].

Due to the fact that Saudi culture synthesises Arab and Islamic customs and beliefs, the conservative culture of Saudi Arabia dominates and influences all aspects of life. The high level of affinity towards their customs affects how they live and work [1].

Social influence is one cultural factor that has been studied extensively.

As far as social influence is concerned, no studies have been done about its impacts on e-commerce adoption among entrepreneurs in Saudi Arabia. In order to close this gap, social influence has been chosen as a determinant for this study.

H. Social Influence

According to Innovation-Diffusion Theory, innovation adoption not only depends on the user's beliefs about that innovation [63], but also on social influence [27]. One of the external variables that was proven to have an effect on intention to use e-commerce based on the TAM2 model is social influence [75]. According to Ajzen [4], social influence was modelled to be a construct that affects attention to use. Social influence is defined as "the degree to which an individual perceives that others believe he or she should use a new system" [76] p. 451. Social influence consists of subjective norms, image, and voluntariness. Subjective norms are when a person considers other people, perceptions, and opinions that are important to him to decide if it is important whether or not he or she should use IT technology. Image is when using IT technology will reflect back on the person's social status within his or her community. Voluntariness is when the adopter of IT technology perceives that the decision to adopt is non-mandatory [75].

Cultures with low individualism (collectivism), such as Saudi Arabia, have a significant influence on individual intentions [5]. Therefore, Social influence has been chosen as a determinant variable in this study to test its effects on Saudi entrepreneurs' intention to use e-commerce. In order for the social influence factor to be more adapted to this study, it was divided into two constructs, personal social influence and business social influence.

Therefore, it is hypothesised that there is a positive relationship between social influence and behavioural intention to use e-commerce. Consequently, we hypothesise:

H1a: *Personal Social influence will have a positive significant impact on entrepreneurs' intentions to use e-commerce.*

H1b: *Business Social influence will have a positive significant impact on entrepreneurs' intentions to use e-commerce.*

I. Perceived Ease of Use

Perceived ease of use (PEOU) is defined as an individual’s assessment of whether or not using a specific IT system or application will be free of mental or physical effort. Perceived ease of use influences attitudes towards using IT indirectly through perceived usefulness [13], [24].

Previous studies employed perceived ease of use, which has a high possibility of being relevant to the context of this study. It has been theorised that this construct influences intention to use [19], [24]. Consequently, we hypothesise:

H2: *Perceived ease of use will have a positive significant impact on entrepreneurs’ intention to use e-commerce.*

J. Perceived Usefulness

Perceived usefulness (PU) is defined as the degree to which an individual perceives that using a specific IT system or application will improve the task and process performance [13], [24].

Perceived usefulness has been studied and empirically tested to find its significance in previous research [16], [71], [72].

The continuous employment of perceived usefulness in earlier studies gives it a high possibility of relevance to the context of this study. It has been theorised that this construct is influenced by perceived ease of use [24] and social influence [22], [43]. Consequently, we hypothesise:

H3: *Perceived usefulness will have a positive significant impact on entrepreneurs’ intention to use e-commerce.*

III. METHODOLOGY

A. Research Model

The model for this study is derived from the TAM2 model with a focus on one variable: social influence. The importance of social influence on the adoption of new information technology has been highlighted in some of the research that deals with social construction. In that sense, IT adoption is based, aside from the technical aspects, on the social environment surrounding an individual, wherein the social influence has an impact on accepting IT as well as the intention to use it [29]. According to Ajzen [4], social influence was demonstrated as a construct that affects attention to use.

