May-August 2009

Double Issue

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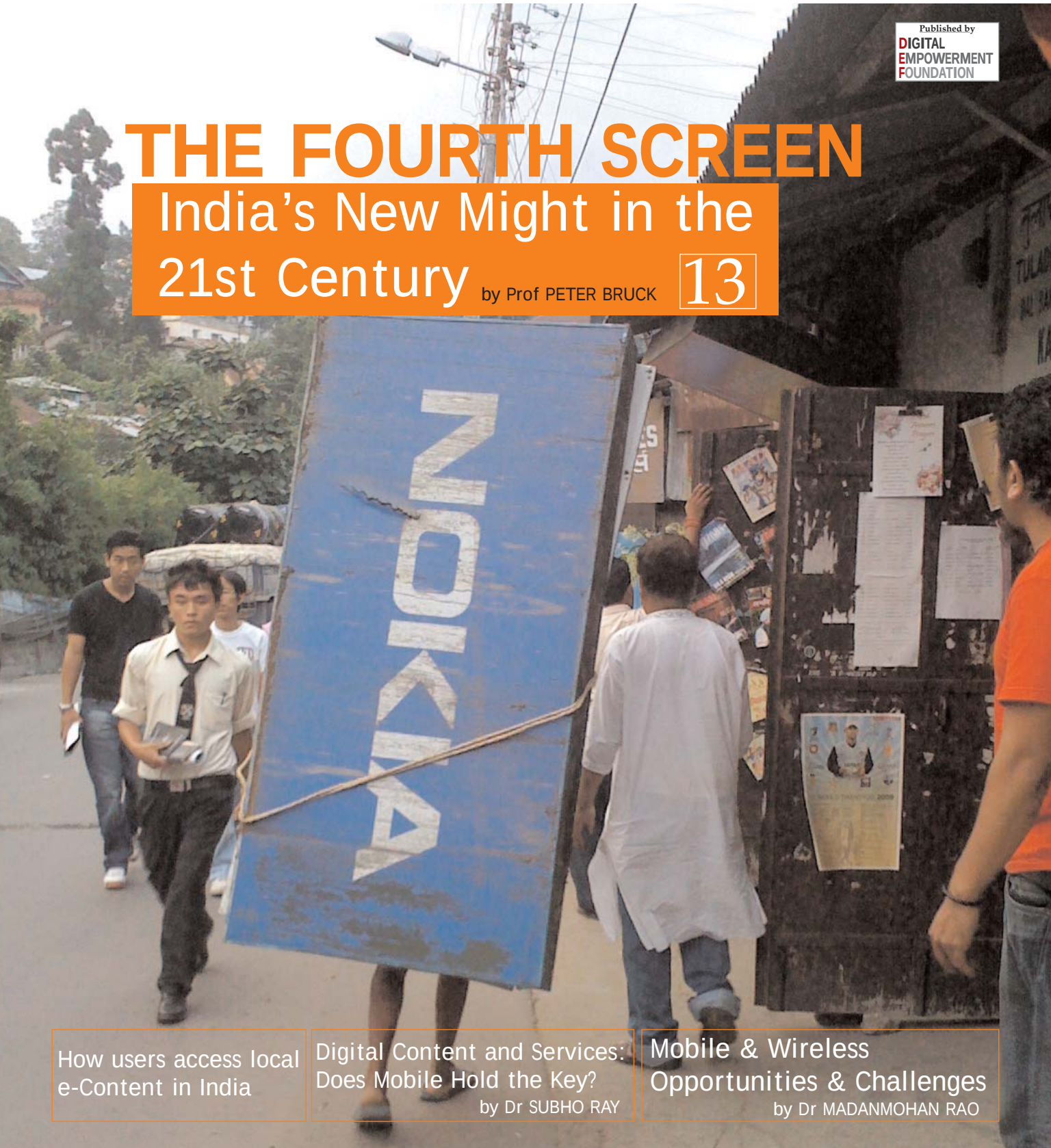

THE FOURTH SCREEN

India's New Might in the 21st Century

by Prof PETER BRUCK 13

How users access local e-Content in India

Digital Content and Services: Does Mobile Hold the Key?
by Dr SUBHO RAY

Mobile & Wireless Opportunities & Challenges
by Dr MADANMOHAN RAO

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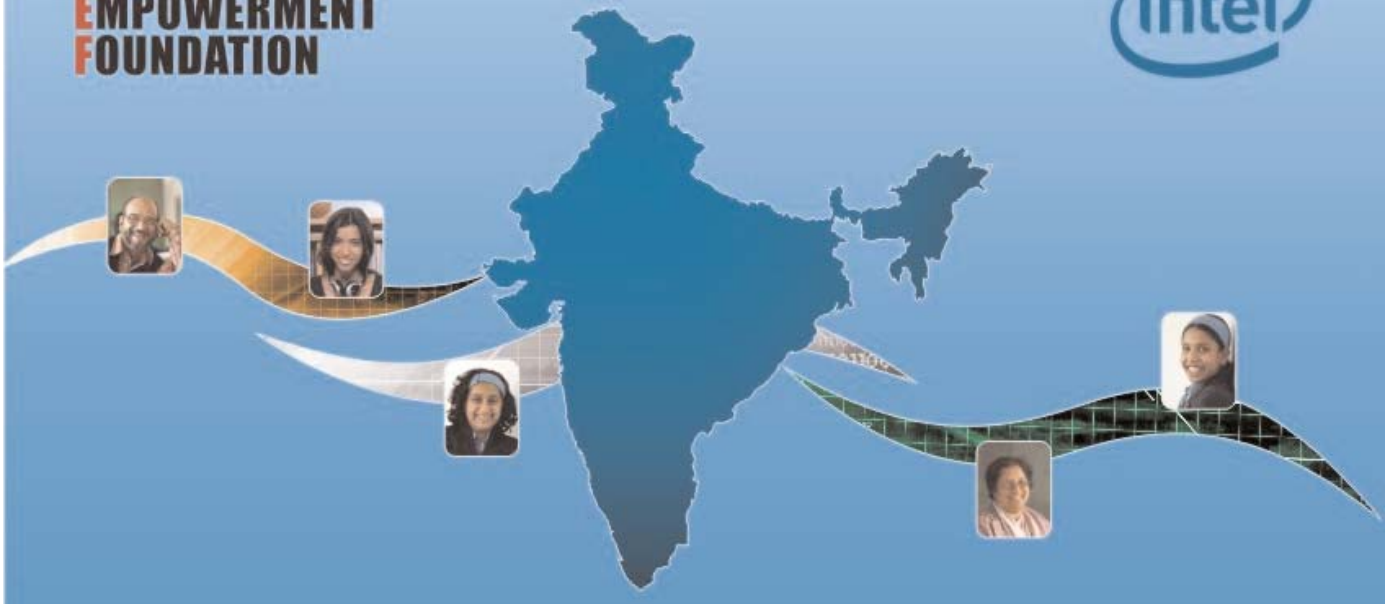

CAN A BILLION INDIANS GET CONNECTED?

The fastest way to spread prosperity in the country is to connect citizens to information, ideas, people, capital & services. The Connected Indian Movement aims to do just that, and will be the catalyst for delivering the power of the Internet into the hands of a billion Indians.

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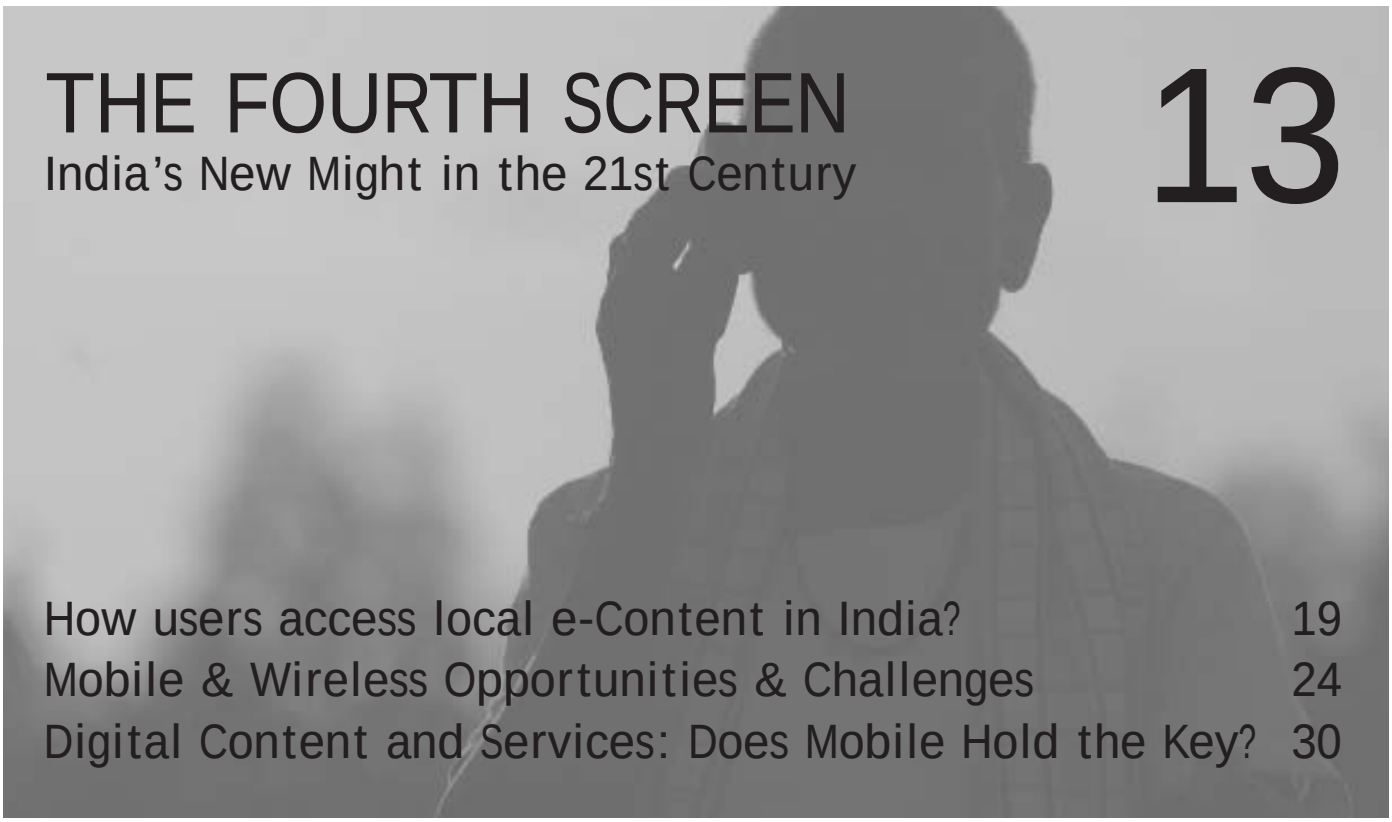

THE FOURTH SCREEN
India's New Might in the 21st Century

13

Photo: BMA, Bangalore

I May-August 2009 I

dCONTENT
Enabling Development through Digital Content

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Cover Photograph: Osama Manzar

We still do not have a single website of any public represented constituency

Dear Mr Pilot,

Namaste and welcome to the position of higher responsibility. I would like to go back to 2005 and 2006, when you were the only MP in the country whom DEF invited to preside over the proceedings of India's and South Asia's only award that focuses on "Digital Content & Social Inclusion" - The Manthan Award. Followed by that, DEF also worked with you to demonstrate India's first and only constituency portal for Dausa. Unfortunately, things are still as worse even 4 years down the line as they were then.

We still do not have even a single official or unofficial website of any public represented constituency. We have 542 MPs and there is no constituency portal. We have 4018 MLAs and not a single portal representing their constituencies. We have approximately 271000 Sarpanches in the country, but all Panchayats' corner available on Panchayati Raj website has zero content.

The issue is alarming and dangerous, here is why:

- If you look at all the media, other than website or internet, there is no other media which is permanent and where people can access and publish the content anytime anywhere.

- In the times where RTI is an Act and all public represented offices and officers have to put all the information open and available, web is the only medium which can be utilized for this purpose for effective relevance.

- Most of the ministries and departments are doing that but what about the same trend not followed by Sarpanches, MLAs and MPs who are elected by people to represent their area, their problems and issues and their needs? How are they spending the MPLAD fund? What questions and queries are they posing in the assembly and parliament?

- Intentionally or unintentionally, the entire e-government focus has been more on administrative governance and not on elective or public representative governance and thus all those areas and their representatives elected by people are at large and hardly accountable for their promises and responsibilities, which can only be possible if the elected representatives use medium like web and Internet for transparency between them and their people.

- Incidentally, if one looks at the MPLAD fund document, there is no provisioning of spending MPLAD fund on any electronic initiative, but mostly infrastructurally; unfortunately, having a compulsory website for each constituency is far from being considered infrastructural and necessary governance and public grievance redressal medium.

- India is one of the poorest countries

in the world as far as its presence on the web is concerned; which means in a knowledge driven economy, India is poor in creating digital content.

What can be done?
Our suggestion is, and DIT is best placed to take the leadership:

1. Drive to find a way that each and every constituency has a website and the allocation of fund to keep it updated. RESULT: Within no time we will have 271 000 Panchayats, 4011 Assembly constituencies and 542 Parliamentary constituencies on the web and India would have a global visibility about all its big and small locations and their functioning.

2. To make it mandatory to have allocation of fund for digital content creation under all panchayat, MPLAD funds.

3. Exploit and deliver all citizen services through oral medium, such as TV, Radio, Telephone, Mobiles; these together reach more than 900 million people with perhaps 25 per cent overlap. Using oral medium would directly enable to reach the hinterland of India.

4. Make it mandatory for all the government departments, not only to have websites, but also follow minimum standard of content, design, usability and also get regularly updated. More than 60 per cent of district websites (managed by NIC) and other government websites are stale, dated and ugly.

