Cellphone Service Delivery: ICT on an Inter-personal Level

Jess Roussos is a freelance writer and copy editor. She lives in Johannesburg and has a Bachelor of Arts in English Literature and Psychology from the University of the Witwatersrand. She completed her BA Honours in English Literature, and has been accepted to study for a Masters in Creative Writing at the University of East Anglia. She has worked as a writer and copy editor for various online publications, and has worked as a freelance editor and sub-editor for Heinemann Publishers and Panorama Publications. She has also worked for Samsung, and has had basic training in a variety of Samsung products in the mobile division.

Smartphones for a Smart Future

Smartphones have become increasingly popular in South Africa; applications are a central part of smartphone usage. The vastly increased opportunities afforded by smartphones and their applications, needs to be explored, especially within the terrain of providing Government Services to more people.

In a country where smartphone penetration has reached 15%, cellphone applications (apps) are becoming an increasingly important means of communication. The result of this rapidly increasing penetration is that a larger proportion of the population now has access to the Internet, despite the fact that the majority of these smartphone users still do not have access to computers.

Even with smartphone use increasing and spreading through all levels of society, there is often a lack of comprehension of the possibilities inherent in a population armed with a powerful tool for communication. Children and teenagers have an intuitive knack for technology, while much of the adult population of our country is unaware of the full potential of their personal technology. It could be argued that much of that potential lies in the app market, which has been growing exponentially in the last few years.

The first question that needs to be answered in any discussion about cellphones and the applications built for them is one that is often overlooked: what exactly makes a phone a "smartphone"? The answer is both simple and complicated, due to the fact that there is no official definition for the term. However, there are several features of smartphones that are generally acknowledged by cellphone manufacturers as being definitive.

Smartphones are mobile phones whose functionality relies on a mobile operating system (OS), such as the iOS platform used by Apple in their phones. (iOS stands simply for iPhone Operating System). Nokia has in the past used an operating system called Symbian, and has recently started experimenting with a new OS designed by Windows. BlackBerry smartphones use an OS designed by their manufacturers RIM (Research In Motion), which is simply called BlackBerryOS. Samsung previously used an OS called Bada, and they now use Google's OS, Android, which is also used by HTC smartphones and many other manufacturers of smartphones.

Smartphones also have greater connectivity and more advanced computing capability than "feature phones". "Feature phone" is the term used for all non-smartphones,

regardless of whether they are simply outdated, or designed around specific features, e.g. music playing. Smartphones are multi-functional – they combine the functions of PDAs (personal digital assistants) with portable media players, digital (and video) cameras, as well as GPS navigation devices. The intention is to create one device that replaces the many that were previously required to perform the aforementioned functions. Modern smartphones usually have touch-screens, and importantly, web browsers which are capable of displaying both mobile and standard websites.

There is a veritable plethora of applications available for smartphone users, with new apps being added every day. Some manufacturers restrict the amount of personalisation possible, while others embrace a smartphone user's freedom to customise their device to reflect their needs and wants.

What's "App"?

Most people have heard the term "app", but don't know exactly what an app is. "App" is short for "application". An "application" is an item piece of software - a smaller version of a computer programme, but with a more defined function. There are various types of apps, and they can be specifically designed for use on smartphones, computers or even on the Internet. Some apps function across a number of these platforms. Apps are designed to increase a device's functionality and utility.

Many functions of a cellphone that have come to be thought of as basic, or intrinsic, are in fact applications or apps. All smartphones come with a variety of native applications, which are built into their software. Text messages (SMS's) are an example of an application found on all cellphones, smart or otherwise. Alarm clocks, calculators and calendars are other examples of apps which are usually included in the native software of all phones.

Smartphones grew out of the realisation that all of these basic apps could be replaced, customised and upgraded, which can add to the use of personal technology. There is a veritable plethora of apps available for smartphone users, with new apps being added every day. Some manufacturers restrict the amount of personalisation possible, while others embrace a smartphone user's freedom to customise their device to reflect their needs and wants.

A Day in the Life of Sipho and his Apps

Here is an example of a typical day in the life of a technologically advanced cellphone user, Sipho, and the apps he uses throughout his day:

- Sipho is woken up at 6am by an alarm clock app on his phone. This alarm clock has a smart alarm function which plays a soft tune five minutes before Sipho is due to wake up, thereby drawing him out of a deep sleep and making his transition into consciousness smoother. After that it reverts to a louder tone which Sipho selected to ensure it cannot be ignored. If Sipho hits the snooze button, his alarm is set to snooze three times, for five minutes at a time.
- When Sipho finally wakes up he quickly refreshes his emails, text messages and social media updates - he sets these apps not to deliver any messages back to him between 10pm and 6am.
- Sipho logs his breakfast into his "eating plan" app which notes the calories consumed, and then he adds milk and toothpaste to his "shopping list" app.
- Sipho's "calendar" app reminds him that he is due at the gym in fifteen minutes.

