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The Impact of E-commerce on the Development of Entrepreneurship in Saudi Arabia

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ABSTRACT

This paper is based on a Ph.D. study investigating the critical challenges facing e-commerce adoption by entrepreneurs in Saudi Arabia, identifying the major driving factors, barriers, motivations, perceived advantages, potential problems and some practical solutions as well as future expectations from entrepreneurs' perspectives. From the study findings, a set of practical recommendations were derived for the government, entrepreneurs and investors in Saudi Arabia to consider, to promote ecommerce entrepreneurship in the county.

The research was undertaken using a qualitative approach. Data collection techniques involved in-depth, semi-structured interviews, with (1) e-commerce entrepreneurs, and (2) government authorities, educational initiatives and private support institutions.

Data collected was thematically analyzed. The findings led to the identification of five significant factors that were found to influence e-commerce related entrepreneurial activities in Saudi Arabia, leading to both "necessity entrepreneurship" and "opportunity entrepreneurship": 1) government and institutional funding and financing, 2) government and institutional education and training, 3) government policies and legislation, 4) infrastructure and 5) gender and the cultural environment.

Keywords: e-commerce, adoption, entrepreneurship, Saudi Arabia

INTRODUCTION

This paper is an investigation into the adoption of e-commerce by Saudi Arabian entrepreneurs. The research examines the combination of entrepreneurship with the domain of e-commerce, which began to diffuse among Saudis.

Despite Saudi Arabia being a big market, the process of internet trading, particularly e-commerce is not yet complete or mature. The Saudi Arabian government's patchwork approach to addressing the problem, involves preliminary plans designed to scale up developmental implementations including information and communication technology (ICT) development and infrastructure to be capable of supporting complicated e-commerce platforms. New regulations and laws are being planned to conduct a framework to protect both consumers and vendors on the Internet. Other effective governmental measurements are considered to provide reliable, supportive and safe online payment gateways (Forbes Middle East, 2018). These challenges cannot be resolved in isolation from each other.

This paper attempts to examine Saudi specific drivers and barriers to e-commerce adoption by entrepreneurial start-ups. The study investigates factors related to gender, infrastructure, government policies and regulations, risk and uncertainty among other factors in a developing, high-income economic climate fostering "necessity" and "opportunity" entrepreneurship.

The ultimate goal is to identify and explain the drivers and barriers that impact e-commerce related entrepreneurial activity in Saudi Arabia and suggest recommendations that could enhance entrepreneurial activity in Saudi Arabia and other similar high income developing environments, particularly as studies exploring the factors influencing entrepreneurial start-ups' e-commerce adoption in similar environments are limited (Li & Xie, 2012).

RESEARCH AIMS AND OBJECTIVES

Aims

This research attempts to: 1. Identify the factors that affect the development of successful entrepreneurial e-commerce businesses 2. Explain how entrepreneurship in Saudi Arabia may be influenced by the barriers and drivers that affect e-commerce adoption. 3. Make recommendations to enhance the take-up and the benefits gained by entrepreneurship with e-commerce in Saudi Arabia.

Objectives

The research attempts to achieve the following objectives:

1. Critically analyze and synthesize the literature of fields such as entrepreneurship, e-commerce adoption and the diffusion of Information

Technology into Saudi Arabian society to achieve a clear insight into the factors influencing e-commerce entrepreneurial adoption in Saudi Arabia.
2. Confirm and enhance the knowledge obtained from objective 1 by conducting and analyzing the results of interviews with Saudi Arabian e-commerce start-ups and with government officials, support infrastructure representatives including government authorities and private institutions.
3. From the results of objectives 1 and 2, identify the drivers and barriers to e-commerce adoption, for both "necessity" and "opportunity" entrepreneurial e-commerce activity among entrepreneurs in Saudi Arabia, particularly focusing on Saudi-specific factors such as gender, culture and infrastructure.
4. Evaluate emerging legislation and other policies governing e-commerce in Saudi Arabia with the intention of establishing if it provides a suitably robust framework for supporting e-commerce-related entrepreneurial activity.
5. Based on in-depth analysis and research findings from objectives 1 to 4, make recommendations to enhance entrepreneurial e-commerce activity in Saudi Arabia and, perhaps, in other developing countries with a similar environment. These recommendations could be targeted at entrepreneurs and investors, as well as at government authorities and policy makers in developing an e-commerce related infrastructure, training, funding and policies to support entrepreneurial activity in the region.

LITERATURE REVIEW

Most studies on e-commerce in Saudi Arabia have focused on government policies and initiatives to support e-commerce and entrepreneurial activities (Al Sharief et al., 2012). This process requires governmental interventions to set strategic goals and programs aimed at enhancing e-commerce to be capable of supporting services, through an improved ICT infrastructure that would support reliable and secure payment systems and efficient delivery channels to customers. Other governmental interventions include financial and educational support through start-up fund loans and training programs and institutions (Al Sharief et al., 2012).

The results of a survey conducted on micro and small to medium-sized enterprises revealed that the lack of financial support and difficulties in obtaining loans were some of the main constraints on e-commerce diffusion in the Kingdom (Ahmad, 2012). However, the Saudi Arabian government is developing new strategic approaches aimed at creating a competitive entrepreneurial business environment

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through the launching of educational programs, research and training institutions and incubators, under the supervision of the chamber of commerce and some universities, in an effort to foster an innovative, skilled mindset and strengthen entrepreneurial success (Aleid et al., 2010). One of the most notable government educational institutions contributing to innovation and entrepreneurship is King Abdullah University of Science and Technology (KAUST), a graduate-level research university. KAUST is linking academic research to economic development in the Kingdom through the university's Innovative Industrial Collaboration Program (KICP), building partnerships with regional and global entrepreneurial businesses (King Abdullah University of Science and Technology, 2016).

Similarly, King Abdulaziz City for Science and Technology (KACST) has dedicated $150 million to establish a technology company to support innovative technological projects. This has been achieved in partnership with Badir program for innovation, providing lectures, training programs, seminars and workshops to improve entrepreneurial knowledge and experience. Furthermore, financial facilities and funds for innovative projects are provided through the establishment of the Angel Investor Network and the Saudi Business Incubation Network (King Abdulaziz City for Science and Technology KACST, 2017).

Furthermore, another distinctive national program contributing to innovative entrepreneurship businesses support is the Saudi Fast Growth Awards (SFG) Program launched in 2008. In addition, some new entrepreneurship-supporting organizations are starting to provide educational support, coaching and monitoring program alongside with sample e-commerce trial software programs to trigger innovation and leadership skills and to promote entrepreneurial awareness of e-commerce and its relative advantages (AlGhamdi et al., 2011). Some examples include Injaz-Saudi Arabia, a non-profit organization considered to be the largest global educational institution established in the United States in 1919 as Junior Achievement Worldwide. This institution covering 129 countries, including Saudi Arabia, prepares young people to be engaged into the labor market by launching specialized programs to promote technical experience and financial awareness (Injaz, 2015). Other organizations aimed to promote entrepreneurship growth in the country include the National Entrepreneurship Institute and the Saudi Entrepreneurship Development Institute.

