

## Understanding the Effects of Social Media and Mobile Usage on E-Commerce: An Exploratory Study in Saudi Arabia

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**[Abstract]** The social media and mobile usage in Arab World is exhibiting substantial growth throughout the past few years, especially in Saudi Arabia. The economy of Saudi Arabia is also growing fast as well as internet usage and social media penetration. However, the growth of E-commerce in the country is not consistent with the growth of the forgoing factors or with the neighboring countries. The progress of E-commerce in Saudi Arabia was formerly studied by investigating various obstructions and motivations of E-commerce. This paper is conducted to explore the effects of social media and mobile usage on E-Commerce by studying consumer behaviors and E-commerce websites in the country. A comprehensive online survey was created to collect over 1,000 valid responses from Saudi individuals. A dynamic website was also created to collect data from more than 160 E-commerce sites in Saudi Arabia. In this paper, we examine the effects of social media and mobile usage resulted from our data analysis. We found that social media and mobile usage play significant roles on E-commerce in Saudi Arabia. The findings provide new guidance to the online retailers to better utilize the social media and mobile marketing to enhance their business.

**[Keywords]** E-commerce, social media, mobile, m-commerce, Saudi Arabia

### Introduction

E-commerce adoption and implementation in developed and developing countries have been carefully studied with focuses on consumer behavior and/or business issues. However, little is known about the evolution of E-commerce in Saudi Arabia (Abed, Dwivedi, & Williams, 2015). Recent studies (Alghamdi, Nguyen, & Jones, 2013; Almousa, 2013; Khan, 2014) have reported factors that motivate or inhabit the evolution of E-commerce in Saudi Arabia focusing on either businesses or consumers. This paper will review and examine the effect of social media and mobile usage on E-commerce in Saudi Arabia.

E-commerce is vital for many businesses to remain in competitive markets; it is also an important economic growth factor (Abed et al., 2015; Cheng, 2015). E-commerce purchase growth in the Middle-East and North Africa (MENA) is 45% in 2014 according to the Payfort's report (Al-Khalidi, 2015) and the growth is estimated to reach about 52% in 2020 (Al-Khalidi, Abdalla, Soudodi, & Syed, 2015). The overall market value for MENA in 2014 is about \$7 billion. The market value for United Arab Emirates (UAE) is about \$2.3 billion (32.8% of MENA's value), and the value for Saudi Arabia is about \$1.5 billion (17%). The estimated market value growth for MENA in 2020 will be \$13.4 billion, UAE \$4.4 billion (the same rate at 32.8%) and Saudi Arabia \$2.9 billion (a higher rate at 21.6%) (Al-Khalidi et al., 2015). However, according to another recent article in paymentweek.com, E-commerce in Saudi Arabia grew only 30% in the past year (Cheng, 2015). Those imply that the E-commerce growth rate in Saudi Arabia is slower when compared to MENA and UAE, despite its fast growing economy, the rapid increasing on internet usage and the very strong purchasing power in the country. Several studies have also pointed out the slow evolution of E-commerce in Saudi Arabia (Abed et al., 2015; AlGhamdi, Drew, & Al-Ghaith, 2011; AlGhamdi, Nguyen, Nguyen, & Drew, 2012; Almousa, 2013; Telecommunications Predictions 2014 Middle East, 2014).

A recent report indicated that internet growth in the Arab World have increased significantly in the past decade to 400% (Khalidi, Soudodi, Syed, & Abdalla, 2014). According to another report published by Sacha Orloff Consulting Group, computer and internet access for Saudis reached 65.8% of population

(de Kerros Boudkov Orloff, 2012). The rate of mobile possession in Saudi population has also outstandingly grown to 1.8 to reach 95% of residents (Alsenaidy & Tauseef, 2010). The universality of mobile devices opens the door for companies to consider mobile commerce (M-commerce) for online purchasing or at least for marketing purpose (Abed et al., 2015). Similarly, there is remarkable growth in social media usage in Saudi Arabia. Statistical reports and information graphics about social media usage in Saudi Arabia put it the top of countries in the region and in the world (Schoonderwoerd, 2013).

