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1.0 Prospects and challenges of adopting mobile commerce as another channel of business transactions in the country [25 Marks]

Introduction

Mobile commerce can be used to increase the productivity and competitiveness of SME's. M-commerce has become another channel for the distribution of goods, products and services. This paper attempts to enumerate the prospects, usage, challenges and recommendations for the adoption of M- Commerce as a channel of distribution in Ghana.

M-Commerce - A Channel of Distribution for SMEs.

M-commerce or Mobile commerce is defined as the exchange or buying and selling of commodities, services, or information on the Internet through the use of mobile handheld devices. These devices include phones, PDA's, smart phones and mobile computers. M-Commerce is an aspect of E-Commerce and differs from e-Commerce for the reason that it is transacted over a pervasive or wireless media.

Prospects of M Commerce

M-Commerce started off by providing Information, Communication and entertainment services such as email, SMS, chatrooms, news, city guides, weather forecast, maps, music, games video and graphics however several other transaction application have been developed for banking, m-ticketing, brokerage, shopping mobile purse and finance.

Mobile commerce has prospects in several unexplored areas in Ghana such as Agriculture, Tourism, Health and Automobile industry and other areas that cannot be ignored by government businesses and entrepreneurs.

Agriculture

Farmers through their mobile devices are able to determine competitive prices for their produce. Indeed this has already started in Ghana where farmers check their produce through an application called Esoko. According to WTO (2013) report farmers in Northern Ghana have had 10% increase in revenue since they began receiving Esoko delivered market

prices by SMS. What this implies is that M-commerce could be explored by SME's to serve as be a catalyst for growth of SME's.

Fishermen could also harness and adopt M-commerce for checking the weather from the meteorological service before going fishing. They could also use SMS to check pricing information in their neighbouring communities.

Tourism and Creative Industry

M commerce can provide some support to our artisans and the creative industry artist such as musicians by allowing them to setup their online stores to sell their wares. There is a great patronage of Ghanaian sculptures, beads, paintings and cloth by foreigners. M-Commerce could be an opportunity to sell to a wider audience and also showcase Ghana's creativity to the world likewise music from Ghana.

Medical and Emergency

In the medical field an adoption of M-commerce could allow patients information to be sent to the hospital by the click of a phone keypad and emergency situations such as earthquakes and cyclones can be reported for action to be taken by Medics and relief agencies.

Sales and Marketing

M-commerce allows for personalized data collection from consumers. This offers an opportunity to segment and target consumers. It helps reduce the cost of advertising by businesses especially SME's that do not have the muscle to do serious advertising on television and billboards. M-commerce offers an Opportunity for SME's to showcase their products

Finance and Banking

M-commerce is revolutionalizing the banking sector through online banking, stock trading. A full adoption of m-commerce in the banking and financial sector would lead to a faster and quicker transaction of business as it allows customers to check balances and pay bills from the comfort of their homes and offices through their phone as done in Kenya using M-pesa. No cheques and no handling of cash.

Some other benefits

M-Commerce allows for level playing ground between SMEs and large corporations as they are all able to showcase their products to worldwide customers online. It gives coverage to a wider audience of consumers and customers and allows for 24/7 operation that would allow customers to transact business all day year round wherever they are located.

Amoako (2012) indicates that M-Commerce provides overall operational benefits by streamlining processes, improving delivery times, reducing errors, decreasing inventory and generally reducing both the time and personnel required to complete normal business activities. In effect, mobile commerce can help reduce costs and free up cash flow.

Limitations and Challenges of M-commerce in Ghana

Despite the prospects and benefits of M-commerce it is not without limitations and challenges. The barriers of M-commerce can be technical or non-technical.

M-commerce is challenged technologically by small screen size and keypads of mobile devices which does not make it user friendly in entering and viewing data. The short battery lifespan of phones and limited storage capacities of the mobile devices tend to affect usage. Once the battery is off one is out of contact and this hampers the use of applications for commerce. The lack of universally accepted standards for quality, security and reliability is a challenge for adoption of mobile Commerce. Bandwidth limitation is also a challenge for M-commerce applications. In Ghana power outage has been a big challenge as people are unable to charge their phones not even to use them.

