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"BARRIERS TO INFORMATION AND COMMUNICATION TECHNOLOGY ADOPTION IN E-COMMERCE FIRMS IN THE KINGDOM OF SAUDI ARABIA"

"العوائق التي تحول دون اعتماد تكنولوجيا المعلومات والاتصالات في شركات التجارة الإلكترونية في المملكة العربية السعودية"

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Abstract:

The current study aims at examining the barriers that prevent the adoption of information and communication technology (ICT) in e-commerce firms in the Kingdom of Saudi Arabia. To meet objectives of the study, the researchers used a quantitative approach. The researcher used questionnaires to collect primary data from the participants of the study. Furthermore, the researchers identified all Saudi who have employed in E-commerce industries in KSA as the population. This study used a simple random sampling technique to pick the study sample. The researcher has been able to collect around (230) valid responses, which included in data analysis in the study. Therefore, the researchers used the software Statistical Package for Social Sciences (SPSS) to analyze the information gained from the questionnaires. Based on the data investigation, the study demonstrated the following findings.

The study showed that the most critical barriers to successful adoption of ICT in the e-commerce industry within Saudi firms are a high degree of risk-averse, and lack of technical experts to handle the computer systems. Also, customers' unwillingness to accept internet/e-commerce business transactions. Moreover, administrative changes in enterprises and observance of corporate standards hinder the adoption of ICT in e-commerce firms. Finally, problems with companies' web pages such as lacking a stable system and a high degree of risk represented serious problems prevent the successful adoption of ICT in e-commerce in Saudi firms.

Keywords: The adoption of information and communication technology (ICT and E-commerce firms.

ملخص البحث:

تهدف الدراسة الحالية إلى دراسة المعوقات التي تحول دون تبني تكنولوجيا المعلومات والاتصالات في شركات التجارة الإلكترونية في المملكة العربية السعودية. ولتحقيق أهداف الدراسة استخدم الباحثون المنهج الكمي. واستخدم الباحث الاستبيانات لجمع البيانات الأولية من المشاركين في الدراسة. علاوة على ذلك، حدد الباحثون جميع السعوديين الذين يعملون في صناعات التجارة الإلكترونية في المملكة العربية السعودية. استخدمت هذه الدراسة أسلوب العينة العشوائية البسيطة لاختيار عينة الدراسة. وقد تمكن الباحث من جمع حوالي (230) إجابة صحيحة، تم تضمينها في تحليل البيانات في الدراسة. ولذلك استخدم الباحثون برنامج الحزمة الإحصائية للعلوم الاجتماعية لتحليل المعلومات المكتسبة من الاستبيانات. وبناء على التحقيق في البيانات، أظهرت الدراسة النتائج التالية:

وأظهرت الدراسة أن أهم العوائق التي تحول دون نجاح اعتماد تكنولوجيا المعلومات والاتصالات في صناعة التجارة الإلكترونية داخل الشركات السعودية هي الدرجة العالية من تجنب المخاطر، ونقص الخبراء الفنيين للتعامل مع أنظمة الكمبيوتر. بالإضافة إلى عدم رغبة العملاء في قبول المعاملات التجارية عبر الإنترنت/التجارة الإلكترونية. علاوة على ذلك، فإن التغييرات الإدارية في المؤسسات ومراعاة معايير الشركات تعيق اعتماد تكنولوجيا المعلومات والاتصالات في شركات التجارة الإلكترونية. وأخيرا، فإن المشاكل المتعلقة بصفحات الويب الخاصة بالشركات، مثل الافتقار إلى نظام مستقر ودرجة المخاطر العالية، تمثل مشاكل خطيرة تحول دون نجاح اعتماد تكنولوجيا المعلومات والاتصالات في التجارة الإلكترونية في الشركات السعودية.

الكلمات المفتاحية: اعتماد تكنولوجيا المعلومات والاتصالات– شركات التجارة الإلكترونية.