Additionally, some entrepreneurship and technology incubators have been established to provide incubation services for Saudi business start-ups such as the King Saud University program for innovation and entrepreneurship, the Women's Incubator and Training Center and the Khadija Bint Khuwailed Centre, providing opportunities for females in the country. Furthermore, several organizations have

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been founded to provide entrepreneurial supporting networking such as The Global Competitiveness Forum and Saudi Fast Growth 100, through conducting conferences, seminars, and international exhibitions (Rahatullah, 2016).

However, concentrated governmental effort is required to enhance innovation and technology adoption and to promote entrepreneurial awareness. Further initiatives are needed to urge the economic development in the country, as current initiatives are not enough in the long term (Khan, 2013). The current number of government research institutions and organizations supporting entrepreneurship are still limited, mainly provided through King Abdullah University of Science and Technology (KACST), King Abdulaziz City for Science and Technology (KACST) and King Saud University. In addition, none of the institutes or organizations provide full-scale services to support entrepreneurs in establishing their businesses (Injaz, 2015).

Saudi Arabia's legal structure is still underdeveloped, particularly in terms of legislation and regulations governing e-commerce transactions. The absence of legal frameworks and e-commerce laws protecting both customers and entrepreneurs is a critical challenge for e-commerce diffusion in Saudi Arabia (Aleid et al., 2010). Lack of regulations and government supervision on e-commerce activities has a negative impact on both entrepreneurs' and customers' adoption of e-commerce. Therefore, the need for e-commerce legislation and rules is a major priority and part of the government's programs to accelerate innovative e-commerce diffusion (Alwahaishi et al., 2009). This includes laws and regulations to protect online intellectual property, publishing rights, and software applications, and credit card fraud and electronic signatures (Svensson, 2010). While government regulations in other parts of the world are seen as impediments to the development of e-commerce, in the Saudi case, such regulations would contribute to enhancing trust between sellers and consumers as well as provide security of electronic transactions.

Cultural and social factors are among the main factors influencing the adoption of e-commerce among Saudi Arabian entrepreneurs, which comprise three elements: (1) lack of trust and security,
(2) customer readiness, and (3) gender norms. These factors are explained as follows:

According to Al-Hudhaif and Alkubeyyer (2011) the utilization of integrated, user -friendly websites and distinctive marketing tools for innovative products and services plays a positive role in fostering customers' engagement in e -commerce activities. However, the level of security provided by these websites is substantial,

as fear of online crime, fraud and hacking remains one of the main challenges negatively influencing shoppers' willingness to go online (Al-Hudhaif & Alkubeyyer, 2011).

Several scholars have contended that the absence of legal frameworks protecting consumers and governing online operations, and the lack of authentic security safeguards and reliable payment and delivery systems, remain major obstacles influencing customers' trust in online transactions (Eid, 2011; Al Sharief et al., 2012). This acts as an obstacle for Saudi entrepreneurs, effecting their decision to adopt e-commerce in their business start-ups (Al Sharief et al., 2012). In her study of the role of consumer trust in online shopping, Sonja Grabner-Krauter (2002), focuses on two conditions effecting uncertainty in e-commerce transactions, she emphasizes the role of "system-dependent" and "transaction-specific uncertainty".

E-commerce in Saudi Arabia has yet to mature and is considered a new phenomenon in the national business environment. According to Alwahaishi et al. (2009), resistance to change is a major challenge as Saudi buyers still engage in their old habits of window shopping and direct communication with sellers. Shopping is traditionally seen as a social activity and as a matter of enjoyment. New modes of e-commerce would have to find ways of gaining consumer confidence that a product specification meets their needs before proceeding to actual purchase (Alwahaishi et al., 2009). Therefore, customer' readiness for change is one of the obstacles facing entrepreneurs and affecting their decision to launch their products and services online. According to AlGhamdi et al. (2013), customers complain about the dearth of online retailers, whereas retailers claim that the low number of online customers impedes them from investing in online stores.

E-commerce efficiency and maturity must be achieved in order to enhance customers' readiness and willingness to participate in e-commerce activities. Moreover, educational programs would contribute positively to customer' awareness of the advantages of technology adoption. This, in turn, would have a positive influence on customers' acceptance of change and desire to move online (Aldraehim et al., 2013). A study conducted by Al-Somali et al. (2015) emphasized the importance of concerted efforts of both policymakers and ICT infrastructure managers in the implementations of technology development program to elevate the level of e-commerce to reach comparable levels to developed nations.

Rambo et al. (2009) emphasize gender segregation in the Saudi Arabian environment, as a response to cultural and social conservative norms, leading to a higher unemployment rate among women. Thus, a growing number of women have utilized entrepreneurship as a means of financial security and freedom mostly using

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social networking to help market their products to a wide range of customers; however, there are clear variations by gender in perceived drivers and barriers for starting a new online business venture (Rambo et al., 2009).

According to Troemel and Strait (2013) Saudi women need new business skills, access to new markets and to bolster social capital. A set of government initiatives is underway to encourage female business innovation and technology adoption. This includes a series of programs designed to build women's entrepreneurial awareness and technical skills to establish innovative home-based businesses (Troemel and Strait, 2013). Further, initiatives in recognizing the importance of developing leadership skills in Saudi women, the Prince Sultan bin Abdul Aziz Fund for Women Development, was established in 2007 to promote female entrepreneurship, by providing them with technical and financial support. In this program, Saudi women may apply for funds by submitting a business proposal. Upon acceptance, they are equipped with all the technical information needed to start a business. This includes cash management, human resources development, accounting, finance and marketing training (Nieva, 2015). Saudi Arabian government initiatives of this kind are progressing dramatically to support innovation and e-commerce start-ups as a matter of "necessity" due to lack of female jobs accompanied with higher female populations in the country.

METHODOLOGY

This paper attempts to explore the drivers and barriers to entrepreneurship and e-commerce in Saudi Arabia. To achieve the aims and objectives of the study, the researcher employed the qualitative approach as it was the only practical approach, as a quantitative approach would not have been feasible without access to a greater number of entrepreneurs to achieve results with statistical significance.

The qualitative approach adopted proved to be very helpful and led to the generation of valid generalized recommendations. These recommendations are targeted at both Saudi Arabian entrepreneurs, government authorities and investors, for improved e-commerce entrepreneurial practices to meet the research objectives.

The primary data were obtained through interviews that served as an exploratory, interactive instrument for the data collection process. These interviews were informed by an extensive review of the theoretical literature and the researcher's participation in two conferences in the field, ARABNET 2014 and ARABNET 2015. The interviews formed a helpful and insightful basis from which rich and comprehensive information was generated. Interviews were conducted in 2015 with

a number of e-commerce entrepreneurs, support infrastructure organizations and policy makers in Saudi Arabia. While the This provided an essential basis from which to organize and analyze interview datasets into themes identifying the factors influencing e-commence entrepreneurial activities in Saudi Arabia.

The selection of interviews as the research strategy for the data collection process in this study, allowed the researcher to explore the experiences and perceptions of participants about the impact of the identified factors on e-commerce entrepreneurship in Saudi Arabia. This data collection method enabled the adoption of the thematic qualitative analysis method, which was helpful in the generation of a descriptive explanation of the relationships between the research elements. It also provided a good understanding of the interview datasets presented by the participants. These datasets led to the generation of valid results in relation to the research objectives.