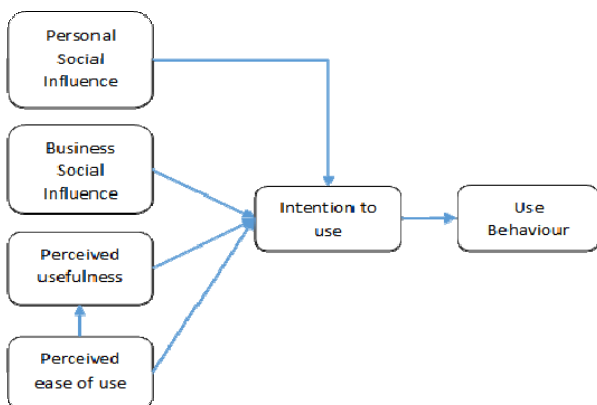


Fig. 4 Research model

IV. RESEARCH METHODOLOGY

A. Research Design

Research design is a systematic process used to plan and organise the research components once they are outlined in order to answer the research questions [72]. Deciding on the research paradigm is the first building block for this process, which is, in the case of this study, its positivist paradigm (quantitative). This approach will lead the study to choose from one of the positivist collection methods that is suitable for it. These methods include a cross-sectional study, a longitudinal study, an experimental study, or a survey [38]. Figure 3.2 shows the main collection methods under the two different paradigm approaches.

B. Data Collection

The positivist paradigm has four data collection methodologies (cross-sectional study, longitudinal study, experimental study, survey). Survey study is a way of collecting primary data based on communications with a selected sample that represents the target population. It is an inexpensive, accurate, and efficient method to collect data about a population [79]. It is also able to outline the patterns for specific behaviours, to spot group characteristics, and to assess human attitudes. Therefore, this research adopted the survey methodology as a data collection method to capture responses about the social influence, perceived ease of use, and perceived usefulness, which are hypothesised to influence the intention of entrepreneurs in Saudi Arabia to use e-commerce. The collected data will be statistically analysed to test the hypotheses, which will result in the determination of the relationship between independent and dependent variables [56].

C. Unit of Analysis

Audretsch et al. [12] argue that there is a positive relationship between entrepreneurship and the growth of the economy. The unit of analysis for this study is Saudi entrepreneurs, which was discussed in detail in the introduction and literature review.

D. Sample Frame

The unit of analysis (population) for this study is Saudi entrepreneurs who meet the following criterion. The number of working employees should be from one to fifty employees, which includes the first two smallest types of firm recognised by the Ministry of Labour (micro-entity and small-entity). The reason why this category is selected is to make sure that the majority of respondents are start-ups or real entrepreneurs, as per the definition in the introduction of this study, in order to ensure that the participants are within the target audience and do not include firms that are not within the range of micro-entity and small-entity firms. According to Lee-Ross & Lashley [46], entrepreneurs are individuals who start a modest business and convert it into a successful large-scale business.

The ministry of commerce and other government agencies do not share a list of entities with a third party because of confidentiality issues. Therefore, the best alternatives for sampling purposes are the business databases of Forbes Middle East magazine, arabnet.com, mothoq.com, and RIYADH which provide information about more than 5000 micro and small entities in Saudi

Arabia between 2013 and 2014 that can be reached via their Twitter accounts, e-mail addresses, or Facebook accounts with a survey link to this study.

E. Sample Size

The researcher strives to ensure that his or her study has an acceptable power by estimating the sample size adequately. Power is needed to tell to what extent the study's outcomes and conclusions are accurate. The power calculation is a mathematical process that can calculate the sample size prospectively (before conducting the study) or retrospectively (after finding the facts) [37]. Prospective power analysis is remarkable because it can be used to estimate the sample size needed to conduct quantitative research [37], [69]. Nowadays, mathematical calculations are used to figure out an acceptable number of respondents. Thus, this formula has been used to predict the population sample size (The Survey System, 2007):

$$\text{Minimum Sample Size (n)} = \frac{Z^2 \times p \times (1 - p)}{c^2}$$

Where:

n = Minimum size sample

Z = Confidence level at 90% (the standard value is 1.645)

p = Estimated fractional population of subgroup

c = confidence interval at 5% (the standard value is 0.05)

Based on a Ministry of Labour report in 2013, the number of micro and small entities was 1,523,152, which represents 85.6% of the total number of all entities from all different levels registered officially in the Ministry of Labour [68]. Therefore, the sample size is estimated to be 133 samples.

$$\text{Minimum Sample Size (n)} = \frac{1.645^2 \times 0.856 \times (1 - 0.856)}{0.05^2} = 133.42 \approx 133 \text{ participants}$$

However in the same report by [68], it was mentioned that some of micro-entities are not active for more than a year. Thus, the total micro-entities number that was used to calculate the sample size might be inaccurate which reflects on the sample size to be less than 133 participants. In this case, 90 participants and more would be accepted for this study.

