E-COMMERCE IN YEMEN: PROBLEMS AND PROSPECTS UPDATE

INTRODUCTION:

The internet is becoming inevitable. Technology has shaped every aspect of life- social, economic, political, and lifestyle. There are new uses of the internet every day. This paper addresses the internet use in Yemen. It discusses the untapped potential of e-commerce. Currently, Yemen is considered behind the rest of the world regarding its internet use, connectivity, and awareness (Al-wazir & Zheng, 2014). There are many opportunities online that can open doors for the people of Yemen. Information technology and communication is considered an essential "vector" for durable economic development (Pârgaru & Rotaru, 2012). From an international trade perspective, e-commerce can provide low-income countries access to high-income countries (Terzi, 2011). Unfolding such opportunities can create economic wealth to the poorest country in the Middle East. This paper will focus the current main problems and prospects of e-commerce and the internet in general to the people of Yemen.

BACKGROUND

The internet can serve as an important opportunity for growth and development. E-commerce can create jobs, reduce employment, generate opportunities, and enhance the life of millions in Yemen. It also provides value to consumers in the global economy. It reduces cost per transaction, accommodate a huge number of buyers, sellers, products, services, inquiries, reports, reviews, and others simultaneously (Gunasekaran, Marri, McGaughey, & Nebhwani, 2002).

There are several types of research on the internet in Yemen (Al-Aghbari, Abu-Ulbeh, Ibrahim, & Saeed, 2015; Al-wazir & Zheng, 2014; Zolait, Ibrahim, & Farooq, 2010). The common themes point to one direction that many opportunities are not tapped. E-commerce may have a bigger impact on developing countries than developed countries. It reduces the inefficiencies and help to increase productivity (Gawady, 2005).

The internet has not only provided a medium for trade, but it also provided a medium for life. The economy can benefit from the non-transaction activities as much as the value generated from trade (Mohammed, 2010). The internet can provide much value for the entire society economic, social, political, and cultural.

INTERNET TECHNOLOGY INFRASTRUCTURE

The internet technology infrastructure in Yemen started in 1996. Tele Yemen started dial-up services. Today, there are ADSL, 3G mobile data connections, satellite internet, leased lines, and dial ups. Average speed is 1MB per second; the minimum is the 56K and the maximum home use is 4MB

and for business around 10MB on leased lines. The average monthly subscription fee is around $20 per month for 16GB of bandwidth on a 1MB speed.

The Information and Communication Technology (ICT)

Table 1 shows statistics to compare Yemen with other countries regarding the information and communication technologies.

	e-commerce users out of internet population	e-Commerce $ Spending per e-Commerce user a year	e-Commerce market size (B$)	Fixed (wired)-broadband subscriptions (,000)	Fixed (wired)-broadband subscriptions per 100 inhabitants	Fixed-telephone subscriptions (,000)	Fixed-telephone subscriptions per 100 inhabitants
USA	71%	1,111	193.0	91,342	29.25	135,127	42
China	28%	799	115.0	188,909	10.08	266,985	19
Brazil	17%	824	11.0	20,190	13.63	45,038	22
Indonesia	6%	256	0.9	3,251	1.30	30,722	12
Yemen	5%	100	0.1	256	1.05	1,143	5

Sources: Federal Communications Commission, USA; Ministry of Industry and Information Technology, China; Ministry of Industry and Information Technology, Brazil; MCIT, Indonesia; ITU estimate, Yemen. Data as of 2013.

Table 1: Information & Communication Technologies in different countries in comparison with Yemen

GOVERNMENT

An e-government for Yemen can make a significant development in a short time. E-government can fight corruption, increase productivity and efficiency, involve stakeholders, improve policy development, and ensure transparency (Bhat, 2014). The government of Yemen faces several challenges in implementing e-government. Yemen is among the lowest ranking countries all factors set by the United Nations (Al-Aghbari et al., 2015; Al-mamary, Shamsuddin, & Aziati, 2015) to be ready for such mechanism. These challenges range from leadership and management (Al-wazir & Zheng, 2014) to cost of development and infrastructure. Online services in Yemen is the most needed index to be enhanced (an A. Ali & Zhao, 2012).

The government does not have any special plans to promote the use of the internet. While a developing country must have an education and infrastructure plan to gain from the benefits of information technology and communications under a “strong political leadership” (Mamaghani, 2010).

The closest to e-commerce laws and regulations in Yemen is the “Law No. 40 of 2006 Regarding Electronic Payments Systems for Financial and Banking Operations”. The law recognizes electronic payment, financial, and banking transactions in the court of law. It provides the legitimacy for electronic signatures and transactions.

The government has a telecommunication cabinet that supervises the development of telecommunications and information technology. The government is currently the only monopoly over internet service providing via its two entities Tele Yemen and Yemen Net. While Tele Yemen

has a majority ownership by the government, Yemen Net is entirely owned by the government. Because of the monopoly, Internet users complain of the lack of speed, services, affordability, and even availability of internet access.

Mobile communications are also controlled by the government. There are four mobile operators in the country, one of them is managed by the government and mostly owned by the government. The board of directors includes one representative of the private sector that owns stocks. The other mobile operators operate in an oligopoly market under high government controls. Local mobile operators do not have licenses to offer more than 2.5G internet. The government sells licenses to the private sector to run mobile telecommunication companies. The government had not decided to sell 3G or 4G licenses.

Mobile operators are required to go through Yemen Net service provider for internet service. The international calls have to go through Tele Yemen, which is the only international calling service provider. Domestic Public Switched Data Network (PSDN) service is also owned and controlled by the government via its Yemen Telecom Corporation.

The government via its Post Office decided to implement the e-rial in the early 2000s. However, the project failed and damaged the local perceptions of electronic commerce. The project had several issues. It was managed by the post office who had limited capacity for technology project management. The system had problems in availability, reachability, usability, and was not easy to use. While the system was an electronic fund transfer (EFT) system, it was used as an electronic wallet. Users were expected to purchase these e-rials and store the money value in these cards and only use them to settle some utility bills. The early adoption of the e-rial without getting all the related parties on the same level led to customer dissatisfaction with the e-rial. It had once happened when an excited user indicates that electricity company disconnected his service even though he had settled the bill a week ago. The electricity company does not have a central database that can interface with the e-rial database.

