Review

Mobile technology interaction to e-Commerce in promising of u-Commerce

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Mobile technology interaction is gaining increasing acceptance. The need for mobility is a primary driving force behind mobile banking, mobile entertainment and mobile marketing, and is supported by an ever increasing convergence of computers and mobile telecommunication devices. This article examines the conceptual background and existing experience of another wave of change that provides the ultimate form of ubiquitous networks and universal devices. It presents understanding of another form of commerce, a form that goes over above and beyond traditional commerce, simply "u-commerce", in order to make consumers and service-providers aware of new business opportunities arising out of this convergence.

Key words: Knowledge management, mobile technology, unified communication, U-commerce.

INTRODUCTION

After the emergence of E-Commerce in the late 90′s, we reached a new milestone in the evolution of how goods and services are exchanged between producer and consumer. Businesses all over the world need to be ready for the next big step, a full integration of traditional commerce, E-commerce, mobile commerce and even television commerce.

Mobile commerce, also known as M-Commerce is the ability to conduct commerce using a mobile device, such as a mobile phone, a PDA (personal digital assistant), or using other emerging mobile equipment such as dashtop mobile devices and smartphone. However mobile commerce has been defined differently with different authors but according to Tiwari and Buse (2007), they have defined mobile commerce as any transaction involving the transfer of ownership or rights to use goods and services, which is initiated and/or completed by using mobile access to computer-mediated networks with the help of an electronic device.

According to comScore, up to November 2011, 38% of smartphone owners have used their phone to make a purchase at least once.

The convergence of industry, technology and communications has plunged us into a dynamic economic environment. New E-Commerce and mobile commerce capabilities are bringing us closer together and empowering individuals as never before. These changes are heralding the emergence of "U-commerce" – universal or ubiquitous commerce, where the traditional barriers of time, geography, currency and access have ceased to exist.

Mobile technology is faced with the pressing issue of managing the access to, the demand for, and the concerns about sharing information. Barely before Internet-facilitated E-Commerce has begun to take hold, a new wave of technology-driven commerce has started mobile (m-) commerce. Fuelled by the increasing saturation of mobile technology, such as phones and PDAs, m-Commerce promises to inject considerable change into the way certain activities are conducted. Some issues are becoming more complex like video creation and sharing rapidly move to higher bandwidth and mobile platforms. With a focus on unified communications capabilities, firms are trying to deal with how to best present and position their products and services in a world where video access and sharing are becoming pervasive. We however, reports from a primarily business application oriented aspect in particular E-Commerce and mobile technology to the promising future of U-commerce. Equipped with micro-browsers and other mobile applications, the new range of mobile technologies offer the internet 'in your pocket' for

which the consumer possibilities are endless, including banking, booking or buying tickets, shopping and real-time news. Drawing on some of the key factors that may influence the take-up of M-Commerce including technological and other issues the chapter also provides predictions regarding outcome of all these as future "U-commerce". The rise of mobile technology in video and the organizational responses to it are examined within the theoretical contexts of its applications.

U-Commerce is not a trend that will occur some time far off in the future. It is a real-time change that is happening today. U-Commerce is the natural evolution of E-Commerce and mobile commerce from "point of sale" to "point of convenience" whether a transaction occurs in a store, in your home, on the street or even on an airplane.

The way that consumers access the internet and shop online is changing. Desktop computers, laptops, mobile internet devices, and mobile phones are converging into a larger category of Internet enabled devices. Millions of new users and new shoppers comes online daily.

By way of example, last year eMarketer estimated that by 2013 74.9% of all Canadians would be internet users. Put another way, essentially every Canadian between the age of 5 and 65 will have web access within a few years. In the U.S. there were an estimated 234.4 million internet users at the end of last year or about 76.3% of the total population.

Meanwhile, TechCrunch has reported that mobile internet use in North America grew 110% in 2009 according to Quantcast. That number would be impressive except it trails worldwide mobile internet growth, which was pegged at 148% in 2009.

The rest of the paper is organized as follow; U-Commerce concept is discussed. Mobile technology integrations to commercial applications specifically focusing on U-commerce, and promising issues concerning U-Commerce are presented. Our critical analysis on mobile and E-Commerce use situation are discussed. Finally, the paper is concluded.

UNDERSTANDING - U-COMMERCE

Geographic Commerce ⇨ Electronic Commerce ⇨ Mobile Commerce ⇨ U-Commerce

U-Commerce or universal commerce covers these newly arising opportunities and challenges that companies are facing by defining four fundamental constructs: ubiquity, uniqueness, universality, and unison.

- *Ubiquity* allows users to access networks from anywhere at any time, and in turn, to be reachable at any place and any time.
- *Uniqueness* allows users to be uniquely identified not only in terms of their identity and associated preferences, but also in terms of their geographical position.

- *Universality* means mobile devices are universally usable and multi-functional. Currently, for instance, U.S. cell phones are unlikely to work in Europe because of different standards and network frequencies, and vice versa.
- *Unison* covers the idea of integrated data across multiple applications so that users have a consistent view on their information-irrespective of the device used.

