Emerging trends of mobile applications

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Abstract
Recent improvements in mobile device technology make the vision feasible to have get data analyzed by user's right in the field. The future is mobile broadband – voice and SMS are by far the most common applications of mobile technology in world today. Mobile phones are mainly used for social networking, e.g. staying in touch with family and friends. Mobile processors are helps in the various applications. There are many ways that mobile devices and services can support m-Agriculture, m-health, m-Governance, m-Learning, offline applications. The Mobile Tracking helps to track the current location of the mobile. It is a web application. This application tracks the mobile location in every 5 seconds in connection with the central tower. The Mobile Tracking application will be deployed in Symbian supporting mobile phones. The goal of this paper is to review the field mobile applications. In this paper the emphasis is on classification and identification of major mobile applications trends.
Keywords: Online applications, Mobile Tracking.

Introduction

In 2011 the pace of technological change continued to accelerate. New technologies arrived and formerly niche technologies achieved mainstream adoption. New emerging technologies will appear and be adopted by customers; businesses will need to respond with a strategy to adopt, adapt or work around them. It's nearly impossible to predict what technologies will achieve traction, but it is possible to be prepared to adapt to fast moving challenges.

Online applications

The advent of the Internet has enabled new ways to conduct banking business, resulting in the creation of new institutions, such as online banks, online brokers and wealth managers. Such institutions still account for a tiny percentage of the industry. Over the last few years, the mobile and wireless market has been one of the fastest growing markets in the world and it is still growing at a rapid pace. According to the GSM Association and Ovum, the number of mobile subscribers exceeded 2 billion in September 2005, and now (2009) exceeds 2.5 billion (of which more than 2 billion are GSM) [1].

According to a study by financial consultancy Celent, 35% of online banking households will be using mobile banking by 2010, up from less than 1% today. Upwards of 70% of bank centre call volume is projected to come from mobile phones. Mobile banking will eventually allow users to make payments at the physical point of sale. "Mobile contactless payments" will make up 10% of the contactless market by 2010. Another study from 2010 by Berg Insight forecasts that the number of mobile banking users in the US will grow from 12

million in 2009 to 86 million in 2015. The same study also predicts that the European market will grow from 7 million mobile banking users in 2009 to 115 million users in 2015.

Many believe that mobile users have just started to fully utilize the data capabilities in their mobile phones. In Asian countries like India, China, Bangladesh and Philippines, where mobile infrastructure is comparatively better than the fixed-line infrastructure, and in European countries, where mobile phone penetration is very high (at least 80% of consumers use a mobile phone), mobile banking is likely to appeal even more

1. Mobile Banking

Mobile banking (also known as M-Banking, m-banking) is a term used for performing balance checks, account transactions, payments, credit applications and other banking transactions through a mobile device such as a mobile phone or Personal Digital Assistant (PDA). The earliest mobile banking services were offered over SMS, a service known as SMS banking. With the introduction of the first primitive smart phones with WAP support enabling the use of the mobile web in 1999, the first European banks started to offer mobile banking on this platform to their customers. [7]

Mobile banking has until recently (2010) most often been performed via SMS or the Mobile Web. Apple's initial success with iPhone and the rapid growth of phones based on Google's Android (operating system) have led to increasing use of special client programs, called apps, downloaded to the mobile device. Mobile Banking refers to provision and availablement of banking- and financial services with the help of mobile telecommunication devices. The scope of offered services may include facilities to conduct bank and stock market transactions, to administer accounts and to access customised information." Mobile Banking can be said to consist of three inter-related concepts:

- Mobile Accounting
- Mobile Brokerage
- Mobile Financial Information Services

Most services in the categories designated as Accounting and Brokerage are transaction-based. The non-transaction-based services of an informational nature are however essential for conducting transactions - for instance, balance inquiries might be needed before committing a money remittance. The accounting and brokerage services are therefore offered invariably in combination with information services. Information services, on the other hand,

may be offered as an independent module. Mobile phone banking may also be used to help in business situations as well as financial. Mobile banking can offer services such as the following:

1.1 Account information

Mini-statements and checking of account history: Monitoring of term deposits , Access to loan statements, Access to card statements, Mutual funds / equity statements ,Insurance policy management, Pension plan management Status on cheque, stop payment on cheque Ordering cheque books, Balance checking in the account, Recent transactions, Due date of payment (functionality for stop, change and deleting of payments), PIN provision, Change of PIN and reminder over the Internet, Blocking of (lost, stolen) cards [2].