How to Cite This Article|

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Introduction

This study aims to examine the barriers that prevent the adoption of information and communication technology (ICT) in e-commerce firms in the Kingdom of Saudi Arabia. According to (Ismail et al., 2011), ICTs have a prominent role and potential to add substantial value to firms' results and aggressive situations. Accordingly, to complete on a boarder scale, the numerous advantages of ICTs need to be taken into account, and the government must raise awareness. Moreover, (Modimogale and Krpeze, 2011) added stated that access to information plays a chief role in informing decision-makers to take action and make it easier for firms to make significant competing decisions.

(Hanna,2010) claimed that ICT growth had changed the way individuals and businesses share information and are curtail to opening up access to knowledge and information and influencing economics. Thus, it is essential in the Kingdom of Saudi Arabia to understand how this sector functions and what processes are required to maximize its potential best. (Lawson et al., 2003) stated that firms that don't utilize advanced technology would be left behind the global market. Also, (Calderia and ward, 2003) showed that companies that are doing well at the national level were inadequate to compete with the firms that used more advanced technological methods and tactics and consequently found their market share windswept.

Besides that, (Ongori and Migiro, 2010) argued that ICT could significantly increase the firms' efficiency in their everyday activities and transaction, improve information flow and open new cross-board distribution channels, which can contribute to firms' internationalization. Added to the advantages as mentioned earlier of ICT adoption in firms (Franco et al.,2011) stated that, ICT plays an essential role in reducing the uncertainties prevailing in the economy through systems for processing the spreading information more freely. The ICT field is growing and developing rapidly every day, causing radical changes in our daily lives. The development in ICT is shaping the way we live. Therefore, there is a growing demand for an individual to forces in these technological aspects as they became essential and no more extended welfare. Thus, the impact of ICT's current growth has extended to include industry and transform how the business runs. E-commerce is emerging as an adequate method of assisting the company in competing in the global market and participating in overall country economic growth, increasing business chances, enhancing competition, and better access to the market (Alireza, Ebrahim, and Lachin, 2011). Consequently, it is very crucial to study the barriers that hinder the adoption of information and communication technology (ICT) in e-commerce firms in the Kingdom of Saudi Arabia.

1.1 Problem of the Study

Ritchie and Brindley, (2005) mentioned that ICT plays a fundamental role in the modern knowledge economy. Thus, both traditional equipment and ICT devices add more value to firms and, accordingly, necessary for the firms' competitiveness. It is a must for the firms to become a part of the current economic setting to compete and survive.

The challenge is that the Kingdom of Saudi Arabia Firms faces various barriers to ICT adoption, and rarely few firms take the advantages of available modern technology in their daily practices. In the context of KSA, despite the significant amount of younger population in Saudi Arabia who own mobile phones and good internet connections, the country still not fully utilizing these technological aspects to compete in the global market regarding the e-commerce sector. Many determinants may contribute to this delay or late engagement.

Thus, the current study focuses on three types of barriers; first and only related obstacles. Second, the technological barriers, and finally, the managers related obstacles. Consequently, the main aim of the current study is to investigate these barriers to the adoption of ICTs in KSA Firms.

1.3 Objectives of the Study

The current study seeks to achieve the following objectives

1. To determine the barriers to ICT adoption and use in e-commerce firms in KSA.
2. To provide information on encouraging the desired improvement in the future implementation of ICT into e-commerce firms in KSA (Bingimlas,2009).
3. To understand the existing use of ICT by e-commerce firms in KSA.

1.2 Hypotheses of the Study

The study aims at testing the following hypotheses:

1. Lack of knowledge on ICT hinders its successful implementation in the e-commerce industry in KSA firms.
2. A high degree of risk hinders the successful implementation of ICTs in the e-commerce industry in KSA.
3. Administrative changes represent the major hinderer of the application of ICTs in the e-commerce industry in KSA.