Thus, we define U-Commerce as "the use of ubiquitous networks to support personalized and uninterrupted communications and transactions between a firm and its various stakeholders to provide a level of value over, above, and beyond traditional commerce" (Watson et al., 2002).

In the past few years, E-Commerce has joined the vocabulary of many languages. Many organizations talk of "I-commerce" or the use of intranet technologies (internal corporate internets) to pursue internal marketing strategies. Already, m-Commerce (mobile commerce) is gaining currency as cell phone owners acquire access to mobile services such as Delta Airlines' arrival and departure information service for mobile phones and PDAs. Marketing practitioners will be very concerned with the impacts that these technologies will have on their organizations and on their relationships with customers. Marketing scholars will need to study how these technologies will affect the discipline to determine whether existing theories will explain the phenomena adequately or whether new theories will be needed. Likewise, marketing teachers will want to keep their students at all levels abreast of events and developments, for they will be better equipped to deal with turbulent work environments if they at least have a point of view where we are ultimately headed.

We believe that in the next few years, we will see the emergence of a multifaceted *u-commerce*, where the *u* stands for ubiquitous, universal, unique, and unison. We can think of it as *Über*-commerce - over, above, and beyond traditional commerce. Thus, we define u-Commerce as the use of ubiquitous networks to support personalized and uninterrupted communications and transactions between a firm and its various stakeholders to provide a level of value over, above, and beyond traditional commerce.

U-Commerce plays a key role in the long-term vision for the payments industry and integrating business anywhere. It is built on several global phenomena that will only accelerate as we go forward. Developments in mobile technology and information management technologies have resulted in efficiency division such as: V-commerce: - Using voice commands to do Transactions, P - commerce: - Proximity commerce uses bluetooth or infrared technology and so on. E-commerce: - Most popular, doing transaction on internet conducting business online. Selling goods, in the traditional sense, is possible to do electronically because of certain software programs that run the main functions of an E-Commerce

website, including product display, online ordering, and inventory management. The software resides on a commerce server and works in conjunction with online payment systems to process payments. Since these servers and data lines make up the backbone of the Internet, in a broad sense, e-Commerce means doing business over interconnected networks. The definition of e-Commerce includes business activities that are business-to-business (B2B), business-to-consumer (B2C), extended enterprise computing (also known as "newly emerging value chains"), d-commerce, and m-commerce. E-Commerce is a major factor in the U.S. economy because it assists companies with many levels of current business transactions, as well as creating new online business opportunities that are global in nature.

M-commerce: - Business transactions through mobile. M-Commerce (mobile commerce) is the buying and selling of goods and services through wireless handheld devices such as cellular telephone (PDAs). Known as next-generation e-commerce, m-Commerce enables users to access the internet without needing to find a place to plug in. The emerging technology behind m-commerce, which is based on the wireless application protocol (WAP), has made far greater strides in Europe, where mobile devices equipped with web-ready micro-browsers are much more common than in the United T - commerce: - Use Television set - top box to do commercial transactions \ T-commerce encompasses all revenues that are generated through the television set. It allows the purchase of goods and services that are seen on the TV set. It is a subset of interactive TV. According to this definition, T-commerce comprises the following sub-markets: That is TV shopping, direct response TV, Travel shopping, Interactive TV applications.

The defined terminologies (u-Commerce, m-Commerce and t-Commerce) have a higher payoff in the form of more efficient processes, lower costs and potentially greater profits. They both address these processes, as well as a technology infrastructure of databases, application servers, security tools, systems management and legacy systems. And both involve the creation of new value chains between a company and its customers and suppliers, as well as within the company itself. However they do have differences whereby mobile commerce main purpose is to do both financial and promotional activities, e-Commerce involves in online shopping to do only financial activities within the help of internet. Similarly, it is different from u-Commerce which is fully integrated with the content management system which enables one to create beautifully designed stores, and enabling also the back office capabilities to configure and customize the store of one's liking.

MOBILE APPLICATION AND EARLY U-COMMERCE INDICATORS

The first mobile commerce discussion was held at the University of Oxford in 2003, with Tomi Ahonen and Steve Jones lecturing. As of 2008, UCL Computer Science and Peter J. Bentley demonstrated the potential for medical applications on mobile devices. Ahonen and Jones (2003).

Since the launch of the iPhone, mobile commerce has moved away from SMS systems and into actual applications. SMS has significant security vulnerabilities and congestion problems, even though it is widely available and accessible.

The applications have been extended to Mobile ticketing technology where mobile are being used for the distribution of vouchers, coupons, and loyalty cards. These items are represented by a virtual token that is sent to the mobile phone. Stores may send coupons to customers using location-based services to determine when the customer is nearby; this can be sited from www.mobilestarterstore.com

The reinvention of the mobile phone as a touch sensitive handheld computer has for the first time made mobile commerce practically feasible. 'According to ABI Research, mobile is going to get a lot bigger in the ecommerce market. The research firm is predicting that in 2015, $119bn worth of goods and services will be purchased via a mobile phone.'

Mobile devices are heavily used in South Korea to conduct mobile commerce. Mobile companies in South Korea believed that mobile technology would become synonymous with youth life style, based on their experience with previous generations of South Koreans. "Profitability for device vendors and carriers hinges on high-end mobile devices and the accompanying killer applications (Harden, 2012).

