“The impact of mobile telephony has been far reaching. It touches how we communicate, how we work, how we receive information and how we manage our lives on a daily basis.”

FROM ZERO TO UBIEQUITY

A PROTESTER USES A MOBILE PHONE DURING A MARCH THROUGH CENTRAL CAIRO TOWARD THE CITY’S ICONIC TAHRIR SQUARE
Over the last three decades, mobile telephony has emerged from being technologically possible to globally used in a myriad of recently unimagined ways. Rajesh Chandy and Kamalini Ramdas examine the irresistible creation of the M world.

Some 346 million people worldwide have Type 2 diabetes. Among those leading the fight against the disease is WellDoc. It is the creator of a software-based, mobile medical device cleared by the Food and Drug Administration (FDA) in the United States for use by healthcare providers and their adult patients who have Type 2 diabetes. The WellDoc system includes a virtual coach which is accessible via an individual’s mobile device of choice (mobile phone, tablet, or laptop) allowing users to enter their blood glucose reading into the phone, as well as other diabetes related data, which is then automatically analysed. Based on the data entered, the individual receives contextually relevant, real-time advice via their mobile device about changing diet, touching base with a provider, or other actions they may need to take. The patient data is also available for the relevant health professionals who can provide additional advice.

In a randomised controlled trial, diabetes patients who used the WellDoc system showed an average decline in their A1C hemoglobin of 1.9 percentage points compared to a 0.7-percentage-point decline seen among patients not using the system.

WellDoc was founded in 2005, and will be ready for commercial launch in the US in 2013. The WellDoc system will be prescribed by doctors, and, based on its published outcomes, will be covered by medical insurance. Looking back, WellDoc President and COO Dr. Anand Iyer notes four keys to its success — demonstrated clinical outcomes, endorsement by the health system, availability on multiple technology platforms, and most importantly, being doctor prescribed. In implementing WellDoc, Iyer realised that “the way to monetise this wasn’t as a five-cent app in the app store, but as a high-value system”.

In India, Intuit’s txtWeb mobile platform allows a user to get any information available on the internet — be it stock prices, Wikipedia information, exam results or cricket scores — by sending a specific SMS request from a basic mobile handset. An open platform, txtWeb started life in November 2010. It now receives five million requests a day — sometimes 10 million. Its first app developers were engineering students who created apps to download information from the internet. txtWeb now has over one million monthly active subscribers, for most of whom it is their only way to access the great store of information that is the internet — 90 per cent of mobile phone users in India do not have internet access. Global Business Head Manish Maheshwari points to txtWeb’s broad-based technology platform, clear benefits for users, app developers and firms, such as MakeMyTrip.com that has tailored apps on the platform, and the resulting positive word of mouth, as key drivers of its success.

Many businesses and services today are using mobile technology to tackle some of the world’s most intractable problems. Look at the Google Android or iPhone store and you will discover thousands of such apps. Yet, a substantial majority of these (about 95 per cent according to one of our interviewees) are downloaded, used for a couple of weeks, and then never used again. WellDoc, txtWeb and Kenya’s M-Pesa are among the few businesses in this space which have managed to reach scale. So, what does it take to think up, develop and implement mobile-based services that actually reach scale? And, more broadly, how are and how can mobile phones and services be used as forces for economic and societal good?

A force for good?

The impact of mobile telephony has been far reaching. It touches how we communicate, how we work, how we receive information and how we manage our lives on a daily basis — as a result indirectly improving the day-to-day productivity of both individuals and organisations, and propelling economic growth. Leonard Waverman, former Chair of Economics at London Business School, asserted in his 2005 study, The Power of Communications in Development that an increase of 10 percentage points in mobile phone penetration “implies a 0.6 percentage point difference in the
growth rates between otherwise identical developing nations”.

Aside from this productivity impact, mobile applications have had direct social impact through social services such as healthcare and education. While the indirect impact of mobiles is significant, we will focus for the most part on the direct social impact of mobiles. Where we examine productivity gains, it is in contexts — such as in the developing world — where the beneficiaries of these gains are the poor.