Furthermore, to meet the objectives of the study, purposive samples were chosen as the most suitable sampling technique for representing all of the possible entrepreneurship cases, particularly as the estimated population size of e-commerce entrepreneurs is very small, with a limited number of study subjects. E-commerce entrepreneurship is a new phenomenon in Saudi Arabia. The number of start-ups adopting e-commerce in their business activities in the country is currently relatively small compared to those in developed Western countries. At least twenty participants were interviewed: ten participants were e-commerce entrepreneurs, including a good mix of genders (seven male and three female entrepreneurs), and ten participants were from government authorities, educational initiatives and private support institutions (e.g., incubators, accelerators, trainers, angel investors, venture capitalists). The author cannot claim that data saturation has been attained but based on the small number of e-commerce entrepreneurs in the country, one could legitimize the use of this limited sample of interviewees.

Ultimately, two sets of interview questions were devised, targeting the two groups of participants, consisting of in-depth, semi-structured, open-ended questions. The questions were categorized under specific themes that served as a guideline throughout the interviews. The themes were initially chosen based on the preliminary framework, which demonstrated the factors influencing the development of a Saudi Arabian e-commerce entrepreneurial ecosystem. Later, in the thematic analysis of the interview transcripts, five major themes were identified in relation to the main drivers and barriers influencing the adoption of e-commerce by entrepreneurs in Saudi Arabia. These themes are: 1) government and private institutional support and services, 2) regulations and law, 3) infrastructure, 4) human capital, and 5) cultural environment and gender.

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DATA COLLECTION METHOD

In this paper, in-depth, semi-structured, open-ended interviews guided by an interview schedule were adopted as the primary data collection method. This approach was useful and provided the researcher with a clear understanding of the types of interactions and issues facing organizations. This was achieved by the set of interviews that allowed the researcher to get closer to participants, focusing, through flexible conversations with the interviewees, on factors impacting the adoption of e-commerce, enabling the researcher to collect rich and useful information from respondents. According to Yin (2009), interviews (whether structured, unstructured, or semi-structured) play a key role in gathering in-depth information from participants.

The researcher's choice to use an interview schedule to guide the interviews was to provide more structure in informal conversational interviews, while maintaining a high degree of flexibility (Patton, 1999). Increased structure enabled the researcher to organize and analyze interview data sets. Some additional notes were also taken during interviews.

Over a period of four months, between March 2015 and July 2015, a total of twenty participants were interviewed. Those participants fall into two categories: e-commerce entrepreneurs and governmental and private support infrastructure organizations. Ten participants were e-commerce entrepreneurs with mixed gender (seven male and three female entrepreneurs). In addition, ten participants were from government authorities, educational initiatives and private support institutions, namely (two incubators, two accelerators, two government regulators, one angel investor, one venture capitalist, government loan bank, and government affiliated entrepreneurship mentor center).

Interviews were guided by the interview schedule, which did not involve fully structured questions. Instead, the main method for data collection was in -depth, open-ended, semi-structured interviews that were used to give interviewees more freedom to express their own ideas and suggest factors they considered important in detail. The researcher acted in a passive role to avoid the possibility of research outcomes being biased by the researcher's perception.

Two sets of interview questions were developed, consisting of open-ended questions and categorized under specific themes to serve as a guideline throughout

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interviews. The interviews conducted with e-commerce entrepreneurs aimed to collect information about the following issues:

1. The motivations behind the business, trying to understand how the business started and how it has grown to identify whether it is an opportunity or necessity-driven entrepreneurial activity. 2. Other identified factors relating to risk and uncertainty, culture, customer readiness, risk aversion and gender norms, affecting entrepreneurs' inclination towards e-commerce adoption. 3. Attitudes of organizational leaders, with respect to their orientation towards e-commerce deployment. 4. Managerial leadership and innovative characteristics influencing organizational deployment of e-commerce. 5. Degree of management skill, experience and prior knowledge about emerging technologies (e-commerce in particular), affecting the acceptance of innovation and change. 6. The adequacy of the IT workforce and human resource professionals equipped with skills available to undertake e-commerce projects. 7. Technical resource capabilities for the implementation of e-commerce. 8. Financial resource availability.

Additionally, interview questions conducted with governmental and private support infrastructure organizations aimed to provide insights into the following issues:

1. The type of help provided to entrepreneurs to set up their e-commerce start-ups. 2. Financing prospective entrepreneurs and providing funding linkages. 3. Education and training. 4. Technical support professions and services including legal, accounting and marketing experts. 5. Government regulations, policies and laws to support the sustainability of e-commerce activities of new start-ups. 6. The current level of infrastructure and the sufficiency of other telecommunication infrastructure, including secure online payment systems and enhanced payment gateways to support e-commerce related entrepreneurial activity. 7. Future improvement plans for developing new policies and laws, besides scaling up services to fulfil the requirements of entrepreneurial e-commerce activity platforms in the Kingdom.

An important issue was to initially identify the representatives who held the most appropriate job roles to contact for participation in the study. Additionally, the researcher gathered as much information as possible about each organization and about the job roles of individuals deemed the most appropriate before approaching them. This was done using the organizations' websites.

To prepare for the interviews, the researcher started with initial phone calls followed by an introductory email requesting permission to conduct the study and

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containing a general overview of the proposed research, with an explanation of the research aims and objectives and the proposed interview procedure.

The researcher received different levels of responses from these organizations according to their willingness to contribute to and participate in the study. In general, each interview lasted between an hour and an hour and thirty minutes. All twenty interviews were recorded on two digital recorders after permission for recording has been granted. In addition, the researcher took field notes during interviews. An illustration of the characterization of the two groups of participants is shown below in Table 1 and Table 2. The researcher conducted all interviews in Arabic. This required an additional step of translation prior to transcription.

Table 1: Characterization of first group of participants (e-commerce entrepreneurs)

Participant	Gender	Education	Size of Entrepreneurial start-up	Previous Employment Status
P1	Male	IT specialist	Large (20+ employees)	Employed in a technology organisation
P2	Female	Graduate of Business and Marketing	Large (20+ employees)	Unemployed
P3	Male	Graduate of Business Administration	Large (20+ employees)	Head of an Investment and a Stock Company
P4	Male	IT specialist with graduation research on e-commerce	Large (20+ employees)	Managing family business
P5	Female	Graduate of Business Administration	small (2-20 employees)	Unemployed
P6	Male	Graduate of Finance	small (2-20 employees)	Managing Web development family business
P7	Female	B.Sc. in IT and Graphics and M.Sc. in Business Administration	small (2-20 employees)	Unemployed

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P8	Male	Specialist in the field of Computer Science	small (2-20 employees)	Executive director in software engineering
P9	Male	Business Administration	small (2-20 employees)	Retail company manager
P10	Male	Computer Programming & Web Development	small (2-20 employees)	Computer engineer

Table 2: Characterization of second group of support infrastructure participants (Government authorities, educational initiatives, private Institutions)