The non-technical barriers or challenges are:

1. Cost of deployment

The cost of deploying M-commerce is prohibitive thus discouraging people from investing and adopting M-commerce as a channel of trade. Many small business think there is no return on investment in implementing M-commerce.

2. Culture

One on One or Face to face interaction is a cultural norm, people still have not come to terms with working with faceless organisations. Touch and feel of products before buying is

also dominant in our culture. Ghanaians would want to touch and feel a product before buying, yet this is absent in M-commerce.

3. Lack of infrastructure.

The underlying infrastructure such as power, interconnectivity, systems failure and connectivity has been a challenge in the adoption of Mobile commerce. Power is an underlying infrastructure for both consumers and Telecom providers. A continued power issue could challenge the use of mobile devices.

4. Lack of developed legal and regulatory framework

The internet has no boundary yet governed by laws. The legal system for electronic operation is same as that of brick and mortar operations however the legal system is not advanced enough to be able to tackle the challenges of electronic issues. The issue of borders and jurisdiction of the internet is fuzzy and non-existent as such difficult to carve legal frameworks to govern its operation.

5. Trust

The menace of '419' and 'Sakawa; has created a mistrust between consumers and sellers. People mistrust giving their personal information out on the internet for fear of internet fraudsters. Inability to verify the credentials of the seller is what is fuelling this suspicion.

6. Lack of education on ICT and Training

Quite a number of Ghanaians are illiterate and those that are literate a large proportion of that number are computer illiterate. They do not understand the use and benefits of M-Commerce. For this computer illiterate the use of M-Commerce would be a dream in futility unless trained. Lack of professional IT to deploy M-commerce is also a barrier in the implementation of M-commerce projects

Conclusion and Recommendation

There is still a notion among SME's in Ghana that having a wireless online presence is for the 'big guys'. They think it is an additional cost to them to have a presence forgetting the value and benefits they stand to gain in adopting M-commerce. There are challenges though in

the adoption and implementation of M-Commerce and a way forward is for a Public Private Sector partnership to help resolve some key challenges.

The government must seek to support and initiate programs to encourage the adoption of M-commerce and its benefits to SMEs. The government must put up an initiative to improve current infrastructure by investing into private initiatives that seek to deploy M-Commerce infrastructure.

Though the internet cannot be regulated the government should seek to improve security and the perceptions of internet insecurity to the general public. Cyber Laws on crime should be enforced and those found to have committed cybercrimes should be punished to serve as deterrents.

The government should support and encourage National ICT and M-commerce awareness campaigns, policy debates on issues that militate against the adoption of M-commerce and ICT as a whole. This would go a long way to give credence to Government commitment to M-commerce given its benefits to SMEs and the general public. In conclusion persvasive computing has come to stay and we must all do our best to ensure that we reap the maximum benefit out of it.

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2.0 Evaluate the legal, ethical and social challenges that must be addressed for the successful implementation of such an initiative from the government [25 marks]

Introduction

SME's must understand that M-commerce is not just about technology perse but a way of doing business in a ubiquitous and pervasive manner. M-commerce as a technological innovation is influenced by culture which helps to define the law and ethical standards. For SMEs that wish to adopt M-commerce It is worth understanding the social, ethical and legal issues involved. This paper discusses social and ethics as well as the legal issues underpinning M-commerce.

Social, Cultural and Ethical Issues

Culture is the way of life of a group of people, their norms, shared values, language. Ethics refers to principles that individuals and groups can use to determine right and wrong courses of action, this is often dictated by the culture of that group.

The subject of privacy, web tracking, acceptable content on the web poses ethical challenges as different cultures have different expectations of what should constitute privacy or acceptable content. Also what is unethical in one culture may be perfectly acceptable in another.