E-COMMERCE SUPPORT

The business sector has been much more advanced than the government regarding the use of information technology and e-commerce to transact business. ATMs were a successful example of the implementation of e-business in Yemen. In 2004, a leading local bank implemented a reliable ATM network that covered the entire capital city of Sana'a. The service was accompanied by direct salary deposits to the bank account. A free ATM card was provided to all retail customers to access their salaries via the ATM network. The bank also offered salary loans to support organizations and employees to move from the manual cash based salary payments to the online electronic salary payments to bank accounts with ATM cards.

In 2006, another government bank decided to provide the same services to government employee salaries. This was a revolution in Yemen banking industry and the EFT culture. The penetration was adamant that the total number of ATM cards reached over a million by 2010 (Alkibsi & Lind, 2011).

The first international electronic transaction via international networks was in 2005. The growth of such transactions was very slow until 2011 after the high penetration of the ATM culture. Until the

writing of this paper, no local bank provided internet merchant accounts. The main reason is that the local infrastructure for banking transactions was still facing several issues such as network problems, capacity building, and interbank connectivity, lack of regulatory body to settle disputes, the increasing security concerns, political instability, economic hardships, and others.

In 2014, the World Bank provided support to the Central Bank of Yemen (CBY) with grants to implement an advanced EFT system to include the credit bureau, real-time gross settlement (RTGS), and a modern core banking system to electronic interbank transaction system that can improve the local payment systems. The grant also meant to provide capacity building to use better information technology in the financial system. Oman has gone through an effective and efficient modernization progress in enabling its payment systems (S. Ali & Al-Jabri, 2011). Central Bank of Yemen may benefit from the experience.

Internet banking was established by individual banks that offered very limited services such as browsing one's balance and transaction history. Banks had struggled to make the service reliable and fully functional. Some banks provided electronic bill payment systems via SMS or through ATM cards. Internet fraud was a recurring risk that banks had to accommodate.

Paying online was another challenge for local banking customers as some banks blocked internet transaction, and those who insisted on having access to pay online were requested to sign documents that said the bank is not responsible. Customers complained that their disputes were not resolved and in some incidents banks did not provide any protection.

International credit card processing companies were able to provide their services in the Yemen market. This service offered an alternative payment system to buyers and sellers in Yemen. These service providers were charging high fees that prevented the penetration of the internet transactions. Companies like PayPal allowed Yemen customers to send money only. Others offered sellers to get their accounts, but their funds were charged the highest market fees.

E-commerce Adoption:

Adoption challenges in Yemen are due to several factors. First, issues of poverty and illiteracy are preventing youth from accessing the internet. Issues of trust and awareness are also other reasons preventing individuals and groups from participating in the internet (Al Rawabdeh, Zeglat, & Alzawahreh, 2012). The limited access to the payment systems did not present the internet as an opportunity rather a source of transaction fees to pay.

Research Question

What are the challenges and problems preventing Yemenis from utilizing e-commerce and other online payment systems, and what recommendations can be suggested to address those challenges?

The answers to this research question provided a description of the current status of the internet use in Yemen. It also provided the current consumer behavior online, the main reasons behind transacting online, and the current overall status.

METHODOLOGY

This section presents what methods were used and why they were chosen, a preview of the sampling process, ethical considerations, generalizability, reliability and validity indicators, plus the weaknesses and obstacles faced during the research

The research process included two parts. The first part was qualitative and exploratory in nature to identify the current challenges and prospects that e-commerce in Yemen is facing. Qualitative study was conducted via a focus group of 5 participants. Each of the participants is a current entrepreneur and a heavy internet user who have bought and sold products or services online for at least the past five years. The results of the qualitative focus group were then developed into a quantitative survey to measure and examine the current state of e-commerce in Yemen.

The first phase included a focus group that discussed the current challenges for buyers and sellers to work from Yemen. The driving question to the focus group was the main challenges and opportunities individuals in Yemen can gain from e-commerce. The discussion generated the questions necessary to be answered in the second phase.

The second phase included a questionnaire that was distributed to local consumers both online and offline to get an understanding of the overall practices, perceptions, and behaviors about internet use, conduct, and execution.

After the initial focus group meeting, a survey was developed to capture the essence of the research question. A pilot study was conducted to check the content of the survey to assure reliability and validity of the survey items. The final survey was reviewed again with participants of the focus group. Then the survey was translated into Arabic and checked with the same focus group participants. The developed survey was also reviewed with the members of the Internet Society Yemen Chapter. The final survey was prepared for online and offline data collection procedures.

The data collection included the online survey and offline. The online version of the survey was advertised for online. It included social media sharing, Facebook advertising, Google advertising, major local news portals, mailing lists, and via influencers. The offline involved a team of marketing research students who covered eight areas. The survey was distributed inside organizations in several sectors such as financial, logistics, oil industry, government offices, small businesses, travel agencies, internet cafes, university students, and student family members. A quota was used to make sure that the survey can return a proper distribution of the various communities in the society. The paper survey was distributed in Sana'a, Aden, and Hodeida. Also, a phone survey was conducted by selecting random mobile numbers and collecting data over the phone from all over Yemen, who were interested in participating in the study.

All research was conducted by research assistants who were trained on the research subject, objectives, and goals. They were fully aware of proper research conduct. The survey results were kept confidential. Respondents were not offered anything in return. Respondents were advised that their answers will be used for research purposes only, will be saved anonymously, and they had the option to withdraw at any time.

All data was stored on an online database that hosted the online survey version. All offline data was entered to the same database via a unique screen that offered easy data entry with particular control to ensure the integrity of the data. The online survey application used is Lime Survey, an open source web application that allows the creation, implementation, execution, and data analysis of the investigation in Arabic and English.

The online application allows users to download the survey results. A basic report can be generated to describe the sample and show the results. Also, the data can be downloaded into SPSS for further analysis and reporting.