1.2 Payments, deposits, withdrawals, and transfers

Domestic and international fund transfers, Micro-payment handling, Mobile recharging, Commercial payment processing, Bill payment processing, Peer to Peer payments, Withdrawal at banking agent**,** Deposit at banking agent. A specific sequence of SMS messages will enable the system to verify if the client has sufficient funds in his or her wallet and authorize a deposit or withdrawal transaction at the agent. When depositing money, the merchant receives cash and the system credits the client's bank account or mobile wallet. In the same way the client can also withdraw money at the merchant: through exchanging sms to provide authorization, the merchant hands the client cash and debits the merchant's account.

2. M-health:

Mobile e-Health or m-Health broadly encompasses the use of mobile telecommunication and multimedia technologies as they are integrated within increasingly mobile and wireless health care delivery systems. The field broadly encompasses the use of mobile telecommunication and multimedia technologies in health care delivery. [3] The term m-Health was coined by Professor Robert Istepanian as use of "emerging mobile communications and network technologies for healthcare". A definition used at the 2010 m-Health Summit of the Foundation for the National Institutes of Health (FNIH) was "the delivery of healthcare services via mobile communication devices".

Fig 1: M-Health

Mobile health applications will play a large and important role in shaping the future of the health care system, wrote Mike Kirkwood at the mHealth initiative conference in February. He wrote that mobile and wireless health applications "directly impact the individual's health and have the promise of ensuring that when a patient leaves a doctor visit, they don't become "lost" in the system. It allows consumers to be engaged with health and wellness in their daily lives and connect back to their health care provider." It's not just from within the health system where mobile services will change health care, it's also in the applications that consumers are downloading to their smart phones.

Some other m-Health technologies include:

- Patient monitoring devices
- Mobile telemedicine/ telecare devices
- MP3 players for m-Learning
- Laptop computers
- Microcomputers
- Data collection software
- Mobile Operating System Technology

3. Twitter :

Twitter has grown into one of the most popular microblogging platforms, with a user-base growing 1382 percent in 2008 and over 1500 percent during 2009. Twitter can be used either asynchronously or synchronously to enhance communication and collaboration. As a primarily text-based tool Twitter is capable of working from any cell phone using SMS, but can be enhanced using smart phones with GPS, photo and video integration within a variety of Twitter applications, for example: the official Twitter mobile app, Twitterriffic, Tweetdeck, and the imminent 'deep integration' of Twitter into iOS5 for the iPod Touch, iPhone, and iPad (http://www.apple.com/ios/ios5/features.html#twitter). Twitter is a useful tool for enabling communication and collaboration, developing and maintaining

geographically disperse communities of practice, and has become deeply integrated into many of the most popular web 2.0 blog hosts and media sharing sites (for example: Wordpress, Typepad, YouTube, Qik, Flickr, Ning).

4. Mobile tracker :

"MOBILE TRACKING" is based on J2ME and PHP. In today's fast world, mobile has become one of the important commodities of a human being. It has become a necessity rather than a luxurious commodity. The Mobile Tracking helps to track the current location of the mobile. It is a web application. This application tracks the mobile location in every 5 seconds in connection with the central tower. The Mobile Tracking application will be deployed in Symbian supporting mobile phones. This system sends the following information to the server.

- Mobile ID
- Location
- Time at which the device was present on the above location

The users of the mobile application can get the shop details of a place by providing the location. The application will fetch the shop information on that location and display the details on the mobile screen. In the proposed system we have created an application by means of which we can track the movement of the mobile phone of the desired user. Each mobile phone has a unique Id and it is this ID that sets apart a mobile phone from other mobile phones. By means of this ID can identify each mobile and track the mobile phone anywhere we want.