In California, Illinois and other states in the U.S., transit agencies are distributing electronic bridge toll devices (which leverage credit and debit payment functions) and have the ability to be used in other "proximity" environments, such as service stations or fast-food drive-through. Individually, these are all powerful and innovative examples of new ways to pay and new ways to *leverage* payments. But they are just early steps in realizing the full potential of u-commerce.

U-commerce, by definition, implies the continued existence of traditional payment forms such as cash and checks, which may always exist. But in the u-Commerce environment, cash and checks will become increasingly marginalized because they provide diminished value and utility. It is also important to note that in the world of u-commerce, "traditional" credit and debit card payments (face-to-face transactions at point-of-sale) will always play a dominant role.

There is still huge growth potential for traditional credit and debit products worldwide, particularly in emerging markets. Extending the scope and scale of these core payment products, in addition to the development of new products and channels, is part of the u-Commerce growth equation. We believe there are tremendous benefits from u-Commerce for individual buyers and sellers. But we

believe there are also significant macroeconomic benefits. Payments are the lifeblood of economies. By facilitating the exchange of goods and services, they enable the different components of an economy to interact with one another. Removing friction from this process which u-Commerce is all about – can help economies to operate more fluidly and efficiently.

Sensemaking depends upon the ability to find relevant reference resources. For media this means providing knowledge management mechanisms that provide efficient search and retrieval of relevant content. Video files, including employee-generated videos, must be cataloged and indexed so that employees can use enterprise and/or mobile search engines to ask for and secure video content meeting user-specified criteria. This means that sensemaking requires providing the capability for retrieving a list of enterprise videos that match user search criteria and which is sorted with respect to some measure of relevance. Use of search engines may provide a secondary benefit of promoting greater access to enterprise video content and increased viewing activity. For example, when YouTube videos was acquired by Google and then subsequently included on the Google Video Search Index, YouTube's site visits rose immediately by 18.5% (Tancer, 2007).

Image and video content upload systems typically rely on simple techniques like asking the user to file the image under a category, or to click a set of checkboxes of descriptive tags, or to type in a one-sentence description that can later be automatically parsed by the system to generate detailed metadata. These requests for metadata can overburden users when they are uploading megabytes of images and video information.

However, innovative approaches are emerging to improve this process. Google, for example, has created Google Image Labeler that automatically pairs video content users and asks them to add as many labels to as many images as possible in a 90-second period. The more images and labels that are added, the more point the participants receive and the site lists that day's and the all-time top-point winners. There is no prize except the satisfaction that you are helping Google deliver more relevant search results.

However, as more users capture and share cellphone images at low cost, the potential for new and innovative search labeling services becomes essential. According to study done by Nokia, it was estimated that camera-phones will be able to capture 100 billion images by the year 2011 alone (Pepus, 2007). This fact argues that if a company is participating in this market as a manufac-turer, a service provider, or a content supplier, content-based image and video search capabilities should be made more efficient.

To that end PiXlogic has developed the most advanced commercially available enterprise search engines for images and videos. It is based on automatic indexing of the contents of the image, without the need for any manually input textual metadata. PiXlogic uses a concept called "notions" that are interpreted understandings about the context of the image and the objects in it and it has created a contextually rich and accurate search environment that exploits this. To catalog a repository of images or videos, the user points PiXlogic's piXserve application software to that repository (or uses a web crawler to collect images) and it automatically indexes the content of those files. Through a browser, users can then search using an image and/or point to one or more items in the image that are of interest to them. The software can also see and recognize any text that may appear anywhere in the field of view of the image (for example, picking out names of recruitment candidates, knowledge videos and experts, and other online video resources). Where most image and video search technologies work by trying to match image signatures that are based on simple concepts such as textual labels, color histograms, texture, or edges, for example, piXserve "sees" the image as being composed of man objects, creates a representation describing the objects, and stores them in a database (Pepus, 2007).

Internet audio and video streaming technology is getting more and more sophisticated. All you have to do is look around you and you will see people watching videos and listening to music with their I-pods, MP3 and MP4 players. Incidentally, the best sources for their audio and video needs can be found on the internet. So, imagine all the audio/video data streaming, downloading and uploading around in the internet, and you will have a good idea of just how measly a 10 s video is in terms of today's technology.

As discussed, the use of audio/video streaming on the internet is a powerful marketing tool. However, the technology for it has matured enough in that audio and video files use more space from storage devices such as hard drives and I-pods. Already, hard drives of computers have transcended the megabyte barrier and are now storing gigabytes, terabytes, petabyte, exabyte and zettabyte of data (one zettabyte = 10^{21} or one sextillion bytes).