FINDINGS

The research included two components. The qualitative part generated the main challenges and prospects for e –commerce in Yemen. On the other hand, the quantitative part generated an examination of the survey responses to the survey.

SURVEY SAMPLE DESCRIPTION

There were 660 survey responses. Around 70% were male participants. The average age was between 24-34 years old. Around 60% were employed, and 30% were students. Around 20% of the participants have been using the internet for less than five years, 35% between 5-10 years, and 40% for more than ten years. Around 97% have mobile phones. Around 20% use iPhone while 65% use Android smartphones. The average respondent salary is $200. Around 60% of the participants have bank accounts. Around half of them can pay online via a credit card or other means. Around 60% have a post office box. More than 85% have access to the internet from home.

The sample description is not surprising. It seems to be about the proper representation of the internet users in Yemen. This study can provide a benchmark for future researchers to compare their sample descriptions. Comparing means among different groups of data supplied a reasonable representation of the Yemen population.

QUALITATIVE RESULTS

The qualitative research included a focus group that looked into several concerns. These issues had to do what the challenges and prospects of e-commerce in Yemen. The questions contained in the panel discussion looked at the current status of e-commerce in Yemen. It asked the following questions:

1. What do people use the internet for?
2. Who are the users of the internet?
3. Do they buy from the internet?
4. If Yes,
    a. What do they buy and what for?
    b. Where do they buy from?
    c. How do they buy?
    d. Why do they buy?

    e. What factors makes them buy online?
    f. How they pay online?
    g. How they receive their products?
5. If not,
    a. Why not?
    b. What to buy if you want?
6. Why don't people participate in e-commerce?
7. What risks are associated with e-commerce?
8. What difficulties and challenges can prevent individuals from participating in e-commerce?
9. What should the government, financial institutions, and retailers do to smooth online purchases?

The focus group participants agreed that there were eight uses for the internet in Yemen. These included news, social media, chat, education, work, games, and music. Further analysis of these uses of the internet, users can be segmented into three categories. First are the entrepreneurs who work and shop online. Second are the socializers who chat and share on social media. The third group is those who find entertainment on the internet via music and games.

In further analysis to predict customer behavior to shop online, entrepreneurs tend to buy online, while gamers don't. There were no relationship between internet socializers and purchasing online.

The focus group discussed five primary resources needed for individuals to buy online. These resources included English language skills, having a bank account, having a credit card, having a post office box, and having internet access at home.

The focus group focused on the ability to purchase online as an indication of the individual's capacity to conduct e-commerce activity and engage in economic activities on the internet. Therefore, it was also important to look at those who purchase online and identify their perceptions of the internet purchasing experience.

The focus group suggested investigating those who currently buy online. The results of the discussion highlighted these questions: what they buy, where from, how they buy, why they buy, how they paid, and how they received their goods. All of the developed themes in the focus groups were categorized in the developed survey to measure the extent of generalizability of these perceptions.

QUANTITATIVE RESULTS

The quantitative result is a summary of all the questions in the survey. The following paragraphs list the research questions and a description of the answers. Additional analysis is provided.

WHAT DO YOU USE THE INTERNET FOR?

The survey asked respondents about their current use of the internet. Figure 1 shows a very high use of the internet in social media, and news. Online education seems to be an opportunity.

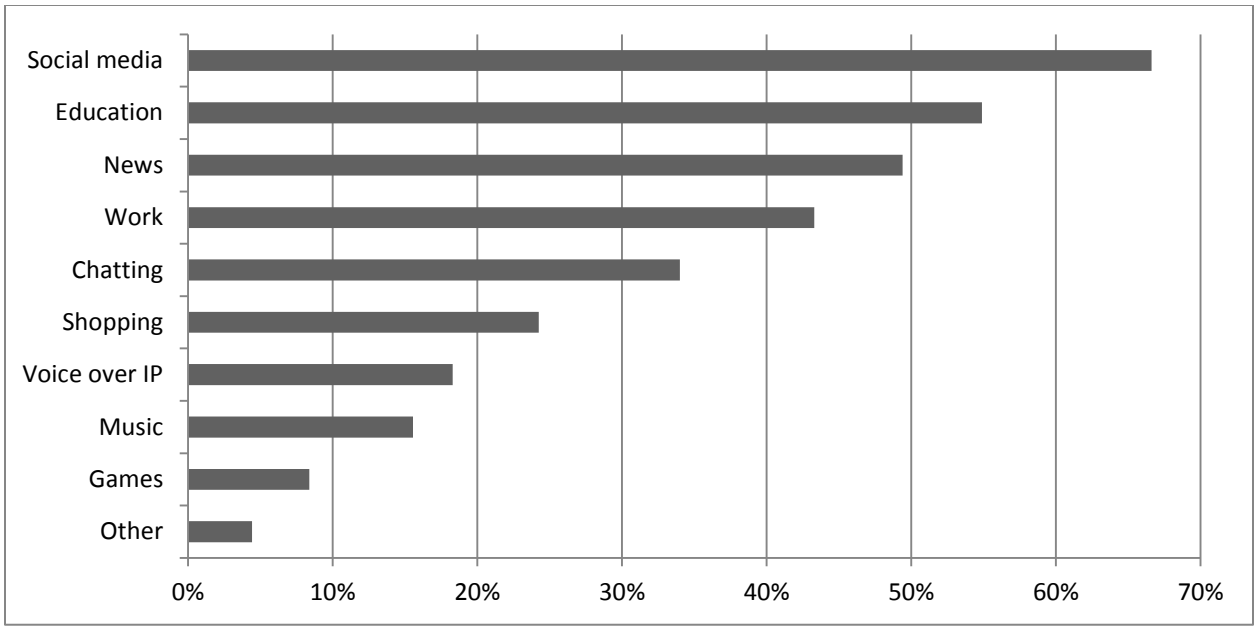

Figure 1: Internet Usage

HAVE YOU BOUGHT ANYTHING ONLINE?

To understand the challenges and prospects of e-commerce, it was important to check how many people have conducted any transaction online. A purchase online is an indicator of trusting the internet to take part of one's physical world. The survey responses show around 45% of the respondents have bought something online.