“The problems facing the bottom-of-the-pyramid, are complex and multi-faceted. The poor’s ability to access quality healthcare, drink clean water, use adequate sanitation facilities, learn from qualified teachers, securely conduct financial transactions, and so on, are challenging issues that will continue to need the world’s brightest minds, a significant amount of resource and a myriad of strategies. The mobile phone is not a magic bullet to eradicate poverty or the issues that exist in impoverished households,” says M. Yasmina McCarty, Senior Manager for the Mobile Money for the Unbanked (MMU) programme at the GSM Association. “But, the mobile phone in emerging markets is unequivocally the most valuable tool for the economic advancement of the poor. The mobile phone is an infrastructure which has given the poor access to the services they need to create a more promising tomorrow.”

What’s special about mobile phones?
Amid the profusion of bright ideas and brilliant technology it is easy to forget what is so unique about mobile phones. Fundamentally, they permit the sharing of information quickly and nomadically (without tying the sender and the recipient to a particular location).

Senders and recipients of mobile-based information can include both individuals and machines. Unlike other paradigm shifting technologies, such as the telegraph or personal computers, mobiles go everywhere with you. As a result, among other things, they are perfect for initiating behavioural and social change. Mobile phones proved a powerful organisational tool in the Arab Spring.

Also as a consequence of going everywhere with you, mobiles have unleashed a huge user-driven need for simplification and virtually instant access to previously complex technological services. Information systems expert Dr. Kanav Kahol cites photo editing as a case in point. “Photo editing and Photoshop have been around for a while, but still required a computer and a specialist to run the software. The proliferation of mobile phones then changed things. Everyone suddenly wanted to add different colours to photos, to edit them to make the subjects look younger or older and so on. We used to think, ‘Why would an individual want to do that?’ Suddenly mobiles came and everybody wanted to do it.”

In addition, mobile technology enables a variety of applications and previously unavailable services built on the mobile phone platform. Mobile technology can also monitor the usage of a variety of traditional services — such as electric or water utilities — through machine-to-machine communication. And by virtue of being with you all the time, mobiles make the human-machine symbiosis that computers also exhibit a much greater force.

“I find it very exciting that things that were generally done by specialists — things like video and photo editing — all of that has become so much easier and accessible,” says Kanav Kahol. “Mobiles are a major catalyst in what I call human machine symbiosis, where humans and machines are working together to a collective conscience that is beyond what individually we can do. Often, back in the 1970s and 1980s, technology was about replacing humans, but what I think mobiles are leading to is a methodology where humans and machines are essentially working together for each other’s benefit. There’s a nice symbiotic relationship when you search on
Google: it helps you but, by searching on Google, you also help Google. That is one of the most exciting parts about how essentially this is leading to a wide social network that goes beyond human-human contact.”

Finally, advanced mobile technology automatically records the location of both sender and recipient. This, combined with their nomadic character, is the fount of a variety of applications that cannot be run off other communication technologies, such as fiber optic cable.

Of course, every technology has its unwelcome side effects. The sheer versatility and ubiquity of mobile phones means that they have also proved useful for criminals and terrorists. In addition, mobile phones have fuelled the frequently observed tendency for “busyness”. Being able to check emails constantly can be a curse — but it remains, fundamentally, a choice.

How we got here

The changes are such — and the opportunities they create so enormous — that it is easy to forget that mobile telephony remains in its commercial infancy. The first mobile phones had extremely limited battery life and prohibitively expensive call rates. There were other drawbacks. Motorola's Dyna-TAC (DYNamic Adaptive Total Area Coverage) came on the market in 1983. It weighed one kilogram, offered 30 minutes of talk time, took ten hours to recharge and was priced at $3,995. (The iPhone 5, launched in 2012, weighs a mere 112 grams and has up to eight hours of talk time. Although the full price of the iPhone 5 is around US$800, innovative financial models make it much more affordable — when bundled with a monthly contract which effectively finances the phone over 24 months, the iPhone is available in the United States for as little as $199. This type of cross-subsidy encourages people to join the network, making the network more valuable for all users.)