In the context of mobile commerce, mobile marketing refers to marketing sent to mobile devices. Companies have reported that they see better response from mobile marketing campaigns than from traditional campaigns. Mobile campaigns must be based on the global content generation or what is called Generation C and four other 'C's: Creativity, Casual Collapse, Control, and Celebrity. A brief introduction... Creativity: let's face it, we're all creatives, if not artists! (Notice we didn't mean talented artists ;-). And as creativity normally leads to content, the link with GENERATION C is obvious. Which then brings us to Casual Collapse: the ongoing demise of many beliefs, rituals, formal requirements and laws modern societies have held dear, which continue to 'collapse' without causing the apocalyptic aftermath often predicted by conservative minds. From women's rights to gay

marriage to not wearing a tie to work if you don't feel like it (http://youpark.com/)

Research demonstrates that consumers of mobile and wireline markets represent two distinct groups who are driven by different values and behaviors, and who exhibit dissimilar psychographic and demographic profiles (Schejter et al., 2010). As a result, successful mobile commerce requires the development of marketing campaigns targeted to this particular market segment.

THE PROMISING U-COMMERCE

Newer technologies, empowered customers, and highly competitive market place make it imperative for businesses to invest into ways of improving the overall business performance. "The internet has introduced a significant wave of change. We expect – indeed, it seems virtually certain – that these new network resources will, especially in combination, stimulate a new generation of personalized applications and services. These massively joined technologies will form "dynamic ecosystems", immersed in computerized ambient environments, and growing and adapting themselves to the evolving needs of individual users and communities.

A 4G system is expected to provide a comprehensive and secure all-IP based mobile broadband solution to laptop computer wireless modems, smartphones, and other mobile devices. Facilities such as ultra-broadband internet access, IP telephony, gaming services, and streamed multimedia may be provided to users. IMT-Advanced compliant versions of LTE and WiMAX are under development and called "LTE Advanced" and "WirelessMAN-Advanced" respectively. ITU has decided that LTE Advanced and WirelessMAN-Advanced should be accorded the official designation of IMT-Advanced. On December 6, 2010, ITU recognized that current versions of LTE, WiMax and other evolved 3G technologies that do not fulfill "IMT-Advanced" requirements could nevertheless be considered "4G", provided they represent forerunners to IMT-Advanced and "a substantial level of improvement in performance and capabilities with respect to the initial third generation systems now deployed (ITU, 2010).

Our communication patterns have changed. We have become dependent on email. We interact with firms via web sites, e-Commerce for example, plays a catalytic role in poverty alleviation to some places where well applied and manage by enormous quantities of business information that are generated in the internet for modeling the living (Bourguignon, 2003; GoT, 2001; IMF, 2004). The World Development Report (2000/01): Attacking poverty identifies three priority areas for reducing poverty: increasing opportunity, enhancing empowerment, and improving people's life (http://web.worldbank.org). Opportunity makes markets work for the poor and expands poor people's assets. Empowerment and technology makes state institutions work better for poor people and removes social barriers. The next wave introduced through wireless technology is about to change our lives even more. The increase in transmission capacity of wireless devices lays the foundation for communication unrestricted by physical locations. We can surf the internet decoupled from landline computers. The emergence and evolution of eCommerce has proved to be a highly successful and profitable venture for companies of different sizes and origin.

We are now shifted to do business in virtual space rather only proving ourselves in geographical space (Jay, 2004). The new technologies will have significant effects in our lives and this will definitely lead to a re-defining a lot of what we call today general concepts. For example, the whole issue of who is a buyer and seller may change.

The projection indicates that STAMFORD, Conn., November 18, 2009, Gartner, Inc. has identified the top 10 consumer mobile applications for 2012 (Pettey and Stevens, 2012).

Gartner listed applications based on their impact on consumers and industry players, considering revenue, loyalty, business model, consumer value and estimated market penetration. These included;

No. 1: Money transfer

This service allows people to send money to others using Short Message Service (SMS). Its lower costs, faster speed and convenience compared with traditional transfer services have strong appeal to users in developing markets, and most services signed up several million users within their first year.

No. 2: Location-based services

Location-based services (LBS) form part of context-aware services, a service that Gartner expects will be one of the most disruptive in the next few years. Gartner predicts that the LBS user base will grow globally from 96 million in 2009 to more than 526 million in 2012. LBS is ranked No. 2 in Gartner's top 10 because of its perceived high user value and its influence on user loyalty.

No. 3: Mobile search

The ultimate purpose of mobile search is to drive sales and marketing opportunities on the mobile phone. To achieve this, the industry first needs to improve the user experience of mobile search so that people will come back again. Mobile search is ranked No. 3 because of its high impact on technology innovation and industry revenue.

No. 4: Mobile browsing

Mobile browsing is a widely available technology present on more than 60% of handsets shipped in 2009, a percentage Gartner expects to rise to approximately 80% in 2013. Gartner has ranked mobile browsing No. 4 because of its broad appeal to all businesses. Mobile Web systems have the potential to offer a good return on investment.

No. 5: Mobile health monitoring

Mobile health monitoring is the use of IT and mobile telecommunications to monitor patients remotely, and could help governments, care delivery organizations (CDOs) and healthcare payers reduce costs related to chronic diseases and improve the quality of life of their patients. In developing markets, the mobility aspect is key as mobile network coverage is superior to fixed network in the majority of developing countries. Currently, mobile health monitoring is at an early stage of market maturity and implementation, and project rollouts have so far been limited to pilot projects.