It must be understood that if the country has to be digitally visible, it is the government which has to be proactive, because it is she who owns, create maximum content and deliver maximum services.

There is no other solution for becoming a leading country in the 21st century than giving digital bottom up.

Osama Manzar

d-CONTENT caselet

Can Nokia make mobile enough affordable to the last man on the street?

These photos were taken in the main market of Kalimpong, West Bengal, India. A laborer is carrying a Nokia advertisement board to its location in the next street. When asked whether he knows Nokia or has ever used a mobile phone, the answer was NO!

Photos & Text: Osama Manzar

Following are some of the bimonthly developments in the domain of digital content, services, and ICT for development

Digital Technologies Invoke End of Book Era

The-Times.co.UK has triggered an interesting debate about how the burgeoning digital technologies are affecting the traditional book selling and buying industry via the large niche bookshops. The recently launched Expresso Book Machine, Amazon, Kindle, Sony etc. all are combining to change, perhaps for ever, the traditional habit of visiting the favourite bookshop, hunting for the title and the thrill of buying that prized possession.

Internet, Digital Gadgets Indispensable Now

In an interesting survey in UK, it has been found out that people would rather cut on food and school uniforms than access to the Internet, mobile phones and other digital gadgets with an average family spending about 10% of their incomes on connected technologies. It shows how important digital gadgets and being connected have become for them.

Only Online Admission In Mumbai

The year 2009 marks a significant development in Mumbai metropolitan region colleges as forms for admission into junior colleges can be downloaded only through a dedicated website and no physical procuring of admission forms through colleges is provided. A nominal fee of Rs. 125/- is to be deposited with the filled up downloaded form at the nearest college of residence. A dedicated helpline is also being established for students.

Content: Key to Computer Animation Films in India

Computer generated animation films are albeit growing in India but rather slowly and an article in the eWorld section of The Hindu.com says that original Indian content could be key to its adaptability and acceptance at the larger level here. Hitherto foreign animation film's pre and post production work is done in the country and not the main films. But many quality outputs later, efforts are on to bring the whole computer animation film culture here in the country itself.

Log on To Internet While On Trains

A move is afoot to provide high speed Internet connection in moving trains in India soon. A successful trial run has already been conducted in this regard. LCD screens and other audio-video entertainment in running trains are also on the agenda.

Computer To Take Quiz With Humans

A new computer programme developed by IBM is thought to be intelligent enough to tackle human questions from a diverse field and in fact compete with humans in a TV quiz show. It may be recalled that IBM's Deep Blue defeated then chess world champion Gary Kasparaov in a match. This marks an important step in artificial intelligence development and could have serious ramifications as far as web search goes.

Every House Can Use Computers Here

In a classic case of end finding means, there is a district in Kerala, India where at least one person in each household can use the Internet, thanks to many Akshaya Kendras (289) in this southern Indian state. Almost every household has a relative working in the Middle East and this necessity of keeping in touch with relatives combined with the high cost of ISD phone usages has prompted everybody to learn emailing and other web related ways.

Cinema As A Learning Tool In India

A new use of popular cinema is being witnessed these days in India. The powerful audio-video medium is being utilised as an educational tool to impart lessons which text-books sometimes don't seem to convey so easily.

Learn To Use EVMs On YouTube

In a digital developmental move that is aimed to enlighten voters on ways of using the Electronic Voting Machine (EVM), the Delhi state election office had uploaded a video at popular video sharing site YouTube targeted at mainly metropolitan Internet savvy users of the national capital of India and others in the country.

World Digital Library From UN To Open

The World's Digital Library, an ambitious project by UN, 'offering free access to rare books, maps, manuscripts, films and photographs from across the globe' has passed. It is the world's third largest digital library after Google Book search and Europeana.

Full Length Movies On YouTube Soon

The Popular video sharing website YouTube has reached agreements with leading Hollywood studios to make content including full length movies on the Google owned YouTube soon. Earlier the service tied up with leading music companies to start a niche music site Vevo.com. The agreement is being seen as Google's strategy to com-

mercially market the YouTube service in the face of competitions from many quarters like iTunes, Hulu etc.

First Indigenously Developed Games In India

'Hanuman Boy Warrior' and 'Braid' are the two computer games just developed in India. What is unique about them is that they are the first two indigenously developed games to have come out from India with a promise of more games to come soon.

Simulcast of TV/Radio On Mobiles in UK

A service is being launched in the UK where some BBC TV and Radio programmes can be seen LIVE on mobile handsets at the same time as they are being broadcast over the TV or the radio, provided one is in the WiFi zone and the handset is of the right kind. The service is in beta stages and can be a revolutionary step in broadcast technology as it doesn't require any additional download or application.

gLocal Goes Hyper On The Web

With the newspaper industry facing so many problems particularly in the USA, an interesting new phenomenon is being witnessed on the web. Local news as close to next block is being disseminated through blogs etc., sometimes replacing the need for any local newspaper. Some services like have been witnessing seeing a boom in users of late.

Now a Website To Monitor Traffic

www.Thetrafficpeople.Net is a new age website having all the information on the city's traffic and also incorporating inputs from various radio channels doing the same on the subject. As cities grow crowded and more traffic is added on city roads, we already see almost all the FM radio channels giving traffic updates as FM radio becomes a companion of every city commuter, be it on mobile or in cabs. They have reporters also on the ground reporting real-time traffic situation.

Your PC Can Receive Cable Signals Directly Soon

A new technology being worked out in the USA could mean the users receiving cable TV directly into their PCs soon and they would not need to download everything from the Internet to view. This model is slightly inferior to having optic fibre directly in your homes, but that would mean that the neighbourhood broadband lines are not used for maximum.

2.63m Unique Indian IP addresses

If the number of unique IP addresses were an indication of a country's digital progress, India ranked 20th with 2.63 million unique IP web addresses. But its average connection speed left a lot to be desired in comparison to the world as the country ranked only 115th with South Korea topping the list with an average connection speed of 15Mbps and USA on 17th with 3.9 Mbps average speed. The data has been revealed in a survey on 'State of the Internet' by Akmal Technologies.

Mumbai IITians Launched their own Campus Web Radio

In a first development of its kind and taking a cue from MIT, Harvard & Yale, IIT Bombay students have launched their own campus based web radio station recently. This LAN based radio station is intended to provide the students a platform to voice their opinions, take part in debates and generally be more informed. It's like an intranet and the programming content is in tune with the likeness of the student community.

Number of Indian Cyber Cafes Dwindling

The Internet population of the country showed a dip in numbers by 3 million in a year as on Jan '09 It dropped down to 47 million primarily due to many of the cyber cafes being closed during the year gone by owing to some administrative issues. "Internet content in India is not available in regional languages, says an expert and another adds, "Whereas a TV offers localised content and entertainment, Internet in India does not.

Free News Content? Debate Is On

Following the tough times that the newspaper industry is facing in the USA, there are emerging interesting new ideas to sustain the readership as well as the revenue. Many models are being worked upon and the theories going around are on why an online free model like The New York Times is better than subscription based Wall Street Journal to why not publish the print edition just once or twice a week to focus contents exclusively on local content taking help from but not limited to blogs, forums, personal sites or usenet as is being planned by Newspaper 2.0 at Austin.

Telecom Can Create 25m Jobs

Telecom services have the capability to create 25 million jobs worldwide. In a well researched document major GSM players have found that "a 10 per cent increase in mobile penetration boosts annual GDP growth by 1.2 per cent." The proposal has been submitted to the Indian PM Manmohan Singh by Airtel Chief, Sunil Mittal.

Compose in Hindi on Gmail

Now it is possible to have that old flavour of Chitthipatri meaning letters in the Gmail also. Gmail Labs have incorporated regional language typing (currently Hindi, Tamil, Kannada, Telugu & Malayalam only) while composing the emails based on phonetic settings. Just type in English and once you have the desired settings it will be automatically converted into a language of your choice.

Online Libraries The All New Way to Read

Heard of Librarywala.com, Easylib.com or Friendsofbooks.com? Well they are all online libraries operating in the real world. Instead of going to a library and borrowing a book and reading it and then returning it on time, now you can have access to online libraries.

Local e-Content Triumphs At The World Summit Award 2009

WSA SECRETARIAT: AUSTRIA/NEW DELHI

Australia, Austria, Canada and New Zealand will walk the stage at the World Summit Award Gala on September 4, 2009 and collect the winning trophies for the world's best e-Contents. These four countries emerged as clear leaders in the global contest held in the framework of the United Nations and its follow-on activities to the World Summit on Information Society.

With three winners each, creative content producers and application designers from these countries topped approximately 20,000 other products and projects from the 157 countries participating in the 4th edition of the World Summit Award.

34 leading e-Content experts from all continents met for the WSA Grand Jury in New Delhi, India in early April to consider 545 national finalists from United Nations Member States. "The trend to mobile contents is slow in developing and the most interesting and socially relevant contents are still to be found on the Internet" says Prof. Peter A. Bruck, WSA Chairman. "Online also beats Interactive TV and has by far outdone Off-line DVD productions in terms of the richness and diversity of quality content around the world" says Bruck.

This year, the World Summit Award was entirely hosted in India by Digital Empowerment Foundation with the complete financial support from the Department of Information Technology, Ministry of Communication & Information Technology. On the occasion, DEF and DIT also organised a 40-Country Digital Content Summit, the recommendation which is already submitted to DIT for various considerations.

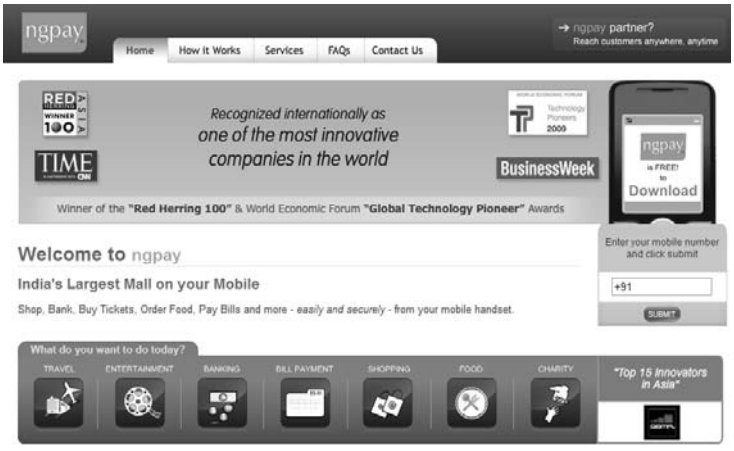
"In contrast to mass TV and newspapers, the new media do not concentrate in one country or one region; we do not see a digital Hollywood or digital Fleet Street. Rather, the most interesting e-Contents come from smaller markets, and from smaller players. They appear to be much more in touch with users and their communities. Local content, not global, triumphs in terms of quality" concludes Bruck from the Jury proceedings.

Australia won in the categories of e-Business & Commerce ("Karma Currency Website"), e-Culture & Heritage ("Twelve Canoes") and e-Health & Environment ("Tree People"). Austria presents its strongest products in the categories e-Business & Commerce ("Remediation Check"), e-Learning & Education ("E-DysGate") and e-Science & Technology ("Water World"). Canada is represented in the categories e-Culture & Heritage ("A Journey into Time

On the occasion, DEF and DIT also organised a 40-Country Digital Content Summit, the recommendation which is already submitted to DIT for various considerations

e-Business & Commerce Winner: *Karma Currency Website (Australia)*

e-Business & Commerce Winner: *ngPay (India)*



Today, the WSA is the world's leading contest for excellence and creativity and e-Content production and a global hub dedicated to closing the digital content divide and narrowing the content gap between different regions of the world

Immemorial"), e-Inclusion & Participation ("Homeless Nation") and e-Science & Technology ("Genomics Digital Lab"), and New Zealand features with winning projects in e-Learning & Education ("Our Space"), e-Government & Institutions ("National Broadband Map") and e-Entertainment & Games ("Casebook").

India registered its tally with two among the winners, one being ngPay (e-Business & Commerce category), and the other was Web Health Center in e-Health & Environment category as Special Mention.

The World Summit Awards were started as an Austrian initiative in the framework of the United Nations World Summit on Information Society in 2003. Today, it is the world's leading contest for excellence and creativity and e-Content production and a global hub dedicated to closing the digital content divide and narrowing the content gap between different regions of the world.

The WSA are the only awards supported by a Public Private Partnership between professional organisations, industry, governments and UN organisations. The initiative promotes the most outstanding achievements as a flagship partnership initiative of the UN's Global Alliance for ICT and Development and in close collaboration with UNESCO, UNIDO and a world wide professional partner network.

WSA is a global not-for-profit activity governed by a Board of Directors of world-leading e-Content and multimedia experts with its global office at the International Center for New Media in Salzburg, Austria.

Two awards each went to China, Egypt and Italy, which have shown excellent results already in the last few years, but also to the newcomers Ghana and Sri Lanka, showing that excellence in the content use of new ICTs is neither a matter of size of population, nor is it driven by wealth.

One award each went to Belgium, Bulgaria, Croatia, Czech Republic, Finland, Germany, India, Israel, Lithuania, Malaysia, Mexico, Netherlands, Oman, Poland, Slovenia and Spain. Two newcomers from countries with less developed content industries that returned home with 2009 World Summit Awards leapfrogging technologies with creative innovations are Democratic Republic of the Congo ("Congoblog") and Nigeria ("Mark of 'Uru").