Participant	Type of Respondent	Organisation Name	Position
P11	Information and Communication Technology Incubator	Badir Programme for Innovation, Entrepreneurship & Technology Incubators of King Abdulaziz City for Science and Technology (KACST)	Director of The Information and Communication Technology Incubator
P12	Accelerator	Qutoof	CEO and Co-founder
P13	Angel Investor and mentor	Oqal	CEO & Founder of Oqal
P14	Venture Capitalist	Alkhabeer Capital	Head of Venture Capital & CEO of Sirb, a member in KACST angel investment & KAUST entrepreneurship centre
P15	Government Loan Bank (interest-free)	National Centre of SME's Care & Development (Saudi Credit & Savings Bank)	Assistant Bank Manager
P16	Accelerator and mentor of High-impact Entrepreneurship with worldwide networking	Endeavour	Entrepreneurial Business Analyst

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P 17	Government Regulator	Ministry of Commerce and Investment	Chairman of the Committee of E-commerce
P 18	Government Regulator	Communication and Information Technology Commission	Consultant of the Communication and Information Technology Commission for IT Development
P 19	Entrepreneurship Centre affiliated with Aramco Company	Aramco Company	Director of The Entrepreneurship Centre
P 20	Government University affiliated accelerator	Incubation and Innovation Centre at Um-AlQura University	Chief Executive of Um-AlQura Innovation Centre

All participants who agreed to be interviewed signed a written consent form prior to the interviews. This form provided interviewees with details on the importance of their contribution to this original research, emphasizing the exploration of various factors that affect the development of successful entrepreneurial e-commerce businesses and identifying the drivers and barriers influencing how e-commerce is adopted by Saudi Arabian entrepreneurial companies.

Additionally, the interviewees were informed that the research findings will be formally reported with suggested recommendations that could enhance entrepreneurial activity in Saudi Arabia targeted at entrepreneurs, investors, government authorities and policy makers in developing an e-commerce related infrastructure.

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CODING AND ANALYSIS

Thematic analysis is one of the ways used to get a better understanding of the data set provided by participants in relation to the research objectives. Themes are ideas that often emerge from patterns of behavior identified from collected data and interviews (Braun and Clarke, 2006).

Braun and Clarke (2006) defined thematic analysis as a qualitative analytic method for "identifying, analyzing and reporting patterns (themes) within data. It minimally organizes and describes your data set in (rich) detail. However, frequently it goes further than this, and interprets various aspects of the research topic". Furthermore, Braun and Clarke pointed out that a theme constitutes important aspects about the collected data in relation to the research question or objectives and represents a certain level of meaning or patterned response within the data set.

According to Saldana (2013), a theme is an outcome of coding, categorization and analytic reflection on data using an extended thematic phrase or sentence that identifies what a unit of data means. Moreover, Saldana postulated that a theme describes and organizes aspects of information derived from a phenomenon to bring meaning and identity to a pattern. In addition, Aronson (1994)
suggested that the procedure of performing a thematic analysis starts with the identification of patterns. Thus, the first step of thematic analysis requires the transcription of interviews in which themes and patterns can arise from direct quotes or general understanding of conveyed ideas (Aronson, 1994).

Accordingly, the researcher began the thematic analysis process by first familiarizing herself with the data by listening to audio recorded interviews several times. Next, all recorded interviews were translated and transcribed textually. This was followed by reading and re-reading the transcribed data and highlighting important quotes to get a better understanding of participants' concepts and ideas. During this process the researcher noted down each idea. Transcripts had to be read a few times to allow themes to begin to emerge. Ultimately, themes emerged as a result of becoming more familiar with the transcribed data. The following step was the generation of initial codes that were applied to the transcripts.

This coding process involves the organization of data into conceptually meaningful groups (Braun and Clarke, 2006). In thematic analysis, the coding depends on whether potential themes are data driven or theory driven (Braun and Clarke, 2006). Coding can be done either manually or by using a software package. For this study, codes and themes are identified from the data set collected through interviews and

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are not related to theory, so they are data driven. Additionally, the researcher's strategic choice of coding involved the use of the NVivo software package.

IDENTIFYING AND CHARACTERIZING THEMES

The researcher adopted an active process in identifying and writing codes to avoid being passive at this stage. This took the analysis to a broader level by combining similar codes to identify themes and sub-themes. The researcher tried to maintain coherence within a theme and strong distinctions between themes, by emphasizing and examining patterns across data sets that are associated to the research aims and objectives, in relation to each theme.

In the thematic analysis of the interview transcripts, five major themes were identified in relation to the main drivers and barriers influencing the adoption of e-commerce by entrepreneurs in Saudi Arabia. These themes are:

Theme 1: Government and Private Institutional Support and Services. This theme is comprised of the following sub-themes: a) Funding and financing through seed capital, angel investors, venture capital and bank loans, b) Entrepreneurial education and training provided by incubators, accelerators, and mentors.

Theme 2: Regulations and Law.

Theme 3: Infrastructure which involves three sub-themes: a) Information Communication and Technology Infrastructure (ICT), b) Secure Online Payment, c) Delivery and Logistics.

Theme 4: Human Capital.

Theme 5: Social Environment comprised of two sub-themes: a) Culture, b) Gender.

ANALYSIS OF INTERVIEWS

Funding and Financing through Seed Capital, Angel Investors and Venture Capital:

All entrepreneurs who participated in the interviews stated that they have not received any seed capital. In addition, most participants who started their e-commerce entrepreneurial start-up depended mainly on their own seed money and

savings from previous careers. Some other entrepreneurs mentioned that they were supported by family and close friends in the early stages of e-commerce business adoption as the first source of financing. They reported receiving money raised from families and friends, who believed in their ideas and funded them to lunch their start-up or supported them at later stages of expansion, to reach their potential goals.

A common thread seen through the responses of entrepreneurs, was their reference to seed funds as a very important financing source at the early stages of their e-commerce start-up. They all think that, in Saudi Arabia, it is very hard to be funded by investors and private banks, even to get micro-loans with only an idea or a business plan, without a working product. They discussed the reason that those investors are more attracted to companies with initial traction and good income.

However, not only were most entrepreneurs experiencing difficulties in gaining capital in their early stages, but also at later stages. The lack of financial support at later stages was emphasized by many participants.

Several interviewed participants highlighted that there is a gap in the Saudi Arabian entrepreneurial ecosystem. They explained that any complete entrepreneurial ecosystem worldwide must provide entrepreneurial funding and finance alongside entrepreneurial education and training.

Gaining venture capital funds was not seen to be any easier by many entrepreneurs who were denied funding. They commented that venture capital investments are normally in more mature ventures or high-growth entrepreneurial start-ups that have an applied business model with high profits to help them to scale-up and grow.

Based on the interviews conducted with entrepreneurs, there is a clear lack in both governmental and private institutional financial support offered to start-ups in their early stages, before gaining initial traction and even at later stages, to fund their growth. This shortage acts as a key barrier hindering the success, growth and sustainability of entrepreneurial e-commerce start-ups in Saudi Arabia.