The inadequate volume of research focusing on current issues conducted to study E-commerce in Saudi Arabia and the lack of large assortment statistical reports create a chance for further research (Abed et al., 2015; Ahmad & Agrawal, 2012). Some common factors reported previously by other research may be diminishing nowadays (Makki & Chang, 2015). Other factors, such as social media and mobile usage, could be considered for further studies. In fact, mobile internet access overtook personal computers for the first time worldwide in 2014 in several markets including India, China, and Saudi Arabia. More research related to mobile and social media could result in more reliable findings (Abed et al., 2015; de Kerros Boudkov Orloff, 2012; Makki & Chang, 2015).

In this paper we study the effects of social media and mobile usage on E-commerce in Saudi Arabia. A comprehensive online survey was developed for our qualitative approach to gather Saudi consumer's perspective on E-commerce and the survey was distributed by utilizing the social media. Also, a dynamic website was created to collect data using various tools from electronic stores (E-stores) in Saudi Arabia.

### Literature Review

E-commerce acceptance in developing countries has been broadly studied. Those studies varied from focusing on general perspectives like social issues (Al-maghrabi, Dennis, & Halliday, 2011; Al-maghrabi & Dennis, 2010; Al-Maghrabi & Dennis, 2011; H. Alshehri & Meziane, 2015; Al-Somali, Gholami, & Clegg, 2009; Baghdadadi, 2013; Karimov & Brengman, 2011) to particular perspectives like online payment methods, trust, government role and/or delivery systems (AlGhamdi, Drew, & Alhussain, 2012; Alghamdi et al., 2013; Almosa, 2011; Almousa, 2013; Khan, 2014; Sait, Al-tawil, & Hussain, 2004). Some studies focus on large regions (Aladwani, 2003; Bus, 2014; Ghanem, Aoun, Barel, Moayedpour, & Al Anbari, 2013; Kassim & Abdullah, 2010; Khalidi et al., 2014; "MENA B2C E-commerce report 2014," 2014, Middle East & Africa Telecommunications Insight - January 2014, 2014, Telecommunications Predictions 2014 Middle East, 2014), and some focus on specific countries like Saudi Arabia (Abed et al., 2015; Ahmad & Agrawal, 2012; AlGhamdi, Drew, et al., 2012; Al-Hudhaif & Alkubeyyer, 2011; Almosa, 2011; Almousa, 2013; H. Alshehri & Meziane, 2015; Brdesee, Corbitt, & Pittayachawan, 2012; Khan, 2014; Makki & Chang, 2014; Sait et al., 2004).

E-commerce adoption factors, implementation pitfalls, and demographics of internet users in Saudi Arabia have been reported (Ahmad & Agrawal, 2012; Brdesee et al., 2012; Khan, 2014). Mobile and social media impact on E-commerce have also been studied in general (Guzzo, Ferri, & Grifoni, 2014; Mata & Quesada, 2014; Matar & Gao, 2011; Shen, 2013) or on specific countries (Abed et al., 2015; Alkhunaizan & Love, 2013; Hajli, 2013; Social, Influence, & Purchasing, 2014; "Visual overview of E-commerce market in Saudi Arabia [Infographic]," 2014; Zhao, Truell, Alexander, Sharma, & Smith, 2013). In this section, we provide a brief overview on those studies. We then state the objective of our study and the questions to be answered for consumers and business in Saudi Arabia.

#### *E-Commerce, M-Commerce and Social Media in Saudi Arabia*

The evolution of E-commerce practice began in most developing countries in early 90's. The number of E-commerce transactions in developed countries has been rapidly increasing in the past decade (AlGhamdi, Drew, et al., 2012). Such number is commonly acknowledged to be a factor of economic progression in developing countries (Abed et al., 2015; Al-Hudhaif & Alkubeyyer, 2011). It was reported that the global spending growth resulting from E-commerce transactions reached around 0.27 trillion USD in 2002 significantly jumped to 10 trillion USD after a decade (AlGhamdi, Drew, et al., 2012). It is anticipated that E-commerce market share in Saudi Arabia will reach 13.3 billion USD in 2015 with 8% of all Saudi retail will be online. Around 25% of internet users in Saudi Arabia are involved in E-

commerce transactions (“Visual overview of E-commerce market in Saudi Arabia [Infographic],” 2014). Abed et al. stated that there is a lack of research related to the effect of social media and mobile usage on E-commerce in Saudi Arabia and recommended further research to be conducted (Abed et al., 2015).