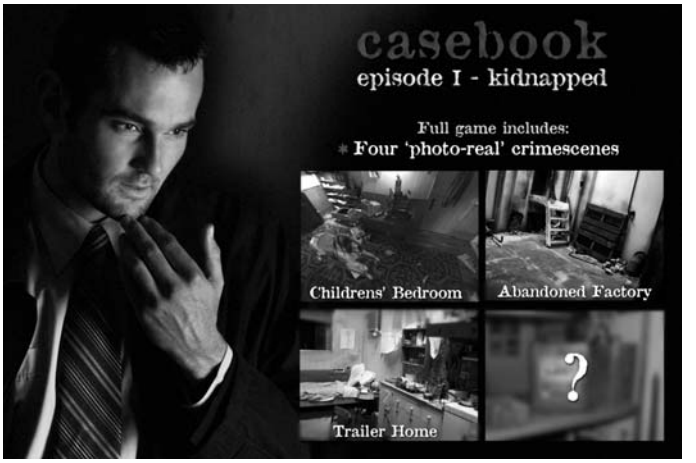
Key sponsors of the WSA include the Internet Society, which has been supporting the initiative since its launch in 2003, and Indigo from Mexico, which won the WSA in the e-Entertainment category in 2007 and since then entered into a long term visionary as the main supporter and sponsor.

The WSA 09 Winners' Gala will be celebrated in Monterrey, Mexico, on September 2-4, 2009 in collaboration with the UN GAID's Global Forum. In Monterrey, the winners will also be presenting their award-winning products at the two-day WSA Winners Conference and Exhibition, starting on September 2. More Information on WSA and links to winner products are available at www.wsis-award.org

The World Summit Award (WSA) was started in 2003 as part of the UN's World Summit on the Information Society. It is a global initiative to select and promote the world's best e-Content and innovative ICT applications; to date 157 countries are actively involved. Through national contests and a global jury process, WSA demonstrates the local diversity and rich creativity of ICT use. WSA is a global hub for everyone who values the crucial importance of local content to make today's information society more inclusive.

The Grand Jury at the 40 Country Summit in New Delhi, India

e-Entertainment & Games Winner: Casebook *(New Zealand)*



Mobile TV in India could be big

While mobile TV or viewing of television channels on mobile handsets has been started in India on a limited scale, the potential of such a offering is huge, says a report in BusinessStandard.com. Constraint in handsets, standardisation of technology to enable mobile TV, spectrum issues, set & services affordability etc. are some of the issues plaguing this nascent industry in India. About 20m subscribers are expected to avail this services in the first year of its launch itself.

Few takers for mobile TV in America

Few people seem enamoured by watching TV on their mobiles in the USA, according to a news report in The-Times.co.UK. Number of persons accessing the web on their mobile handsets are ten times more than those watching mobile TV. High price of the service also seems a deterrant as the nation awaits free mobile TV broadcast by some channels in near future.

25% fall in telecom rates expected in 2009-10

Indian mobile tariff, already among the lowest in the world, is expected to fall further in the FY 2009-10 with an expected decrease of 25% aided by factors like new players in the segemet, GSM & 3G launch etc. . As of now, one can call @ 33 paise (.66 cent approx) locally and @ 50 paise (1 cent approx) countrywide. The consumers growing at 10million per month can only be smiling.

SMS for monitoring use in polls

In a vast country like India, authorities are finding newer ways to monitor people. In Dakshin Kannada constituency in Karnataka in South India, police authrorities have decided on a dedicated number (9886666100) for people to send SMS to on federal Poll day on Apr 30 '09. S(he) will also receive a reply as to what action was taken on his SMS. An hourly update would also be collected by SMS during the poll day. A trial run on this was also held. Mobile phones are finding all kinds of usages.

Content consent necessary now in case of VAS

Indian mobile subscribers, all of whom are not necessarily literate, often fall victim of unwanted services from their mobile service providers especially in case of Value Added Services (VAS) which are chargeable like caller ring back tune, background music, wall paper etc. all enticing but the customer might not subscribe to them had they been knowing beforehand that they would be charged for availing the services even if it is just Rs. 30/- (60 Cent approx) per month. Now TRAI has warned that the consent of the consumers must be sought in written or through SMS beforehand to activate these content services. About 10% of the income generated by telecom operators in India are from VAS.

More people accessing web first on mobile phones

With gadgets like Apple's iPhone now becoming common place, the number of people accessing the web through mobile phones have increased manifold. This is the boom time for mobile Internet worldwide and is expected to be so in coming times as mobile phones easily outnumber PCs in most parts of the world and there are scores of people who experience the Internet first on their handsets like iPhone. "The move to mobile access is very important as mobile devices are the first way that people in developing countries get their first contact with the Web," said Sir Tim Berners Lee, one of the inventors of the world wide web.

Tracking telecom habits, tariff, web...all wanted

Customers the world over are demanding more and more value for their money now. Telecom companies are offering clever customised packages in Britain to retain the loyalty of their cutomer base, most of them pay-as-you-go or prepaid ones. They are demanding web access in addition to normal features like more talk time and more texting. Weekend free/cheaper calls, piggy bank to let users buy a Blackberry, for example, later etc. are some of the innovative marketing strategy being applied there.

Google News on Twitter now

Major news aggregation site Gogle News is now available on Twitter. It is the latest one to embrace the fast growing Twitter phenomenon. The users can access more than 25000 newslinks @googlenews on the micro blogging site which would take them directly to the news websites.

Move over TV episodes, Mobisodes is here

In Japan, people particularly young women, are engrossed in a new passion these days of watching short soap operas on their handsets as mobisodes i.e. mobile episodes. The interest and market is huge in technology trend setter Japan and people can be seen enjoying their video dose while travelling in metros trains. They even hope to win Oscar for this one day.

Twitter proving the new church

An interesting phenomenon is being witnessed these days particularly in the UK. People are giving vent to their innermost feelings and confessing it openly on micro blogging site Twitter.com so much so that it is now being called 'a new church for the digital generation'.

3G services should incorporate local content

The article on the eWorld section of The Hindu.com opines that 3G services in India could be a big hit in coming months. And m-advertising could potentially be a big growth area in comparison with web advertising. In rural areas too, 3G services could prove popular if they first incorporate local content for masses.

mVaayoo service launched for results on mob & web

A service whereby one can get results on one's mobile by sending a simple SMS has been launched by IMImobile in collaboration with National Network of Education (NNE). The results would be displayed on the web *http://www.examresults.net/* too. Mr Rajkumar Jalan, Chief Executive Officer and Managing Director of NNE said: "The new service being launched by NNE and IMImobile will enable students to retrieve their exam results on their mobile instantly."

Move data from servers straight to a mobile phone

A new revolutionary application has been developed by two Indians in Bangalore whereby it is possible to move any data on a server straight to a mobile handset of any make. The developing firm's name is Aquilonis Technologies Pvt Ltd and they expect to 'design unique software solutions for the telecom industry and catering to a worldwide niche market of about $5 billion'. This development is in tune with the current recessionary times too.

Push email facility introduced

In an interesting development, handset manufacturers Nokia introduced a push mail service where one's emails gets pushed into the mobile phone rather than the pulling or downloading of mails as is the general practice. Currently, it is available to high end customers only but it is planned to be extended to sub 5k ($100 approx) phones soon too in India. One can register at http://www.email.nokia.com/

Learn English on mobiles on enrichyourenglish.com

Enrichyourenglish.com is a new simple way to learn English on mobiles also. This is a simple downloadable application which offers an English word, idiom, phrase, etc easily making English learning experience a matter of everyday practice. This application has huge implications in countries like India where there is a vast demand of English usage and the mobile spread is reaching the remotest corners of the country. This application has been developed by Chennai-based Avon Mobility Solutions.

Now search is just a call away

Voice search on mobiles meaning you say something local to search on your handset and within minutes you are presented with an array of choices nearest to your location can be quite useful in an alien land or for those short on time, of course with a mobile in hand. All this is being made real by Google Voice Search facility in places like Hyderabad, New Delhi, Mumbai & Bangalore in India where the service has been launched. If it proves successful, it would be launched in other places in India soon too. Mobiles are providing so many solutions hitherto offered by different devices that no wonder it outnumbers PCs by some distance. Read BusinessStandard.com to know more on this fascinating mLocal service. A similar pilot project, VoiKiosk from IBM, won the Manthan Award South Asia 2008 award recently.

TringMe, a new method to woo voters

'TringMe is a voice-based platform that allows people to create voice-based application'. This technology is being used extensively in the southern parts of the country as electioneering gathers steam in run up to the Indian general elections '09. Says Yusuf Motiwala, Founder & CEO of TringMe further, "It's been used now for campaigning purposes. It's a simple and effective way to get your message across." "It has the capacity to handle up to 10,000 calls per

A peep into content behaviour through mobiles

Mobiles like Apple's iPhone are creating a new set of rules as far as buying something online is concerned. While largely a person remains reluctant to try/buy same thing available over Internet for free but it haas been found out that (s)he happily pays a little the moment he/she sees it through his or her mobile phone. The NYTimes.com says that the trick lies in storing a person's Credit Card details once and for ever, as opposed to when (s)he has to enter it every time (s)he fancies something on the computers. Mobile companies have uncoded the content selling formula faster than others, it seems.

Amar Chitra Katha on mobiles

VAS to grow Indian mobile content market is growing at a fast clip. The popular Amar Chitra Katha has been brought on the mobile screens and many more content is daily being added and lapped up by many even in rural India @ Rs. 30/- (60 cents approx.) per month. VAS (Value added services) like these are likely to grow to Rs. 20,000 crore ($200000 million) by 2010 according to an estimate.

minute to begin with and we can scale it up further if needed." Making it an ideal way to reach across to prospective voters and give an alternate way to reach to the masses this time around.

Music, messaging, gaming to be big biz, bets Nokia

Music downloads on mobiles, messaging on the go and gaming are going to be the next big hooks for mobile phone users in India bets the major mobile handset maker Nokia as it plans big for these sectors in coming days. The Hindu.com has all the details on these services in store from the house of Nokia.

Here comes Skype on mobiles

Skype, the internet enabled calling service, is reportedly venturing into mobile phones like on Apple's and Blackberry's by developing Skype software for mobiles. As with computers, Skype would be free on mobiles also provided it is in WiFi zones.

Access & Connectivity in INDIA

March 2009:

Total Telephone Connection: 429.72 million

TRAI reported in April that the total number of telephone connections (both Wireline & Wireless) reached 429.72 million at the end of March 2009 as compared to 413.85 million in February 2009. The overall tele-density thus reached 36.98 at the end of March 2009 as against 35.65 in February 2009.

The total wireless subscribers (GSM, CDMA & WLL(F)) base stood at 391.76 million at the end of March 2009. A total of 15.64 million wireless subscribers have been added during the month of March 2009 as against 13.82 million wireless subscribers added during the month of February 2009.

In the wireline segment, the subscriber base has increased to 37.96 million in the month of March 2009 as against 37.73 million subscribers in February 2009 registering an increase of 0.23 million.

March 2009:

Total Broadband Subscriber: 6.22 million (@ 60 per cent growth)

According to TRAI, the Broadband (256 Kbps download) subscribers base has reached 6.22 million by the end of March 2009 as compared to 5.85 million by the end of February 2009, almost 60 per cent growth from 2008 to 2009.

Cost of broadband access:

As per InternetWorldStats website, broadband policy and other initiatives by the IT and Telecom Ministry encourage increased adoption. A monthly broadband subscription costs as little as 199 rupees.

Speed of broadband access:

The broadband policy typically defined the broadband as "always on" connection with speeds over and above 256 kbps. Other ways to access the same could either be through ADSL, VSAT or cable.

Number of registered internet cafés, community telecenters:

According to a report on OJR website, while easy entry into the cyber cafe business has caused an enormous boom in Internet cafes in India - some estimate there are about 300,000 cafes nationwide. Besides, there are informal estimates of about close to 75,000 community telecenters across India including Common Service Centers and ITC's e-Choupal.

The average price to access the internet from an internet café:

A web page on IndiansOnNet reveals that, about 3 years ago, Cyber Cafes in metropolitan cities like Mumbai, Delhi, Chennai, Kolkata and other large cities like Bangaluru, Pune, Hyderabad, Ahmedabad etc, were charging anywhere between Rs 60 to Rs 80 per hour for Internet Surfing. Lately, the rates range from Rs 10 to Rs 25 per hour. Cyber Cafes owners are looking to different avenues, as margins are slim.

Number of PCO (public call offices), village phone entrepreneurs

As per TRAI, after constantly increasing the number of PCOs till September 2008, by the end of 2008, in December 2008, the total number of PCOs declined to 5.98 million. This is because of the rapid penetration of mobiles, especially in rural areas where the growth of penetration is that more than 30 per cent of all news users are users from rural India.

PC penetration:

According to MAIT (Manufacturers' Association for Information Technology): PC sales in India crossed 7.3 million units in fiscal 2007-08 with 16 per cent growth rate.

Notebook/Laptop:

1.8 million units, with a growth rate of 114 per cent. Notebooks accounts for a quarter of the total PC penetration.

MAIT estimates the PC market to touch 8.5 million in fiscal 2008-09, continuing to grow at 16 per cent per annum.

Internet @ Large:

According to Juxtconsult's November 2008 report, India Online statistics is a mixed bag of cheers and concern:

- >> 'All' Internet users — 47 million (39 million users in urban India + 8 million users in rural India)
- >> Exclusive Cyber Café user base — 6 per cent of all Internet users
- >> Only 2 out of 3 computer user use Internet
- >> Almost 4 million Internet users access it through Mobile Phones
- >> 91 per cent of all regular online Indians 'shop' online (search or buy)
- >> 74 per cent of travel buyers have bought train tickets, 34 per cent air tickets

(Sources: http://www.pluggd.in/india-internet/india-online-market-report-3927/ and Juxtconsult)

However, According to MAIT-IMRB source, for the fiscal year 2007-08, the total number of Internet users exceeded 52 million, with 7.2 million active Internet entities, which means active Internet connection owned by individual or establishment where the users numbers could be multiple.

The Fourth Screen:
India's New Might in the 21st Century and Digital Content

PETER A. BRUCK

Photo: BMA/Bangalore

Explosive Growth of Mobile-Phone Market forms India's ICT landscape

India's mobile-phone market is growing so fast that Indian wireless carriers added approximately 25 million new subscribers in January 09 alone, a new high mark for mobile-phone service growth in the world's largest democracy.