In light of the entrepreneurs' responses and concerns about lack of investors willing to invest in start-ups, further in-depth interviews were undertaken to investigate issues raised by the entrepreneurs. An interview with one participant, the chief executive officer (CEO) and founder of Oqal, an angel investor, revealed that lack of funding offered to start-ups was evident. He said that despite Saudi Arabia being a rich country, Oqal sees itself as the only substantial angel investor available in the Kingdom, other than Sirb, the government angel investment network. He declared

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that this severe shortage is unacceptable and that government intervention is required to promote e-commerce entrepreneurial activity in the Kingdom and contribute to economic growth and employment. He believes that this can be achieved by promoting the establishment of more angel investors in the country, through providing special commercial registration for angel investors and allowing them to access financial facilities. According to participant thirteen, Oqal offers funds between $100,000 and $1.5 million for high-potential-growth start-ups. This is done by creating business linkages between investors and successful entrepreneurs who have a clear strategic business plan.

Additionally, interviewed entrepreneurs noted that access to governmental and institutional sources of financing remains limited. The lack of substantial governmental financial support was affirmed by one participant, the CEO of Sirb, the first government-sponsored Saudi angel investment network and a member of the advisory board on angel investment of King Abdulaziz City for Science and Technology (KACST). He noted that the Sirb angel investment group comprises twenty-five members and is sponsored by the KACST Badir programme of technology incubators. Participant fourteen explained that the Sirb angel investment network works in collaboration with Badir incubators, providing financial support and funds for entrepreneurs upon their graduation from incubators. Sirb provides direct funds in addition to linkages with angel investors and other investors who are difficult to access by entrepreneurs themselves. Ultimately, many technology entrepreneurs were able to launch their e-commerce start-ups with Sirb's support. He asserted that Sirb aims to promote angel investment settings, processes and standards in Saudi Arabia to support entrepreneurial set-ups in an attempt to contribute to bridging the gap of angel investment in the Saudi Arabian entrepreneurial ecosystem.

Entrepreneurial education and training provided by incubators, accelerators, and mentors:

In an attempt to address the type and quality of educational and training support provided for e-commerce entrepreneurial start-ups in Saudi Arabia, interviewed entrepreneurs acknowledged that planning for a successful e-commerce business requires both entrepreneurial and technical education and training. The respondents believe that such services lie in three types of organizations; incubators, accelerators and mentors. However, most interviewed entrepreneurs reported that they received minimal support from incubators and other training organizations for two main reasons. First, according to many participants, among the challenges they faced in the idea stage or early stage was dire need for institutional support in strategy setting with a clear vision as well as financial backing. However, they

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stated that the limited number of technology incubators, accelerators and mentors in Saudi Arabia increases competitiveness in the selection process. One participant, a female e-commerce entrepreneur said:

"When I tried to access support in my idea stage, I was surprised to find little governmental or private support. This lead to greater difficulties in getting my application accepted. Thus, I decided to proceed with launching my e-commerce startup on my own."

Second, many entrepreneurs emphasized the lack of coordination between the services provided by governmental and private educational organizations. The entrepreneurs expressed their desire for an array of complete services provided through a comprehensive integrated national program to improve the level of support offered to technology entrepreneurs in Saudi Arabia, to promote entrepreneurial e-commerce practices in the Kingdom.

It was clear from interviews with entrepreneurs that educational institutions such as incubators and accelerators are seen by most interviewees as means to obtain free services or against small equity share. Many interviewees articulated that incubators and accelerators provide mentoring services and support for entrepreneurs to develop their business plans, build viable business models and prepare feasibility studies. For instance, one of the participants, an entrepreneur from a small company, referred to incubators as a good way of saving a start-up a significant amount of money through free office space, utilities and shared services. He pointed out that this can help the entrepreneur financially until he starts making a profit or until he engages with a partner or investor, to ensure sustainable growth for his start-up.

Another participant, an entrepreneur from a small start-up, described privately owned technology accelerators as a great way to obtain mentoring and financial services, either directly or through links with potential investors. Specifically, he described his experience with the Qutoof accelerator, the first privately owned technology accelerator in Saudi Arabia, which incorporates the best practices for e-commerce entrepreneurs in the Kingdom: "Qutoof gave me the opportunity to work side by side with similar stage e-commerce entrepreneurs."

He also noted that Qutoof accelerator linked him to an experienced business investor against small equity shares of 8%: "being more connected and experienced, Qutoof helped me in the selection of my potential partner."

Laws and Regulations:

In light of the rapid growth of the e-commerce market in Saudi Arabia, a significant need exists for the government to provide laws and regulations that organize online operations. One of the major obstacles confronting the growth of e-commerce, according to literature and interviewees responses, is customers' trust. Thus, actions are urgently needed to increase customers' protection through regulations and laws so as to build trust in online transactions.

In light of entrepreneurs' responses and concerns about the absence of an e-commerce regularity framework, an interview was conducted with a governmental participant, the chairman of the Committee of E-commerce in the Ministry of Commerce and Investment, to investigate strategies undertaken by the Ministry for the development of e-commerce laws and regulations. As a policy maker, he stated that the Ministry of Commerce and Investment has made attempts to enforce e-commerce regulations that will improve customers' trust, particularly in e-commerce start-ups in the Kingdom. And he stressed the importance of a regulatory framework outlining the stipulations that an e-commerce business must follow to be legally registered and allowed to go online. According to this participant, this should include a properly obtained commercial registration from the Ministry of Commerce and Investment and a bank account.

A number of Saudi ministries and government authorities are cooperating in combined efforts to create regulations to organize e-commerce activities in Saudi Arabia in light of the increasing manipulation of money and the growth of fraud, particularly in e-commerce transactions: "The Ministry of Commerce is pushing e-commerce regulations forward to ensure a commercial register for all online organizations and a bank account under the same commercial register number. This should enhance the level of trust in online transactions and e-commerce businesses".

To gain a better understanding of project plans in collaboration with other government entities so as to create adequate e-commerce laws, an interview was conducted with an official member from
the Communications and Information Technology Commission (CITC). As a consultant for IT development in the Communication and Information Technology Commission, this participant explained that CITC is devoting serious efforts to implementation plans aiming to improve the quality, efficiency and security of the ICT infrastructure and to reduce the cost of ICT operations to boost e-commerce activities. In addition, participant eighteen emphasized the integrated official plans of the CITC with a number of government entities, including the Ministry of Commerce and Investment, the Saudi Arabian central bank and the Saudi Arabian

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Monetary Agency, in joint efforts aiming to produce new e-commerce regulations that will improve customers' trust in e-commerce.

Infrastructure:

Scholars and practitioners widely acknowledge that the flourishing of e-commerce business requires a sufficient infrastructure, functioning and sophisticated high-speed communication networks, secure payment systems and an adequate, efficient delivery system. In their research, Fathiana et al. (2008) found that information and communication technology (ICT) infrastructure is the main enabler of e-commerce adoption by small and medium-sized enterprises (SMEs) in developing countries like Iran. Fathiana et al. (2008) also confirmed that entrepreneurs benefit from the opportunities offered by an efficient ICT infrastructure to achieve competitiveness and success. Most participants in the study reported in this thesis acknowledged that a lack of efficient infrastructure to support e-commerce operations is a major barrier for e-commerce businesses in the country. Interviewees stated that fundamental infrastructure facilities should be improved to support e-commerce activities, spanning several domains and encompassing sufficient ICT infrastructure, secure online payment gateways and an efficient mailing and addressing system. The entrepreneurs interviewed see infrastructure as a key factor affecting entrepreneurial start-ups' decision to adopt e-commerce in their practices. In light of this, subsequent interviews with policy makers were conducted to investigate strategies and measures undertaken to address infrastructure limitations and future development plans.