Thankfully, during the 1990s, call rates dropped, battery life extended and networks expanded beyond the initial 1G infrastructure. As a result, the mobile phone found its way into mainstream Western society.

In 1982, there were 4.6 billion people in the world, and not a single mobile phone subscriber. Today, there are seven billion people in the world — and six billion mobile phone subscriptions. As with many technologies, the explosion began in the world’s most developed countries. At the start of the millennium, 70 per cent of mobile subscriptions were located in high-income economies.

“But then something happened,” says M. Yasmina McCarty, of the Mobile Money for the Unbanked programme. “The cost of handsets started dropping. And not by a little, but by a lot. A reliable handset in sub-Saharan Africa reached the rock bottom price of $20.” Today prices have dropped even further, to $10 for a basic 2G handset with voice and data only, $70 for a low cost smartphone and $120 for a low cost tablet. And many operators subsidise phones even at the low-end price points.

Of course, cheap hardware alone was not enough. Voice calls and SMS messages needed to be made...
available in affordable pay-as-you-go packages. And base stations needed to be installed in remote corners of the globe. Mobile Network Operators in emerging markets succeeded in both areas, attracting the necessary capital to build national mobile phone tower infrastructure and designing tiered distribution structures to have airtime scratch cards sold far and wide.

Where we stand
Our research on mobile applications for social benefit focuses on four sectors where the range of global initiatives and businesses is especially impressive: education, finance, agriculture and healthcare.

01
Education
The research on the use of mobiles in education suggests that there are several promising opportunities. For example, Jenny Aker of the Center for Global Development and two colleagues reported on a randomised controlled trial in which adult students were enrolled into literacy and numeracy courses in a randomly selected set of villages in each of two districts in Niger, and in a randomly selected subset of villages offering these courses students were also taught how to use the mobile phone. Students who learned to use the mobile phone did significantly better than those who did not in their numeracy test scores, both right after the course ended and after a period of six months, suggesting that mobile phone usage helps with learning numeracy, a fundamental life skill. It is hardly surprising that many organisations are starting to step into the mobile education arena. For example, the Vodafone Egypt Foundation, along with UNESCO and several other partners has launched a five-year programme to eradicate illiteracy in Egypt. With some 774 million illiterate adults and nearly 7 million out-of-school children worldwide, the mobile phone is a valuable conduit of educational materials. Despite the positive measured impact recorded in studies, there are few instances in which mobile services in the education arena have scaled up in the West or in developing nations. One such mLearning initiative, BBC Janala, launched in Bangladesh for English tutorials, had three million paid subscribers just nine months after launch. Interestingly, in countries like Korea and Japan, which have a very dense mobile tower network and low service rates, educational content including videos provided via mobile phones has taken off in a very big way.

02
Finance
This is probably the best known and most successful area for mobile phone initiatives. Four years ago, fewer than 10 per cent of Kenya’s citizens had a bank account; now almost 60 per cent effectively have an account, although most citizens have never set foot in a bank building. In Kenya, the most popular means of moving money from one individual to another is not via online banking, a visit to a branch or a cheque. Instead, people move money using their mobile phones. M-Pesa — the M stands for mobile, and Pesa is Swahili for money — is a joint venture between Vodafone and Kenya’s Safaricom. Today, eight-year-old M-Pesa has 14.9 million registered customers and can be accessed at over 39,000 points of service. M-Pesa has become integral to everyday life in Kenya for sending money home to family members, buying and selling goods for trade, loading money on the phone before travelling on business trips, paying bills, and much more. The M-Pesa system now transfers the equivalent of 10 per cent of Kenya’s GDP every year. And, as of November 2012, M-Pesa customers in Kenya have access to interest-bearing savings accounts and have the ability to take out small loans through a new related service, M-Shwari. In many countries across Africa and Asia, a growing form of currency is mobile phone airtime. You can send your friend or relative airtime using your mobile phone and that person can then go to an agent who deals in airtime and cash out your gift. (The ability of this concept to reach scale depends on the attitude of regulators.) There are many other opportunities linking mobile phones to finance in Africa. “The next step is financial services and the whole range of financial services, savings, loans, insurance, all these kinds of things,” anticipates Michael Joseph, former CEO of Safaricom and now Director of Mobile Money at Vodafone. “The
next big thing will be insurance, and not just life insurance, but health insurance, accident insurance, disaster insurance, via SMS.”