F. Data Collection Method

Probability samples are always a better choice for a social study, but are not always achievable. Probability samples include four main types: 1) random sampling, 2) stratified random sampling, 3) systemic sampling, and 4) cluster sampling [74]. This study uses a random sampling method because there is only one group to study, and to ensure the randomness and equal illustration of the unit of analysis, as well as the generalisability of findings [51].

The instrument will be questionnaires, which are considered one of the most widely used data collection instruments in the IS research field due to their ability to provide responses that can be generalised to other parts of the same population, to predict behaviour, and to be easy to administer and reuse [57]. There are two types of questionnaires: self-administered questionnaires and interviewer-administered questionnaires. Interviewer-administered questionnaires are managed by direct contact

with participants via face-to-face interviews, telephone calls, or computer chatting software [35]. Interviewer-administered questionnaires are applicable for qualitative research that needs detailed information about the participants. Therefore, this method was not considered for this research, which means self-administered questionnaires were chosen to collect data from a large number of respondents.

There are two approaches to conducting self-administered questionnaires. The conventional way is where printed questionnaires are distributed in places of high population density via people, mail, or fax. The other approach is via electronic means such as e-mails and websites [79]. According to Trujillo [73], electronic questionnaires are found to be more accurate and the most preferable option. Electronic self-administered questionnaires were chosen to distribute surveys among the targeted sample of the population of this study.

G. Data Analysis

Computer aid software SPSS is used to analyse the collected data and to provide descriptive statistics, frequencies, and percentages. The statistical package for social science (SPSS) is a well-known and commonly used program for statistical analysis in the social sciences. Reliability for all research variables will be checked using Cronbach's alpha coefficient. In order to explain the strength of the association between e-commerce usage and independent variables, as well as the inferential statistics, a Chi-square will be used. The relationship between variables will be tested by using correlation analysis.

H. Validity and Reliability

According to McMillan & Schumacher [50], validity is defined as "a judgment of the appropriateness of a measure for specific inferences, decisions, consequences or uses that result from the scores that are generated". Campbell and Fiske [18] emphasised the importance of applying both discriminant and convergent validation techniques when a construct's validity needs to be assessed. The convergence validity is going to be assessed by examining the convergence of items of a variable together within a single construct [60], as long as every item factor loading is more than 0.45, as advised by Comrey and Lee [23]. Discriminant validity shows the differences between two constructs, and can be tested by fixing the estimated correlation parameter between the constructs to 1.0 then applying a different test using Chi-square values [18]. Therefore, this study uses construct validity (convergent & discriminant validity).

In order to test reliability, this study uses Cronbach's alpha and composite reliability statistics. Cronbach's alpha is "an index of reliability associated with the variation accounted for by the true score of the underlying construct" [32]. Alpha coefficients vary between the values 0 and 1, which can be used to illustrate the reliability of the construct: the higher the alpha value, the more reliable the developed scale is [32].

According to Song [66], the Cronbach's alpha values for personal social influence and business social influence are 0.944 and 0.905 respectively.

V. DATA ANALYSIS AND FINDINGS

A. Profile of Respondents

With a target sample size for the research of 133 participants, the actual number of responses received from the online survey distributed among the Saudi entrepreneurs was 134. Males comprised the vast majority of respondents (112) while only 22 females responded. The demographic characteristics of participants, namely, gender, age, living area, education level, number of years in business and number of employees have been collected.

Participants were asked to determine their gender for this study and males accounted for 83.58% and females 16.42% of responses. One possible explanation could be that the male population is greater than the female population in Saudi Arabia [40].