That mobile telephone growth is beating records is not new. The nation's mobile-phone subscriber base grew in 2005 at an astounding rate of 47 percent to reach approximately 75.3 million at the end of 2005, up from 48 million at the end of 2004.

In 2008, the user base has grown by about 100 million and many new operators have got licences to launch operations.

At the time of writing India is growing mobile telecom usage at about 10 mil-

lion new mobile users every month, and that pace of growth is likely to continue.

Four year ago predications had it that mobile-phone subscriber base in India will rise to 278 million in 2010, resulting in a cellular penetration rate of 23.9 percent of the nation's population. Now it will be probably close to 450 million subscribers by end of 2009. Predictions have not been able to foresee this growth.

Four factors drive growth of the mobile subscriber base: footprint expansion by existing operators especially in rural India, launch of operations by newer operators, issuing of 3G licences which will open up a new world of data services, and cheap handsets which lower entry barriers.

India has emerged as the world's second-largest market in terms of mobile-phone subscribers, second only to China.

Red and Blue Markets: Move from Voice to Data

For the outside observer the Indian market is splitting actually in two markets: the Red Market in the top 40 urban areas in India which accounts for about 150-200 million subscribers and the Blue Market covering mainly rural India, with a potential size of 800 million to a billion subscribers.

People in the two markets use their phones differently. The Red Market wants data and value-added services (VAS), while the Blue Market needs first access (Voice) and short messaging.

As markets mature and turn from blue into red, voice clarity, SMS volume and quality of network connectivity cease to be useful for operator differentiation and price will not suffice.

Users want to do much more with their phone . Even more so as the newer phones can do much more than previous ones. They have more memory, better batteries, a camera and a sharp, colourful little screen.

And this little, high resolution screen will be the pad from which India will launch itself into the 21st Century and the Future of Digital Content.

From Silver Screen to Computer Screen: Content turns interactive

In the 1860s, the magic lanterns of the past two centuries gave way to mechanisms for producing two-dimensional drawings in motion which would display sequences of still pictures at sufficient speed for them to appear to be moving.

With the development of celluloid film, it became possible to directly capture objects in motion in real time and in 1878 a series of stereoscopic images of a galloping horse became the first "motion picture".

The technology of fascination created an entirely new experience and people gathered in front of motion picture projectors for shows not known before: one screen for an entire audience.

Content began developing a narrative structure by stringing scenes together to tell entire stories and soon the genres of film and the experience of cinema outgrew the live pianist or a full orchestra to add first sound and then colour to the action on the screen.

The" First Screen" is still to this day captivating the emotions of audiences in a unique way and the fascination of the "Silver Screen" turns the successful content creators and character actors into stars know around the world.

In the 1930s and 40s the " Second Screen" developed and the 1936 Olympics were the first big events which broadcast live to television stations in Berlin and Leipzig where the public could view the games over distance.

The content and experience of the second screen was unlike the one of the first screen. The smaller size allowed the screen to move out of the public places and spaces into the homes of people and the TV set rearranged every living room in the developed world in less than three decades.

Contents were more immediate and stories shorter and less profound than on the bigger screen. A new mode of information and entertainment developed and reached the masses as the single consumption of a story did not cost a penny. TV made content appear to be free of charge with financing coming from advertisers or the public purse.

In the 1980s the number three screen developed. First it was a window into the huge calculating machines, display-

The audience of the first to the second screen had dwindled from hundreds to a hand full. In front of the third screen, it was reduced to one. But this one person could interact with the content. And with the invention of the World Wide Web in 1992/93 the content access become easy and global at the same time and interactivity increased from calling up and selection to communication and transaction

ing alpha numeric characters only. But with the rise of the personal computer the screen soon displayed more and did so in colour. Around 1990, the computer screens had gained multimedia quality.

The audience of the first to the second screen had dwindled from hundreds to a hand full. In front of the third screen, it was reduced to one. But this one person could interact with the content. And with the invention of the World Wide Web in 1992/93 the content access become easy and global at the same time and interactivity increased from calling up and selection to communication and transaction. This is the content world of the World Summit Award.

The Third Screen World: Internet, Digital Divide and the Content Gap

The World Summit Award is an Austrian initiative in the context of the United Nations World Summit on the Information Society (WSIS).

The World Summit on the Information Society (WSIS) was a pair of United Nations conferences about information, communication and, in broad terms, the information society. It was the UN's response to the rise of the Internet and was given over to the Telecom Industry World for its organisation (ITU _ International telecommunications Union) and its orientation (infrastructure build up). Among its chief aims was to bridge the so-called global digital divide separating rich countries from poor countries by spreading access to the Internet in the developing world.
The WSA started in 2003 for the UN Geneva Summit conference and is an invitation project and a global activity to put the focus not on wires and computers, but on contents and applications. The WSA does this with the mechanism of contests for best practice in content creation and applications development and design. For this purpose, it networks professional associations, the national chapters of the Internet Society, multimedia education and research institutions, electronic chambers of commerce, non-governmental groups and foundations, government offices for IT and Information Society development and many others.

The WSA is the result of an active engagement of all these players in WSIS and of the shared conviction that quality contents are essential for a quality Information Society. Through the global contest WSA can showcase and demonstrate best practice from over 160 UN member states, all continents and cultural corners of the world.

WSA provides proof that irrespective of their place or country of origin, interactive contents inspire, inform and allow the exchange of information and knowledge. Technology offers tools.

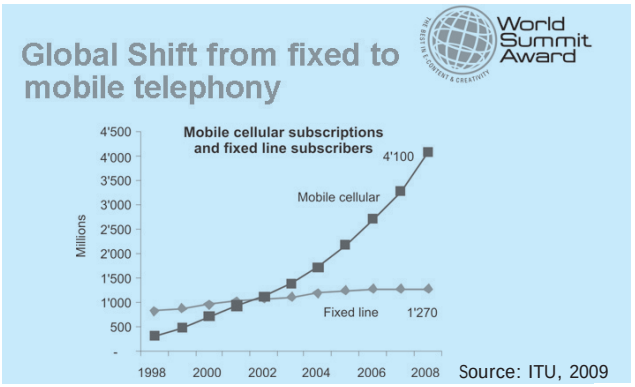
It is a fundamental fact of the Information Society development that the performance of the tools increases faster than the human capacity to use them. This creates the Content Gap: ICTs offer more capacity to produce, store and transmit than humans can use, fill, read or consume.

Over the last 50 years, Information and Communication Technologies have become exponentially more powerful and radically cheaper and smaller. E-Content does not keep up with technology in terms of speed of development, economies of scale and simplicity of consumption. This results in a dynamically created structural gap. This gap is widening as we move on into the Information Society.

On the third screen, the content gap is not just one of technological versus human capacity. It also has awareness aspects and results from social and economic structures. There is an imbalance of pay and an inequity of investment. Post-industrial societies spend enormous sums of money on equipment, gadgets and 'tech things'. They invest far less in quality stories, knowledge and insight. In the context of the global economy, it is the content industries which offer the opportunity for local and regional economic development. Basic software, hardware and NetWare have become global industries with a high degree of global concentration.

Contents are tied to culture and language. They are largely local and regional. Most creative producers - save the ones working for the Hollywood industries and in English - have culturally restricted audiences and markets. This gives countries opportunities to develop economically. The WSA is strengthening these opportunities in giving exposure to the best producers and showing a way for the development of the content industries.

The Digital Divide adds a further dimension to the Content Gap. The 'information poor' have not only less or no access to Internet and other digital platforms. They also get lower quality contents and applications. The Digital Divide widens



the Content Gap, as info trash clogs the networks and quality contents move to pay-modes.

The threat of a widening Content Gap runs counter to the promise of the Information Society. The capacities of technologies, systems and tools to generate, distribute and store content increase exponentially, but content markets are not transparent or open.

Despite significant improvements in mobile telephony and internet access in some parts of the developing world, the gap between the information and communication "haves" and "have-nots" has remained virtually unchanged since 2002, according to the International Telecommunication Union (ITU) report from April 2009.
The ITU created the ICT (Information and Communication Technologies) Development Index (IDI), which compares developments in information and communication technologies (ICT) in 154 countries.

The Index looks at the countries over a five-year period (2002 to 2007) and combines 11 indicators into a single measure that can be used as a benchmarking tool globally, regionally and at the country level. These indicators are related to ICT access, literacy levels and use and skills - such as households with a computer the number of internet users.

WSA and the Third Screen World: Richness and Diversity of e-Content

WSA showcases which high-quality contents exist on the third screen and thus counteracts oligopolies in the content sector. It demonstrates the cultural diversity of and the opportunities for small and medium sized producers to be successful. In addition, it increases the capacity of individuals to gain an overview of what is available on the markets, thus decreasing the marketing powers of a 'chosen few'.

The World Summit Award places the emphasis on cultural diversity and identity, the creation of varied information content and the digitalization of educational, scientific and cultural heritage. These are core issues of a high-quality Information Society in which people might be happy to live.

The goal of the WSA is to break the awareness barrier and the marketing deadlock where big promotional budgets or market dominance decide what is available and known in e-Content. It also aims to help overcome linguistic and cultural barriers and the smallness of national markets, to generate an international showcase and to stimulate an interchange of quality multimedia.

It is a curious fact of the Information Society of the third screen that many people - even the ones who are deeply involved in industry and policymaking - have little information about what quality contents are. They lack opportunities to see, use and experience the power of great e-Contents.

The Mobile Revolution: the rise of the Fourth Screen

The above mentioned ITU report presents the latest, end-2008 evidence that there has been a clear shift from fixed to mobile cellular telephony. By the end of 2008, there were more than three times more mobile cellular subscriptions than fixed telephone lines globally.

Two thirds of those mobile connections are now in the developing world compared with less than half in 2002.

Based on these estimates, 23 out of 100 inhabitants globally used the Internet at the end of 2008. But 61 out of 100 inhabitants are having a mobile phone. In total numbers, mobile usage as increased to more than 4 billion hand sets sold, while Internet usage is about 1.3 billion.

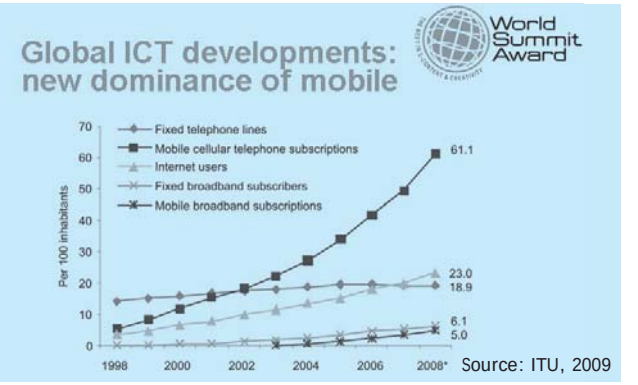
This makes the screen number four by order of appearance the most widely used today and thus also the most important in terms of e-content as it has become the most indispensible screen in billions of people's lives . The mobile screen is the greatest window to the world of all , the most personal and the handiest at the same time.

It used to be quite different. In the early 1990s, the mobile phone displays were not real screen and came with black text on dirty green backgrounds. Then more fanciful blue, amber and white illuminated versions showed up and backlights were added that seemed to make the mobile phone shine. In the late 19902 , colour seeped into the mobiles using new screen technologies.

The Indian Opportunity

Indians, most without landlines or Internet access, wait with great anticipation for cell phone towers to rise near them. Farmers and other business owners, who realize the power of cellular communications to save wasted trips to market, "call ahead" hundreds of miles away to see if their crops will sell.

While many Indians live in poverty, they use their cell phones to learn about the world. Today for example, many know who Barrack Obama is and have heard about the poor world economy by talking with friends and relatives. In a huge country, those with access to mobile phones gain knowledge of local, regional, national and world events in a short time.



The above mentioned ITU report maps out the Indian opportunity with cellular penetration increasing from 1 % in 2002 to 20 % in 2007.
In addition, mobile communication and information exchange is become more and more affordable to more and more people .
Out of 150 ITU member countries:
India is the second cheapest market in terms

Contents developed in steps with the fourth screen

1. MONOCHROME LCDS: Liquid crystal displays (LCDs) are to be found in calculators and digital watches. Liquid crystals were first discovered in 1888 by an Austrian botanist and can be manipulated by electric current, thereby changing their shape. In monochrome screens on mobiles, these liquid crystals darken pixels by blocking out back illumination. They have the advantage of low power consumption and thus are very suitable for simple mobile phones for voice and SMS usage.

As mobile phones have shrunk, their screens have become larger and sharper allowing for the popularity of text messaging.

2. PASSIVE-MATRIX COLOUR DISPLAYS: Most of the early implementations of colour in mobiles employed passive-matrix technology which harnesses a grid system using vertical and horizontal wires to direct electrical charges to a certain coordinate — thus lighting up the pixel. Passive-matrix displays are cheap to produce and suffer from a slow response time and less bright screens.

Content is restricted to text displays and the usage for text messaging is dominant.

3. ACTIVE-MATRIX COLOUR DISPLAYS: Active-matrix screens make use of TFT (thin film transistor) technology which is also commonly found on notebook computers. TFTs screens contain a transistor for every pixel, giving rise to sharp and bright images. TFT displays are more expensive and require higher power consumption.

Such displays support advanced imaging functions including the display of graphics and pictures. Combined with digital lenses they make a mobile device ready for multimedia.

4. OLED: Screens with organic light-emitting diodes don't require a backlight as polymers in the display emit light when an electrical charge is applied. Its advantages are lower power requirements, a smaller size and a sharper image.