While only 60% of these purchases were direct purchases where the individual user bought from a website using their payment method, around 20% have purchases via a friend. Another 20% have purchased online via a third party.

Currently, many entrepreneurs have established the buy from America business model. The business is signing up for a freight forwarder in the USA. They take local shoppers' orders and cash, process these purchases, deliver and collect a transaction fee. The growth of this business model seems to be a good indicator of the increasing demands for the value provided by the internet.

WHY DO YOU BUY ONLINE?

The survey investigated the current perceptions about purchases online. The focus group agreed on six primary reasons individuals buy online. The survey results shown in Figure 2 shows that price and availability are the main drivers for online purchases. This goes along with the ubiquity nature of the internet.

Figure 2: Why buy online?

The opportunities the Internet offers enormous benefits in savings, new products, and services. 15% started to see the Internet more trustworthy as they buy direct. Less than 5% began to shop online for standard consumer products. A case shows that buying electronics from the internet is cheaper than buying it locally, given the expensive shipping and handling fees.

BUY FROM WHERE?

The focus group suggested checking where survey respondents purchase from. The objective is to get a feel of the local, regional, and international distribution channels. The study results indicate that the foreign retailers are dominating the internet. Local and regional retailers had a slight percentage. The online auction ebay.com ranked number one in the list as shown in Figure 3.

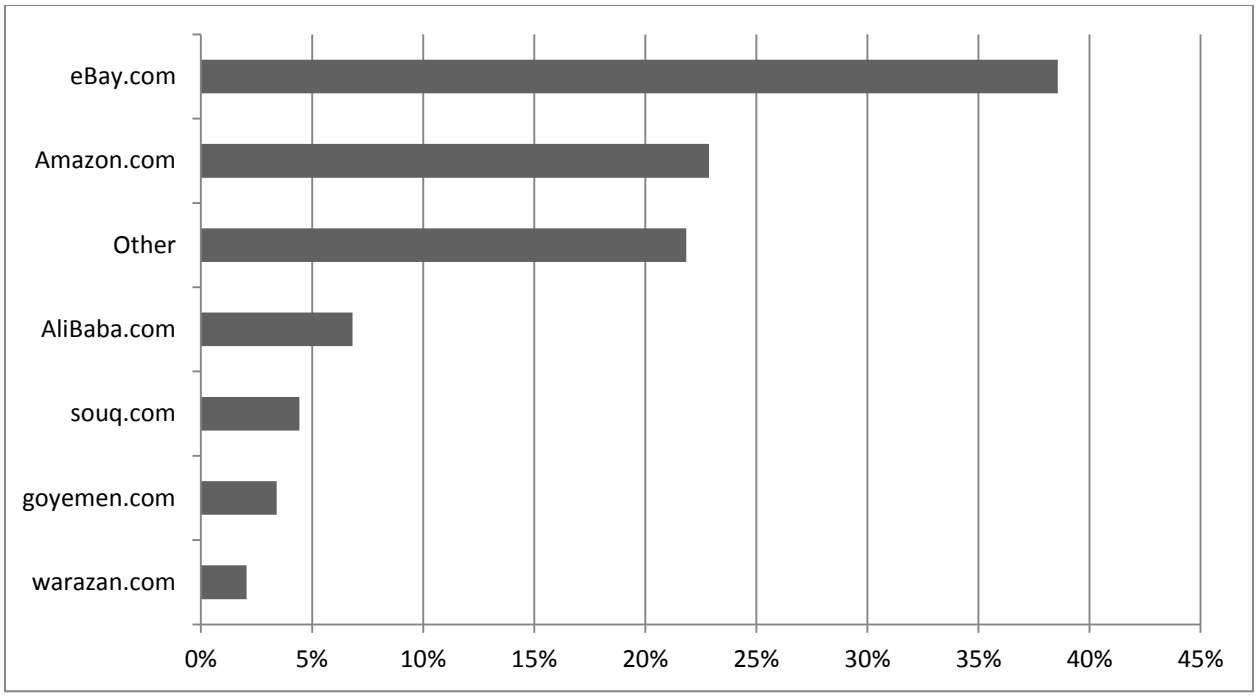

Figure 3: Buy from where?

BUY WHAT?

The survey asked respondents about what they purchase online. The objective is to identify retail categories that have appeal to online consumers from Yemen. Figure 4 shows clothes to be the highest demanded category. The internet seems to provide a wide verity of clothes and appeals.