Some research and statistical reports illustrate significant growth of internet, mobile and social media usage in Saudi Arabia (Khalidi et al., 2014). Additional works studied the business perspective only regarding the acceptance of E-commerce in Saudi Arabia (AlGhamdi et al., 2011; Al-Hudhaif & Alkubeyyer, 2011; M. Alshehri, Aldabbas, Sawle, & Baqar, 2012; Brdesee et al., 2012; Sait et al., 2004). For examples, Al-Hudhaif & Alkubeyyer studied internal and external aspects of E-commerce acceptance (Al-Hudhaif & Alkubeyyer, 2011). Brdesee et al. studied E-commerce adoption in Saudi Arabia from a cultural perspective (Brdesee et al., 2012). Almousa, Khan and Alshehri conducted research to profile online shoppers in Saudi Arabia (Almosa, 2011; M. Alshehri et al., 2012; Khan, 2014). Abed et al. studied research efforts related to E-commerce and social media in Saudi Arabia (Abed et al., 2015). An interesting report by de Kerros Boudkov Orloff discussed different factors related to business, consumers, government and banks (de Kerros Boudkov Orloff, 2012).

95% of Saudi residents own mobiles in a rate of 1.8, meaning for every 10 individuals there are 18 mobiles (Alsenaidy & Tauseef, 2010). A MasterCard report stated that Saudi Arabia’s smartphones penetration is ranked third highest in the world (Hijazi, 2014). According to The Social Clinic report in early 2013 titled “*The State of Social Media in Saudi Arabia 2012*”, Saudi Arabia ranked number one in the world for the number of daily viewed videos, 90 million, on YouTube. Similar numbers can be found in its next year’s report “*The State of Social Media in Saudi Arabia 2013*” showing 90 million videos were viewed daily on an average of 7 videos per day for each Saudi internet user. Saudi Arabia also ranked number one in the world in Twitter with a growth rate of 3,000% from 2011 to 2012, and is still growing.

This growing rate is 10 times more compared to the average global rate. Statistics also showed that there was an average of 50 million tweets per month in 2012 and 150 million tweets in 2013 in the country. Moreover, 2 million out of 6 million of Facebook users in Saudi Arabia only use their mobiles to access Facebook in 2012 and this number has increased to 5 million in 2013 (“The State of Social Media in Saudi Arabia 2012 | The Social Clinic,” 2013, “The State of Social Media in Saudi Arabia 2013 | The Social Clinic,” 2014). Some research results stated that internet and technology negatively inhibit E-commerce acceptance and implementation in the country, which might be currently incorrect (AlGhamdi, Drew, et al., 2012; AlGhamdi, Nguyen, et al., 2012).

### ***The Objective of the Study***

The objective of this paper is to answer the following questions in order to determine the effects of social media and mobile usage on E-commerce in Saudi Arabia and to what extent:

- Do social media and mobile usage play a role on E-commerce in Saudi Arabia? And in what aspects?
- Does social media communication affect online purchase decision making? And by which genders?
- Are E-commerce sites in Saudi Arabia nowadays utilizing social media and mobile marketing?

## **Methodology**

### ***Data Collection Methods***

Qualitative approaches were used in this study aiming to gather an in-depth understanding of the motivators and inhibitors of E-commerce in Saudi Arabia. To accomplish the goal, we have developed an extensive online survey to collect data from Saudi individuals and created a website to collect data from Saudi E-commerce sites (or E-stores). Given the popularity of social media in the country, the survey was distributed to local Saudi Arabians using various social media channels. For the purpose of this paper we will focus on social media and mobile usage results.