4. Company webpage problems prevent the adoption of ICT in Saudi e-commerce firms.

2. Literature Review

2.1 The role of ICT in E-commerce.

According to (Srivastava and Singh, 2013), technology continues to be a transformative force and is changing the way we live and interact with each other and work. Information and communication technologies (ICTs) had radically altered the shape and style of conducting business internationally. ICT is a broad term that includes the usage of computers and networks to communicate, store, and manage requisite information. The application of ICTs is very diverse, including E-commerce. Today, e-commerce has diffident methods and different types. It became a dangerous and essential part of our daily life. Accessibility to E-commerce platforms is not a privilege but rather a necessity for almost everyone regardless of their economic situation and age. However, it revolutionized urban areas rather than rural areas.

Furthermore, (Srivastava and Singh, 2013) stated that there are alternative e-commerce platforms available for every aspect of our lives, starting from purchasing everyday household items to online share and accommodations. (Srivastava and Singh, 2013) define e-commerce as an application of ICTs which support all the activities of the business. Nowadays, our daily life activities are based upon E-commerce, for example, all processes of payments and order and delivery can be conducted electronically. More usage of internet facilities, high educational standards, changing lifestyle and economic growth of the country

According to Akbar (2006), the use of the internet has experienced enormous improvements in the business area, particularly in large scale companies. Since the discovery of internet technology in the 1990s, its use has increased because it provides enormous benefits for the smooth running of the business or business activities. (Nugroho, 2006) mentioned the motivation and interests of e-commerce in improving service to buyers and raising the competitiveness of businesses. The employment of e-commerce technology is one of the essential factors to support the success of a product from a company. To quicken and expand sales quickly by looking at the rapid growth of information technology, we can utilize an online setting in the form of e-commerce.

2.2. Saudi Arabia E-commerce & Digital enablers

Al-Ruithe, Benkhelifa & Hameed (2018) revealed that in the last February '18, a small subsidiary company of Amazon, namely "Payfort," received the first license as a non-Saudi company for floating the digital payment platform. However, the onset of the different types of license relaxations and competitions across the country has supported Saudi Arabia to receive assistance on the customer side. Now the customers would be able to make their transactions with comfort from the external digital payment platforms and the existing national digital platforms. (Al-Ruithe, Benkhelifa & Hameed, 2018) mentioned that Saudi Arabia is the largest economy within GCC, with the youngest population connected through the internet. This scenario presents a volley of opportunities for e-commerce retailers to spread their wings in the country. The female population is more inclined towards the e-commerce channel than the male population, as fashion is the core segment of the market. Several international brands are present in the apparel and footwear segment, dominating the online space, and followed by luxury goods and personal care items. E-commerce, however, faces a few challenges in the country as well. Saudi Arabia is one of the world's largest markets for spam mails, which draws the necessity for deploying cybersecurity measures to protect customer privacy. Digital enablers like the Internet of Things or (IoT), cloud computing, big data, blockchain, and augmented reality motivate organizations to enable a significant level of secured customer engagement (Al-Ruithe, Benkhelifa & Hameed, 2018). E-commerce retailers need to upgrade their technology portfolio to be able to cater to the customers seamlessly.

2.3 E-commerce in Saudi Arabia and Vision 2030

The achievement of the Vision 2030 follows the improvement of e-commerce in Saudi Arabia in several ways. The factors are economic diversification, investment influx, employment creation, and new channels for the local players. It is necessary to draw more global and multinational businesses to the Saudi Arabian market by creating a business-friendly environment surrounded by a conducive regulatory framework. By handholding the startups and motivating the traditional retailers to embrace e-commerce, the Saudi Arabian economy could diversify itself. The economic diversification could help the country to improve its revenues from the non-oil sector. To create a substantial investment influx, the e-commerce retailing industry in Saudi Arabia has to increase its expenditure. The growth in spending shall create a potential for growth in the retail sector overall (Aldhahery, Wahiddin, Khuhro, & Maher, 2018).