5. Global positioning system:

The Global Positioning System (GPS) is a space-based satellite navigation system that provides location and time information in all weather, anywhere on or near the Earth, where there is an unobstructed line of sight to four or more GPS satellites. It is maintained by the United States government and is freely accessible to anyone with a GPS receiver. The GPS program provides critical capabilities to military, civil and commercial users around the world. [10]

In addition, GPS is the backbone for modernizing the global air traffic system. The GPS project was developed in 1973 to overcome the limitations of previous navigation systems, integrating ideas from several predecessors, including a number of classified engineering

design studies from the 1960s. GPS was created and realized by the U.S. Department of Defence (DoD) and was originally run with 24 satellites. It became fully operational in 1994. Advances in technology and new demands on the existing system have now led to efforts to modernize the GPS system and implement the next generation of GPS III satellites and Next Generation Operational Control System (OCX).[4]

6. Commerce

As more and more consumers use smart phones, how can businesses utilize this channel? That's one question we will analyze at the RWW Mobile Summit. Consider these statistics: nearly one quarter of the mobile web, according to a recent report from mobile search engine Taptu, is made up of shopping and services**.**

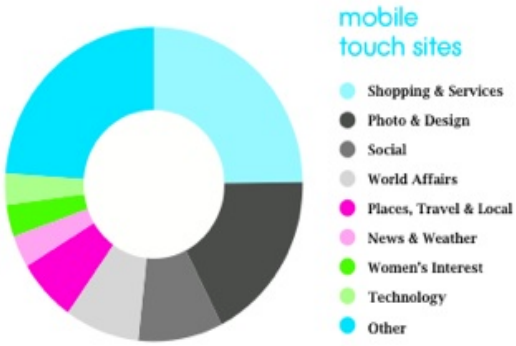

Fig 2: Mobile Touch Sites

Taptu surveyed about 326,000 sites that are optimized for touch-screen browsing and found that the largest concentration of these sites falls into Taptu's "shopping and services" category. In total, Taptu found 83,000 mobile-enabled commerce sites, ranging from mobile shopping assistants to banks and mobile real estate sites. According to Taptu, mobile shopping and services sites make up close to 25% of all mobile-friendly sites in the company's index, followed by sites in the "photo and design" category (17.7%). Social sites rank third with 9.2%.

7. Mobile advertising

Mobile advertising is also a growing segment. In November, Google acquired AdMob, a mobile display ad serving platform, for $750 million. In January Apple acquired Quattro, a relatively unknown mobile advertising network, for an estimated $275 million. Later in January, Opera bought AdMarvel. In April, Apple announced an advertising platform called iAd.

8. Cloud Computing

Fig 3: Cloud Mounting

According to a recent study from Juniper Research, the market for cloud-based mobile applications will grow 88% from 2009 to 2014. The market was just over $400 million this past year, says Juniper, but by 2014 it will reach $9.5 billion**.** Driving this growth will be the adoption of the new web standard HTML5, increased mobile broadband coverage and the need for always-on collaborative services for the enterprise. Explained ReadWriteWeb's Sarah Perez in February, "there are already a few well-known mobile cloud apps out there including Google's Gmail and Google Voice for iPhone. When launched via iPhone homescreen shortcuts, these apps perform just like any other app on the iPhone, but all of their processing power comes from the cloud."

Future mobile applications:

1. **Money Transfer:** This refers to people sending money via SMS messages. Like mobile payments, this service has more appeal in developing markets for now. However, there may come a time when even using your debit card seems passé, while paying for something with actual cash seems downright ancient.
2. **Location-Based Services:** As mentioned above, there are still far too many services to choose from when it comes to location-based social networking, fragmenting the market. Your friends on Loopt are often different than those on Brightkite and that list is different than those on Foursquare. But LBS extends to more than social networks - it includes any application that taps into your phone's GPS capabilities to offer up location-based services of any kind, whether that's local business reviews or directions to the nearest Starbucks. Gartner says this will be one of the most disruptive technologies in the future, with a user base growing from 96 million in 2009 to 526 million in 2012.[5]
3. **Mobile Search:** No, mobile search isn't new, but on the mobile platform, it may get shaken up a bit. We predicts that consumers won't necessarily be sticking with the search

services they know and use on the Web (think Google, Bing and Yahoo) and instead experiment with using a few different search providers that have "unique technologies" for mobile search.