The majority of respondents (49.25%) were between the ages of 30 and 40 years. The second highest group of participants (35.07%) fell in the age group 25 - 30 years, followed by those whose age was less than 25 years (6.72%) and then those who are above 50 years (5.22%). Finally, the age group between 40 and 50 years (3.73%) is the smallest group.

In terms of education, the participants were divided into five educational levels. The majority (32.84%) hold a bachelor degree, followed by the group who have a diploma (23.88%) and then participants who hold a postgraduate qualification (20.15%). Approximately (11.94%) of participants completed high school and 11.19% their qualification less than a high school.

The participants were also asked to identify their location, as shown in Table 4.1. City dwellers comprised 91.79% of the participants, with the remaining 8.21% living in villages or rural areas.

The majority of businesses (39.55%) had been operating for more than two years, followed by businesses that had been operating for less than one year (32.09%) and finally, the smallest group (28.36%) comprised businesses that had been operating between one and two years.

The last characteristic is the size of the entity. Most of the entities (89.55%) had fewer than 10 employees, followed by the entities with between 10 and 50 employees (8.21%) and finally entities with more than 50 employees (2.24%). Although this study focused on the micro and small entities that have from 1 to 50 employees, the three participants from medium size firms (more than 50 employees = 3 participants) were included in the analysis because they are small in number compared to the sample size.

B. Correlation

Correlation was used to summarise the strength of the linear relationships between the independent variables (personal social influence [PSIm], business social influence [BSIm], perceived ease of use [PEUM] and perceived usefulness [PUM]) and the dependent variable (intention to use e-commerce [IUM]). According to Gray & Kinnear [33], the scale to evaluate the correlation coefficient is explained as follows:

- A correlation coefficient greater than 0.50 is interpreted as a very strong correlation.
- A correlation coefficient between 0.30 and 0.50 is interpreted as a moderate correlation.

- A correlation coefficient between 0.10 and 0.30 is interpreted as a low correlation.
- A correlation coefficient less than 0.10 is interpreted as a trivial correlation.

Based on the above scale, there are positive relationships between all independent variables and the dependent variable and there are statistically significant relationships between them at the 10% significance level. The correlation coefficients of PUM and BSIm are 55.2% and 53.5% respectively, which are considered strong correlations, while the correlation coefficients of PEUM and PSIm are 38.3% and 40.9% respectively, which are considered moderate correlations.

A scatter plot was used to graphically describe the linear relationship between each independent variable and the dependent variable. The coefficient of determination, R^2 , calculated for each scattered plot to explain the variation in intention to use is explained by each independent variable.

As shown in Figure 5, the coefficient of determination R^2 for (PEUM vs. IUM) is 0.146 which means that 14.6% of the variation in intention to use is explained by the perceived ease of use. In Figure 6, R^2 is 0.305 which means the perceived usefulness explains 30.5% of the variation in intention to use.