As a result, the business environment will become attractive for local, regional, and international investors to strengthen their foothold. Employment creation is evident in the entry of new players in the e-commerce sector. With more investments in improving the supply chain, delivery, distribution channels, and payment gateways will also bring job opportunities in the

logistics and finance sectors. The Vision 2030 aims to maximize local content creation and even its promotion. The e-commerce ecosystem is obvious to create new models of business for local firms in the country.

2.4. Barriers faced by individuals in adopting ICT

To operate technologies that are part of the ICT community, individuals need to remain aware of PowerPoints, word processors, search engines, analytics, spreadsheets, and databases. Further, individuals will have to use communication devices such as video conferences, telephones, and emails to share data and inform the team members.

The problem is that such individuals lack the basic knowledge required to utilize technology. For instance, Hashim (2008) highlighted how working women in Malaysia showed a lack of interest in learning technology and applying to the workplace environment. The chosen population has limited usage of the internet and email. As a result, a sudden transition to ICT to automate daily routine is complex.

Such women also quote age as a barrier that slows down the learning process. They did not want to acquire new skills at this age and prefer applying skills that they already have. According to the women identified by Hashim (2008), it is complex to accommodate to the new situation of the firm by learning new technology. There are psychological barriers and informational barriers.

In a highly motivated environment, there is no problem concerning the interests of individuals. However, in a developing situation as in Saudi Arabia, the resistance to new technologies is low.

The individual barriers also relate to gender differences. For instance, males understand the need and cope with the learning technology while women show less interest, due to their situational backgrounds. (Hashim, 2008). There are people from other races working in Saudi Arabia, and such people have demonstrated learning delays and low resistance to ICT platforms. These racial differences contribute to the slow adoption of ICT.

2.5. Barriers faced by managers in adopting ICT

While individuals face various issues in adopting new communication technologies that will influence their routines, there are also managers and businesses directly affected because of this move. The first barrier mentioned by Antlova (2009) is the lack of financial resources to aid technology implementation and train employees to undergo this change.

The sudden change in the organizational structure can have a detrimental impact on the turnover and revenue models. The allocation of funds to train can also affect the distribution for other operations, leading to complications if not planned appropriately. It is the manager's responsibility to prepare the schedule and funds adequately to handle contingencies when there is a switch in the organization.

The other barrier faced by managers is the little specialization of the organization in the field and the abnormal delays to get back to the routine. The incorporation of new technologies will result in delays. The administrative activities double as human resources meant for such events are unavailable. The limited specialization slows down the development process.

Manager's psychological barriers can also intervene in the process. If the manager feels that it is a stringent processor and is not interested in learning new technologies, it can set as a bad example to the subordinates. Adopting ICT will require the manager to change evaluation plans.

Another problem is that the manager will have to draft new roles and responsibilities based on the change in the environment. Several gaps faced by the organization so far will have to be carefully managed, and parts need to be shifted to handle the differences as well as the new responsibilities. When the functions undergo a shift, employees need to undergo training on change management to improve resistance levels and understand the environment's need to a better extent.

The role of a manager is vital during this change. When the manager does not have the expertise in handling the situation or fails to address a gap during the allocation of new roles, it results in another crisis and ICT inefficiency. During this critical stage, the leadership style chosen by the manager plays a crucial role.

When the manager establishes support and applies a participative approach to the leadership style, the employees get motivated to accomplish the tasks as informed by the manager. It becomes challenging when the manager lacks information on the same—the lack of information impacts the work attitude and attention of the employees in the upgraded work environment.

3. Methodology and Materials

3.1 Methodology

The researchers used a quantitative research approach to achieve the study's purpose. The descriptive method enables them to identify and describe the characteristics of the study population and their relationships (Copper and Schindler, 2014). Furthermore, (Burns and Grove, 2009) said that a descriptive method illustrates a situation as it usually happens. Besides, (Copper and Schindler 2014, P.23) define the research approach as "a blueprint for the research process."

Furthermore, (Copper and Schindler 2014) added that the research approach precisely explains how the study conducted in technical terms.