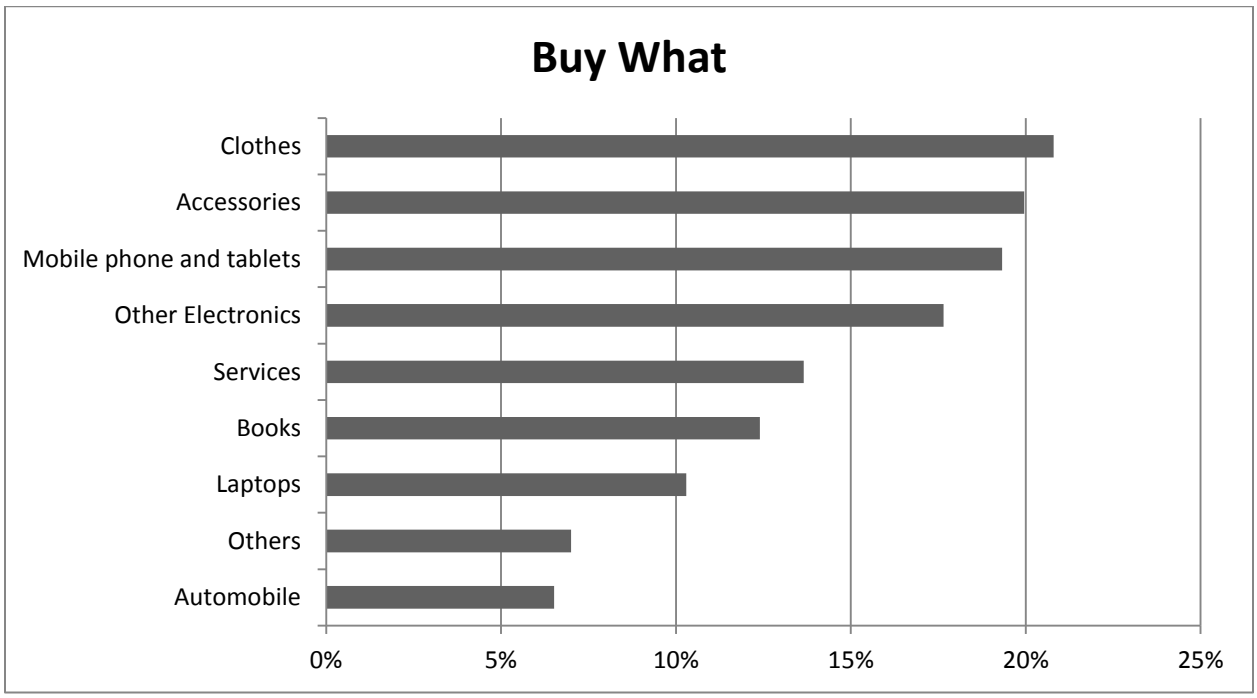

Figure 4: Buy what?

According to the customs authorities in Yemen, there are 35,000 out of 40,000 vehicles imported to Yemen in 2013 were from the US. Auctioned cars in the US find a secondary market in Yemen. Vehicles imported are fixed and sold in Yemen. This reflects the low economy in Yemen.

WHY ONLINE?

When asking respondents about the reasons for buying from the internet, low prices were the top reason. After price, a variety of selection was the second reason. After that availability was the third reason respondents buy online. Figure 5 shows the reasons listed on the survey and how many people selected each reason.

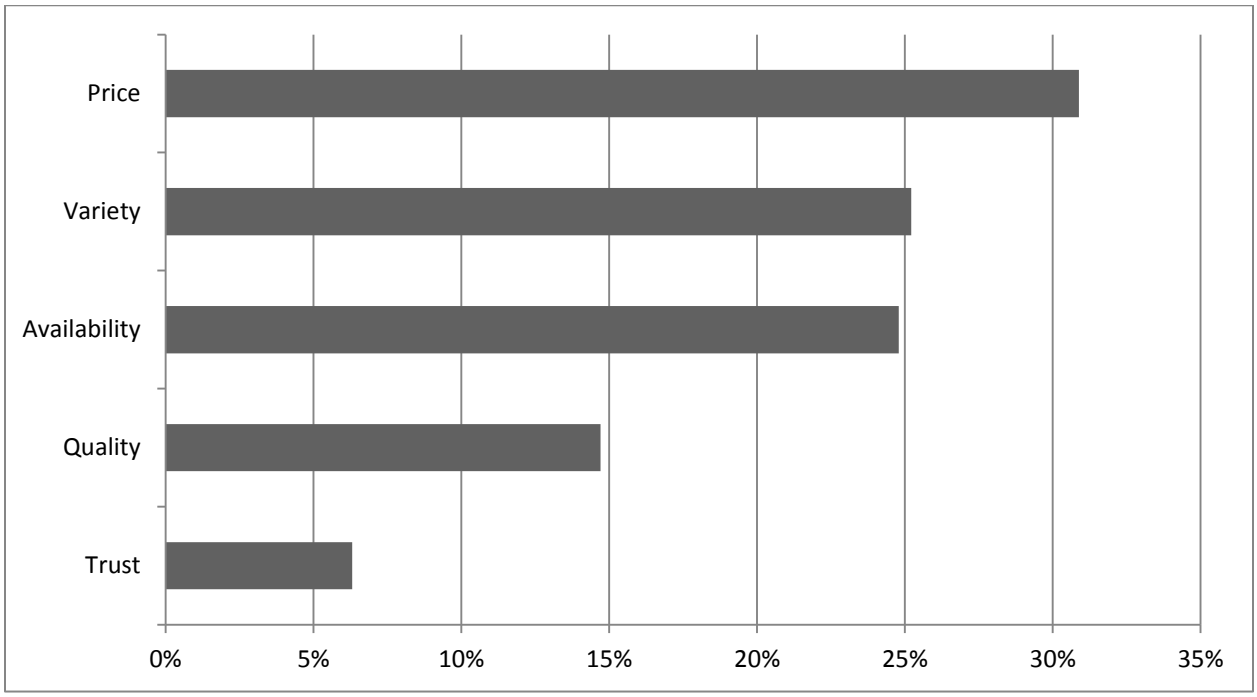

Figure 5: Why online?

PAYMENT METHOD

To understand the challenges faced by consumers making payments online. It was important to ask about the payment method used to make these purchases. Credit cards were the first payment method. Figure 6 shows that the second payment method was via a friend. It seems that many consumers still face troubles paying online. Many still prefer someone else to take the risks associated with financial transfers online.