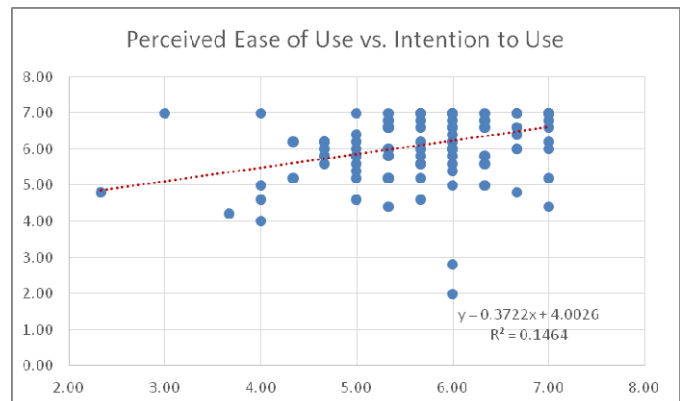


Fig. 5 Perceived Ease of Use vs. Intention to Use

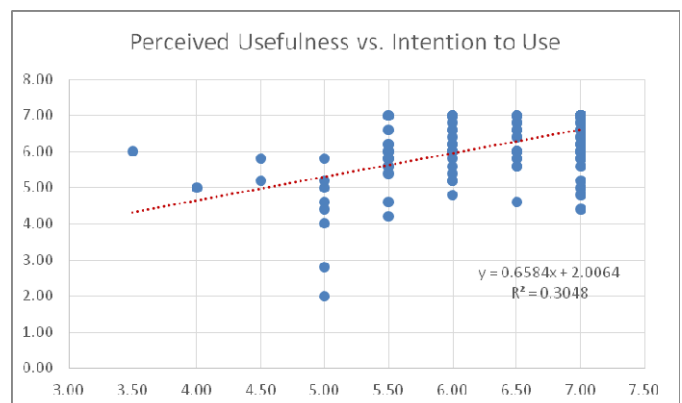


Fig. 6 Perceived Usefulness vs. Intention to Use

The value of R^2 for PSI vs. IUM in Figure 7 is 0.168 which indicates that 16.8% of the variation in intention to use is explained by personal social influence. Finally, 28.6% of the variation of the intention to use is explained by business social influence as shown in Figure 8.

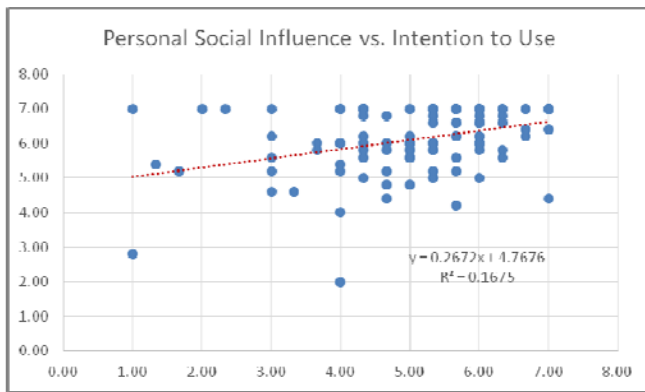


Fig. 7 Personal Social Influence vs. Intention to Use

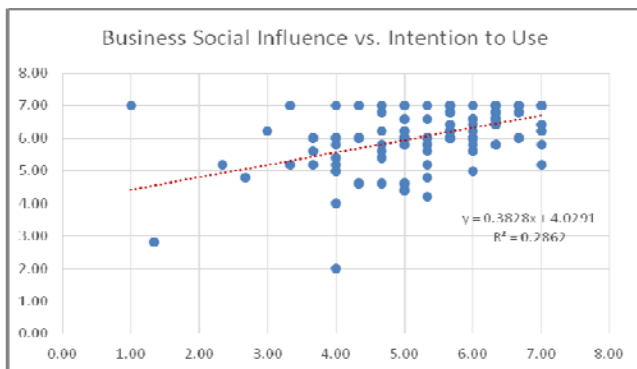


Fig. 8 Business Social Influence vs. Intention to Use

C. Hypotheses Testing

Linear regression was used to test the hypotheses that were stated in literature review, based on the responses of the 134 participants. The outcomes were that for all hypotheses there were significant positive linear relationships between independent variables PEUm, PUm, PSIm, BSIm and the dependant variable IUm, which means each of those independent variables has an effect on the intention to use (dependant variable).

The outcomes of the linear regression analysis between intention to use and personal social influence shows that at a 10% level of significance, the value of the test statistic is $t = 5.15$, with p value of 0.000. There is overwhelming evidence to infer that $\beta_1 \neq 0$ and that linear relationship exists. That means that personal social influence (PSIm) does affect the intention to use (IUm) e-commerce.

TABLE I

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	4.768	.284		16.790	.000
PSIm	.267	.052	.409	5.153	.000

The results of the linear regression analysis between intention to use and business social influence shows that at a 10% level of significance, the value of the test statistic is $t = 7.27$, with p -value of 0.000. There is overwhelming evidence to infer that $\beta_1 \neq 0$ and that linear relationship exists. That means the business social influence does affect the intention to use e-commerce as shown in table II.