**Survey Data Collection:** The developed online survey collected total number of 1021 replies from local Saudis as the paper was written (Makki & Chang, 2015). Demographic information complies with other research indicating most Saudi respondents, 75.7%, are young aged 18-35 and the majority, about 62%, are males (Al-Khalidi et al., 2015; Alkhunaizan & Love, 2013; Almosa, 2011; Khalidi et al., 2014; Khan, 2014; Simsim, 2011). However, the level of education and occupation answers do not comply with mentioned research. Previous research indicated that the majority of consumers have high school degree or less and are unemployed (Almosa, 2011; Simsim, 2011). Our survey results, on the other hand, show that 55.6% of respondents have a Bachelor degree and 55.8% are working (including 3.6% merchants) compared to 39.9% unemployed, which is similar to recent research (Alkhunaizan & Love, 2013; Khan, 2014). Perhaps the reason behind such diversity in results is time. Recent research like ours and Khan's indicate obvious change in consumer behavior, which will also reflect on other aspects discussed later in the next section.

**Website Data Collection:** In order to analyze performance, mobile compatibility and social media involvement of E-commerce sites in Saudi Arabia, we developed a dynamic website containing data of each E-store (ecgulf.org). The server platform uses Unix/Linux with Apache as the web server, PHP as the server side scripting language, HTML/CSS/JavaScript/JSON as the client side scripting language and MySQL Server as the database. The site was developed based on Joomla Content Management System ("Joomla! The CMS Trusted By Millions for their Websites," 2015) and jReviews for Joomla as a directory/reviews component ("JReviews • Joomla & WordPress Reviews, Directories, Catalogs," 2015).

The website presents E-stores with details for each, like category, location, website link, social media accounts links, delivery methods, accepted payment methods, languages of website, currencies accepted, mobile compatibility and more. We have also developed PHP programs that automatically retrieve statistical data about each site in our system in a daily basis. The retrieved data contains social media counts, Google Mobile-friendly (GMF) test scores, Google and Moz.com page ranks, and more. We have selected more than 160 major online stores in Saudi, and information of each E-store was added manually by visiting its corresponding website and filling the jReviews form in our site. The actual number of E-stores in our site can be varied in time as we regularly add new E-stores or remove the out-of-business E-stores. At the time of this paper is written, the number of E-stores in our website is 163. The number and the percentage of E-stores for each category under our study are shown in Figure 1.