The multimedia experience is fully enjoyable. The technology used in mobile phone displays continues to evolve, and the resolutions continue to improve - trends that will further impact fonts, legibility and the sharpness of the moving image. LCD is still the predominant technology but the others are challenging LCD's position. The most significant one is the iPhone which made the touch screen in 2007 a common feature of mobiles. Today new touch-screen mobile phones compete with the iPhone for directly interactive contents.

of US Dollars and the fourth cheapest in terms of Purchasing Power Parity.

Lastly, when it comes to the skills in using the ICT for software and content development and design, India shows significant increases on ALL indicators.

Indian people realize that for only 2 cents a minute, they can run their businesses and keep track of world events, even without newspapers, radio or television. Mobile carriers are spending billions to install cell phone towers in the country, knowing there's a ready market for more than voice: e-content and information services.

In the U.S., where more than 80% of adults now have a cell phone, carriers must convince Americans to buy data plans and more expensive handsets to make a profit.

India might be different. In the "Red Market" one can see already signs that mobiles will be used as the next advertising and marketing medium which can highly target audiences.

Rural mobile users are prime candidates for mobile content and cell phone applications as flat rate data plans emerge. Mobile banking and other forms of commerce are already significant in larger cities.

The flat-rate data plans are significant for Indian e-content development. These cost models will drive the use of mobile Internet, Social Media and Rich Media.

Flat rate in India will not only encourage the use of the mobile Internet and other services, but create a boom in e-content and content driven services

This will create the necessary pull for companies to start develop mobile contents and data rich applications and operators will benefit from large-scale adoption of data plans.

Flat rates are known around the world to have increased significantly usage of the communication lines for higher level information exchanges and the leadership of the United States and Canada in the Internet domain can be largely attributed to the monthly flat rate local telephone area charge in place since the 1910s.

Flat rate in India will not only encourage the use of the mobile Internet and other services, but create a boom in e-content and content driven services.

This will create the necessary pull for companies to start develop mobile contents and data rich applications and operators will benefit from large-scale adoption of data plans.

The mobile will be positioned to be a window into the incremental N3 (Now-New-Near) Web. Mobile social networks will extend the communication and interaction capabilities of the device. From mail to music, from digisodes to streaming TV channels, the combination of smart phones, flat-rate data plans and 3G will be the gateway to a wide array of rich media in India.

If one takes into account that the mobile has the potential to emerge as a suitable device micropayments, one can see that India is moving into the m-content and m- economy.

Conclusions: India's New Might in the 21st Century and Digital Content

Contents and their quality are difficult to judge, more so than technology. In the case of technology, the parameters are clear and objective; the performance of chips can be measured in Hertz, the throughput of networks in bits per second, and the storage capacity of disks can be calculated precisely in bytes. Such simple parameters do not exist for the quality of content.

Yet, quality needs to be assessed: users need to know what they get or buy, clients need to order according to certain standards, producers and designers need to have best practice models and quality comparisons.

This is where the World Summit Award (WSA) meets a real demand. The WSA is presently the only existing mechanism to search and find out which quality contents exist around the world and how they meet criteria such as depth of content, ease of use, value adding of interactivity, aesthetics of design and interface, and technical realization[1]. The categories of the WSA address all aspects of social life, including e-culture.

With mobile telephony becoming the defining technology of information exchange and communication in India, the country as an open and culturally rich and diverse democracy is better positioned than any other to be the centre for the new e-content for the fourth screen.

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[1] *The criteria used in the evaluation process both by national contests and the Grand Jury are the following: 1. Quality and comprehensiveness of content; 2. Ease of use: functionality, navigation and orientation; 3.Value added through interactivity and multimedia; 4. Attractiveness of design (aesthetic value of graphics/audio); 5. Quality of craftsmanship (technical realization); In addition, the strategic importance for the global development of the Information Society of a product is rated separately.*

How users access local e-Content in India?

OSAMA MANZAR

Ways of accessing local e-content determine the reach and spread of local content by the users. It also reflects the opportunities to improve people's awareness of their own culture, strengthening their identity and valuation of themselves; improve livelihood and capacity building of communities in a non-discriminating way.

Ways of accessing local e-content in India are more than one. Browsing has emerged as one strong way to access content. This can be linked to the growth rate of Internet penetration in India which is staggering. The country's Internet population has grown by 700% since 2000, yet there is a lot of room for expansion.

Downloading of content is being done by users who are mostly offline or located in areas which do not have the Internet options. This downloaded content is being accessed through either CDs/DVDs or using pen drives.

Streaming as a way to access local e-content exists

Streaming access is due to the fact that most content delivery systems are inherently streaming (e.g. radio, television) in India. As it is an established fact - the access of content is mostly happening in India through either radio or television and such other streaming ways. Equally non-streaming (e.g. books, video cassettes, audio CDs) ways to access local e-content also exist in the country for those areas where browsing or downloading of content is not feasible.

However, there are two major trends emerging in India:

>> *Convergence of media and digital technologies vis-à-vis broadband:* This implies feeding local language content in audio-visual medium for the mass accessibility; and this is happening in two manners - through internet technology enabled browser-based services where the user has choice of time and content to access and get delivered as and when desired; and secondly through the satellite-cable-TV based content services where interactivity and user-control based broadcasting is taking place. Obviously the interactive and content back-up based TV service through hundreds of channels is the choice of millions - perhaps more than 130 million. The popularity of TV-based content broadcast and content access is spreading like wildfire because it serves the desire and need of the masses of being audio-visual (oral medium) and in local language.

>> *Mobile as Media & Message:* The other huge trend is mobile penetration with more than 400 million subscriber base, bound to overwhelm every other media and technology phenomenon as far as mass penetration and adoption is concerned. As mobile phone is an oral medium there is no requirement for capacity building. It is multi-lingual, cheap (handset/gadgets), audio visual, relevant to people beyond literacy and education, interactive, informational and content rich. It is user-content enabled, user-controlled based, entertaining and multi-user enabled. It builds peer pressure, enables connectivity and is a fashion statement as well. It has a universal access and an instant reach.

The following table shall give an overview of local e-content delivery in India as per medium and platform and technology used as well as tariffs applicable:

Downloading of content is being done by users who are mostly offline or located in areas which do not have the Internet options. This downloaded content is being accessed through either CDs/DVDs or using pen drives

Platform	Medium	Technology	Tariff (If any)	Summary
		RADIO		
AM	Oral	AM broadcasting is radio broadcasting using Amplitude Modulation; AM radio technology is simpler than either FM radio or DAB.	Free to Tune	Radio has a tremendous impact on Indian society in terms of content and information delivery to millions of masses. AM, FM, Satellite radio, ham radio[1] are all in use in India. Radio services are offering information and entertainment content. With the 1999 decision of Government of India to allow private players to enter the FM radio-broadcasting sector, the content delivery, especially entertainment in selected cities and towns have increased. However, these private broadcasters are permitted to offer only music, education and entertainment-based programs, not news or current affairs programs. Overall Radio broadcasting stations provided scheduled programs of lectures, news bulletins and other recreational and informative material. These programs generally consisted of commentaries on current affairs; review of Indian press coverage; news bulletins; talk shows on socio-economic, cultural, historical and political subjects; and classical, folk and popular music from all corners of the country. The low advertisement costs and extensive reach of radio help advertisers quickly reach and appeal to their target customers. Reportedly, there are more than 150 million radio sets in India - three times more than the number of TV sets in the country. Thus, radio broadcasters' claime that radio had vast potential just waiting to be exploited. The latest development is Community radio allowed to provide radio content service that caters to the interests a local audience. The use of Amateur radio, often called ham radio, is used for public service, recreation and self-training though this medium and its reach is limited. Narrow casting is also restricted in its outreach.
FM	Oral	FM broadcasting is a broadcast technology that uses frequency modulation (FM) to provide high-fidelity sound over broadcast radio.	Free to Tune	
Satellite Radio	Oral	A satellite radio is a digital radio signal that is broadcasted by a communications satellite, which covers a much wider geographical range than terrestrial radio signals. Worldspace is an example in India which offer 40 Channel Satellite Radio	There is a fixed cost like Rs. 1,500 to Rs. 2,500 for the Receiver and Rs. 150 per month subscription fees for tunning in any of the 40 Channels.	
Community Radio	Oral	The technology used is either Radio-in-a-Box as a low cost broadcasting option, wherein all components of broadcasting, from the mixing console and workstation to the transmitter are encapsulated in a box design, reducing costs to a huge margin and enabling wider implementation of the Community Radio concept. The alternate is out of box framework with components dispersed.	Community Runs the Radio and anybody can listen to them without any subscritopn cost.	
Ham Radio	Oral	The technology used is personal wireless communications with friends, family members, and even complete strangers.	This amateur indicates that the associated radio broadcast spectrum cannot be used for commercial or money-making purposes. Not Applicable	
Narrow Casting: *Narrowcasting is traditionally understood as the dissemination of information (usually by radio or television) to a narrow audience, not to the general public.*	Oral	Some forms of narrowcasting involve directional signals or use of encryption. this term often refers to the display of content on a digital signage network. Narrowcasting is based on the idea that mass audiences do not exist. Narrowcasting is a form of broadcasting, if the latter term is understood as the "wide dissemination of content through mechanical or electronic media.		

[1] *Amateur radio, often called ham radio, is both a hobby and a service in which participants, called "hams," use various types of radio communications equipment to communicate*

Platform	Medium	Technology	Tariff (If any)	Summary
TELEVISION				
Satellite TV	Oral	Satellite Technology	Monthly tariff being charged from subscribers to the tune of 10-20 US dollars	After radio, TV is the most outreached medium in terms of content delivery. The popularity of TV delivered content can be gauged from the fact that the country's lesser-known television business is more than twice as big, with an estimated $3.4 billion in revenue in 2005. This implies, one of the most important content business opportunities for India is still TV Networks and Programming.
Cable TV	Oral	Cable wire	Monthly tariff being charged from subscribers to the tune of US$ 10-15 apart from charge to purchase set top boxes	
Pay Channels	Oral			
Platform	Medium	Technology	Tariff (If any)	Summary
INTERNET/WEB				
Internet Services at cyber centres	Non oral	Web based wireless technology	Acess to sites @ Rupees 10-15 per hour	The growth rate of the Web site hosting market in India reflects the content delivery at an increasing rate through Internet /web. Another instance is there are 2.4 million people accessing the internet for e-commerce.
Websites Sources	Non oral	Wireless, broadband	Free for all sites as well as paid websites through online payment	Reportedly, India is one of the top six Internet using nations in the world and the high double digit annual growth ensure an increasing number of new users coming on board every year. People are now willing to trust the internet site and do not hesitate to use their credit cards to place an order.
Widgets	Non oral		Free accessible mostly	
e-Newspaper	Non oral			
Platform	Medium	Technology	Tariff (If any)	Summary
E-INFO/MESSAGE				
Email	Non oral	Broadband & wireless	Tariff payable at service centres depending on hours spent. Also tariffs monthly paid for Internet connections to the tune of Rupees 1000 at the minimum	To break down the Internet phenomena in terms of content delivery, email, e-newsletter, PDF, chats and messages are common routes of content delivery. while this delivery is not as widespread to reach remote corners, yet the spread is visible with broad band and wireless connectivity being extended in far flung areas under various state wide area networks. Content delivery could be both free and chargeable. The charges are to the tune of less than half a dollar per hour.
e-Newsletter	Non oral		Mostly for free	
PDF	Non oral		Free as well as chargeable	

e-Discussion	Non oral		Mostly for free	
Blog	Non oral		Mostly for free	
Widget	Non oral			
Postings	Non oral		Mostly for free	
Chat	Non oral		Free as well as chargeable	
Message	Non oral		Free as well as chargeable	
Skype	Non oral			
MSN	Non oral			
Platform	Medium	Technology	Tariff (If any)	Summary

E-OFFLINE

PCs	Non oral		Free as well as chargeable on rent	Along with this Internet framework, content is being delivered through ICT tools like PC enabled CD, DVD, archives, digital library, and floppy disc. These sources are mostly paid and chargeable content.
CDs / DVDs	Non oral		Free as well as chargeable with tariffs	
iPods	Non oral			
PDAs	Non oral			
Archives	Non oral		Free as well tariffs applied	
Digital Libraries			Free as well tariffs applied	
Digital Camera			Tariff available in buying camera	
Laptops			Tariff available in buying Laptop	
Pendrive	Non oral		Tariff available in buying Pen drives	
Platform	Medium	Technology	Tariff (If any)	Summary

TELECENTRES

ICT Kiosks	Oral / non oral		Tariffs charged in select cases	The Telecentre[8] movement in India is picking up. Such centres are being set up at the behests of government, NGOs and others. These centres together with telephone booths and cyber cafes are good content delivery options for the public though tariffs are applicable here. Mention can be made here of the Government of India's decision to set up 100,000 ICT enabled common service centres to deliver content and services across the country.

Platform	Medium	Technology	Tariff (If any)	Summary
FILM				
Video Documentary	Oral	Video instruments with audio-visual mechanism	Tariffs in selected cases in terms of buying the DVD	Film is another medium of content delivery. The video and 32 mm are good options to deliver content in India though charges are applicable for users in select cases.
32 mm	Oral	Screen based deployment of content, especially entertainment	Tariffs applied in selected cases	
PC and flash based films	Oral	Flash based tools and technology are embedded in PCcs to make short films.	Tariffs applied in selected cases	
Platform	Medium	Technology	Tariff (If any)	Summary
PHONE				
Mobile Telephony	Oral		Variable tariffs charged depending on connection used and frequency of usage	Telephone has emerged as one of the emerging platform for content delivery especially mobile telephony. The following facts and figures can highlight this. The total numbers of telephone subscribers have reached 225.21 million at the end of June 2007 as compared to 218.05 million in May 2007. The overall tele-density has increased to 19.86 in June 2007 end as compared to 19.26 in May end.
Land Phone	Oral		Variable tariffs charged depending on connection used and frequency of usage	
e-Posts	Oral		Tariffs applicable	In the wireless segment, 7.34 million subscribers have been added in June 2007 while 6.57 million subscribers were added in May 2007 registering an increase of 11.72 %. The total wireless
Photo-phone	Oral		Tariffs applicable	
Video-phone	Oral		Tariffs applicable	Subscribers (GSM[2], CDMA[3] & WLL[4] (F)) base is 185.13 million at the end of June 2007. The wire line subscriber base stood at 40.09 million at the end of June 2007 as compared to 40.26 at the end of May 2007. Mobile as a content delivery platform is increasing tremendously. At the end of September 2006, the total mobile base increased to 127. 83 million subscribers. The content delivered ranges from every day-to-day dealing. In case of mobile handsets, this has emerged as one of the vibrant content delivery medium across the country. With its features of a camera, audio, visual and internet connectivity mobile handsets are emerging as the most multitasking content delivery options in India.