TABLE II

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	4.029	.303		13.277	.000
BSIm	.383	.053	.535	7.274	.000

The results of linear regression analysis between intention to use and perceived ease of use shows that at a 10% level of significance, the value of test statistics is $t = 4.758$, with p -value of 0.000. There is overwhelming evidence to infer that $\beta_1 \neq 0$ and that linear relationship exists. That means the perceived ease of use does affect the intention to use e-commerce as shown in table III.

TABLE III

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	4.003	.464		8.623	.000
PEUm	.372	.078	.383	4.758	.000

The results of linear regression analysis between intention to use and perceived usefulness shows that at a 10% level of significance, the value of test statistics is $t = 7.607$, with p -value of 0.000. There is overwhelming evidence to infer that $\beta_1 \neq 0$ and that linear relationship exists. That means the perceived usefulness does affect the intention to use e-commerce as shown in table IV.

TABLE IV

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	2.006	.553		3.628	.000
PUm	.658	.087	.552	7.607	.000

As shown in table V, a standard multiple regression was performed between intention to use as the dependant variable and perceived ease of use, perceived usefulness, personal social influence and business social influence as the independent variables. The multiple correlation coefficient ($R = 0.644$) was significantly different from zero, $F(4, 129) = 22.81$, p -value < 0.05 , and 41.4% of the variation in the dependent variable was explained by the set of independent variables ($R^2 = 0.414$). Adjusted $R^2 = 0.396$ which means the model is significant and capable of explaining the hypotheses at a 10% significance level. Both perceived usefulness ($sr^2 = 0.105$), $t = 4.803$, p -value < 0.05 and business social influence ($sr^2 = 0.064$), $t = 3.754$, p -value < 0.05 , were found to be significant and uniquely contribute to the prediction of intention to use e-commerce. Perceived ease of use ($t = 0.541$, p -value > 0.05) and personal social

influence ($t = -0.853$, $p\text{-value} > 0.05$) were found not to make any significant unique contribution to the prediction.

TABLE V

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	1.658	.539		3.076	.003
PEUm	.043	.079	.044	.541	.589
PUm	.461	.096	.386	4.803	.000
PSIm	-.060	.070	-.092	-.853	.395
BSIm	.297	.079	.415	3.754	.000

VI. DISCUSSION AND IMPLICATION

This study explored the research question: does social influence affect entrepreneurs’ intentions to use e-commerce technologies in Saudi Arabia? Based on the findings of the study mentioned in the analysis section, we will now discuss the results of this study. Hypotheses were tested using regression and the relationships between variables were tested using the correlation coefficient. Test results for the hypotheses are summarised in Table VI and then explained in more detail. All hypotheses were supported, which means that they have a significant effect on the intention to use e-commerce by entrepreneurs in Saudi Arabia.

In this study, social influence is split into two distinct constructs: personal social influence and business social influence. Social influence is used interchangeably with subjective norms in TAM model studies.

TABLE VI

Hypothesis	Results
H1a: Personal Social influence will have a positive significant impact on entrepreneurs’ intentions to use e-commerce.	Supported
H1b: Business Social influence will have a positive significant impact on entrepreneurs’ intentions to use e-commerce.	Supported
H2: Perceived ease of use will have a positive significant impact on entrepreneurs’ intention to use e-commerce.	Supported
H3: Perceived usefulness will have a positive significant impact on entrepreneurs’ intention to use e-commerce.	Supported

A. Perceived Ease of Use

The results show that perceived ease of use has a positive and significant effect on the intention to use e-commerce ($\beta = 0.372$, $p < 0.05$). The correlation coefficient between it and intention to use is 38.30%, which is considered to be a moderate correlation, meaning that there is evidence of the existence of a moderate relationship between them. This result is consistent with the findings of prior studies that used the TAM model [24], [74], [75] which confirmed that perceived ease of use has a significant effect on intention to use.