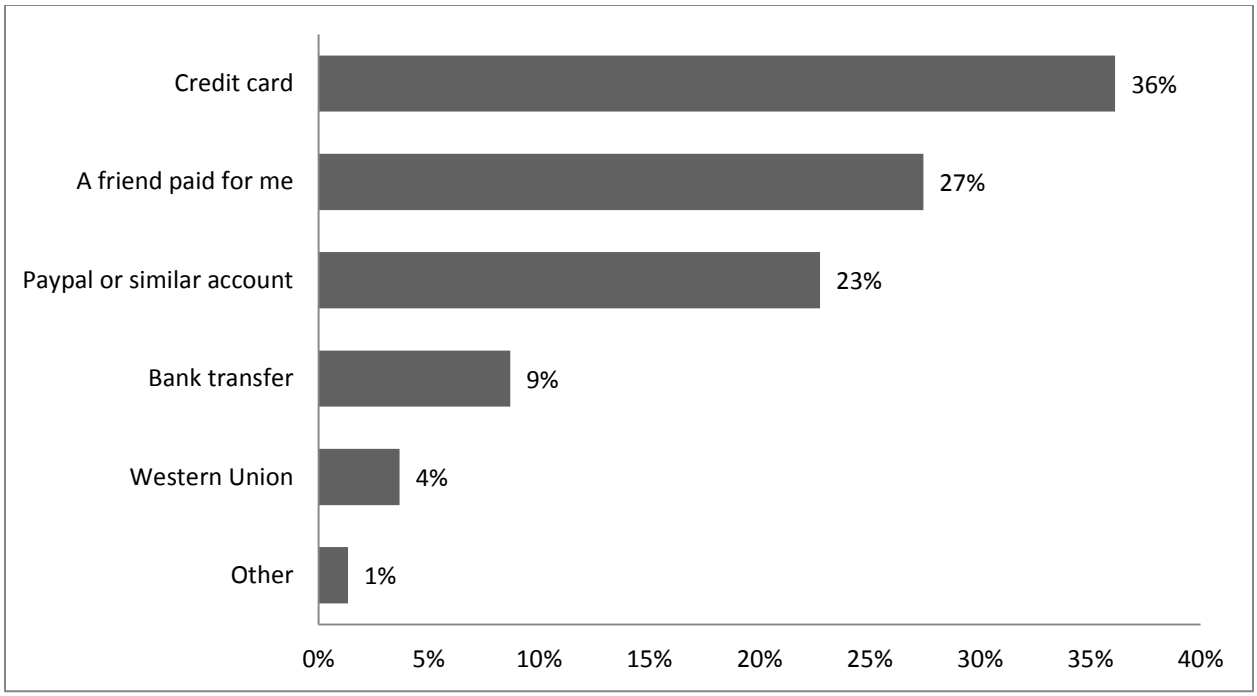

Figure 6: Payment Method

SHIPPING METHOD

Figure 7 shows the delivery method. A high percentage of respondents still use local delivery where they use a third party delivery entity to receive the product and deliver it to the final consumer. International shippers find an excellent opportunity in the global economy. The local post office services need much improvement to participate in the e-commerce environment. Around 60% of respondents had a post office box but only 14% use their box for e-commerce purchases.

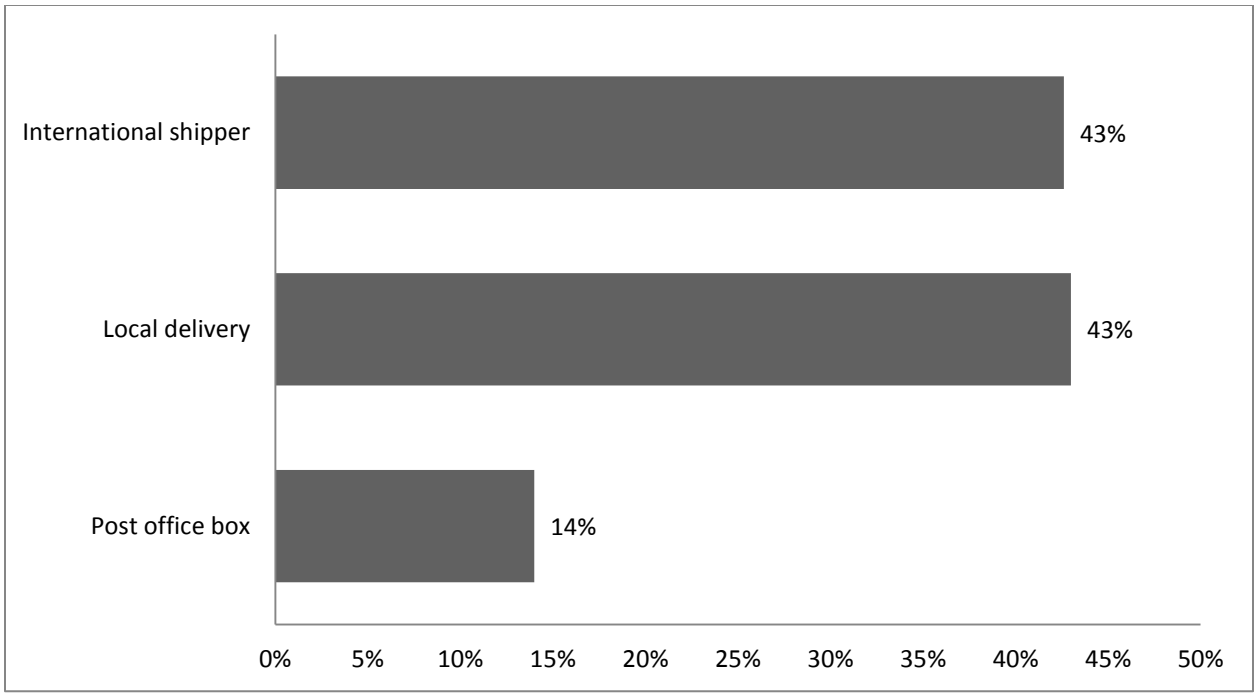

Figure 7: Shipping Method

How much do you purchase online?

The survey touched on the quantity and value respondents purchase online. The results show around 80% of those who have purchased online have less than ten items in the previous year. Around 10% of them have more than 20 purchases.

The value of these purchases is less than $1000 per respondent. Around 20% of respondents had purchased over $1000 in the previous year of the survey. Around 60% of the respondents purchased online for personal use and 30% for work related use.

Why not buy online?

The survey had two parts, one part for those who have made a purchase online, and the other part for those who have not made a purchase online. Those who have not purchased online were asked about the reasons for not purchasing online. Figure 8 shows the reasons indicated by respondents who have not purchased online.

The main reason consumers have not purchased online was due to awareness of how-to. There is much awareness needed to help individuals to learn how to conduct business online. The second major obstacle buying online is the payment method. Many have not been able to get, use, and secure a payment method that works online. The third reason indicates the trust. The internet is a high-risk option for users to conduct business. It seems that individuals have many concerns about the second party.