Three sub-themes were identified within the infrastructure theme: ICT infrastructure, secure online payment and delivery and logistics.

The majority of interviewees expressed concern about the limitations of the existing ICT infrastructure in Saudi Arabia. Most respondents highlighted the importance of creating a developed and modern ICT infrastructure capable of supporting e-commerce and e-government initiatives. Interviewees also stressed the role of the government in providing an advanced ICT infrastructure capable of handling sophisticated online activities. Most entrepreneurs reported that efficient and reliable ICT systems, with high speed internet connections at low cost, are necessary. Respondents indicated that despite the recent developments and upgrading of the existing ICT infrastructure, there is an urgent need for rapid development of a mature ICT infrastructure in the Kingdom.

An entrepreneur from a small entrepreneurial start-up, pointed out the inefficiency of the existing ICT services and the high fees for internet connections compared not only to developed nations, but even to other developing countries in the region,

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causing users, whether individuals or companies, to reconsider taking up online activities in their businesses. Another female entrepreneur from a large company, also reported the absolute necessity to facilitate the development of a strong and mature ICT infrastructure as a national priority. According to this participant, most government plans for infrastructure development projects are directed toward the transportation sector, with limited projects dedicated to ICT and little attention paid to the potential for e-commerce businesses. She commented on the significant need to provide network security solutions to support successful e-business practices.

In light of entrepreneurs' responses and concerns about ICT infrastructure, an interview was conducted with a consultant of the Communication and Information Technology Commission for information technology development, to investigate policies and strategies for ICT infrastructure development plans. As a policy maker, he explained that a huge government budget reaching up to $100 billion will be spent on ICT infrastructure projects through a four-year plan. Furthermore, he reported that the Saudi government has embarked on programs that support e-commerce transactions, with special concentration directed to improvements in the quality of online services and reductions in online operations' costs.

Secure Online Payments Methods:

Many interviewed entrepreneurs mentioned the lack of reliable, trustworthy, and secure online payment gateways, which needs to be addressed. They also articulated the lack of available alternatives for easy and convenient payment. Most interviewees highlighted the limited online payment options in Saudi Arabia, inhibiting successful entrepreneurial e-commerce adoption. One participant, an entrepreneur from a small start-up, argued that the Saudi banking system for mobile payments does not support online businesses. He pointed out that Saudi banks require very long application processes for vendors, in addition to high transaction fees and delays of payment transactions, inhibiting the uptake of e-commerce, particularly by start-ups.

It was also clear from interviews that cash on delivery (COD) is considered the most popular payment method; it still dominates credit cards and other payment methods in online activities in the Kingdom, but it only applies to e-commerce with physical products.

Interviewees mentioned several reasons for customers' preference for COD over other online payment methods, including the inspection of products prior to payment. However, interviewees expressed their concerns about COD payment method, which requires the customers' presence to receive the goods and provide

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payment, which may incur multiple delivery attempts as well as no-payments as a consequence of customer dissatisfaction.

Another participant, an entrepreneur from a large company mentioned that many Saudis lack trust in online payment security, which makes them avoid using credit cards, in addition to the interest rates contradicting the religious beliefs of many in the Kingdom. The respondent added that few banks have attempted to overcome this problem by introducing Islamic interest-free credit cards. However, they normally have requirements that involve regular monthly deposits before being approved for a credit card and other services.

Another participants, a Saudi female entrepreneur from a small start-up, mentioned other online payment alternatives for credit cards and prepaid cards such as PayPal. However, she noted that
PayPal in Saudi Arabia charges high receiving commercial payment fees of around 3.5% for domestic payments and 4% for international payments in addition to other fees.

Currently, there is an online local payment system called SADAD that facilitates the payment of bills by linking utilities providers with local banks and customers. However, SADAD services are still restricted to a limited number of large companies reaching about 100 semi-government utilities.

Some participants added that "Many people in Saudi Arabia avoid using credit cards in online transactions as they lack trust in the security of online platforms. In addition, many others avoid using credit cards as they believe that the related interest fees are prohibited in Islam."

It was clear from interviews with entrepreneurs that cash on delivery (COD) is the most popular payment method. This fits with the report by PayFort (2016) showing that the majority of online purchases of goods in Saudi Arabia has been paid upon receipt, with cash on delivery dominating the payment methods at a rate of 70%, while credit cards accounted for only 24% of online transactions, mainly airline tickets and other services in which COD does not apply (MasterCard, 2014). However, according to the PayFort (2016) report, the credit card penetration rate has witnessed a great increase in the Kingdom; Saudi Arabia ranks first in the region, with the average number of issued credit cards reaching 12.3 million, followed by the United Arab Emirates, Kuwait, Qatar, Egypt, Jordan, Lebanon and Oman (PayFort, 2016).

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Delivery and Logistics:

Interviewees generally acknowledged that the existing delivery system in Saudi Arabia does not support successful e-commerce operations. Many respondents reported the lack of an efficient postal system. Interviews with entrepreneurs emphasized two major challenges that both vendors and customers still face: the lack of an associated home address and the high cost incurred in the delivery of goods and services and excessive associated fees. Most respondents believe that the lack of an effective logistics infrastructure is a major obstacle hindering entrepreneurs from engaging e-commerce in their businesses, in a similar manner to their counterparts in other developed countries.

One participant, an entrepreneur from a large company, mentioned that the addressing system still acts as a barrier for efficient delivery, even when dealing with international shipping companies. He referred to some of the international delivery companies that exist in Saudi Arabia, such as DHL, FedEx, and UPS, in addition to the Arabian delivery company called Aramex. Participant nine stated that those delivery systems are effective in local and international delivery of goods and services to customers; however, they are expensive and require high delivery fees.

Additionally, several interviewees pointed out other concerns related to the delivery cost, particularly for sensitive goods and products, such as portraits that require high care to avoid damage during delivery. They reported that entrepreneurs who are considering the adoption of e-commerce must consider customer satisfaction with the condition of delivered products. This means allocating more money to the delivery system, which results in a deduction of profits for an entrepreneur.

Human Capital:

The Saudi government has made great efforts to improve the quality of education over the past decade, with heavy investments in education. Some twenty-seven government-sponsored universities have been established throughout the country. Another dozen private colleges and universities have also been established to train young men and women in computer science, business administration and medical and para-medical fields. A few universities have been established focusing on science, innovation and research with the intent to boost human resource skills. King Abdullah University of Science and Technology (KAUST) is one of those

universities; it was inaugurated in 2009 and emphasizes high-caliber, post-graduate study in science, engineering and technology.

In addition, the government has introduced new educational programs and human resource development initiatives. According to a report issued by the Kuwait Financial Center, "Markaz" in 2015, the total spending on education and training in the Kingdom of Saudi Arabia between 2005 and 2015 reached nearly $400 billion. The King Abdullah Foreign Scholarship Program, for instance, has allowed thousands of Saudis to be educated abroad to gain expertise, which is considered a forward leap in the country's educational system. In 2013, the number of Saudi students studying abroad reached 148,000. Between 2007 and 2013, the number of graduates who returned to the country was 47,000; they graduated from top universities and institutions in the West and included both men and women (Ministry of Education, 2016).