Privacy

M-commerce systems would normally collect detail information about the buyer. This makes the information of the buyer available anytime anywhere. The ethical dilemma is whether this information should be collected on people in the first place and what and when the data on people is used. The major social and cultural issue is the expectations of privacy and norms. Europeans are more critical about the rights of the individual than Africans and Asians. Some of the ethical questions is whether people need to be informed when their credit history is to be divulged to some other people?. Indeed there is a moral right of individuals to be left alone, without surveillance or interference from other individuals, organizations or government.

It is advocated for SME's that seek to go into M-commerce to be ethical and guided in their use of customer data by:

- Using buyer data to improve customer service

- Not to use customer data with others outside organization without the customer's written permission

- Inform buyers what data is being collected and what is being used for.

- Customers be given the right to delete data collected on them.

Web tracking

Almost all M-commerce organization's collect Personal Identification Information (PII) and use cookies to track customer behavior. The data is normally collected with the intention to be used to identify, locate, or contact an individual however this information could be used for other purposes such as profiling and other uses not acceptable to the buyer. The use of cookies raises serious privacy concerns as the nature of data collected and when the data is collected is unknown by the customer or buyer.

Though they may be good intentions in collecting this information to improve the buyer's purchasing experience the ethical issue that arises is whether the buyer is in agreement that data be collected on him. If even the buyer is consulted, what if the data is being shared with others.

The use of cookies can be minimized or prevented by using software such as Privacy Guardian, My Privacy and many more software's on the market today. These programs erase the browser cache and cookies and surfing history.

Acceptable Content

What is it that constitutes an acceptable content, pornography, sale of drugs on the web, gambling and language used are issues that affects peoples culture and sensitivity. What is socially acceptable somewhere might be unacceptable elsewhere. What mechanism exists to ensure that people's sensitivities are not hurt given our respective background and cultures.

Legal Issues

SME's that adopt are willing to adopt M-commerce would be subject to the same laws as the brick on mortar organisations. Legal concept of jurisdiction on the Internet is still unclear and almost non-existent.

Borders and Jurisdiction

The elements of Power, effects, legitimacy and control gives governments the authotity to control its people within some borders. Jurisdiction is the ability of the government to exert control over its people. Unfortunately the internet is a worldwide network of networks. It has no boundaries as such difficult for laws on one jurisdiction to apply to all the rest.

Intellectual Property (IP)

Intellectual property refers to assets or properties of the mind. It is said to be the proprietorship of ideas and control over the representation of those ideas. Patent or Copyright is the protection of expression and typically covers items such as books, essays, music, pictures, graphics, sculptures, motion pictures, recordings, architectural works.

The general use of the Internet has resulted in an upsurge in intellectual property threats. It is very easy to duplicate an exact copy of anything found on the Internet. Many people are unaware of copyright restrictions protecting intellectual property. Enforcing existing copyright laws can be problematic.

Proposed solutions to problems in digital copyright protection are host name blocking, packet filtering and use of proxy servers

Online and Internet Crimes

Online crimes are the most dominant and common issues affecting individuals and organisations and causing a loss to the tune of millions to organisations. Online crimes are such that they are easy to be committed and their impact spans several networks spanning nations and businesses. Its invisibility and disregard to geographical borders is what makes it serious. It is generally difficult to gather evidence to prosecute online crimes. Law enforcement agents find it difficult to track down online criminals and if they do it is difficult applying the laws. For instance a hacker could be tracked down to Russia. The questions is

under which law would the hacker be tried. Does his action constitute a crime in his own country?. These are some of the legal challenges ensueing. Today online warfare and cyber terrorism has become a global phenomenon.

Cybersquating, Name Changing and Stealing

Cybersquatting is the phenomenon of registering a trademark of another company as a domain name. Name changing refers to the act of registering misspelled variations of well-known domain names whilst name stealing is the changing of an assigned domain to another site. Indeed on the Internet once a name is not already registered ICANN it could be registered by anyone.