3.2 The Population and Sampling

(Parahoo,2006, P.258) defines the population as "the whole number of units out of which data can be collected. Furthermore, (Copper and Schindler 2014, P.14) added that "population is a total collection of elements from which the researcher aimed to make an inference." Thus, the researcher found it difficult to determine the number of e-commerce firms in KSA. Thus, simple random sampling is going to be applied here. A sample size comprises a group of respondents, consisting of the target population carefully selected to represent the population (Cooper and Schindler (2014). Therefore, researchers adopted a simple random sampling technique in this study. In contrast, the researchers distributed a survey instrument to the target sample of the current study. The researcher has able to collect around (230) valid responses, which included data analysis in the study.

3.3 Research Tool

The present study employed a questionnaire as a data collection instrument. (Brown, 2001) states that the survey is one of the most common data collection methods in quantitative research. A questionnaire is simplified since it is a natural construct, extremely versatile, and capable of quickly gathering a large amount of information. Therefore, the researcher used a questionnaire to collect the data from the participant of the study.

3.4. Statistical Techniques

The researchers used the software Statistical Package for Social Sciences (SPSS) to conduct statistical procedures to analyze the questionnaire. (Mugenda et al., 2012) describes data analysis as a process of bringing order, structure, and meaning to the mass of information gathered in research. The statistical techniques used to analyze the data collected by the survey questionnaire method include both descriptive and inferential statistical methods.

4. Data Analysis

This section mainly devoted to testing the research underlined hypotheses, which are as follows:

4.1. Results of testing the research hypothesis one: which stated that, lack of knowledge on ICT hinder its successful implementation in e-commerce industry in KSA firms.

Table 4. 1: shows respondents' perceptions regarding lack of knowledge on ICT hinder its successful implementation in e-commerce in KSA firms.

	Frequency	Percent	Mean	SD	Ci-Square	P-value
Strongly agree	67	29.1	3.67	1.14	58.35**	0.00
Agree	70	30.4				
Neutral	51	22.2				
Disagree	35	15.2				
Strongly disagree	7	3.0				
Total	230	100.0%				

**indicated that, Chi-Square test is significant at the (0.01) level.

Table 4. 1 shows that about 29.1% of the respondents strongly agree that lack of knowledge on ICT is a factor hindering the successful implementation of ICT in KSA's e-commerce industry. In comparison, 30.4% agree, whereas 22.2% have neutral views, where 15.2% disagree, and only 3.0% of the total respondents strongly disagree.

Thus, we conclude that almost all respondents (59.5%) thought a lack of knowledge on ICT hinders its application in the e-commerce industry in KSA firms. The high response supported by the mean value reaching (3.67) with a 1.14 standard deviation and the Chi-Square value, which is statistically significant, indicates that the lack of knowledge on ICT hinders the application of ICT in the e-commerce industry in KSA. Therefore, the previous pieces of evidence support the acceptance of H1 stated that lack of knowledge on ICT hinders the successful implementation of ICT in the e-commerce industry in KSA firms.

4.2. Results of testing H2: which stated that, High degree of risk hinders the successful implementation of ICTs in e-commerce industry in KSA.

Table 4. 2: show respondents' perceptions regarding high degree of risk hinders its successful implementation in e-commerce industry in KSA firms.

	Frequency	Percent	Mean	SD	Ci-Square	P-value
Strongly agree	100	43.5	4.19	0.87	173.78**	0.00
Agree	85	37.0				
Neutral	36	15.7				
Disagree	7	3.0				
Strongly disagree	2	0.9				
Total	230	100.0%				

**indicated that, Chi-Square test is significant at the (0.01) level.

Table 4.2 shows that about 43.5% of the respondents strongly agree that a high degree of pf risk hinders the successful implementation of ICT in the KSA's e-commerce industry. In comparison, 37.0% agree, whereas 15.6% have neutral views, where 3.0% disagree, and only 0.9% of the total respondents strongly disagree.
Therefore, the majority of participants confirm that a high degree of risk is one factor that hinders the successful implementation of ICT in the e-commerce industry in KSA. This high response is supported by the mean value (4.19) with SD (0.78). The amount of the Chi-Square test is statistically significant, meaning the high degree of risk is obstructing the implementation of ICT in the e-commerce industry in KSA. Hence, we accept H2.