Working with a bank, Safaricom is now offering a savings and loans programme. No sign up is required. Everyone who opts in instantly has a savings account. “The best thing is it encourages a savings culture because you can then borrow once you have built up a savings history and have instant credit. One will finance the other,” says Joseph.

Elsewhere, the Grameen Foundation is changing the economic landscape of many developing countries as it assists with microfinancing options related to mobile phones. For example, in Uganda, Grameen is leasing mobile phones to farmers so that they can serve as local relays for vitally important information, such as crop and market prices, advice on when to plant crops, and data on current diseases. These farmers can then relay their own information back to Grameen to pass on to other regional and national agriculture organisations.

While there have been some immensely successful mobile applications for social benefit in the finance sector, there is relatively little academic research on these highly successful applications. This makes sense at one level — randomised controlled trials (RCTs) or retrospective studies to establish proof of concept are most useful when funding or policy regulations that affect uptake and scalability of a service depend on, or can be swayed by, the outcome of the research. Trials for medical applications are a good example.

Research studies are also useful if the benefit, or the source of the benefit, from a mobile application is not easy to predict in advance. In financial services, for example, Jenny Aker and three colleagues conducted a RCT to determine the best way to deliver funding to natural disaster victims — manually in cash or via mobile money transfer. Not surprisingly, mobile transfers can be disbursed and collected more efficiently than cash. More interestingly, they result in funds being used for a more diverse set of activities including improved diets, likely due to greater privacy in mobile transfers — empowering women to make purchasing decisions.

On the other hand, for services which provide a very clear user value proposition by eliminating a pain point, that are able to attract funding, and are not subject to intense regulatory hurdles in their country of launch, the need of proof of concept through research is less relevant. What can be more useful in the latter case is research that examines these cases to understand the recipe for success, and how it can be replicated in other settings or other countries. For example, we have documented the key reasons for the rapid spread of M-Pesa. The World Bank’s Maximizing Mobile Report (2012) also clarifies what results in successful applications.

“While there have been some immensely successful mobile applications for social benefit in the finance sector, there is relatively little academic research on these highly successful applications.”

Agriculture
In most developing countries, people who make a living through ploughing the land or fishing the seas have traditionally been among the poorest and least informed segments of society, at a great informational and operational disadvantage relative to middlemen who are better informed and have better transport and storage facilities. In an early study in 2008, Michael Jensen showed significant impact from the introduction of mobile phones in the South Indian coastal state of Kerala. This powerful retrospective study used variation in the timing of rollout of mobile phones over neighbouring districts to tease out the impact of mobile access on the livelihoods of local fishermen. Rather than bring their catch to their local market, mobile phones enabled fishermen to determine which market had the highest demand.
With almost 30 per cent of photos today taken on smartphones, the opportunity for consumers to benefit from the convenience of printing their memories to Walgreens through a variety of photo apps is tremendous.

(RML) is one such, attempting to help those at the bottom of the economic pyramid through a business that offers customised, localised and personalised weather forecasts, crop prices and local agricultural news via short text messages on mobile phones to Indian farmers.

More than 250 million people work in Indian agriculture. RML’s goal is to aid those farmers — and to grow a successful business at the same time. RML currently operates in 13 states in India, reaching an estimated one million farmers in some 25,000 villages. The information it provides covers 400 different crop types, 1,500 different markets and 3,000 weather locations. And all of that is delivered to the farmers partly in text and partly in voice, based on individual preferences. RML gives farmers information they want about the crops they are interested in, locations of markets they can use and weather forecasts — all in the language preferred by each customer.