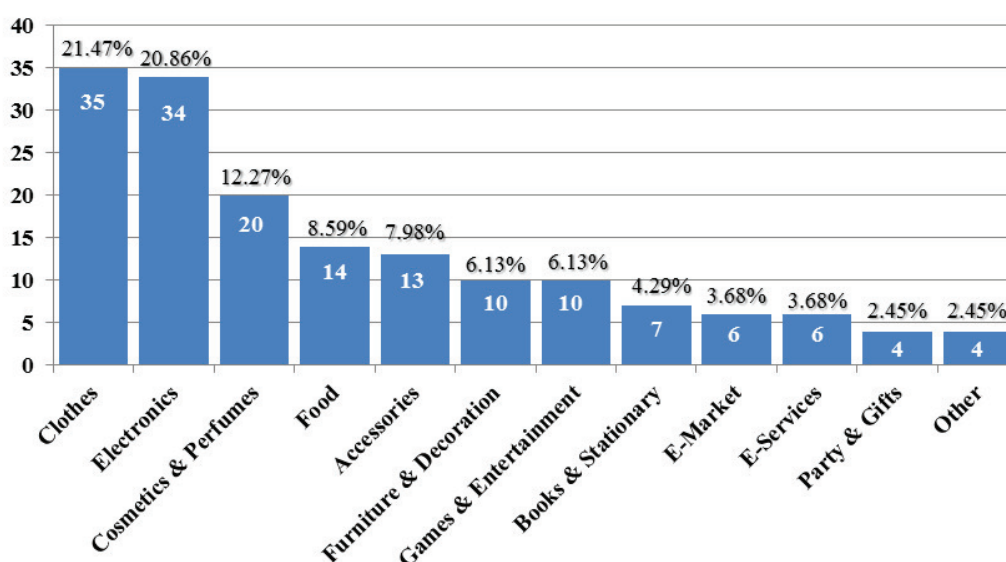


Figure 1. The number and percentage of e-stores by categories in Saudi Arabia

## Results and Discussion

### Survey Results

Figure 2 shows internet usage and the accessing devices result from the survey of local Saudis. This result illustrates a significant change in user's behavior compared to previous research. The use of Smartphone in accessing the internet significantly exceeds our expectation with an average of 5.78 hours per day for males and 6.73 hours for females. Female Saudis spent more time online using smartphones or personal computers (PCs) compared to the male Saudis. The average use of tablet in accessing the internet does not show a gender variation. In summary, the average use of mobile devices (smartphone and tablet) for a Saudi individual reaches about 10 hours online per day. It was also pointed out in an online article that the majority of Saudi Arabia and Indonesia users access the internet using their smartphones instead of PCs (Schoonderwoerd, 2013). This may imply that potential customers prefer to visit websites using mobiles and tablets. Therefore, merchant websites should be mobile-friendly (responsive) and should not rely only on traditional web otherwise merchants could lose many potential buyers.

The result also encourages merchants to have their own native mobile apps to reach out additional customers and to offer a more convenient way to shop online. This result coincides with several recent reports showing high increase in internet access from mobile devices (Ghanem et al., 2013; Telecommunications Predictions 2014 Middle East, 2014, "The State of Social Media in Saudi Arabia 2013 | The Social Clinic," 2014). This result, however, is different compared to another recent research indicating a low usage of portable devices in Saudi Arabia (Khan, 2014). Perhaps this is because Khan counted the number of times internet was used and from where (i.e., home, office or smart phone) per day while we counted daily hours from distinct devices.

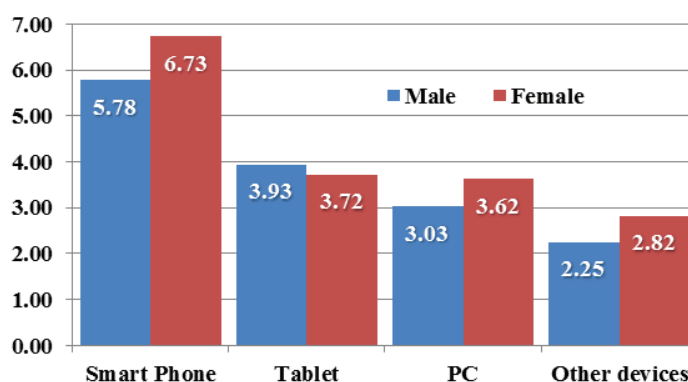


Figure 2. The average hours Saudis spent online per day using various devices

Figure 3 shows interesting findings related to social media. It reveals how the online communication through various social media companies affecting the purchase decision making. We computed an average rate in order to estimate the impacts of various social media affecting the purchasing decision by gender. The average rate for an individual social media is defined and calculated with the effect extents being weighted by one through five using the following formula (Makki & Chang, 2015):

$$\text{AverageRate} = \frac{(\text{col1} * 1) + (\text{col2} * 2) + (\text{col3} * 3) + (\text{col4} * 4) + (\text{col5} * 5)}{\text{Valid responses from each social media}}$$

The most influence comes from Instagram, an image sharing service, with average of 2.89 out of 5 for males and 3.58 for females; i.e., 2.89 out of 5 male Saudis and 3.58 out of 5 female Saudis made their purchasing decisions based on their communication with others through Instagram. Result shows that Instagram is the only channel much preferred by females than males. Differently, Facebook is more



preferred by male Saudis than female Saudis. This implies that merchants who target on females may focus more on Instagram and those who target on males may focus more on Facebook. Other types of social media and communication services also have good impacts on online shopping decision making. Surprisingly, E-mail and Short Message Service (SMS), the most popular ways companies use in the country, have lower impacts than expected on Saudi consumers especially on female consumers. Saudi consumers get plenty of advertising emails and short messages from many companies due to the weak privacy laws in the country. Yet, the impact of such emails and short messages is low. Consumers were not persuaded to go to their websites and to buy from them. Not only companies were wasting time and money on such ineffective mass messages, but they may also hurt their reputation when consumers get the notion that they have been spammed.

It is recommended that retailers should focus more on two or three types of social media and word of mouth rather than randomly distribute massive SMS and emails. This finding is coherent with the *Web 2.0, Social Networks and E-commerce as Marketing Tools* report (Mata & Quesada, 2014) that suggests using social media for electronic marketing (E-marketing). Also, Abed et al. recommended utilizing social media as a channel to increase E-commerce acceptance in Saudi Arabia (Abed et al., 2015). In addition to E-marketing and awareness, we recommend using social media for E-commerce itself as well, based on our result. Due to the significant increasing growth of social media usage in Saudi Arabia, it could play a significant role in increasing the growth and acceptance of E-commerce in the country.