No. 6: Mobile payment

Mobile payment usually serves three purposes. First, it is a way of making payment when few alternatives are available. Second, it is an extension of online payment for easy access and convenience. Third, it is an additional factor of authentication for enhanced security. Mobile payment made Gartner's top 10 list because of the number of parties it affects including mobile carriers, banks, merchants, device vendors, regulators and consumers and the rising interest from both developing and developed markets. Because of the many choices of technologies and business models, as well as regulatory requirements and local conditions, mobile payment will be a highly fragmented market. There will not be standard practices of deployment, so parties will need to find a working solution on a case-by-case basis.

No. 7: Near field communication services

Near field communication (NFC) allows contactless data transfer between compatible devices by placing them close to each other, within ten centimeters. The technology can be used, for example, for retail purchases, transportation, personal identification and loyalty cards. NFC is ranked No. 7 in Gartner's top ten because it can increase user loyalty for all service providers, and it will have a big impact on carriers' business models. However, its biggest challenge is reaching business agreement between mobile carriers and service providers, such as banks and transportation companies.

No. 8: Mobile advertising

Mobile advertising in all regions is continuing to grow through the economic downturn, driven by interest from advertisers in this new opportunity and by the increased use of smartphones and the wireless internet. Total spending on mobile advertising in 2008 was $530.2 million, which Gartner expects will grow to $7.5 billion in 2012. Mobile advertising makes the top 10 list because it will be an important way to monetize content on the mobile internet, offering free applications and services to end users. The mobile channel will be used as part of larger advertising campaigns in various media, including TV, radio, print and outdoors.

No. 9: Mobile instant messaging

Price and usability problems have historically held back adoption of mobile instant messaging (IM), while commercial barriers and uncertain business models have precluded widespread carrier deployment and promotion. Mobile IM is on Gartner's top 10 list because of latent user demand and market conditions that are conducive to its future adoption. It has a particular appeal to users in developing markets that may rely on mobile phones as their only connectivity device. Mobile IM presents an opportunity for mobile advertising and social networking, which have been built into some of the more advanced mobile IM clients.

No. 10: Mobile music

Mobile music so far has been disappointing - except for ring tones and ring-back tones, which have turned into a multibillion-dollar service. On the other hand, it is unfair to dismiss the value of mobile music, as consumers want music on their phones and to carry it around. We see efforts by various players in coming up with innovative models, such as device or service bundles, to address pricing and usability issues. iTunes makes people pay for music, which shows that a superior user experience does make a difference.

"Consumer mobile applications and services are no longer the prerogative of mobile carriers," said Sandy Shen, research director at Gartner. "The increasing consumer interest in smartphones, the participation of internet players in the mobile space, and the emergence of application stores and cross-industry services are reducing the dominance of mobile carriers. Each player will influence how the application is delivered and experienced by consumers, who ultimately vote with their

attention and spending power."

"The ultimate competition between industry players is for control of the 'ecosystem' and user experience, and the owner of the ecosystem will benefit the most in terms of revenue and user loyalty," Ms. Shen said. "We predict that most users will use no more than five mobile applications at a time and most future opportunities will come from niche market 'killer applications'."

U-Commerce enables dramatic improvements in m-payment as well as in CRM processes. From Gartner's list of application it is vividly proven that u-Commerce creates an economy that is more flexible, interconnected and more efficient. However from our finding u-Commerce technology is already available in transition economies to countries in Africa (www.ystats.com/ uploads/report_abstracts/939.pdf). Major research issue is to which extend u-Commerce penetrated in these countries economy which will be the next step for our future research. Further research should also focus on enablers and drivers of u-Commerce adoption by African enterprises and public services providers. Another possible research avenue could be implementation of u-Commerce applications in various marketing contexts. Therefore we hypothesized our finding as follows:

H1: African countries large enterprises are familiar with u-Commerce technologies.
H2: African countries large enterprises are using u-Commerce technologies as enabler in marketing and sales activities.
H3: African countries large cities are implementing u-City concept.

From the research presented u-Commerce is being implemented in services sector, particularly in travel, entertainment and tourism Industry in many African countries (www.ystats.com/uploads/report_abstracts/ 939.pdf?phpsessid). The findings considered the u-Commerce as new distribution channel for financial services industry. There is growing enthusiasm about the increasing number of mobile phones in the developing world and the potential of the mobile platform in helping to address the needs of individuals and small businesses (UNCTAD, 2012).

Unified communication

Businesses are faced with a proliferation of communications tools and firms must find ways to link them. Rather than trying to maintain multiple separate communications channels, the goal is to integrate and manage e-mail, phone calls, instant messaging video conferencing and other forms of communication to allow workers to communicate more quickly and easily and to work faster even when they are mobile. Guth (2007) notes that in its simplest form, unification might allow a user to click on a phone number in an e-mail to place a call from a PC. In its more advanced form, the technology might offer the ability to use a PC or cellular phone to determine if a person is online, on a cellphone or a desk phone, and to call them or launch a conference call by clicking on an icon or button.