Additionally, some government universities have recently focused on the concept of entrepreneurship and supported the development of their curriculum to foster innovation and entrepreneurship. While universities' orientation towards entrepreneurial support may differ, it is usually based on three dimensions: 1) the introduction of entrepreneurship materials from within the curriculum, especially in science and engineering departments, 2) teaching entrepreneurship in the post-graduate stage, such as master's programs, and 3) establishing entrepreneurship specialized centers in universities that have established communication with other financial and support institutions.

A recent development, particularly in light of a large increase in the number of these graduates and the slowdown of the economy, has seen some graduates lured to seek employment in neighboring Gulf Cooperation Council (GCC) countries, particularly the United Arab Emirates and Qatar. The GCC countries tend to adopt an open labor market for their nationals and each country is trying to replace the expatriate workforce with local talents. While a Saudi graduate seeking a job in Dubai or Doha will not be required to obtain a work permit, that graduate is not given preferential treatment in hiring or salary over other workers hailing from Asia or other Arab countries.

Culture:

In their seminal work on e-commerce and cultural variation between the UK and China, Su and Adams (2005) have shown that cultural and environmental variations can impact e-commerce adoption in different countries. The case in Saudi Arabia

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shows that culture has a definite impact on start-ups. Interviews with entrepreneurs revealed Saudi-specific environmental challenges related to social and cultural norms. It was clear from these interviews that the Saudi culture is one of the most influential factors that affect an entrepreneurs' decision to adopt e-commerce in their businesses. Many interviewees highlighted Saudi social and cultural characteristics, such as lack of trust that does not support e-commerce and may act as a barrier to the diffusion of entrepreneurial e-commerce activities in the Kingdom.

Many of the interviewees mentioned that most Saudis use the internet as a tool to access information rather than to purchase goods and services. They reported that the majority of Saudis still prefer traditional retail over e-commerce for several reasons, including risk and uncertainty, lack of security and trust, low customer awareness of the benefits of e -commerce, and an orientation toward recreational shopping, especially in the apparel sector. Another prominent factor is the absence of clear regulations and laws governing e-commerce activities to protect both buyers and sellers who participate in e-commerce transactions. Geert Hofstede's "culture compass" has suggested that Saudi Arabia has a high degree of "uncertainty avoidance" or UAI which means that people in this type of society and culture tend to respect traditions and seek "an emotional need for rules and regulations" (Hofstede, 2019).

Several interviewees highlighted e-commerce cultural factors that limit the diffusion of e-commerce in Saudi Arabia and stressed that e-commerce is relatively new in the Saudi environment and that people still lack trust in online operations. In contrast to the above opinions, one participant, an entrepreneur from a large company, disagreed with those statements, as he suggested that most people are educated and aware of the benefits of e-commerce but lack trust in e-commerce transactions.

An entrepreneur from a small start -up, said that Saudi people prefer to buy online from international companies such as eBay and Amazon because they consider them to be more secure in terms of payment and delivery and they have clear return policies. This preference holds even if they incur more expenses than they would if buying from local e-commerce vendors.

It was clear from the interviews that one of the crucial cultural inhibitors for the deployment of e-commerce is consumers' preference for inspection of goods. According to one participant, this requires more focused attention on increasing

awareness of the benefits of e-commerce. He argued that this awareness cannot be achieved unless the benefits of the online shopping experience are appealing in terms of price, payment, delivery method, and policies.

Gender:

All interviewed Saudi female entrepreneurs agreed that they confront many discriminatory gender challenges in establishing and running their e-commerce start-ups. They argued that significant gender-related obstacles have an impact on females' engagement in entrepreneurial e-commerce businesses, such as lack of appropriate training and mentoring and difficulty in obtaining funding, as well as having to face restrictions in regulations and lengthy official procedures. In addition, the female interviewees also stressed that in a conservative environment where gender segregation is notable, differences in the perceived drivers and barriers to e-commerce adoption by females versus their male counterparts arise from the cultural and socially conservative norms in Saudi Arabia.

According to a Saudi female participant, an entrepreneur from a small start-up, a growing number of female entrepreneurs have started new e-commerce start-ups for financial security, utilizing social media to market their products and services to a wide range of customers. Another female participant added that a significant difference exists in the drivers for starting an e-commerce business between women and men entrepreneurs due to the gender that creates opportunities or motivations. She suggested that most Saudi females launch their e-commerce start-up as their first career, with no prior work experience, driven by "necessity" as a result of unemployment. In contrast, Saudi male entrepreneurs most likely have had prior jobs before setting up their own e-commerce business and are mostly driven by perceived "opportunity".

FINDINGS AND RECOMMENDATIONS

This research distinguished five significant factors influencing e-commerce related entrepreneurial activities in Saudi Arabia: 1) government and institutional funding and financing, education and training, 3) legislation, 4) government policies, and 5) gender and the cultural environment. The most salient research findings and recommendations are discussed in relation to these derived factors and are summarized as follows:

Major Findings:

The findings from this study show that there is a scarcity in start-up funding at the governmental and private institutional levels. This impacts on the entrepreneurship ecosystem in Saudi Arabia. The findings reveal that entrepreneurs fail to secure sufficient seed capital for their start -ups during the early stages and rely mostly on their personal funds or funds raised from friends and family. In addition, the findings show that the funding gap facing technology start-ups continues in the later stages of expansion and growth. These start -ups have limited access to funds from accelerators and incubators, because angel investors tend to prefer to invest in start-ups with high growth prospects. Furthermore, the findings show that banks and venture capitalists are not seen as any better. They are even more risk-averse towards start-ups, favouring larger established companies with higher profits and returns, which impedes the flourishing of e-commerce start-ups in Saudi Arabia.

The findings from this research reveal that the Saudi specific cultural environment has a manifest impact on the diffusion of e-commerce entrepreneurship activity in Saudi Arabia. The findings show that the prevailing culture in Saudi Arabia discourages risk-taking, which has a negative impact on entrepreneurial intentions. This can be attributed to cultural norms and personal values, which prioritize stability granted through government and private sector jobs, over risks associated with businesses that lack security and may carry a failure stigma, preventing any further attempts at starting up another business of a similar nature.

The findings also show that Saudi environmental challenges related to social and cultural norms disclose another issue that was of high concern to many participants. This issue is the perceived credibility factors (e.g., lack of trust and security in online transactions) as a factor influencing entrepreneurs' decision to adopt e-commerce in their businesses. This finding indicates the relationship between perceived risk and trust in e-commerce operations is influenced by perceived security. This also aligns with other researchers' findings who identified the Saudi culture of risk-aversion as one of the influential factors on the diffusion of e-commerce activity in Saudi Arabia resulting from a lack of trust and security (Eid, 2011; Aldraehim et al., 2013).