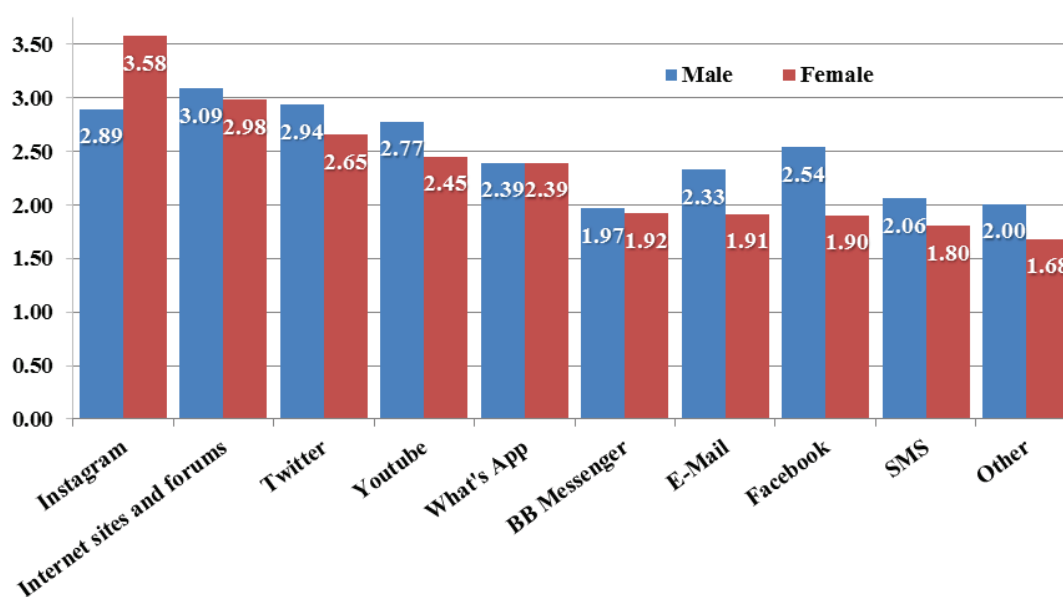


Figure 3. Estimated average rate of various social media affecting online purchasing decisions (5 is the maximum rate)

### Website Results

Every E-store under our study utilized at least one social media account to connect to its customers. Although having more social media accounts has the advantage to reach out more customers; it requires resources to manage those accounts to build a strong customer relationship. Among the 163 E-stores we studied, 4.9% has one, 8.6% has two, 32.5% has three, and 54% has 4 or more social media accounts. In terms of the popularity of four major social media companies, we found that Twitter is the most popular one in Saudi Arabia, used by 92.02% of the E-stores, followed by Instagram, 65.64%, Facebook, 63.19%, and then YouTube 36.20%. It is interesting that Instagram is used by more Saudi E-stores compared to Facebook. As for YouTube, it is used only by 36.2% of business even though Saudi Arabia has rated the

number one daily videos watched in the world. The result related to Twitter is not surprising due to its popularity in the country. However, the result on Instagram is less than expected although it has higher impact on purchase decision making. Yet, Instagram usage by E-stores in some categories (Clothes, Accessories, Furniture & Decoration, and Games & Entertainment) is higher than Facebook, see Figure 4.