One key question about unified communication for organizations will be where best to apply the technology. Mobile workers and those who routinely need timely information from an assortment of others would appear to benefit most from this technology. Early adopters of unified communication include companies that are geographically dispersed or businesses that depend on rapid communication to compete such as financial institutions. However, unified communication may be less suited to those businesses where workers do not have to interact with a host of other people or who mainly interact with the same group (Guth, 2007).

Since unified communications cross organizational boundaries they are complex in nature. They demand management that can navigate organizational politics, train people of diverse backgrounds, and deal with multiple vendors each of whom is supplying a subset of the technology infrastructure, applications, and channels. Unified communications can create regulatory issues because electronic attachments and mobile communications might need to be archived (for example, to meet Sarbanes-Oxley requirements).

Unified communications are important because of the demand of workers and students for communication devices that minimize the need for channel-dependent hardware. Where cellphones, text messaging, and instant messaging eclipsed e-mail as the preferred means to communicate, video creation and exchange now provide another viable and potentially critical need for mobile users.

The worldwide market for online video content grew tenfold by 2010, growing from about 13 million households during 2005 to more than 131 million households by 2010, becoming an $11 billion annual business by 2011 (Carvajal, 2007). Of all broadband households today, 12.8% are already regularly viewing professional content via online content aggregators. The number of broadband households is expected to double between 2005 and 2010, to more than 413 million.

On See Me TV, a service offered by European provider 3, users can shoot video on the mobile phones, bypass video sites like YouTube, or Yahoo, and post them to a gallery where the videos can be watched by others on their phones. And to spur usage, people who contribute video clips get paid for it, getting 10% of the revenue generated when others download their clip. See Me TV and several services like it are among the first to offer cellphone users the same kind of interactive, self-generated content that is offered to PC users (Abboud, 2007).

AT&T's Video Share allows its users to send live or

recorded videos to others while they are talking to them on their cellphones. The one-way video streaming service is available on AT&T's high-speed 3G UMTS/HSDPA network. Two people can view a video when they are in a two-way cellular connection. Video Share is the first application for AT&T's emerging internet protocol multimedia subsystem (IMS) platform, which will eventually be used as the vehicle for delivering IP services over wireless and wired network connections (Gardner, 2007).

Demand for more social networking bandwidth will also push unified communications. Mobile users want access to entertaining sites such as YouTube, ifilm, MySpace, Vimeo, Eyespot, Jumpcut, Ourmedia, vSocial, Google video, Grouper, Revver, VideoEgg, and Yahoo! And as is the case with other mobile platforms having network access there will be supply and demand for substantive video content on cellular devices. FORA.tv, for example, delivers discourse, discussions and debates on political, social and cultural issues, and enables viewers to join the conversation. It provides deep, unfiltered content, tools for self-expression, and a place for the interactive community to gather online.

Research Channel is a consortium of major universities that puts presentations by their top researchers on its web site, ResearchChannel.org. It has a video library of more than 3,000 titles with topics that include business and economics, computer science and engineering, health and medicine, and the sciences. Princeton University's University Channel focuses on public and international affairs videos, while www.Research-TV.com emphasizes work at U.K. colleges and universities. There are niche-oriented "smart" video sites that focus on such topics as energy policy (for example, EnergyPolicy TV.com), technology, entertainment, business, science, and culture (for example, ted.com).

Corporate personnel recruitment is another obvious opportunity for mobile cellular communications that will push the requirement for unified communications. Von Bergen (2007) notes that while job seekers have been putting videos online for some time employers are now taking the same route. Online videos are being created to recruit workers. Organizations realize that they can reach potential employees where they are, and younger job candidates prefer YouTube and sites like it.

Many corporations have been delivering their own video content to potential recruits, employees, customers, or other important constituencies across time and place. What has become different and important now is getting the content moved to cellular devices. Companies can create and publish the videos themselves or outsource all or part of the process. Firms like uVuMobile, Inc. (uVuMobile.com) provide organizations with mobility software and services that offer content providers, carriers, and entertainment brands a full suite of products to deliver their video and audio content to mobile handsets. Companies like uVuMobile can provide

platforms that are seamlessly integrated with a robust set of applications supported by a suite of enablers that include mobile marketing, reporting, content aggregation, e-Commerce options, advertising and other professional services.

Unique integrated solutions can be developed for mobile markets, providing scalable mobile technology to create and manage mobile initiatives, including hosting services, marketing, media solutions and mobile content distribution.

There are a number of start-up companies that offer new ways for cellphone users to access internet video content previously controlled by their cellphone carrier. These companies allow users to view a wider array of internet video clips without a subscription and without having to use a specific phone model.