Teasing out the benefit of such services over and above access to a mobile phone is tricky, since users of targeted information services also use their phones to call friends or relatives for information. London Business School research took advantage of a natural experiment where mass text messages were unexpectedly banned by the Indian government for two weeks in 2010 as a precaution against violence surrounding the verdict of a centuries old Hindu-Muslim property dispute. The research found that the RML service brings an additional 5 per cent reduction in price dispersion over and above the benefits obtained by having access to a mobile phone. The effect of this service is greatest for perishable crops — RML essentially reduces the higher risk associated with high-value perishable crops. This study suggests that there are significant gains yet to be realised, from successful information apps built...
on the mobile infrastructure, both in agriculture and in other settings.

04

Healthcare

Nowhere is the range of opportunities clearer than in mHealth. Products like WellDoc record patient biometrics and send them to a secure, cloud-based analytic engine, providing individualised coaching for patients and clinical decision support to their clinicians. DuoFertility uses mobile technology to help couples with fertility problems. Remote monitoring and control centres use mobile technology to monitor hundreds of hospitals. Perhaps unsurprisingly, healthcare is also the sector that has drawn the greatest amount of research attention — with several entire academic journals devoted to mHealth.

The mobile technology used in healthcare is often basic — but powerful. In India, patients can visit Dr Lal PathLabs, one of the country’s best know pathology laboratories, and leave a blood sample in the morning. They then SMS a number at 6pm and receive their results by SMS.

Take Walgreens, the largest American retail pharmacy chain. It has over 7,000 stores and fulfills an astonishing 784 million prescriptions in a year. But, while the firm was founded in 1901, over a century ago, there is nothing antiquated about its customer service.

For example, if you are a Walgreens customer with a mobile phone, there is no need to wait around in a long queue to see if your prescription is ready. As of the beginning of 2012, some 40 per cent of the retail chain's prescription refills came via mobile scanning. Customers can use an SMS text messaging app to order their medicines, and then get an alert when they are ready to be collected. For the busy, or absent minded, Walgreens' service even reminds you when your repeat prescription is due.

In 2012 more than two million customers were interacting with Walgreens via SMS. “This solves the number one pain point when someone is sick — they want their prescriptions and they want to leave quickly,” said Abhi Dhar, Walgreens e-commerce Chief Technology Officer. “People really appreciate the fact that we are trying to remind them to maintain their medicine regimen.

We also realised that store associates appreciate the convenience.”

And the firm embraces mobile technology in other ways. In July, 2012, Walgreens announced that it would be opening up a software developer portal to allow third-party developers to integrate the Walgreens QuickPrints software development kit (SDK), into its apps. QuickPrints enables mobile users with iPhone, Android and Blackberry mobile devices, to print photos directly from their phone to Walgreens stores.

“With almost 30 per cent of photos today taken on smartphones, and the popularity of photo applications growing, the opportunity for consumers to benefit from the convenience of printing their memories to Walgreens through a variety of photo apps is tremendous,” said Jasbir Patel, Senior Director of Walgreens Photo.

Text messaging has the possibility of bridging patients with the healthcare they need in developing countries. Medic Mobile, for example, is a non-profit organisation dedicated to creating and expanding programmes that can be implemented on any mobile phone in the world. Older phones may not have touchscreens, but they can be used to text, and text messaging can be used to help locate the victims of disasters, track the path of disease outbreaks and more. Medic Mobile’s CEO worked with the US State Department after the devastating earthquake in Haiti in 2010 to allow victims to text to the number 4636 and request assistance. They ultimately handled 80,000 text messages in a three-week period.

Education, finance, agriculture and healthcare dominate but, of course, mobile phones are also used in other areas. For example, in Tokyo, office workers go to work armed with the knowledge that if there is an earthquake or tremor they will receive a ten-second warning before it happens via their mobile phone. At times in the aftermath of the 2010 earthquake and tsunami, Tokyo was experiencing more than a dozen tremors a day. Technology developed by the Japanese company Fujitsu connects seismic data to mobile phones. The same technology ensures that Japan’s bullet trains brake automatically when an earthquake is expected. The ambition is to improve
the technology so that people receive a much longer warning in the future.