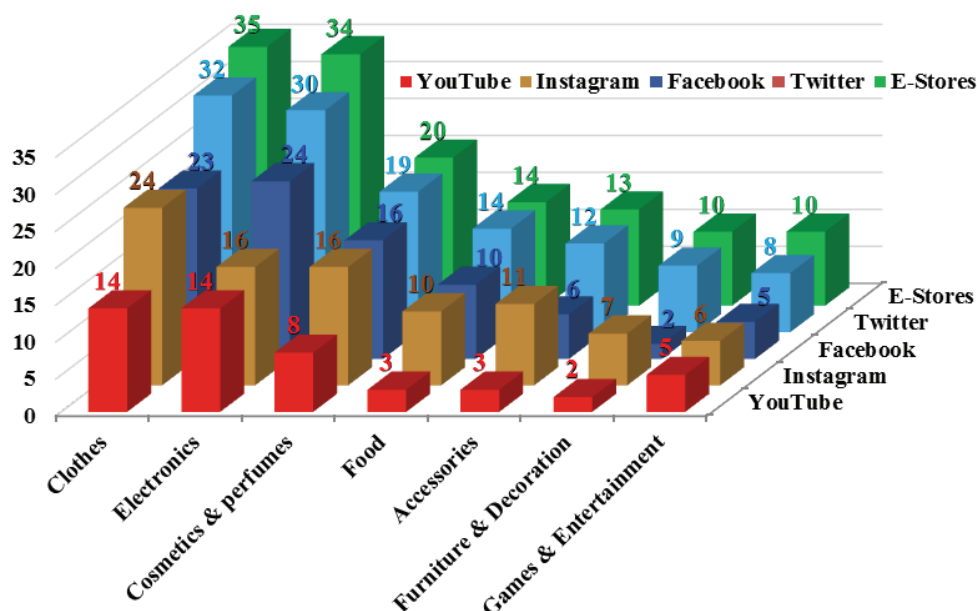


Figure 4. The number of e-stores utilized various social media accounts

As it was shown in Figure 2, mobile devices have been the most popular way for Saudis to access internet. Saudi customers access internet using either a smart phone or a tablet 3 times more than using a personal computer disregard the genders. It is a massive wake-up call to any business in Saudi Arabia without a mobile-optimized site or app. We use the Google Mobile-friendly (GMF) test ("Mobile-Friendly Test," 2015) to assess the readability and the usability of the 163 E-stores in Saudi Arabia. GMF test is introduced by Google for webmasters to check their mobile-friendly compatibility of their websites (Imaizumi & Phan, 2014). According to a Google blog post in February 26, 2015, "Starting April 21, we will be expanding our use of mobile-friendliness as a ranking signal. This change will affect mobile searches in all languages worldwide and will have a significant impact in our search results." (Makino, Jung, & Phan, 2015).

Therefore, GMF test score is essential for E-stores to be indexed by Google search. Accordingly, we added this field in our E-stores records, among others, to evaluate their performance. The developed PHP programs we mentioned previously use Google Page Speed Insight API ("Get Started with the PageSpeed Insights API | PageSpeed Insights | Google Developers," 2015) to return GMF test score and pass/fail status for each E-store. The programs are set to automatically run daily. Our result for GMF test shows that about 70% of E-stores passed the mobile-friendly test. The rest of 30% of E-stores may lose many potential customers since their sites are determined to be low quality content and therefore no Google's searchable index will be added. We highly recommend that those sites failed GMF test should adapt to the growing mobile trend to remain competitive and to ensure indexing in Google search results.

Figure 5 show the details in breaking down the GMF test results by categories. All Party & Gifts E-stores passed the test. Furniture & Decoration is next by 90% then 85.71% for Books & Stationary, Clothes and Food categories. The lowest percentage is for E-Services by 16.67%. Surprisingly, only

64.71% of Electronics E-stores passed the test which is considered low since those stores sell electronics and target mobile users who are most likely to visit. Similarly, Cosmetics & Perfumes E-stores percentage is 60% and since such stores mainly target females, who use smartphones a lot to access internet, those websites should be redesigned to be mobile-friendly.

As important as having a mobile-friendly website, offering a mobile application (native app) is also valuable since most of Saudi consumers use their smartphones for internet access. Our analysis shows that only 7.4% of E-stores (12 out of 163) offer native apps for smartphones. The E-stores owners and managements should consider such investment to provide mobile native apps to further promote their business. Furthermore, a mobile app provides additional advantages than a traditional website, like convenience, location-based information, and ability to push notifications for news, special offers and latest products.