Sipho then mounts his phone onto a "car-docking station" attached to the windscreen of his car. His phone automatically switches on his "GPS navigation" app, which maps out the routes to his next three calendar appointments – gym, work, and his 11am meeting.

- When Sipho arrives at the gym he sends a quick text message to his fiancée, using an instant messaging service called WhatsApp. His normal keyboard has been replaced with a SwiftKey app keyboard, which makes his typing much more efficient.
- At the gym Sipho inputs his weight, height and energy level into an "exercise" app, and a personalised exercise plan is generated.
- At work Sipho uses "note-taking" apps to record the minutes of a meeting, "calendar" and "scheduling" apps to book and share new appointments, and a "CamCard" app to scan a business card he just been given, which is then automatically entered into his contact list.
- Sipho's nephew, John, has a folder full of games on his phone. He enjoys sports-themed games, and his favourites are Stick Cricket, Olympics 2012, Goal Shooter and Real Tennis.
- Sipho's fiancée is a journalist; she has Twitter and Facebook feeds on her phone, as well as various "news" apps.

Sipho and family are, perhaps, atypically active cellphone users, but not by much. This is the direction in which the technology is moving.

An application like WhatsApp is a "free" messaging service, which only charges for the 'data' sent, cutting down on the high costs of SMS's. These apps have become a prerequisite for cellphone sales, as have social network apps. Apps for Facebook and Twitter are an interesting expression of an increasing phenomenon: many web-based services have noted the rising use of smartphones, and have started designing apps which allow access to their services without having to go through a web browser. This makes the Facebook and Twitter apps service much easier and quicker to use from a smartphone.

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Smart Rural Penetration

One of the most interesting aspects of the penetration of smartphones, as they spread into rural areas in South Africa, is how these devices could be used to deliver public services. BlackBerry's "BIS" (BlackBerry Internet Service) bundles, which retailed for only sixty rand a month and provided "unlimited" Internet access, started a smartphone revolution in South Africa.

Smartphone sales increased exponentially and Internet use was boosted. With the recent release of Samsung's new Galaxy Pocket – the first smartphone ever to retail for under one thousand rand – personal mobile technology is more accessible and affordable than ever.

The idea of using smartphones to deliver public services is taking off worldwide. Barcelona's city council has proposed a new ICT strategy to boost their mobile industry and initiate public participation in local government[1]. The plan is to

develop applications which allow for public input into the running of the city. The Philippines' government has developed an application which allows citizens to report trucks which pollute the environment with exhaust fumes. In Malaysia people can register to vote and check that their voting information is correct (including identification numbers and home addresses), all via a cellphone application[2].

The possibilities for South Africa are incredibly exciting. Imagine an application that allows residents to report power outages or water cuts immediately, and provides progress reports on these issues in real time! Consider an app which provides complete transparency in the public tender system; detailing tender requirements, deadlines and outcomes!

The question now is not whether these apps would work, but rather whether they would work in South Africa. In order to gauge the state of the South African app market, and its readiness for public service apps, I spoke to Sean Wright, an iPhone/iPad app developer for Media24.

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I asked Wright for his opinion of the state of the South African mobile and application market, and what he thought of my visions of a future which employed mobile phones as part of a service delivery strategy. Wright agreed that the app industry is booming. He pointed out that "with the right app, anybody with a device that supports that app can access things before only possible through physical interaction - and indeed, some things that have never before been accessible. It's that incentive that drives consumers to buy the devices."

Wright further stated that the incentive for companies, service-providers, or institutions to put money into building apps is not always directly financial. For example, banks will develop apps not because they can make more money that way, but because consumers will associate that increased accessibility and greater service levels with the bank's brand. This could also, because of the social network use intrinsic in these mobile devices, result in consumers expressing their satisfaction to their social circles, effectively doing the bank's advertising for it. Consider the FNB and Standard Bank apps that are available and their effectiveness.

Advertising in Apps

The monetary value of advertising is realised in a more direct fashion. There are services available that enable developers to provide a space for advertising in their app. Adverts are then sourced from a pool of advertisers. This function is managed by a third party who pays the owner of the advert in the app per "impression". An "impression" is the term used to describe the act of a consumer viewing a particular advert.

In this way, the app developer is motivated to provide a "service" which essentially costs them nothing to maintain and yields no intrinsic profit, because they can use such advertising - if done unobtrusively enough – to generate a passive income. That is, Wright pointed out, provided that people use the app. This is the major difficulty in the app market today; developers are trying to work out what makes one app take off while another falls flat, and, more importantly, the best way to make money off apps.

In terms of using such apps to deliver public services (using government apps), Wright had the following to say: "Is it possible? Yes. Is it happening? Not yet. I don't know of any government-based service delivery apps out there, and I think that the lack highlights some very interesting opportunities."