Getting to scale
There are many other such intriguing, practical and potentially world changing examples. But, what does this firmament of bright ideas, smart technology and investment add up to? The answer is disappointing, much more disappointing than many think. While the array of initiatives and opportunities is striking, it is notable that few have achieved significant scale in their activities. There is an incredibly dispersed range of people and companies doing interesting and innovative things. But, to date, few have really achieved commercial and popular scale.

From our interviews, we found that the seeds to scale need to be sown very early in the process from idea to successful implementation. The biggest factors that separate the few services that have succeeded in reaching scale from the many that have as yet been unable to do so cover four stages: ideation, development, launch and scale up.

Ideation
Why do we see thousands of one-off services and apps, with little staying power? Even at the stage of coming up with ideas — ideation — organisations need to push their innovation teams to think big — to identify opportunities that move beyond the comfort zone of known markets, industry and technology borders.

At the same time, to address the needs of the bottom of the pyramid, organisations need to think small when it comes to the size of the product or service. Just as companies like Unilever created single serving sizes of physical goods like shampoos and soaps, the mobile phone enables “bite-sizing” of traditionally expensive services into bits that the bottom of the pyramid can afford. In Bangladesh, BBC Janala’s three-minute mobile English lessons are equivalent to the cost of a cup of tea and accessible to those living on less than two dollars a day.

Thinking small applies equally to the size of the payment for a product or service. The mobile phone enables pay-as-you-go, in other words, converting a product into a service with a much more palatable price tag.

In Kenya, the potential of thinking small can be seen in a Safaricom initiative with Grundfos, the water pump manufacturer. Pumps have been installed in Kenyan villages. Users pay for clean ground water using their M-Pesa accounts. Five litres of water costs 20 shillings. Users transfer money from M-Pesa to an electronic token which is then held against the water pump. As long as you hold it, water comes out. “With the Grundfos Foundation, we built this product which enabled people to buy their water in tiny increments,” says former Safaricom CEO, Michael Joseph.

“Many charities have gone into Kenya and installed pumps and windmills and all sorts of things for free. In the end they are lying derelict.”

platform allows a user to get any information available on the internet by sending an SMS. So it’s important to find the right match between what infrastructure a service needs, and what is available. At the same time, innovators need to remember that developing economies are rapidly bridging the technology divide.

Many products fail due to misunderstanding of user needs. Dr. Kanav Kahol who has built a healthcare platform for chronic disease management on a tablet, observes: “We did a survey in rural India and asked what would you do if your daughter is sick and the doctor is 32 kilometres away and you’ll have to take a bus? Eighty per cent said ‘we’ll go to the doctor.’ They did not want telemedicine because it’s a secondary experience. So it’s one of those conundrums of dealing with health, that while people want low cost, they don’t want low quality. So we really have to adapt to the principle of MLM, more for less for more.
Don Jones, Vice President of Global Strategy and Market Development at Qualcomm Life. “And that starts with something as simple as learning how to communicate with your customers in the forms that they’re communicating with. Healthcare is still stuck on the telephone and fax machines. “People will only tolerate so many buttons in their lives,” he adds. “The apps that capture the imagination and provide a useful function, even if it’s for mundane features in healthcare, and then constantly strive to add more and more services, will eventually own the customer relationship.”

**Development**

Any successful service must create value to its users — be it through solving an immediate problem, or through benefits that accrue from long-term behavioural change — and do so at a price that is affordable by the target market.

But even a service that clearly provides value to its users can fail if its business model does not deliver value to the organisations involved in creating and delivering it. Since successful services often cross industry divides, private/public philanthropic funding and structural chasms, or combine different technology sources, it is important to figure out how to increase the size of the pie across all stakeholders and deliver value to each stakeholder.