[2] *Global System for Mobile Communications*

[3] *Code Division Multiple Access*

[4] *Tariff Card of BSNL*

[5] *A Telecentre is a public place where people can access computers, the Internet, and other digital technologies that enable them to gather information.*

Content for Development

Photo: BMA/Bangalore

Mobile & Wireless Opportunities & Challenges

MADANMOHAN RAO

If we consider Phase I of ICT4D to include technology platforms like PCs and mainframes, and Phase II to include the Internet, then perhaps we are in Phase III, with the proliferation of mobile phones and wireless networks.

Indeed, mobile phones are much more pervasive and more heavily used than PCs and the Internet in many developing countries, so it is imperative that we look at content implications of harnessing mobile devices and wireless networks as ICT infrastructure in the development agenda. A useful framework for understanding the mobile information society is described in Table 1, based on the "8 Cs" framework of parameters: connectivity, content, community, commerce, capacity, culture, cooperation and capital.

Let us look at specific instances of where developing countries are harnessing mobile communications for development, and the challenges that can arise in some cases.

Emerging economies are fast emerging as crucibles of innovation in such areas as mobile banking, mobile money transfer, and mobile education and medicine, not to mention green initiatives, according to IDC.

According to ITU research, 4.1 billion people -- over half the world's population -- now use mobile phones. That's a sharp rise from the one billion reported in 2002, and represents about 60% of the world's population.

"The spread of mobile cellular services and technologies has made great strides

towards connecting the previously unconnected. Despite the economic downturn, current global ICT developments are unlikely to change drastically, given the pervasive nature of information and communication technologies," according to the ITU.

SMS Data

In terms of mobile content, services powered even by basic SMS can provide useful information for citizens. For instance, the Gujarat State Road Transport Corporation in India recently piloted a cellphone timetable service, for SMS-based queries on bus timings.

Basic SMS text messaging will be a key revenue driver for mobile network operators in developing regions like Africa and the Middle East over the next five years, helping to offset continuing declines in average revenue per subscriber (ARPS) for mobile voice services in the regions, according to Pyramid Research.

In Africa and the Middle East, SMS revenue is expected to almost double to nearly $12 billion in 2013, far exceeding the revenues of higher-end data services such as MMS or mobile broadband.

The significance of this development goes beyond the revenue opportunity coming directly from peer-to-peer SMS. Several operators have found ways to capitalize on subscribers' new familiarity with SMS to increase not only their data ARPS, but their voice ARPS, too. The growing popularity of SMS within the region will allow operators to use SMS-based value-added services, sometimes in conjunction with instant-message USSD services, to boost voice ARPS among the mass base of lower-income subscribers.

Internet firm Google Kenya has launched an SMS search service for mobile phone users via the shortcode GOOG. The service is free from Google, but carrier charges apply. Google has also entered into an agreement with Safaricom, allowing subscribers to own unique Google mail addresses linked to their mobile phone numbers, according to Joseph Mucheru, Google Kenya's Office Lead.

A report by Berg Insight, Mobile Internet 2010, shows that the largest interest for data services over mobile handsets is found in emerging markets, where under-supplied fixed infrastructure makes the portable phone a viable utility for many practical applications, not just communication but also banking, entertainment, and commerce.

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In an interesting case study, Zain announced that its subscribers raised more than $85,000 in SMS text messaging for Nelson Mandela's Foundation. The texts were sent in response to the operator's call for mobile phone users to send birthday greetings to Nelson Mandela as he celebrated his 90th birthday. Responses came from mobile phone users in countries such as Nigeria, Kenya, Tanzania and Zambia.

Table 1: The "8 Cs" of the Mobile Information Society

	MOBILE DEVICES AS AN INSTRUMENT	MOBILITY AS AN INDUSTRY
Connectivity	How affordable and widespread are mobile devices for the common citizen?	Does the country have manufacturing industries for hardware, software, mobile solutions and services?
Content	Is there useful content (foreign and local) for citizens to use in their daily lives on mobile devices?	Is content being generated in local languages and localised interfaces? Is this being accessed/used abroad?
Community	Are there online/offline forums where citizens can discuss mobile services and other issues of concern?	Is the country a hub of discussion and forums for the worldwide mobile industry?
Commerce	Is there infrastructure (tech, legal) for m-commerce for citizens, businesses and government? How much commerce is transacted electronically?	Does the country have indigenous m-commerce technology and services? Are these being exported?
Capacity	Do citizens and organisations have the human resources capacity (tech, managerial, policy, legal) to effectively harness mobile devices for daily use?	Does the country have the human resources capacity (tech, managerial, policy, legal) to create and export mobile devices and services, and set standards?
Culture	Is there a forward-looking, open, progressive culture at the level of policymakers, businesses, educators, citizens and the media in opening up access to wireless spectrum and mobile devices and harnessing them? Or is there nervousness and phobia about the cultural and political impacts of ICTs?	Are there techies, entrepreneurs and managers pro-active and savvy enough to create local companies in mobility and take them global?
Cooperation	Is there adequate cooperation between citizens, businesses, academics, NGOs and policymakers to create a favourable climate for using mobile devices?	Is there a favourable regulatory environment in the country for creating mobile device/service companies, M&A activity, and links with the diaspora population?
Capital	Are there enough financial resources to invest in wireless infrastructure and education? What is the level of FDI?	Is there a domestic venture capital industry; are they investing abroad as well? How many international players are active in the local private equity market? Are there stock markets for public listing?

Financial Content and Services

The operating environment in developing countries presents unique opportunities for mobile-based financial services, an optimal combination of necessity on the demand side and solid upside on the supply side, according to a recent Pyramid Research report. Payment models are driven by operators, banks, hybrid alliances or third party platform providers.

Mobile banking technologies are powered by SMS, USSD (Unstructured Supplementary Service Data), WAP, Java and SIM toolkits. Players in this space in Africa include M-PESA (Kenya, Tanzania), MTN (South Africa, Nigeria), Celpay (Zambia), MoneyTextMe (Ghana), Sokotele (Kenya) and WIZZIT (South Africa).

The independent Consultative Group to Assist the Poor (CGAP), a World Bank-supported research centre, has identified mobile phone banking as an important tool in Africa, Asia and Latin America. The current global financial crisis makes the need for widespread availability of safe alternatives to cash even more pressing.

Global mobile subscriptions surpassed four billion at year-end 2008 and are expected to approach six billion by 2013, making mobile services an extremely relevant platform for advertising and transactions for mass audiences.

Photo: Osama Manzar

Compliance with banking regulations and security of the networks have been cited as the major challenges in operating mobile money transfer services in developing countries.

Only one in five African households in African has access to a bank account, according to the United Nations, but a much higher proportion have a mobile phone and many operators hope offering financial services will attract new customers.

Some 175 million migrants currently use remittance services, sending money to around 800 million dependent recipients, according to the GSM Association. Remittance flows have reached USD 320 billion and are estimated to reach USD 700 billion by 2012.

Uptake of mobile technology for banking services is set to hit 900 million users worldwide by 2014, according to analyst Berg Insight. The predictions indicate a compound annual growth rate of 89 per cent from the 20 million users using mobile channels in 2008, with Asia being the fastest growing market and representing about 65 per cent of users.

Mobile technology will therefore play an important role in bringing financial services to people in the Middle East and Africa who do not use bank accounts. "Mobile handsets are in an excellent position to become the primary digital channel for providers of banking and related financial services on emerging markets," according to Berg Insight telecom analyst Marcus Persson.

Global mobile subscriptions surpassed four billion at year-end 2008 and are expected to approach six billion by 2013, making mobile services an extremely relevant platform for advertising and transactions for mass audiences

Juniper Research forecasts the average revenue opportunity for carriers, for both national and international mobile money transfers combined (based on estimated commission levels that they will be able to charge), is in excess of $5 billion by 2013.

Mobile Healthcare

"Mobiles are increasingly the computers of the future and now emerging countries are getting on board rapidly, argues health education specialist Inge de Waard. Continuing Medical Education (CME) is becoming possible also in developing countries thanks to mobile phones.

"We can reach physicians in the field to deliver lifelong learning. Keeping physicians in contact with peers will enhance knowledge exchange in priority settings. Getting the latest medical information out there is crucial, and mobile access to medical Websites or peer to peer knowledge exchange networks is important," she argues.

Success factors include accessibility to medical content via cheap phones, receiving relevant alerts on time, and providing certification for medical education modules. Challenges remain, of course, since graphics and tables are sometimes unclear on small screens, and battery life can interrupt long education sessions.

Maryland-based communications firm Danya International has used mobile video-enabled phones in meeting the requirements for monitoring medication adherence by tuberculosis (TB) patients during the 3rd East African Health and Scientific Conference. The Mobile Direct Observation Treatment (MDOT) Pilot Project received high positive ratings from the patients and health care workers who participated.

"Mobile phone technology offers opportunities to expand and enhance medical treatment where direct observation of patients is required," according to Danya CEO Jeffrey Hoffman.
The MDOT Pilot Project follows the expe-

riences of 13 TB patients, their patient assistants, and health care workers over a 30-day period in Nairobi, Kenya. Patients were provided a mobile phone capable of sending and receiving video and text messages. Patients and their assistants video-captured the patient taking their prescribed dose of TB medication in their home and immediately transmitted it to a central database where health care workers viewed the video to assure compliance with the DOT protocol.

Patients also received health messages in video and text formats on their mobile phones. At the end of one month, the participants completed a brief questionnaire on their experiences. Participants expressed satisfaction with the procedures and the use of the mobile phone technology for remote medication monitoring, health education, and communication.

Other partners who supported the MDOT Pilot Project were Safaricom, Nokia Siemens Networks and EPOS Health Consultants.

Project Masiluleke, a mobile health project in South Africa, is using cell phone text messages to reach people in even the most remote areas of the country to encourage them to get information and counseling on HIV/AIDS.

The project delivers about 1 million HIV/AIDS and tuberculosis texts each day to personal cell phones providing the number for the national AIDS helpline along with messages like: "Frequently sick, tired, losing weight and scared that you might be HIV positive? Please call AIDS Helpline."

Since the program began in fall of 2008, the messages have increased calls to the center from about 1,000 a day to between 3,000 and 4,000 a day, according to Gustav Praekelt of the Praekelt Foundation, which designed the technology behind the project.

"Increasingly in Africa we find that the mobile phone is the prime resource for finding information," according to Praekelt. "I think people often underestimate the penetration of these devices in Africa and what a difference it makes to a lot of people's lives."

Callers to the national helpline can ask questions about HIV, get information about where to get tested and receive counseling.

The project takes advantage of a popular form of texting across Africa, called a "please call me" message, that can be sent for free from a phone even if it is out of pre-paid minutes. The empty characters on the free text are used to convey the health message.

Future phases of the project will allow users to text health questions, if they prefer not to call the line, and will provide an internet portal of information accessible by cell phone for people to learn about HIV. The ultimate goal, says the group, would be to provide free home HIV testing kits that would be supported by mobile counseling, so that people who aren't willing to visit a clinic can find out their status.

Zinny Thabethe, an HIV positive South African and co-founder of the HIV/AIDS education organization iTeach, helped create the program for Project Masiluleke. She said opening a dialogue about HIV/AIDS is so important because the stigma surrounding HIV/AIDS in South Africa is still very strong.

An estimated 18 percent of South Africans between the ages of 15 and 49 are HIV positive, according to the World Health Organization.

"Because [the helpline] is confidential and anonymous they can phone in and talk to someone who doesn't know them, who is in another province, who can help them with their questions and they can be able to be honest," according to Thabethe. South Africa has 13 official languages, and the project sends messages in the major vernaculars.
Aside from initiatives for health outreach and education like Project Masiluleke, there are also pilot programs around the world working on monitoring patients and reminding them to take medications, using mobile technology to quickly collect data about outbreaks so that proper medical response can be deployed faster, and using mobile technology to connect health workers with the training and support they need.

In a world first in HIV education, Metropolitan Life one of South Africa's largest insurance companies has partnered with CellBook to present an information booklet on HIV and AIDS which can be downloaded onto a cellphone. Called "B the Future," the social initiative can potentially reach over 30 million mobile phone users.

"We want to educate South Africans to know their status and take personal responsibility for managing their health," says actuary Nathea Nicolay, Metropolitan AIDS Risk Consulting Manager. "If we are going to beat this epidemic, we need a widespread behaviour change. B the Future aims to educate people on how to live positively and also to prevent new infections."

In order to ensure that the information is accessible to everyone, not just those with the latest cellphones, the information has been compressed to below 300 kb so that the entire book can be easily and quickly sent in a single transaction to a mobile phone.

Photo: Osama Manzar

Uptake of mobile technology for banking services is set to hit 900 million users worldwide by 2014, according to analyst Berg Insight

"At only R1 per SMS, it is affordable and takes less time than it would to download a ringtone. SMS the word HIV to 32907 and you'll get back everything you need to know about HIV and AIDS," explains Bertus Preller, Marketing Executive for CellBook.

Claire Thwaites, who heads the U.N. Foundation's work on mHealth, said the mobile phone technology is already in the hands of 64 percent of people in the developing world, and that number continues to grow.