Conclusion and Recommendation

There are several social, ethical and legal issues involved in the use and adoption of M-commerce. Just like the brick and mortar which has its own ethical and legal challenges so is the mobile commerce environment. Some of these challenges cannot be entirely eliminated but could be minimized if the government could enact and enforce laws on the protection of children online, online decency and crime acts and also instituting a body to censor the internet especially what is within the jurisdiction of Ghana. One cannot say this cannot be done as it is evident China and Singapore control and regulate the internet from a central location.

The government must encourage the education of users on internet etiquettes and the ways of protecting users against internet fraudsters and invasion of privacy. Though we cannot control the entire internet we could minimize some of the challenges within our borders and jurisdiction

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3). Identify the infrastructural requirements and security issues that must be addressed in adopting mobile commerce as another channel of business transaction [25 Marks]

The successful implementation of M-commerce by SMEs is highly dependent on the technological infrastructure and the security measures put in place. The technological infrastructure must be chosen with due diligence so as to ensure that it can be integrated with legacy systems and also support large volumes of transactions from clients.

To determine the infrastructure it is worth considering what is needed under the five assets categories (Hardware, Software, Medium, Data and Users) and the security challenges that must be addressed under each asset area.

Security is the protection of these assets from unauthorized access, use, alteration, or destruction. SME that wish to adopt M-Commerce should ensure these asset are operational twenty four seven (24/7)..

Hardware

A key decision to be made by SMEs is whether to host their own web servers or outsource to third party. If the decision is to host then a server environment equipped with suitably configured wireliine or wireless WAN modem, Web server with wireless support, Application or database server, Large enterprise application server and a GPS locator used to determine the location of mobile computing device carrier are required.

Security considerations under hardware are Physical in nature and seeks to protect the hardware against theft, vandalism and disasters . It uses such devices as alarms, fireproof doors, security fences, vaults, biometric devices and motion detectors. For cases of force Majeure the disaster recovery plan and Business continuity plans are invoked.

Software

The web server software must have Web server software to perform fundamental services Security and identification, Retrieval and sending of Web pages, Web site tracking, Web site development and web page development

Security*:* The server operating system, application softwares could be infected with Virus. Virus's are malicious programs that infect good programs to make them bad. To prevent against these malicious codes Anti virus softwares such as Mcafee, Norton are used. Management of user accounts on both server and application is important to prevent against an authorized access to the Operating system or applications. Password policy should be strong to prevent people from guessing or easily decoding the password.

Medium

It is important to investigate the media of transmission and propagation of signal, Some of the Wireless transmission media could be: Microwave, FDDI, Satellites, Radio, Infrared, Cellular radio technology, Any suitable wireless systems.

Security is very important in a wireless environment as the signals can be tapped by hackers especially when the SSID (Service Set Identifiers) is known. Eavesdropping and wiretapping are also common security breaches that are encountered on a wireless environment. To mitigate against these breaches it is important to ensure that strong encryption of data is done over the media. Firewalls could also be used to fend against intruders. The media itself could be disguised to the hacker. Wireless Application Protocol (WAP) is the Standard set of specifications for Internet applications that run on handheld, wireless devices

Data & Users

SME must determine the data and content requirement of users and design applications to suite the needs of users and customers. The applications must take into considerations Microbrowsers, Mobile client operating system (OS), Bluetooth, Mobile application user interface

Security: Savvy Mobile users could breach security or the system itself could be hacked from a smart wireless device if there is a poor network, Network Authentication should be strong to ensure only authorized user log on with strong passwords. File and data Authorization (Access) have to be properly managed with strong passwords for authorization.

One challenge on the client side is the fact that the mobile device could be lost with all details of the client.

User Payments from mobile devices have to be secured. Digital certificates obtained from Certified body (Certificate Authority – CA) should be used to verify the identity of a sender or a website. Secure Sockets Layer (SSL) should also be used to secure sensitive data.

Conclusion

Indeed apart from the security measures to be put in place SMEs must also put in place control measures to ensure there is data confidentiality, integrity and availability all the time.