Organisations that have reached scale often do not make money on the basic app or service. The basic app may be a beachhead to win consumer trust and build a brand. Walgreens’ prescription refill app is the forerunner of a variety of medical, as opposed to pharmacy services. M-Pesa is earning through increased texts and

You’ve got to give more services for less money to more people, and that’s the model that the telecom revolution was based on.” In short, mobile apps and services need to complement existing services to produce results that are better, not just cheaper.

Time and time again in our research interviews, people emphasised that the businesses and applications which would succeed were those which sought to build relationships with end-users.

Walgreens is a case in point. Its prescription refill app provides a simple yet clear patient benefit, and is the starting point for a relationship of trust, on which many other products and services can be layered. “I would say to healthcare providers, you have to start thinking along the line of customer acquisition and customer retention. And you have to start thinking about what tools can you put in place to both make that more enjoyable but also increase patient acquisition and retention,” says

As of 2012, 85 per cent of Americans had a mobile phone. In contrast, 58 per cent have a desktop computer; 61 per cent a laptop computer; 18 per cent an ebook reader; and 18 per cent a tablet computer.

Historically, a technology that reaches saturation in rich countries still spreads through the developing world only in correlation to each country’s state of development. In 1963, researchers famously mapped the GDP of nations against their “teledensity”, the prevalence of landline telephones. The data showed just this effect, which is known as the Jipp Curve.

The mobile phone, however, is a landmark: over the last decade, the correlation between wealth and teledensity has been completely transformed.

According to the International Telecommunications Union, in 2001 the developed world had six times as many mobile subscriptions per capita as the developing world. By 2011, that gap had collapsed to just 50 per cent more phones per capita, and it continues to narrow substantially. Of the world’s six billion mobile phone subscriptions, 73 per cent are now in the developing world, even though those countries account for just 20 per cent of the world’s GDP.

**6 billion**

Mobile phone subscribers

**85%**

of Americans have a mobile phone

**73%**

of the world’s mobile phone subscriptions, are now in the developing world

Alexander Graham Bell
BASIC POWER

Not everybody has a smartphone. Far from it. While there are just over one billion smartphones in use, many billions of people use mobile phones with much more basic functionality. And that number is growing. For the majority of these people, the internet is off limits. The World Wide Web, that has transformed 21st century life for so many people, might as well not exist.

But not any longer. With its award winning txtWeb platform, software firm Intuit is bringing the internet to the masses, starting with the emerging markets. txtWeb, launched in India in November 2010, allows users to access bite-sized chunks of information on the internet via SMS. An individual can use txtWeb apps to access information in different topics with even the most basic mobile phone. And it’s useful too for those with smartphones, but without data plans, or who live in areas where transfer speeds render internet use pointless. It is a vision with a grand sweep — to further democratise knowledge, and give billions access to an information revolution that has, until now, passed them by.

txtWeb is an open platform, enabling anyone to develop an app and make it available for users. The process for publishers and developers is quick and comparatively simple; to build and deploy an SMS app on txtWeb takes about five hours according to the official literature. The number of apps available is growing steadily, with over 5,000 apps available. Users can access information on everything from local market prices, to Wikipedia content. More are being actively encouraged. For example, txtWeb ran a competition, AppCafe, which ended in September 2012, to encourage app writing by Indian nationals, one of its biggest user bases.

It is early days, but if the service gains traction it will provide companies with an electronic information superhighway for many people living in emerging economies, who are currently stranded on the hard shoulder.

Billions of potential customers in the emerging economies

txtWeb launched in India 2010

5,000 apps available and growing steadily

voice usage, and services such as the association with Grundfos. Insurance may soon be added to this mix.

A successful mobile service can serve as a gateway to the customer, through which a variety of sometimes unrelated services can be sold. Looking across industry borders for such opportunities is important.

At the same time, products that can be used on an iPhone, Android, a laptop and a tablet are more likely to gain scale than single-platform solutions. “Too often we find that these solutions are confined to a single technology platform. For example, an iPhone app. Well, that means you have to have an iPhone. How do you then cater to all of the people around the world who may have a chronic health condition but who may not have access to an iPhone, and who may not have the socio-economic ability to afford one?” asks Anand Iyer of WellDoc. “These solutions have to be operable on multiple platforms to let patients, providers and stakeholders access these solutions through the technologies that they’re most comfortable with, and certainly the technology that they have access to. There’s a certain amount of operational ability required and these solutions have to be almost agnostic to technology platforms. To actually sustain a business, you can’t have a single, uni-directional approach. It has to be a broader platform approach.”