1.3. Results of testing H3: which stated that, administrative changes represent the major hinderer of the implementation of ICTs in e-commerce industry in KSA.

Table 4.3: shows respondents' perceptions regarding administrative changes represent the major barrier of the implementation in e-commerce industry in KSA firms.

	Frequency	Percent	Mean	SD	Ci-Square	P-value
Strongly agree	98	42.6	4.20	0.84	183.44**	0.00
Agree	90	39.1				
Neutral	36	15.7				
Disagree	3	1.3				

Strongly disagree	3	1.3				
Total	230	100.0%				

**indicated that, Chi-Square test is significant at the (0.01) level.

Table 4.3 reveals that about 42.6% of the respondents strongly agree that the administrative changes represent the significant barriers to implementing ICT in the e-commerce industry in KSA. In comparison, 39.1% agree, whereas 15.7% show neutral views, where 1.3% disagree, and only 1.3% of the respondents strongly disagree.

Hence, the researchers concluded that Saudi firms' administrative changes represent the primary barrier to the implementation of ICT in the e-commerce industry in KSA. This very high response is supported by the mean value (4.20) with SD (0.84). The chi-square value reaching (183.44) is statistically significant, indicating that the administrative changes have a significant association with the non-implementation of ICT in e-commerce in KSA firms. So, it is a considerable factor obstructing successful implementation.

4.4 Results of testing H4: which stated that, company webpage problems prevent the adoption of ICT in Saudi e-commerce firms.

Table 4.4 shows respondents' perceptions regarding company webpage problems prevent the adoption of ICT in e-commerce industry in KSA firms.

	Frequency	Percent	Mean	SD	Ci-Square	P-value
Strongly agree	80	34.8	3.83	1.11	82.96**	0.00
Agree	73	31.7				
Neutral	41	17.8				
Disagree	31	13.5				
Strongly disagree	5	2.2				
Total	230	100.0%				

**indicated that, Chi-Square test is significant at the (0.01) level.

Table 4.4 reveals that about 34.8% of the participants strongly agree that the company web page doesn't have a stable system, obstructing the implementation of ICT in the e-commerce industry in KSA. In comparison, 31.7% agree, whereas 17.8% provide neutral views, where 13.5% disagree, as well as only 2.2% of the total respondents strongly disagree.

Thus, we conclude that the majority of participants confirm that the company web page doesn't have a stable system, which negatively contributes to the successful implementation of ICT in the e-commerce industry in KSA firms. Furthermore, the results found that the Chi-Square value is statistically significant. Meaning there is a strong association between web page problems and unsuccessful implementation of ICT in the e-commerce industry in KSA. Hence, the previous pieces of evidence support the acceptance of H4.

2. Findings, Conclusion and Recommendations

5.1 Findings

5.1.1 Regarding H1: which stated that, lack of knowledge on ICT hinders its successful implementation in e-commerce industry in KSA firms.

The study results show that almost all respondents (59.5%) thought a lack of knowledge on ICT hinders its adoption in the e-commerce industry in KSA firms. This result means that most SMEs firm in KSA doesn't pay attention to educate and train their employees on how to implement ICT in e-commerce. However, they understand their advantages in the business environment. This result was supported by (Modimogale and Krpeze,2011), who stated that access to information plays a chief role in informing decision-makers to take action and make it easier for firms to make significant competing decisions. Also, Hanna (2010) claimed that ICT growth had changed the way individuals and businesses share information and are curtail to opening up access to knowledge and information and influencing economics.

5.1.2. Regarding H2: which stated that, high degree of risk hinders the successful implementation of ICTs in e-commerce industry in KSA.