4. **Mobile Browsing:** Saying that mobile browsing technologies will be heavily used in the future sounds a little bit like stating the obvious. But as Gartner notes, mobile browsing capabilities currently exist only on 60%+ of handsets today. By 2013, that number will climb to 80%, meaning that those who are still using the app-less,more basic feature phones will still be joining the mobile web in mass numbers over the coming years. That's also good news for web developers who can build mobile web applications to cater to this bunch as opposed to focusing all their efforts into building apps for the numerous mobile platforms like the iPhone, Android, RIM, and others.

5. **Mobile Health Monitoring:** Another technology whose impact will be felt more heavily in developing markets, mobile health monitoring is still at an early stage of maturity and implementation says Gartner. Project rollouts have been limited to pilot projects for now, but in the coming years the industry will begin to monetize these efforts by offering mobile healthcare monitoring products, services, and solutions to various care delivery organizations.

6. **Mobile Payments:** Like mobile transfers, mobile payments are more common in developing markets at the moment, but that is quickly changing. Yet even as this type of service grows, we admits there will be challenges. Mobile payments will be a "highly fragmented market" where there will not be "standard practices of deployment," notes the report. That makes it sound like this is one technology that will still need some work, even when 2012 rolls around.

7. **Near Field Communications (NFC):** More popular in some European and Asian markets than in the U.S., NFC still isn't a standard feature on many of today's phones.

8. **Mobile Advertising:** Also not new but growing fast, mobile advertising is one of the most important ways to monetize mobile content. Total spending on mobile advertising in 2008 was $530.2 million and it will grow to $7.5 billion in 2012. And mobile advertising will also be used by companies alongside their other campaigns including TV, radio, print, and outdoors.

9. **Mobile Instant Messaging:** Gartner says that latent user demand and market conditions are conductive to mobile IM's future adoption. It will appeal to developing markets where mobile phones are often the only connectivity device a user owns. But will it be a major app by 2012? It seems that SMS is still the service to beat, especially in the developing world. We'll have to wait and see on this one.

10. **Mobile Music:** Sure, you have the iPhone, but what about your other options? What about mobile music services - especially those for non-iPhone devices? We're still waiting on Spotify in the U.S., for example, and their competition too. Gartner says that we're beginning to see new innovative models in this area that will include both device (think "Comes with Music") and service bundles.

11. **Geo-location Services:** In January, RWW Co-Editor Marshall Kirkpatrick wrote that the era of Location-as-Platform has arrived. Using leading location mobile service Foursquare as an example, Marshall wrote that "the mobile location 'check-in' is fast becoming the hot new status message type online." The use cases for location data include showing nearby restaurants and ratings, mobile advertising, local news, events, and Wikipedia data about local buildings. That's impressive enough, but imagines the possibilities when you add data from sensors.[6]

12. **Internet of Things:** As well as sensor applications, there are other emerging applications for mobile that intersect with the Internet of Things trend. They include barcode scanning, using your phone as an RFID tag and reader, and using your phone as a proximity sensor. As your mobile phone reading and acting on sensor data from real world objects, the phone may also be used as a sensor itself. For example the iPhone has a built-in accelerometer, which is basically a motion detector [7]. This is used for game control and also for re-sizing your iPhone display from portrait to landscape. The iPhone also has a microphone (which can be used as a noise sensor), a proximity sensor, and an ambient light sensor. Barcode scanning and its applications is a fast growing market in the mobile world. The most popular form of 2D barcode is the QR Code (the QR stands for "Quick Response"), which became popular in Japan and is now gaining traction in the U.S. and other markets.

13. **Augmented Reality:** Augmented Reality has been one of the hottest trends in mobile for about a year now. ReadWriteWeb even created an extensive report about AR and its market and development opportunities. We think that AR offers a new marketing and product paradigm for a high impact, high value customer experience. More than 1,000 AR campaigns were kicked-off last year and we expect to see many more this year. In our report, we profiled key AR development companies, their campaigns as well as development lessons learned.[8]

14. **Mobile Social Networking:** A recent study from Ruder Finn revealed that more people are using the mobile web to socialize (91%) compared to the 79% of desktop users who do the same. ReadWriteWeb's Sarah Perez concluded that "the mobile phone is actually a better platform for social networking than the PC." The study found that during the 2.7 hours per day that people in the U.S. spend on the mobile web, 45% are posting comments on social

networking sites, 43% are connecting with friends on social networking sites, 40% are sharing content with others and 38% are sharing photos.[9]

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