Some of the control measures involve putting in place a information system security policy, with a disaster recovery and daily backup procedures in place. The backups should be tested regularly.

4.0 Identify and explain the various electronic commerce models and critically analyze which of these models would be appropriate for the operations of any SME. [25points]

Ecommerce business models are the essential methods that show how SME's could make money online. These models have originated from the traditional brick and mortar business models. The Success of any SME would depend largely on the on the E-commerce model it adopts. This paper intends to analyse the three major models and some other models that would help SME to generate cash and recommend an appropriate model for Ghanaian SME's.

Major Ecommerce Models - B2B , B2.C C2C

E commerce models fall into three major categories - Business to Business, Business to Consumers and Consumer to Consumer.

Business to Business (B2B)

This is an E-Commerce model where all the participants are businesses or organisations. B2B is very useful for connecting companies in a virtual supply chain to cut supply times and reduce cost. This could be either across the internet or use of private network between companies. A good example of a B2B Ecommerce site is Incorporate who have revolutionized the business of creating Limited Liability Companies. The model is not popular among SME's in Ghana.

2). Business to Consumer (B2C)

B2C is a type of Ecommerce model where consumers deal directly with company or organisation. It represents the vast majority on online Ecommerce sites on the internet and mimics the real life local store. It eliminates middle men in the traditional chain of distribution. Price is lower with goods sold directly to consumer than when it is through intermediaries who take commissions for the value they add to the distribution. E.g Amazon.com

This model is very popular model used by "bricks and clicks". The term coined to represent businesses that have both an offline, "real world" store and an online presence in the form of an Ecommerce store. With cost of Ecommerce site coming down this is a model SME's in Ghana could adopt to run both an offline and an online business. Orders could be made online and payment done at the brick and mortar shop or use of electronic payments such as credit cards.

3). Consumer to Consumer (C2C)

C2C E commerce is the type of E commerce where consumers sell directly to their fellow consumers. Ebay, iBid are examples of this model. In Ghana Business Ghana is an example of this model. The C2C Ecommerce business model has its roots out in the real world of News Paper classified.

Business to Government and Consumer to Government basically relates to how business and individuals deal with government. These models are not in the domain for discussion for SME's. The other models which augment the three major models above are.

Advertising Ecommerce Business Model

The advertising model gains revenue from the site by advertising and renting some spaces on the website. One can also be paid for every click on the advert. An example is Google AdSense. Advertising is targeted directly at the readers to compliment the site content.

Affiliate Ecommerce Business Model

This model is based on commission from directing customer from one's own website to the product on the parent company's website and if they make a purchase a commission is earned. E.g Amazon.com. Amazon allows anyone interested to get commission by directing customers to its site. Affiliate partners join and earn some income.

Information Ecommerce Business Model

The Information e-business model is based largely around specialized information on a particular subject area. These websites attract a large following of people interested in their specific field of knowledge. One could capitalize on this and request for a fee for this specialized knowledge.

Subscription Ecommerce Business Model

In this model customers pay a fixed fee on a monthly or yearly basis to get access to the products or services of the company. E.gl are online newspapers or magazines, adult websites, and Internet service providers.

Conclusion

It is good to combine several of these business models to have several streams of income however it is worth planning and strategizing to determine the E-commerce initiative that would yield the best return on investment based on situation and environment. In Ghana in more recent times blogging and social media is the trend of the day. E-commerce and M-commerce models must be tailored to make use of these online communities. Some of these online communities have a specific niche interests and have a huge following. When people with the same interest form communities online it will lead to trading within that online community. A website or blog or social media site can charge a small fee for advertising on such a page or site.

Indeed of the major models Consumer to Consumer Ecommerce business models seems to be a good model for our current situations as people want to interact with other people. There could be adding services like trading on these sites. This explains the popularity of sites like Business Ghana. Business to Consumer is now emerging with people trying to have both brick and mortar and online shops. For now SME'S could have competitive advantage by exploring Business to Consumer or Consumer to Consumer or both as business models. These models are the likely to offer quick wins for SME's in Ghana.

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