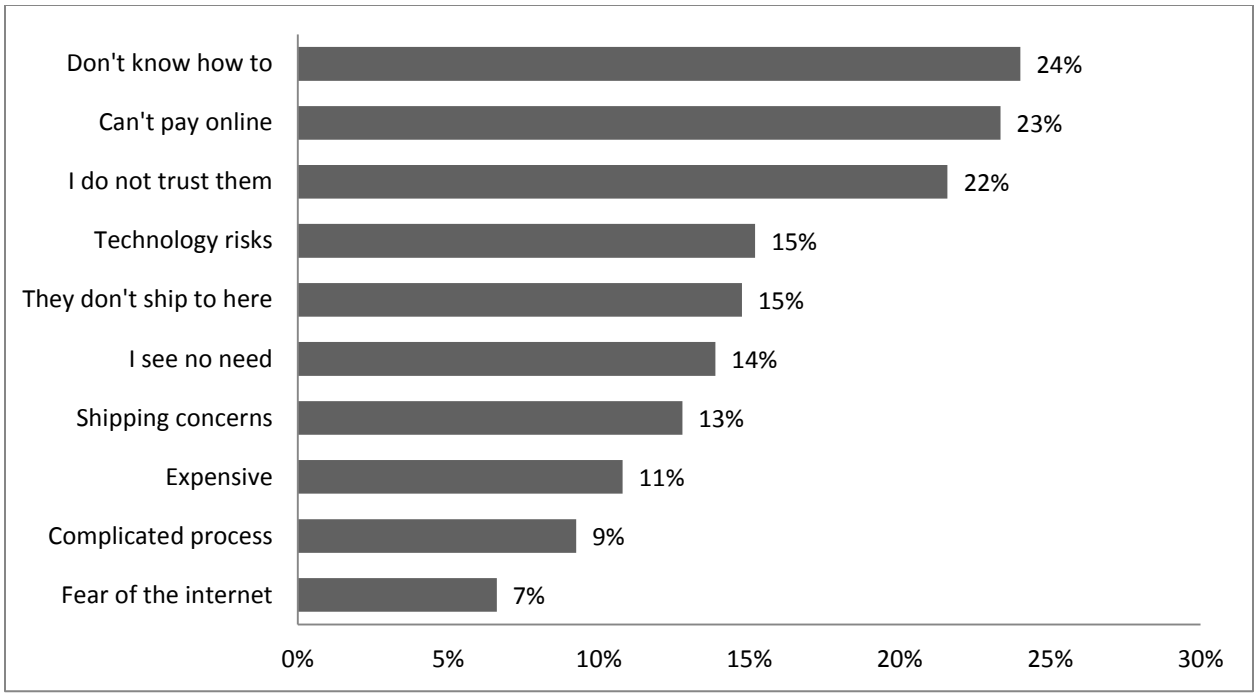

Figure 8: Why not buy online?

IF YOU BUY, WHAT IS IT?

To understand common perceptions about the prospects of the internet, the survey asked those who have not purchased online about what products and services they believe can be valuable online. Mobile phones and tablets ranked the highest. Figure 9 shows the categories and their percentage agreement by the respondents. Books, electronics and automobiles have gained a broad positive perception to be transacted online. This provides a good indication of the current opportunities on the internet for Yemen consumers.

While those who have not purchased online considered clothes on the bottom of the list, those who have purchased online find clothes on the top of the list. This seems to be a learning curve. Those who use the internet find their opportunities that are still unknown to those who have not. The market appears to be inefficient in conveying information.

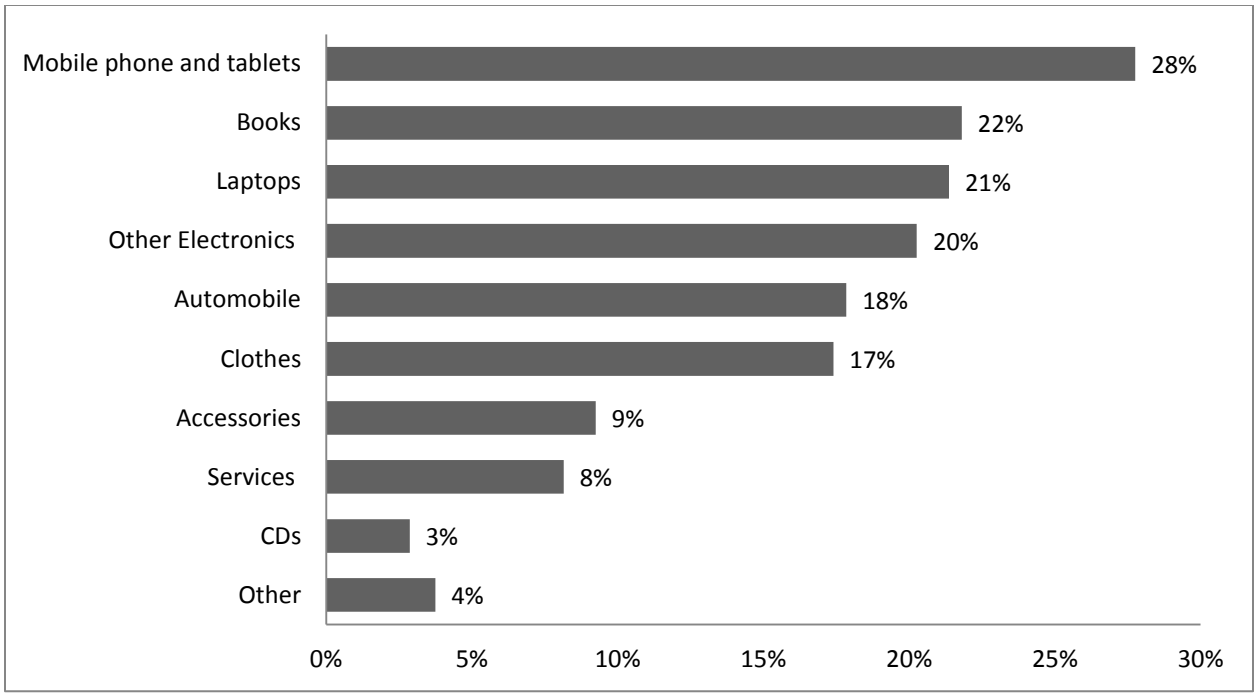

Figure 9: If you buy, what is it?