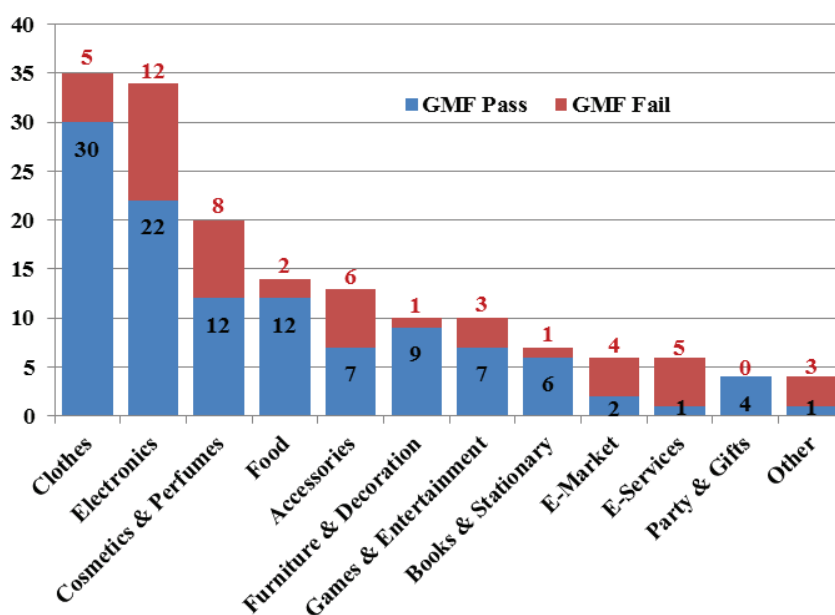


Figure 5. The number of E-Stores by categories passing or failing the Google Mobile-Friendly test

Based on the analysis of our survey data, social media, especially Instagram, affects the online purchase decision for Saudi consumer. Instagram has more influence on female than Facebook, which has more influence on males. Email and SMS has the least effect on consumers' decision to purchase online. Also, consumers prefer to use mobile and tablets to visit websites, especially females. As for website results, 54% of E-stores have 4 or more social media accounts. The most used social media account is Twitter followed by Instagram then Facebook and the popularity varies by category. About 70% of E-stores passed GMF test and the performance depends on category.

### Conclusions

This paper studies the impact of social media and mobile usage on the acceptance and implementation of E-commerce in Saudi Arabia. A comprehensive online survey was designed to gather an in-depth understanding of those factors and data was collected from 1021 Saudi individuals. A dynamic website was also created to collect data from 163 E-commerce sites in Saudi Arabia.

The major implication of the study is that the use of social media plays a judgement role in online purchase decision making with more influence in female Saudis. The use of social media helps in building a stronger customer relationship and increasing the product awareness. The overall social media accounts and the massive usage of them in the country also indicate consumers' readiness to employ



social media on E-commerce. Mobile usage in Saudi Arabia is excessive, especially used to access the internet. Large companies should not be skeptical of the revenue generation potential of M-commerce. Mobile marketing should be considered seriously by companies when building their websites assuring that all visitors from different devices will have no issues accessing their sites such as when using devices with different screen sizes. Based on our result, 70% of Saudi E-stores passed the GMF test. The rest of 30% of E-stores may lose many potential customers since their sites are hard to read from a mobile device and cannot be discovered by Google's search engine due to the lack of Google's searchable index. We recommend that E-commerce sites should make the effort for a responsive web design ensuring their sites are mobile and tablet compatible. Merchants should also consider providing native apps to their customers to gain additional benefits including increasing interactivity with customer and more regular visiting.

In conclusion, Saudi consumers prefer to shop online using mobile devices. Social media has substantial impact on consumers' decision making for online purchasing. Social media, in general, greatly assist in the increase of public E-commerce awareness. Social media, especially Instagram, can be a very effective tool in increasing product awareness and delivering the E-marketing promotion. The significant potential of social media and mobile usage on E-commerce in Saudi Arabia warrant further investigation.

### **Acknowledgment**

This paper is an extended version of preliminary manuscripts that have already been published in the *Proceedings of the International Conference on e-Learning, e-Business, Enterprise Information Systems, and e-Government, published in 2015*. (EEE'15: ISBN #: 1-60132-413-8 - part of WORLDCOMP Congress); Editors: Hamid R. Arabnia, Azita Bahrami, Leonidas Deligiannidis, and Fernando G. Tinetti with Associate Co-Editors: George Jandieri and Ashu M. G. Solo.

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