B. Perceived Usefulness

The results indicated that perceived ease of use has a positive and significant effect on the intention to use e-commerce ($\beta = 0.658$, $p < 0.05$). The correlation coefficient between it and intention to use is 53.50%, which is considered to be a strong correlation, meaning that there is evidence of the existence of a strong relationship between them. This result is consistent with the findings of prior studies that used the TAM model [24], [74], [75] which confirmed that perceived usefulness has a significant effect on intention to use.

C. Personal Social Influence

The results show that perceived ease of use has a positive and significant effect on the intention to use e-commerce ($\beta = 0.267$, $p < 0.05$). The correlation coefficient between it and intention to use is 40.90%, which is considered to be a moderate correlation, meaning that there is evidence of the existence of a moderate relationship between them. This result is consistent with the findings of prior studies that used the TAM model [65], [70], [75] which confirmed that social influence has a significant effect on intention to use.

D. Business Social Influence

The results shows that perceived ease of use has a positive and significant effect on the intention to use e-commerce ($\beta = 0.267$, $p < 0.05$). The correlation coefficient between it and intention to use is 53.50%, which is considered to be a strong correlation, meaning that there is evidence of the existence of a strong relationship between them. This result is consistent with the findings of prior studies that used the TAM model [65], [70], [75] which confirmed that social influence has a significant effect on intention to use.

VII. CONCLUSIONS

This study seeks to find out the impact of social influence on Saudi’s entrepreneurs using TAM model. Based on literature, social influence has proved to have impact on attention to use IT technology with TAM constructs. These findings should be used to improve current policies, to support awareness and initiative programmes for entrepreneurs, and to develop the ICT infrastructure.

The main contribution of this research is the provision of an empirical foundation regarding the significant factors (personal and business social influence) that should be considered in attempting to design and implement an effective form of e-commerce support program for entrepreneurs. In the literature review for this study, personal and business social influence were hypothesised to positively affect entrepreneurs’ intentions to use e-commerce technologies in Saudi Arabia, and the study findings support these hypotheses. Intention to use was positively affected by business social influence more than personal social influence which indicates that entrepreneurs tend to consider their business peers’ opinions more than the opinions of their personal networks.

The findings in this research demonstrated the significance of the constructs of personal and business social influence, providing implications for the importance

of strong social networks in e-commerce usage. This suggests that there may be benefits in building a social network to enable entrepreneurs to observe and share good practices of successful e-commerce adoption with other entrepreneurs. According to Hsieh et al. [39], exposure to a personal network motivates people to change. Entrepreneurs may be better motivated by observing how other entrepreneurs adopt e-commerce successfully in their businesses, as they become better or more informed through the network.

A. Practical Implementation

To support entrepreneurs' e-commerce adoption and continuous utilization in Saudi Arabia, public and non-profit organizations need to incorporate the findings and implications of this research when designing and implementing: (1) the environment of the Internet and information technology; (2) training, funds, and awareness programmes; and (3) policies and legislation. This way, public and non-profit organizations may be able to improve the cost efficiency or cost-effectiveness of their entrepreneurs support programs.

E-commerce platform providers should consider the general opinions and perceptions, arising from user experiences and work, to improve the functions of the platforms.

B. Research Limitations and Future Research

Although this study was conducted in a careful and a systematic manner to examine the effect of social influence on Saudi entrepreneurs use of e-commerce, this research still has some limitations. One is that the sample frame of this study is small and may not represent properly the segment of micro and small entity entrepreneurs that have less than fifty employees in Saudi Arabia. Secondly, the influence of demographic variables of Saudi entrepreneurs on the intention to use e-commerce was not examined. It is recommended that this be the focus of a future study. Thirdly, the sample of this study was collected from Saudi entrepreneurs who live in Saudi Arabia. This means the generalisation of this study's findings to other countries might be limited, due to cultural differences. Finally, this study was located within a positivistic (quantitative) rather than a phenomenological (qualitative) paradigm. Therefore, a qualitative research method is highly recommended in future studies to assess if those findings support the findings of this study.

Another suggestion for future research would be to study subjective norms (the social influence representative) in more detail, based on four criteria: credibility; status; informal power; and rational proximity.

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