There are some private companies that are essentially playing the middle-man in the delivery of certain services. For example, Wright mentioned a South African based company "Powertime" that has created an app which allows users to create an account and purchase electricity and airtime and the like. It also has some tools which are supposed to calculate your usage and notify you when it is time for you to buy more. Another example would be the Gautrain app, which shows routes and prices, and gives reports on any delays in service.

This could mean a great deal for people, particularly in rural and impoverished areas where the biggest news is not what's happening in Congress or the presidential palace, but what is happening to you and your community

Research into the kinds of South African apps available, apart from those mentioned above, showed the following:

- Entertainment related apps, including a Ster-Kinekor app, a DTSV mobile app and a SuperSport app. Interestingly, all of these are essentially app versions of the companies' websites, and all are largely aimed at providing scheduling information;
- Banking and 'consumer spending' related apps available, including the banking apps mentioned above. These include two interesting apps; one called PriceCheck Mobile, which allows consumers to compare prices in supermarkets and online; and the other called ExpenZa, which tracks a user's spending through monitoring of cellphone banking sms alerts, and logs purchases, allowing users to create budgets easily and painlessly;
- A YellowPages app which allows users to search by category, name or location;
- A SA Flight Info app which gives updates on arrival and departure times at various airports, as well as updates on delays;
- Although there are many more South African apps available, these are the most efficient and useful apps that I could find. Needless to say, none of them directly fill the service delivery needs of our society.

The idea of using applications in a country where more elaborate systems are not available or economical is not a new one. The website "pbs.org's" group blog, "Idea Lab", discusses the idea of using mobile technology in developing countries:

> "What if, […] governments of underdeveloped countries create and provide easy ways to access public information and services on mobile phones with an application or open-source web app […] This could mean a great deal for people, particularly in rural and impoverished areas where the biggest news is not what's happening in Congress or the presidential palace, but what is happening to you and your community […] People could do things like schedule a doctor's appointment or receive notice that a doctor won't be available; find out about grants to improve water conditions in their sector; receive direct information about training programs for growing organic food and the market prices for products they might sell; find out how their kids are doing in a school they attend in the city or if the rural bus system will go this week to the nearest town or not. These are just a few very straightforward examples of useful public

services information that could be available on people's phones. Such availability of information could save time and money for those who lack both things."[3]

All of these ideas could easily be applied in South Africa and potentially make a huge difference to people's lives. Here are a few ideas for South African service delivery apps to add to the ones mentioned above:

- A PayFine application which allows you to view and pay for traffic fines on your cellphone;
- An app which allows for free calls to the municipality to report problems directly;
- An app which shows the evasive and contentious RDP housing "list", so that citizens can see exactly where they stand, and monitor the list, thus creating complete transparency and potentially eliminating corruption;
- A public participation app which would allow for complaints against government to be delivered directly, a lá the "Zuma hotline".

There are many more ideas, all of which are possible with a little bit of effort and financial input.

I discussed this vision with Sam Shapiro who works as a Community Organiser for Equal Education[4] in the Western Cape. He was excited by the possibilities, and took my suggestions a step further. He described to me a mobile mapping of the country's service delivery issues; it would show exactly what issues ordinary people had, and where they were prevalent. This map would provide not only the necessary information to government departments, but also feedback on the issues to the communities. Such a system would be, and will be[5], invaluable.

What Needs to Make it Happen?

The question that arises now is, if all of this is possible, why is it not becoming a reality? The answer is layered. Firstly, the technology is new, and South Africa is in many ways still playing catch-up. Secondly, apps such as these could well be currently under construction, but have "not yet" have been announced to the public. And thirdly, as Wright pointed out, one of the biggest problems with a government-run app is that the government might not see the value of providing such a service, because it wouldn't reach their full demographic of voters, and also because there would inevitably be administration costs that would have to fit into some budget somewhere, or possibly lighten someone's pocket. But, as Wright pointed out, "If a third party was to create the app, and provide one of the services you've suggested, it would be used by consumers extensively, and probably incentivise the government to assimilate it into a policy somewhere."

Despite the apparent current lack of progress in this sector, I do believe that apps such as this would only be beneficial, and that the market for and reach of such apps will only grow in the future.

Jean-Jacques Rousseau said that "The world of reality has its limits; the world of imagination is boundless". Technology is peeling back those limits, and creating room for possibilities that were previously thought to be entirely impossible.

NOTES
1 http://w3.bcn.cat/V01/Serveis/Noticies/V01NoticiesLlistatNoticiesCtl/0,2138,1653_1802_3_1 790424033,00.html?bcnAccessible=true&accio=detall&home=HomeBCN
2 http://www.egov4dev.org/mgovernment/
3 http://www.pbs.org/idealab/2011/10/how-mobile-phones-could-bring-public-services-to-people-in-developing-countries277.html
4 http://www.equaleducation.org.za/
5 Since this initial conversation I have been informed that this application is currently under construction