In Europe, the European Commission has developed a system that alerts public health officials to potential threats by sorting information from news websites. The MediSys system provides European health authorities with real-time information on developing health hazards such as disease outbreaks or industrial accidents.

The system reportedly collects and sorts data from more than 1,000 news websites and 120 public health sites in 32 languages -- and uses e-mail and SMS to automatically alert health officials, giving them timely warnings of possible hazards.

By 2012, 50 percent of all individuals in remote areas of the world are expected to have mobile phones. But the field of mhealth technology needs to be strengthened by rigorous data collection about results before programs can be expanded.

Mobile Education

While the evidence base is still quite spotty, usage models are slowly emerging from m-education pilot projects in places as diverse as Thailand and Mongolia, observes education specialist Michael Trucano. The increasing ubiquity of mobile phones has helped enabled pilots looking at mobile gaming to support literacy in India. Even the World Bank has reportedly got into the act, through Development Marketplace funding for a small pilot in Bangladesh.

Perhaps the most well known, and biggest, of these pilot programs is the text2teach project in the Philippines (see video at the top of this blog post), which provides a way for teachers to request educational videos via text message, with the videos delivered to a television at the school via satellite.

Canada's Althabasca University has just published a general survey on Mobile Learning: Transforming the Delivery of Education and Training. Many educational mobile learning uses have been explored: from low-cost mass learning opportunities through SMS, to edutainment, to data gathering (surveys, exams, questionnaires) to administrative and learning support, with very different mobile devices.

Mobile Agriculture and Trade
The mobile phone has played an important role in transforming agricultural marketplaces via quantitative analysis.

The Cambodia Crop Production and Marketing Project (CCPMP) has the overarching aim of improving agricultural value chains as a key to sustainable growth and poverty reduction in Western Cambodia. Using mobile technology, the project facilitates the sharing of knowledge and information at all stages of the value chain from farmer to end-user, delivering practical benefits including improved food security, increased income, and reduced vulnerability to disruptions for rural poor farmers.

DrumNet is a pilot project by rural farmers in central Kenya, which provides marketing, financial services and information via their mobile phones. The premise of the Pride Africa project is that a lack of market information is one of the key elements that keeps farmers from getting the full market value for their products.

"As the information flow increases due to the mobile phone coverage expansion, the cost of crop marketing is expected to decrease, particularly more so for perishable crops, such as banana, in remote areas because the increased information allows traders to collect perishable products more efficiently," according to Megumi Muto and T. Yamano, in a paper called "The impact of mobile phone coverage expansion on market participation: Panel data evidence from Uganda".

DrumNet is a pilot project by rural farmers in central Kenya, which provides marketing, financial services & information via their mobile phones

Traders use mobile phones to set up a time and place to trade banana", whereas in the absence of mobiles they just arrive unannounced and buy what's available, waiting until their trucks are full.

On a broader scale, CellBazaar is a service from Grameenphone that allows people to buy or sell over their mobile phones. Customers looking to sell something, post the information on CellBazaar through Grameenphone, and buyers get in contact. Customers looking to buy something, or to use someone's services (e.g., tutor), look for it on CellBazaar and contact the seller directly. When buyers sees items they like, they can call the seller, get additional information, and arrange to meet the seller to complete the transaction. CellBazaar is a platform for buyers and sellers to find each other.

Manobi is a wireless e-service assisting Senegalese fishermen in the marketing of their catch. The Manobi Development Foundation has a much wider remit and operates in the US, France, Senegal and South Africa. Generally, the service allows traders to receive market prices and make trades via SMS. Consumers and restaurants are encouraged to use the service to find and purchase goods from farmers at bid pricing.

The Trade At Hand initiative of the International Trade Centre (ITC) has two modules: MarketPrices and MarketAlerts. MarketPrices uses text messages in order to inform exporters in developing economies about the daily changes in the international price of their export of interest. A module called MarketAlerts enables local trade support institutions to build more efficient networks of exporters

by transmitting information to them about business opportunities and market news.

Mobiles and Social Inclusion
Mobile phones have been distributed to cooperative women's farming groups in different agro-ecological zones in Maseru district, western Lesotho, by the Regional Hunger and Vulnerability Programme (RHVP), which builds evidence to help policy-makers working on food security and social protection.

"The phone has transformed the women farmers' lives completely - they are able to market their produce, access information on prices, and it has made them so confident," according to Gladys Faku, national chairman of the Participatory Ecological Land Use Management (PELUM), a network of NGOs and civil society groups working with small-scale farmers in East, Central and Southern Africa.

RHVP ran the project as part of a pilot programme to see how vulnerable people benefit from cellphones, to disprove arguments against the use of mobile phones for cash transfers, and to prove that illiterate people are able to embrace technology.

"The pilot also took a step further to prove that not only are illiterate people able to handle technology, but also benefit from improved communications, both in terms of their farming activities and the reduced time and cost of staying in touch with each other," said Katharine Vincent of RHVP.

The women managed to use the mobile phones as a tool to generate income by selling airtime on their phones, and extended their mobile network by using the money from selling airtime to purchase more phones. One of the groups also used the money to buy piglets, which were sold to generate more money.

Saving in time and travel costs have also been realised in mountainous Lesotho, which has enormous distances and a poor public transport system. In Maseru district in western Lesotho, the distance between cooperative groups can be up to 200km - a 16-hour round trip by taxi costing about $13, with an overnight stay.

However, Richard Heeks, director of Manchester University's Centre for Development, cautions: "We talked a few years back about the 'digital divide', now we are recognising the mobile divide."

In a study of a group of workers in Nigeria's informal cloth-weaving sector, it was found that weavers without a mobile were forced to go on costly and sometimes dangerous journeys, making it increasingly hard to obtain orders.

Along with the contribution mobiles can make to securing livelihoods, they are also important in reducing the vulnerabilities that people face as a result of lack of information and isolation, according to Abi Jagun from Strathclyde University's Department of Management Science.

Mobile Content in Developing Countries: The Road Ahead

Mobile users in developing countries express a stronger desire for content and advanced features, according to a "Global Mobile Mindset Audit" study released by the Forum to Advance the Mobile Experience (FAME), part of the CMO Council and Global Market Insight (GMI), and sponsored by Palm.

U.S. users lag most behind other countries in terms of accessing the Web, or wanting access, using cellular phones. In the U.S., 22.6 percent find the feature important or very important. Other countries exhibit higher demand: Western Europe (30.4 percent); Eastern Europe (53.9 percent); Asia (56.4 percent); and Latin America (63.5 percent).

"The difference between developing countries and the U.S. and Western Europe really is played out throughout the survey in terms of advanced services and how interested users are in accessing

Photo: Osama Manzar

them," according to Dave Murray, director of the CMO Council's FAME Group.

In some cases, mobile services can compensate for a lack of infrastructure in phone and Internet services, as well as in other areas. One example Murray cites is a demand for mobile network banking access.

"In India there is a lack of an established consumer ATM network," accrording to Murray. "The idea of a lack of infrastructure goes beyond communications, lack of infrastructure in banking, commerce, and entertainment, which is leaving users in developing countries to rely more heavily on mobile devices."

A dotMobi Advisory Group has been formed to assess market requirements, localisation strategies, business models, funding approaches, and best practice recommendations for developing countries using .mobi domains and solutions.

The Task Force has now agreed to create a sub-group to contribute specifically towards a prototype for the World Digital Library (http://www.worlddigitallibrary.org), as part of the wider content delivery strategy to developing countries with mobile content delivery being one of the key vehicles to achieving this.

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Subho Ray

Digital Content and Services: Does Mobile Hold the Key?

Doesn't it sound interesting that after 15 years of growth, based on "user generated content" mobile phones walas are now moving towards non-user generated content and after 15 years of non-user generated content, the internet walas are moving towards user generated content?

Sounds confusing? Let me try and make it easier: In the first round of growth, mobile/wireless phones have thrived only on voice which is nothing but user generated content. To be slightly technical, the telecom operators have provided a platform on which we the users have contributed our voice content based on which the industry has grown to have more than 400 million customers. In case of the internet over PC/Laptop however, the beginning was made with web 1.0 where the content was provided to the user to web 2.0 where the platform is provided to the user and he/she contributes him/her own content.

So it appears that the adage "The grass always seems greener on the other side" is coming to be true so far as digital content in India is concerned: Mobile walas are now increasingly moving towards getting their customers hooked on to non-user generated content and the internet walas are seducing their users by user generated content.

As of now, so far as the Indian market is concerned with its various skewed and awkward developments, it appears that the mobile walas have a distinct advantage in distribution of content and services on the following four fronts:

a) User generated content OR voice has proved to be a killer application
b) Which in turn has meant that the benefits of "networking" is accruing to the users [the more the mobile phones the more the people would like to buy one; if you are the only mobile phone user you would have very few people to call]
c) A mobile phone after all is a complete gadget: it allows you to talk, it provides connectivity and also acts as a tool for interaction [if you use the internet on a PC you would at least need to have a PC/Device, a modem, connectivity and sufficient electricity/battery supply. Mobile phones integrates all of these in a small and portable gadget]
d) Unlike the internet walas, the mobile phone walas have

taught the users how to pay for content and services

It is a small wonder that everyone is now trying to capture a share of the new user demand for what is perhaps a little too loosely known as mobile value added services. These services range from ring-back tones on one end to mobile banking facilities on the other and anything in between.

"The grass always seems greener on the other side" is coming to be true so far as digital content in India is concerned

This need for pushing content and services on mobile phones would continue to be driven by two significant factors:

a) The falling ARPUs (average revenue per users) , arrival of 3G and stiffer competition from new licensees would drive the telecom companies towards more value added content
b) On the other hand content and service providers which include such different entities such as internet companies, film and music production houses and service providers, banks, retailers; increasingly use mobile phones as an important channel for distribution of content and services.

There is, however, an interesting dichotomy here: telecom users are not used to creating content and services [flourishing as they have done so far on voice]. The content and service providers on the other hand have so far not used to paying the lion's share of revenue for distribution [they are used to paying small commissions], and the current business models primarily dictated by telecoms irks them quite a bit.

So the current situation is somewhat like this: mobile phone walas need content and services to obtain and retain customers but do not know how to create it. Content and service walas are seduced by the huge customer base of telecoms, but are apprehensive of revenue models. While the industry has grown quite a bit within this constraint, it is time to break the ice and work out a sustainable model that benefits telecom operators as well as the relatively smaller content and service providers.

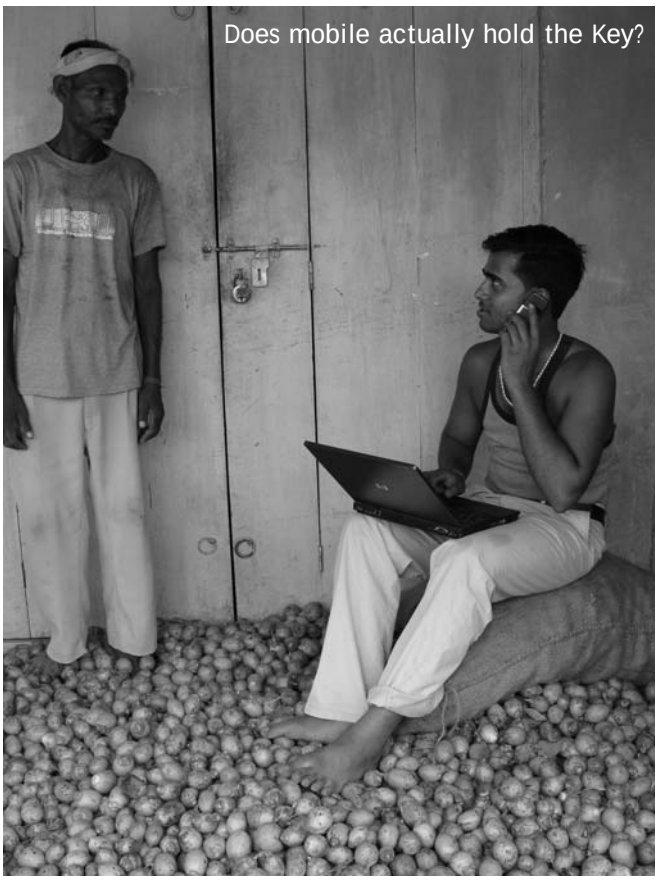
Does mobile actually hold the Key?

Photo: Osama Manzar

From business models to what content would work in the future? This is a tricky one since the 400 million odd mobile users in India represent the entire universe of user types. In my view, a few things will work well [quite apart from p2p SMS, premier SMS and RBT (ring back tones) that currently goes for all the content and service on mobile]: a) anything that is a part of the process of monetary transaction including actual transfers b) critical information that call for action now, c) active search for information and d) entertainment/fulfilment on the go. Interestingly again, telecom companies can not get into these businesses without losing their core competence just as much as content providers can not set up their own wireless networks to distribute their wares.

While it seems that once the telecom operators, content and service providers have developed a sustainable business model, the growth of the industry is going to be unfettered; it would not be unwise to guard against a few roadblocks: a) at 400 million users, we have crossed all heretofore single product/service market sizes; we do not know our customers except that they want to talk, it is always difficult to service such customers b) at 400 million we are more than 400 times over the English literate population, we still do not have local language phones worth mentioning c) at 400 million we are set to cross the total literate and numerate population of the country, will the next set of users be interested in mobile content and services at all? If so, what kind? We do not know!

So even while the b2b issues are solved in the near future, the primary issue of "knowing the customer", is an issue that perhaps irks all. Mature industry will have to be faced and the industry will be limited by its knowledge or lack of it of its customer.

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Sourabh Jain

How the Mobile Channel will help the "Common Man"

Over the last 20 years, the widespread availability of PCs and then the Internet transformed how people transacted in Europe, the US, and other "mature" markets. In India, however, this revolution has not yet impacted a significant portion of the population. Fortunately, the mobile channel now has the ability to bring the benefits of electronic services to the Indian mass market.