The study shows that the majority of participants confirm that a high degree of risk is one of the factors that hinder the successful implementation of ICT in the e-commerce industry in KSA.

5.1.3. Regarding H3: which stated that administrative changes represent the major hinderer of the implementation of ICTs in e-commerce industry in KSA.

The study results reveal that the administrative changes in Saudi firms represent the significant barrier of the implementation of ICT in the e-commerce industry in KSA, which means that the organizational changes have a significant association with the non-implementation of ICT in e-commerce in KSA firms. This result supported by Antlova (2009), who mentioned that the sudden change in the organizational structure could have a detrimental impact on the turnover and revenue models. The allocation of funds to train can also affect the distribution for other operations, which can lead to complications if not planned appropriately. It is the responsibility of the manager to plan the schedule and funds effectively to handle contingencies when there is a switch in the organization.

5.1.4. Regarding H4: which stated that company webpage problems prevent the adoption of ICT in Saudi e-commerce firms.

The results reveal that, among the most critical technology factors that obstruct the implementation of ICT in e-commerce in KSA, is the inadequate security systems to check internet fraud and privacy issues, the company web page doesn't have a stable system. In addition to that, undeveloped online payment systems. This result supported by (Lawson et al.,2003), who mentioned that firms that don't utilize advanced technology would be left behind the global market. Also, (Calderia and ward,2003) showed that companies that are doing well at the local level were inadequate to compete with the firms that used more advanced technological methods and tactics and consequently found their market share windswept. Besides that, (Ongori and Migiro, 2010) argued that ICT could significantly increase the firms' efficiency in their everyday activities and transaction, improve information flow and open new cross-board distribution channels, which can contribute to firms' internationalization. An attractive webpage of the company can help in achieving the efficiency of the firms.

5.2 Conclusion

Researchers conducted several studies globally to better understand challenges and drivers to ICT adoption in the e-commerce sector. Although e-commerce has become a familiar retail channel for businesses in developed countries, it is still considered an innovation in developing countries. Specifically, electronic commerce (e-commerce) in Saudi Arabia is still in the first stage despite its advance and fast growth in the ICT marketplace, the highest increase in Internet penetration in the world, the strong retail sector, and the young population (Moudi, 2013). Finally, the study showed that the most critical barriers to successful adoption of ICT in the e-commerce industry within Saudi firms are a high degree of risk-averse, and lack of technical experts to handle the computer systems. Besides, customers' unwillingness to accept internet/e-commerce business transactions. Moreover, administrative changes in enterprises and observance of corporate standards. Finally, problems with companies' web pages such as lacking a stable system and a high degree of risk represented serious problems prevent the successful adoption of ICT in e-commerce in Saudi firms.

5.3 Recommendations

Based on the finding's discussion of the study, the researcher recommends the following recommendations:

E-commerce sector should develop ICT knowledge and skills through government-sponsored training programs for e-commerce firms.

- The Saudi government should pay attention to factors affecting the adoption of ICT in e-commerce in the country.
- Awareness regarding the safety issue should be increased by e-commerce firms to reduce the degree of risk-averse.
- Websites should be designed in a friendly way to attract more customers.
- The internet penetration and connection speeds should be further improved, to enable each citizen to shop online
- A long-term strategy must be implemented in all industries to ensure less administrative changes that might deter progress.

- There is a need for a locally developed digital wallet solution, which will undoubtedly improve consumer confidence in electronic payment methods.
- The firm's owners and decision-makers need to understand the barriers that hinder their films from adopting ICT; thus, obstruct the growth of their business.

5.4 Suggestions for Further studies

Further studies can be conducted, shown as follows:

1. A new study should investigate the impact of online payment systems on e-commerce acceptance among Saudi Citizens.
2. Future research can address not only the barriers but on criteria for e-commerce investment and business process change.
3. Further research can address the relationship between e-commerce strategy and the level of e-commerce.

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