Launch

Managerial readiness is often underestimated, says RML’s Amit Mehra: “Two different kinds of teams are needed. There’s a team that is comfortable with failing early, failing often, moving quickly, moving rapidly, prototype testing, all of that, and also a team that is more stable, which builds processes, which builds long-term predictability into the business. Innovation and scale, in the early stages of a business, need to be kept separate.”

It’s also about patience. “The secret of success is, first you need to have distribution; then you have to have a trusted brand. And you must never break that trust — never, never, never break the trust. And then you have to have the determination to see it through, you have to,” says Vodafone’s Michael Joseph.

Some of the greatest success stories have benefited greatly from positive word of mouth feedback from enthusiastic users. In particular, many-to-many information services that create a platform through which thousands of individuals can communicate with others, have huge word of mouth gains. Ushahidi (see “Crowd and proud”, page 28) is a case in point. On the other hand, people typically don’t want to talk about their health problems, even if they’re using a really cool app. So mobile healthcare services need to look to other means to draw in new customers, like taking advantage of existing market relationships or trying benefits from other sectors.

Scale up

Clever decisions can trigger low cost discovery of an app or service by its potential users. Safaricom in Kenya required users to check their balances by SMS when they had topped up their pre-paid phones. This was free of charge, but that encouraged people to begin to use text messages. “Somewhere it created an SMS culture because people who previously had never used SMS had to,” says Michael Joseph. Discovery costs can also be reduced by piggybacking off existing channels. Walgreens used the muscle power of its well established standard channels to roll out its prescription refill app.

A sustainable business model also requires streamlined processes for low cost and smooth operations. This requires patience and an acceptance that things will go wrong, but need to be handled as positively and proactively as possible. “In the early days, M-Pesa was sometimes a disaster because the software couldn’t cope with the volume,” admits Michael Joseph. “A few times, we had to go and say ‘sorry, the system’s down.’ And people believe that you’re going to fix it for them, you’re not going to steal their money. On a few occasions when the system did go down and there was some sort of vagueness about whether transactions went through or not during that time, we refunded everybody their money whether the transaction went through or not. I didn’t want anybody to lose faith in the system. And that’s the way you build your credibility.”
What roles do governments and funding agencies play?

It is worth adding that the fundamental importance of a stable and predictable legal and regulatory environment that ensures incentives for investment cannot be overstated. Governments can also serve as the meeting point that connects international funding sources with local grassroots organisations and start-ups. In addition, governments and funding bodies can be important in prioritising efforts — helping move away from the thousands of independent and siloed efforts we see today.

Last but not least, governments can play a huge role by themselves being a source of demand for mobile services, and by spurring their citizens to make the transition to using mobile-based services. This is true both in developing and in developed nations. When the government requires you to pay for parking via mobile phone, you must embrace the app economy.

Nervous energy

While thousands of mobile apps and mobile-enabled services have been launched to date, our research suggests that the applications of mobile technology for good is only in its infancy. As with any transformative technology, the early years of the mobile era have been tumultuous, with consumers, firms, governments and funding agencies scrambling to find their way through the seemingly endless maze of opportunities that have unfolded. While there have been many blind alleys, a few services — M-Pesa, WellDoc and txtWeb are cases in point — have shown that there is a path to creating societal value and firm value in the mobile world.

A hundred years ago Samuel Morse said of his invention, the telegraph: “It would not be long ere the whole surface of this country would be channelled for those nerves which are to diffuse, with the speed of thought, a knowledge of all that is occurring throughout the land, making, in fact, one neighbourhood of the whole country.” Fuelled with the power of mobile technology, we are poised today to see his vision realised, not just for any one country, but for the whole world.

RESOURCES


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