Overcoming Infrastructure Challenges

Internet infrastructure challenges in Yemen have been identified in the qualitative study. The main concerns for online businesses were narrowed down to four main issues: payment, logistics, internet access, and the recurring electric power cuts. The survey asked about each of these items and asked the respondents to what level do they believe they have access to these infrastructure needs.

Figure 10 shows each infrastructure issue and to what level respondents thought they had access to this infrastructure. The results indicate logistics to be the number one challenge to conducting business online. The local transportation and delivery systems need much improvement. People do not believe that they can purchase from local stores and that purchasing online would mean a delivery challenge. The second challenge is the payment method. Surprisingly, the internet access seems to be the best available in comparison. This can be a sign of the increased availability of the internet at home, work, internet spots, and via mobile.

Many people in Yemen has a power generator; some have multiple internet access services such as mobile phone, ADSL, satellite internet services, or the Internet at work; even though all of these go through the government ISP.

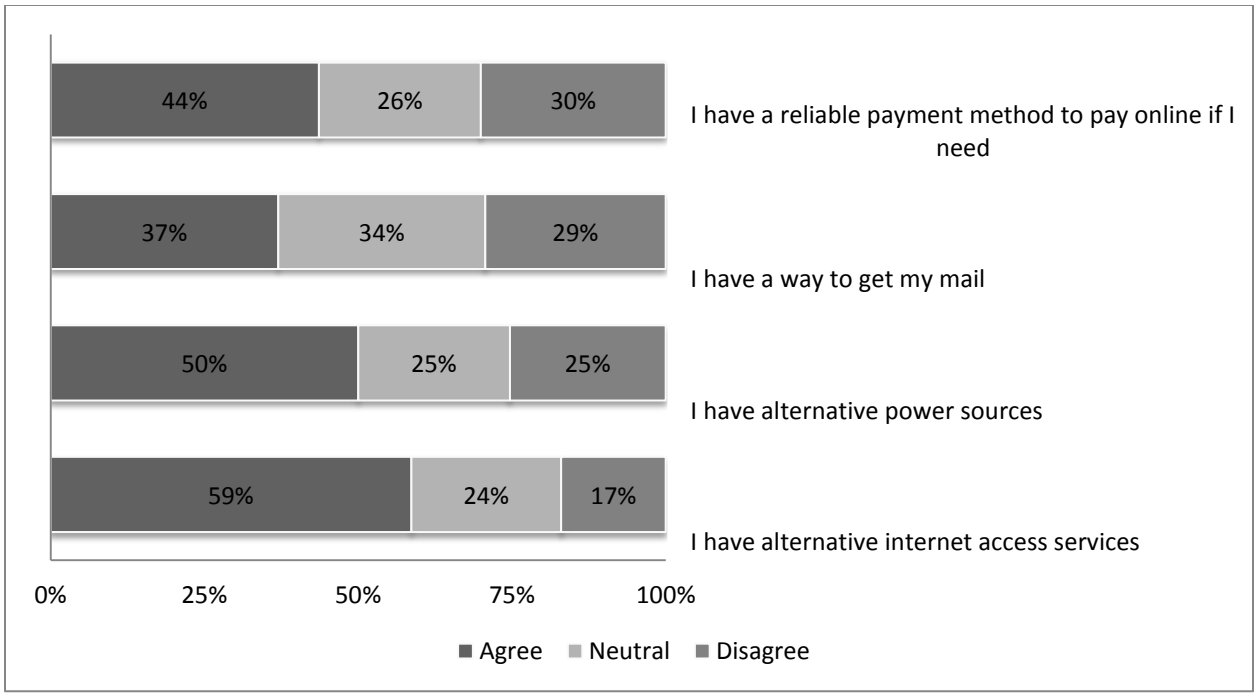

Figure 10: Overcoming Challenges

CONCLUSION

E-commerce can provide opportunities for employment, consumer savings, and productivity. Reliable e-commerce infrastructure is needed such as internet speed, post services, logistics services, payment means, and protection. Awareness programs are required to overcome e-commerce concerns. Local e-commerce businesses got around 5% of purchases, which is an excellent opportunity for entrepreneurs to tap this market.

This paper provided a brief presentation of what challenges and prospects the internet and e-commerce ecosystem is facing in Yemen. The number of individuals who purchase online is relatively increasing. A high number of individuals still use their friends and third party companies to take the responsibility to buy, pay, and deliver goods and services from the internet.

Individuals can gain much from the internet. The internet offers information, access to technology, the verity of products and services, news and communication, and entertainment. People in Yemen are interested in shopping online, learning from the internet, and get their work done.

Those who have not purchased online are facing infrastructure challenges such access to reliable payment systems. Global payment system providers not only provide comfortable and convenient payment services, but also offer protection against cyber crimes, protection against fraud, and help consumers be aware of the internet associated risks.

Yemen transportation and logistics services lack value to smooth internet business. The transportation cost seems to be a major challenge to online shoppers. Many still use third party entities to get their products delivered. International carriers appear to be gaining from the Yemen market for delivery. Yemen's postal services seem to be losing a market opportunity.

Yemen legal framework needs to provide regulations to smooth online business transactions. Also, it needs to offer protection against known cybercrimes. The government of Yemen has to enable the development of e-commerce needed infrastructures such as internet access, electric power, transportations, and financial services.

STUDY LIMITATIONS

The study used multiple sampling methods. Surveys by phone were an entirely random sample. Online surveys were two types. One was a snowball effect where people had the option to refer and share the survey with their friends and colleagues via email or social media. The other type of online surveys was via advertisements on Google and Facebook. The ads were directed to everyone in Yemen. The online survey was distributed all over Yemen. The online survey covered internet users more than non-internet users.

The pen-and-paper surveys were gathered two ways. The first was via a quota sampling where it covered specific organizations that included different sectors. The second was via convenience sampling in retail outlets. A comparison of means among the various samples was conducted to get an overview of the differences in mean values. Any notable observations were discussed in the paper. The sample by hand only covered cities of Sana'a, Aden, and Hodeida.

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