Users of these services can view online videos on any standard video-enabled phone and the videos can be wirelessly downloaded to a handset for viewing later, or streamed over cellular networks to be viewed in real time. While the quality of the video content is rarely as crisp as users are accustomed to online, and viewing can be limited by the amount of storage on the phone, the services are generally free, powered by advertising, and independent of particular carriers. Several of the new companies offering these services (for example, Cellfish Media, MyWaves, and 3Guppies) have already attracted nearly a million users and are attracting tens of thousands more a day (Vascellaro, 2007a). These new services are part of a broad sweep of mobile companies trying to get consumers to translate their fanaticism for online video watching to smaller screens. But have these services caught on? According to the research firm M:Metrics Inc., of the nearly seven million who watch movie or TV video from their phones every month, the vast majority watch video clips sent to them from family or friends, rather than video prepackaged by a carrier. And Telephis Inc. reports that only 3.6% of US cellphone users subscribed to a mobile video service in the first quarter of 2007, up from 1.6% in the year-earlier period. Inhibiting the growth is consumer concerns about cellphone storage and lag time and delays when downloading the video content (Vascellaro, 2007b). A "Future and Emerging Technologies" activity could act as the development pathfinder and as a structured foresight service for future communications tools. By supporting upfront collaborative basic research at the frontier of knowledge in core mobile technology, e-Commerce and in their combination with other relevant disciplines, could continue identifying emerging mobile related research domains and exploring options in mobile R&D roadmaps where road blocks are anticipated and where "no known solutions" are available. e-Commerce could pursue its mission of nurturing many "novel ideas" for core technologies and radically new uses, up to their blooming into the first proof of concept and of narrowing down options that would lead to the industrial solutions of

tomorrow.

Integrated approach to business

An integrated approach is the key. A type of commerce where a commercial transaction can be performed securely, any time, anywhere in the world, from any equipment, whether wired or wireless, using Internet technologies. "U-Commerce is a dynamic convergence of the physical and the digital, the interface of brick-and-mortar commerce with Web-based wireless and other next-generation technologies in ways that will create new levels of convenience and value for buyers and sellers (Jay, 2004).

A term u-Commerce has been created in the Internet world that refers to commerce that can be conducted anywhere and any time in that it is a fusion of e-commerce, m-Commerce (mobile commerce), t-commerce (television commerce) and bricks and mortar. It means seamless movement for consumers. U-Commerce means that customers can come from all angles - today they may be in a showroom, tomorrow they may come at you via a website, cellular telephone phone or interactive television thanks to mobile technology (Jay, 2004). On-Line There are four Fundamental dimensions of u-Commerce as described by Watson, Richard T., Leyland F. 1. Ubiquity, 2. Uniqueness, 3. Universality and 4. Unison.

Ubiquity allows users to access networks from anywhere at any time, and in turn, to be reachable at any place and any time. Computer will be useful everywhere. Basically we can say chip will be embedded in our daily life so as to be benefited by Internet and wireless technology supported by intelligent systems. For example, Payment technology is becoming ubiquitous, shattering past constraints of location and functionality. It can now connect the smallest rural community, enabling it to conduct commerce with the rest of the world.

Uniqueness allows users to be uniquely identified—not only in terms of their identity and associated preferences, but also in terms of their geographical position. Avail only services what you want. Every program will be customization of your needs. It will be according to your roles in daily life. Download songs to make your mood or transfer sales records to your business data server on the spot of sale. Everything is unique and customized.

Universality means devices are universally usable and multi-functional. Due to Internet and satellites your desktop, laptop, cell phone, or PDA will avail free mobility and lots of information at any time.

Unison covers the idea of integrated data across multiple applications so that users have a consistent view on their information-irrespective of the device used. Consistency means if I change an address in my phone book it should reflect changes in my cellphone, calendar and PDA simultaneously.

In December 2001 a group of researchers met in Berlin, Germany to analyse these events and discuss future prospects for ecommerce. They concluded that e-Commerce was not dead, but had moved on from its overly hyped beginning (Nathalie, 2001).

This accelerated integration of many mobile technology fields, in which eCommerce will be playing a primary role, will be at the origin of a coming composite revolution that will be driving the emergence of a whole range of new technologies and disciplines (from meta-materials and nanotechnologies, to bio-informatics, bio-computing, bio-sensors and direct neural interfaces, etc). In particular, it is expected that the fundamental models of information, computing and communication will soon be revisited to address an emerging post-Turing and post-Shannon e-Commerce era.

Market drivers

The pervasiveness of technology

History has clearly demonstrated that technology, properly applied, drives efficiencies, productivity, and value. As technology becomes more pervasive think of the explosive growth of nanotechnology as well as ongoing capital investments in technology at the enterprise level there is a larger platform on which to leverage innovation and new applications.

The growth of wireless

One of the fastest growing distributed bases of new technology is wireless, with up to one billion mobile phones alone was expected to be in use by 2003 As wireless networks have expanded around the globe, mobile phone usage and new applications have exploded. To that end, an eye opening study conducted by experience revealed that there were 2.7 billion mobile phones in use by year 2010. The study also revealed that about two thirds of mobile phone users were "active users of SMS text messaging. Approximately 1.8 billion people actively texting today 2010 (Michael, 2008).

One of the most successful new applications was DoCoMo's iMode service in Japan, which allowed its 20 million subscribers to download music, shop and send instant messages. Americans and Europeans were also excited by the possibilities. In a survey conducted by Accenture, 40% of wireless phone users in the U.S. and Europe found the idea of shopping with their phones an appealing concept (Schapp and Cornelius, 2002). The potential of wireless is not limited to consumer applications. In some developing countries, for example, ATMs, one of the signal innovations of the retail banking industry, are now running off wireless GSM networks.