The findings also reveal the ineffective role played by government institutions and the media in raising the awareness of individuals regarding the opportunities and benefits of entrepreneurship. This finding suggests that success stories are not so well known in Saudi Arabia, due to the dearth of the media coverage on success stories, which can also be a result of cultural norms that affect the local media (e.g., newspaper, television and social networks). Harnessing the media can play a pivotal role in increasing awareness. It can also have a positive impact on entrepreneurial intent and aspirations.

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Social norms, particularly gender segregation, have emerged from the study findings as a significant factor constraining the development of entrepreneurship, particularly among Saudi Arabian women. It is a cultural dimension. This suggests that there are socially constructed gender distinctions in entrepreneurial characteristics and motivational drivers between men and women in Saudi Arabia. Accordingly, it is important to focus on the consequences of the interaction among cultural dimensions that determines the entrepreneurial behaviour orientation in the Kingdom.

The study findings show that the prevailing gender differences of the Saudi Arabian environment have a direct impact on the behavioural intentions and attitudes towards entrepreneurship. This is in agreement with previous studies (George & Zahra, 2002; Hancock et al., 2014) that have stressed the strong influence of culture in the identification of gender roles in a country, which determine the variations in entrepreneurial behaviour among male and female entrepreneurs.

Moreover, the findings of this research reveal that the dominant presence of gender stereotyping and gender roles, in the Saudi Arabian context, affect the level of female government employment and places women in more confined jobs with lower incomes, as compared to their male counterparts. The findings suggest that this low level of job satisfaction confronting Saudi women has pushed more females to pursue entrepreneurship driven by the "necessity" of fewer job opportunities. This fits with the results of Rambo et al. (2009), who identified Saudi women's "necessity-entrepreneurship" resulting from the Saudi Arabian conservative culture and social norms that tend to have pronounced gender differences. Future research should focus on the success or challenges faced by female entrepreneurs in Saudi Arabia after they started their e-commerce businesses.

Important Recommendations Emanating from this Research Include:

- Give entrepreneurs more consideration, as there are gains to be had from small individual start-ups as well as big companies. Venture capitalists should try to be a little more adventurous in light of the entrepreneurial spirit that emerged during interviews with entrepreneurs.
- Implement policies to support strong collaborative engagement and networks across educational institutions and between universities and technology incubators, as well as other incentives that promote public-private partnerships.
- Reduce the overall entry regulatory and administrative burden on entrepreneurs. This would involve reviewing and simplifying the current

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start-up business registration system that can entail complex, lengthy and costly procedures by automating and streamlining the registration process. One method for registration reform can be achieved through shifting the authority over business registration from government agencies to private entities, while mandating the sharing of company information among relevant government bodies.

- Provide a supportive legal system and a more business friendly environment by enforcing strict contract and intellectual property laws to provide innovative proprietary ideas with legal protection.
- Government policy should follow a holistic approach, encompassing all key actors in a public-private partnership to shape policies and programmes. This should scale the role of ministries in directing government and private agencies to identify entrepreneurship challenges and create effective policies.
- Encourage the creation of national entrepreneurs' networks, competitions and awards to stimulate positive attitudes towards entrepreneurship and reinforce the societal contribution of entrepreneurs, demonstrating their success and elevating their social status.
- Saudi entrepreneurs should publicise their success stories in different ways, such as writing blogs on the Internet or participating in conferences to present about their success. This will be beneficial as potential entrepreneurs will gain from having other entrepreneurs around them with whom to interact, exchange experiences and learn about their successes and how to overcome challenges.
- Encourage participation of females in entrepreneurial activities by implementing national strategies that aim to foster women's entrepreneurship in Saudi Arabia as an important source of employment and economic growth. Government policies should undertake reforms to release regulation barriers, particularly those that women face in obtaining business licences. Furthermore, administrative procedures that require the presence of a male guardian should be eliminated. Government policy should also encourage facilitating government and institutional funding for female e-commerce entrepreneurs, thereby making it easier for women entrepreneurs to set up and run their own start-ups.
- Improve government and institutional female mentoring and training support services to enable Saudi women entrepreneurs to achieve their full potential. Several strategies should be adopted to alter the social norms, particularly gender segregation, through special female-related entrepreneurial networks, community groups, workshops, development programmes and campaigns. Such initiatives are critical and can be implemented at the local, regional and international level, in collaboration with other developed countries, to provide expertise and coaching services and host successful women

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entrepreneurs as role models. This effort should promote women of all ages and nationalities to set up their own businesses and inspire them to succeed by raising their awareness, confidence and enthusiasm. Similar collaborations can also be established with neighbouring GCC countries, sharing common issues, to call for regulatory reforms and policy changes that favour women and encourage female entrepreneurship in Saudi Arabia and the region.

- Examine regulations, particularly for start-ups, and, insofar as possible, minimise the hurdles and legal barriers influencing the entrepreneurship rate. For example, government agencies can collaborate with Saudi Arabian Chambers of Commerce to reduce bureaucracy by simplifying rules and regulations. This will help in the formulation of entrepreneur-friendly policies. This bureaucratic reduction should involve optimisation of the regulatory framework through enactment of a single law, instead of multiple laws, to provide a robust environment for start-ups.
- Examine existing regulations and enforce laws to ensure protection and improve the security of e-commerce activities. Doing this will build trust of both customers and vendors in online operations. Other policies are needed to upgrade the existing infrastructure and overcome challenges associated with risk and uncertainty.
- Encourage technological entrepreneurial funding through government-backed start-up loans, focusing on high-growth and high-impact start-ups rather than increasing the number of start-ups with limited growth and high failure rates. Thus, improving the financial environment can be cost-neutral to the government through a better balance of the way funds are spent rather than funneling more money to entrepreneurship.
- Implement policies that facilitate access to funds. For example, permit pension funds, insurance companies and university endowments to invest small portions (around 2% of their capital) in early-stage venture capitalist partnerships. This should provide sufficient financing for e-commerce entrepreneurial activities.
- Utilize the large amounts of money in the country looking for investment in business opportunities. The Saudi Stock Exchange could sponsor some sort of special stock exchange for start-up stocks. For example, government agencies (e.g. Saudi Ministry of Commerce) could examine and regulate the financing of those start-ups and classify them according to the management skills of their directors. This would allow angel investors to participate in the financing process until these start-ups mature and are able to make a profit. At that point, they will be ready for launch into the country's major stock market.

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In conclusion, it is worth mentioning that studies exploring the determinant of start-ups' e-commerce adoption are limited (Li & Xie, 2012). Although this study was conducted in one region with findings and recommendations mainly reflecting the Saudi Arabian context, this research indicates areas of potential for future work in this rich field with more entrepreneurs from other countries. This could potentially lead to generalizations of the findings and results so that recommendations could be made that apply to other parts of the world.

Other areas for future research that have arisen over the course of this study suggest that more research should be carried out on the impact of culture on entrepreneurship, which is a relatively new area of interest so little research has been conducted in this field. Further research in this area is necessary to investigate how to raise societal awareness and to determine how to build on and expand the findings of this study. Additionally, this thesis offers considerable scope for further research to monitor the outcome as and when the recommendations are implemented. This will certainly demand long-term research that will be worth conducting, although it would be well beyond the scope of an individual project. Such research would allow for monitoring how well the recommendations work and whether they have the effect this research suggests.

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