Increasing bandwidth and connectivity

Bandwidth has been doubling every nine months or roughly at twice the growth rate of computing power. It is not hard to imagine a world where IPv6 potential and promise may come to be realized and interactivity is possible in appliances as ubiquitous as televisions, medicine cabinets and refrigerators. Increasing bandwidth will lead to the creation of what is being called the "evernet," where billions of devices will be connected to the hyperspeed, broadband, multiformat Web 2.0. In the future, the Internet will always be "on." These are very powerful and far-reaching phenomena that can clearly drive all sorts of business models (as they did in the dot-com explosion of the late 90s). But to paraphrase Peter Drucker, every great idea eventually degenerates into work. Realizing the full vision of u-Commerce commerce that is universal, seamless, and secure will require a great deal of effort in a number of key areas.

ANALYSES OF MOBILE AND E-COMMERCE USE SITUATION

In mobile commerce context, several studies have examined the adoption of mobile technologies and services, suggesting the Technological Acceptance Model (TAM) and innovation diffusion theories providing relevant means for explaining mobile services adoption and use (Hung et al., 2003; Han et al., 2004; Kleijnen et al., 2004; Lee et al., 2003; Teo and Pok, 2003). In this section, we analyze on the technology, with emphasis on studies on mobile and ecommerce services.

Early stage research on mobile banking adoption in UK confirms that relative advantage over existing services, compatibility of mobile banking with consumer needs and lifestyle, and the ability to test a new service and observe the successful outcomes of other users increased positive attitudes towards adopting, whereas perceived complexity and risks had a negative effect on the attitudes towards adoption (Lee et al., 2003).

The most significant feature of mobile technology is the mobility *per se*: ability to access services ubiquitously, on the move, and through wireless networks and various devices, such as, PDAs and mobile phones (Coursaris and Hassanein, 2002; Lyytinen and Yoo, 2002). Compared with traditional electronic commerce, where transactions are commonly conducted through stationary desktop and laptop computers, mobile computing provides users with more freedom, as they can access information and services without having to find a physical space, such as, an office or an Internet café for internet connection (May, 2001). Kleinrock (1996) labeled the benefits provided by mobile technologies as "anytime and anywhere computing" and outlined the two most common dimensions of mobility – independence of time and place. The spatial and temporal dimensions of mobility extend computing and allow, in principle, anytime and anywhere

access to information, communication, and services. Kakihara and Sørensen (2001) expanded the concept of mobility into three dimensions of human interaction; spatial, temporal and contextual mobility. The spatial and temporal dimensions correspond to those of Kleinrock's anytime and anywhere computing, whereas the contextual dimension extends the definition further.

Contexts in which people reside continuously frame their interaction with others, including people's cultural background, particular situation or mood, and degree of mutual recognition (Kakihara and Sørensen, 2001).

Perry et al. (2001) discuss restrictions that use situations pose to the ubiquitous computing. Specifically, the anytime and anywhere access is dependent on technological and social conditions of the use environment; not all places provide the needed technological infrastructure such as network connections required for ubiquitous computing, and not all social situations are adequate for mobile computing (Perry et al., 2001). The potential of mobile technology for the retail sector is endless. Advances in Internet and network technology and the rapidly growing number of mobile personal devices result in the fast growth of Mobile e-Commerce, m-Commerce and eventually u-Commerce. Many retailers are already using SMS to alert customers of special events and offers and Bluetooth technology could lead to customers receiving sales messages the minute they walk into stores.

CONCLUSION

Our preliminary study is focusing on recognition of u-Commerce concept in realizing the promising of u-commerce. This paper is presenting preliminary results and announcing deeper second wave survey which should provide empirical evidence to support hypothesis that African enterprises and public services providers are following global trend of increasing u-Commerce technologies international importance and penetration.

Now that mobile penetration in many parts of the world has reached a plateau, new growth depends, to a large extent, on generating revenue from new services. And advances in the devices that customers use to access cellular networks often can help enable those new services. Recognizing that, the fact that wireless device sales outpaced market forecasts for 2005 is a very positive sign.

We are in a transitional phase of the global commerce. Some of the assumptions and early tenets of the "new commerce" are being challenged. To us, the labels "old business" and "new business" are, in fact, a false distinction. The evolution we are witnessing and want to help drive is the evolution of the "smart commerce." This is a commerce that is more flexible, fluid, interconnected, efficient and resilient. We believe u-Commerce will be both a driver and an outcome of the smart commerce with the mobile technology growth. The smart commerce

is poised to grow explosively, with many players from multiple industries all vying for the customer's attention. These players will be offering new services, new payment tools, and a host of new ways to get access to goods and services anytime, anywhere, and any way due to mobile technology. We expect competition to be fierce among players in the payments chain, with the advantage going to those who recognize a few fundamental rules about this emerging environment.

U-commerce represents the next step in digitization as true ubiquity has profound implications. Thus, marketing and other scholars need to be preparing for this final destination and recognize that e-Commerce and m-Commerce are way stations on the path. They are signposts on the road from somewhere to everywhere. To traverse this path, marketing scholars need to investigate several significant issues.

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