The average Indian does not own a PC, but over 350 million people have mobile handsets. Moreover, according to TRAI, there are already over 70 million people accessing the Internet over wireless networks. This compares to only 50 million people accessing the Internet over 20 million PC broadband connections (TRAI, IAMAI). Given the large and rapidly growing reach of mobile service, we have a unique opportunity to bypass geographic and infrastructure constraints to bring massive benefits and lifestyle changes to millions of underserved people across India. This is a bold statement, especially to many people who view "Next Generation" mobile services such as mBanking, mHealth, mGovernment & mCommerce as niche services that are only used by techies & high-end users in major metros. The reality is that adoption of non-voice, non-SMS services is growing exponentially and in all regions of India.

Having spent the last 5 years building a company focused on end-to-end mCommerce, I believe that people will adopt any service that provides high utility at a reasonable price. However, even I have been amazed at the wide range of people who are actively using ngpay as well as the types of products and services that they have purchased. We spent over 4 years building and testing our mCommerce service before launching it in February 2008. In just over one year, ngpay has registered and active users in every state in India. Over 60% of ngpay users live outside the 4 major metros. Moreover, we have seen people in Tier 2 & Tier 3 cities not only banking and paying bills but also booking train tickets, buying saris & DVD players, sending gifts & chocolates to friends in other cities, giving donations to charity, and more — all from their mobile phones.

Imagine a rickshaw driver paying his electricity bill in one minute from the roadside instead of skipping fares to pay his bills in person; imagine someone in a rural village being able to access health information to treat his sick child instead of travelling several kilometers to the hospital; imagine a small business or NGO selling hand-crafted products being able to instantly reach millions of potential customers anywhere in India with no effort or cost; imagine working class people who want to buy consumer goods but without access to any desired stores in their town; imagine a bank being able to immediately provide services to any customer without being forced to build a branch in every remote region of India. All of these - and many more - are available over the mobile if people want them … today.

Imagine a rickshaw driver paying his electricity bill in one minute from the roadside instead of skipping fares to pay his bills in person; imagine someone in a rural village being able to access health information to treat his sick child instead of traveling several kilometers to the hospital

Services from ngpay

Services from ngpay and other entrepreneurial companies will bring low-cost electronic commerce, medical, government, and financial services to the rural and working class in a scalable, secure, cheap, and reliable manner. The mCommerce services in the market today work on any telecom network and on entry-level handsets. Data networks now cover most of India and every operator offers low-cost pay-per-use GPRS plans that can be turned on with a simple phone call. (A typical, end-to-end banking, bill payment, or shopping transaction would cost less than 40 paisa in GPRS charges. This is extremely cheap when compared to the lost wages & petrol needed to complete similar transactions in person.) On the supply-side, any company, NGO, or government agency that wants to provide electronic services to mobile users anywhere in India can do so in a few days with negligible costs. The only barrier is, and continues to be, awareness of what is possible and the type of ROI that mobile services provide.

To be fair, we are still in early days and the while the trends are encouraging, electronic services - over both the PC and mobile - are not close to being as mainstream and mass-market as they are in the US or Europe. However, I fundamentally believe that the inherent benefits of electronic services (increased choice, convenience, access to new services & companies, lower cost) are as useful to an Indian consumer as his/her peer in the US. Hence, it is not a question of whether mCommerce will be adopted, but how fast can it grow? This is where the government and private partnerships can help.

The quick adoption of electronic services will

>> help businesses sell more effectively and service their customers better,

>> provide value and convenience to consumers that were not available through existing channels and processes,

>> accelerate the access and distribution of critical health, government, financial information to citizens, and

>> improve the efficiency, productivity, and growth of both commercial and social services.

In other words, everyone benefits from an effective and aggressive strategy for bringing electronic services to the masses in an easy-to-use, cost-effective, secure, and reliable manner. To this end, the following can be done to accelerate the growth and adoption of mobile services:

(a) increase awareness of the benefits of mobile services via central campaigns and initiatives,

(b) ensure that an environment that is friendly to entrepreneurship and innovation is place, and

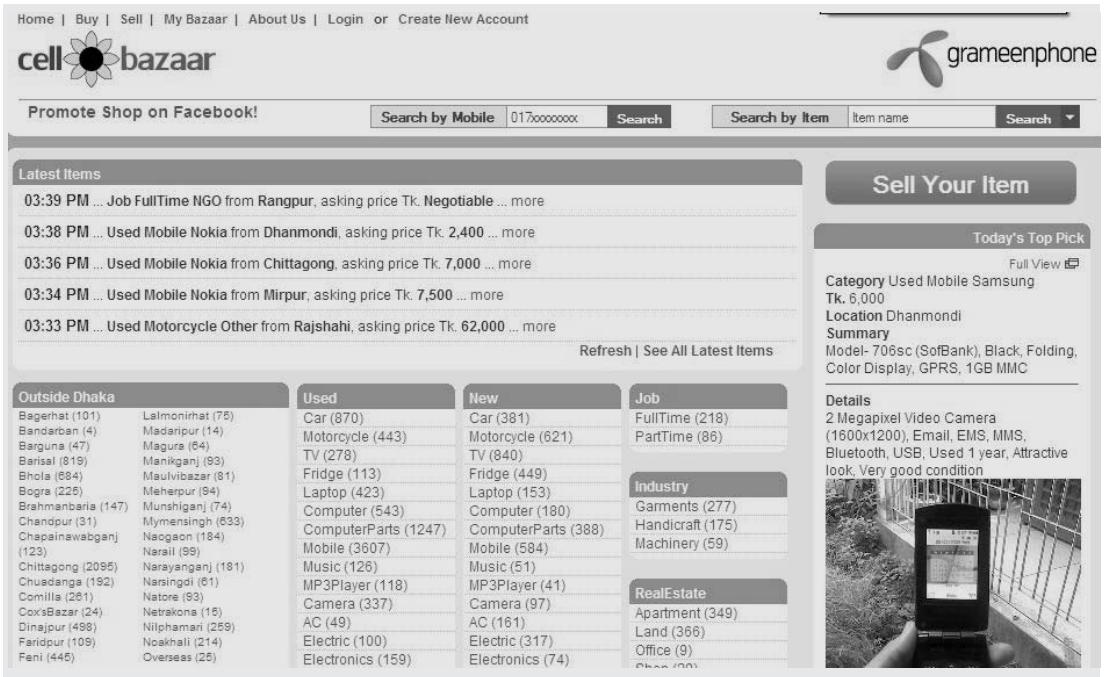
(c) invest - either directly or indirectly - in projects and companies that will further expand the reach and reduce the cost of data services for users using even the most basic mobile service.

The mobile has already changed forever how people interact in their daily lives. However, I believe another revolution is about to happen. Soon, the mobile - given its inevitable penetration, increasing capabilities, low cost, and accessibility - will also change how the "Common Man" transacts his/her daily life.

Sourabh Jain is Founder and CEO of "ngpay". ngpay is one of India's leading mCommerce services. ngpay is a virtual "Mall on the Mobile" through which consumers anywhere across India can shop, buy tickets, bank, order food, pay bills and more - easily and securely - from their mobile handset. ngpay has been recognized as one of the "Most Innovative Technologies in India" by Microsoft, "100 Most Promising Companies in Asia" by Red Herring, "Best e-Business Services in South Asia" by the Manthan Awards, and "Global Technology Pioneers for 2009" by the World Economic Forum. He can be reached at sourabh.jain@ngpay.com

CELLBAZAAR

Bangladesh



CATEGORY
m-content

COUNTRY
Bangladesh

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CONTENT XCHANGE
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CELLBAZAAR
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Summary

Cellbazaar is a service that allows buyers and sellers to meet in an electronic marketplace through their mobile phones and computers in Bangladesh. In this e-bay-like platform, sellers post items and buyers view them and retrieve the contact information in order to finalize the transaction. Users can use this service to buy and sell any agricultural product such as rice, wheat and chicken; large-scale goods such as cars, TVs, fridges and apartments and even services such as tutoring and repairing. Cellbazaar is currently running only for GrameenPhone subscribers (20.99 Million) in four platforms: SMS, Wireless Application Protocol (WAP), Voice and WEB, allowing users to choose the most convenient.

Practice Background

In Bangladesh, more than half of the population has no access to electricity and there are only 3 million Internet users, representing 2% of the total population. 80% of land phone lines in the country are located in the four major cities that account only for 20% of the population. However, there has been an incredible growth in mobile telephony and currently 44.6 million Bangladeshis have mobile phones. Cellbazaar allows mobiles to become the gateway to an open marketplace where buyers and sellers can meet. Markets in developing countries suffer a lack of reliable information that often results in price distortion, harming the most disadvantaged-ones. For example, farmers have to travel long distances to identify buyers or sell their products through middlemen at lower prices. Cellbazaar gives the opportunity for micro-businesses to emerge and gain national exposure and maximum outreach. About 20% of sellers were able to sell their items within ten days of posting.

The service is also useful for low-income consumers as it allows them to find products at better prices. By providing an entire overview of the market, Cellbazaar benefits all sectors across the value chain, pushing towards efficient prices. Through its four platforms (Voice, SMS, WAP and WEB), it allows virtually anyone with a mobile to use the services in an easy way, overcoming the illiteracy problem.

Implementation Process

Kamal Quadir, founder of Cellbazaar, created the idea of a mobile marketplace at MIT Media labs. He presented his project to the MIT Ideas competition in 2005 and eventually won it, allowing him to raise funds to go back to Bangladesh and implement the project.

Cellbazaar established in 2006 a partnership with GrameenPhone, the principal mobile operator in the country, with more than 20 million subscribers and 60% market share. Cellbazaar keeps a small portion of the fee that GrameenPhone charges for each SMS, avoiding monthly or posting charges for the users. After a year of beta testing, the project was launched in August 2007.

Even if the service targeted rural populations, urban ones adopted it first, essentially through WAP and Internet platforms. Illiteracy and a lack of understanding of mobile capacities were the main problems to tackle in order to reach rural Bangladeshis. Cellbazaar established partnerships with grassroots NGOs and with capacity-building organisations, to teach the population to upload data and search items through text messages and voice commands. Massive campaigns at the back of CNG auto rickshaws, TVs and print advertisements and educational booklets were launched to show the benefits of Cellbazaar and to instruct people about its usage.

CellBazaar has grown rapidly and in 2009, it has 1.5 million users and more than 90,000 hits a day (including page views and SMS messages). It has a registered seller base of 51,000 people and its unregistered user base is thirty times that size.

Project Features

>> Technology Platform

Cellbazaar is accessible through four platforms:
SMS: By sending and receiving SMS, user can browse for their preferred items and post what they want to sell.
Interactive Voice Response (IVR): User calls and hears the latest items in Bengali, ideal for users who cannot navigate buttons and commands and do not understand English or are illiterate.
Mobile Internet (WAP): User browses using the navigation button on mobile to find items and click to see the description
Computer Internet (WEB): Entire market can be seen on computer screen. User can quickly select any item due to the large screen.

Depending on the available resources and on their practical knowledge, users tend to choose one platform over another. Urban users access Cellbazaar mostly through Internet and WAP, whereas rural ones mostly use the SMS-based platform.

>> Accessibility & Inclusiveness

The four platforms allow users to use the one that is the most convenient for them, overcoming technological barriers and even some kinds of disabilities. However, the service is operator-specific as users need to have a GrameenPhone number to register them into the system. The service is thus not available for all mobile subscribers in Bangladesh.

Cellbazaar's SMS and Internet platforms are only available in English, but WAP and IVR versions offer part of the content in Bangla. Despite the fact that only a minority of Bangladeshis speak English, language is not a major problem for Cellbazaar as users only need to know two verbs: "buy" and "sell" and the names of the commodities they want to exchange. However, platforms in Bangla and other local languages are being created in association with the Center for Research on Bangla Language Processing of the Bangladesh Rural Advancement Committee (BRAC) University in Dhaka to reach out to as many people as possible.

>> Community Participation

The service is intended to be directly used by users, without the need of intermediaries. The platform is entirely fed by users through their mobiles and computers. Sellers post their items for sale (550 entries per day) and potential buyers navigate through the different categories to find what they are looking for.

Cellbazaar also generated a set of micro-enablers around its service, by enabling people who have the knowledge in how to use the system, to offer training to the community in general.

>> Sustainability and Cost Effectiveness

Cellbazaar does not charge any fee for posting items or consulting the products and its revenues come essentially from a part of the operator's SMS, IVR and WAP fees and targeted advertising. Some other channels of indirect revenue include the voice revenue generated for the phone calls people make to complete transactions - shared within GrameenPhone and Cellbazaar. Its sustainability lies in its capacity to attract buyers and sellers and to make them interact through their mobile. Cellbazaar created a virtuous circle in which more users expand the market attracting sellers and increasing the attractiveness and usefulness of the platform for businesses.

Cellbazaar fosters mobile usage in deprived rural populations that do not use it regularly. Telecom providers can use Cellbazaar service to penetrate into new markets and to strengthen the existing ones. It has drawn a win-win strategy in which telecom operators, users and the platform - all stakeholders are benefited, thus ensuring its sustainability in the long-term.

>> Replication & Scalability

Cellbazaar was mainly thought as a service for developing countries with low PC and Internet penetration but in which the mobile connectivity has begun to reach the masses. Other countries frequently approach CellBazaar, requesting to expand the project to those countries. This model can be replicated in urban and rural areas where markets are not efficient due to lack of information.

The model is scalable as it allows new buyers and sellers to post their products without any constraint.

Conclusions

Cellbazaar reinvented the use of mobile in Bangladesh and gave the possibility to virtually anyone possessing a mobile to buy and sell products at reasonable prices for both parties. Giving people the possibility to use different platforms allowed Cellbazaar to overcome problems of isolation, literacy and even disability.

Small formal and informal businesses emerged and reached wider markets; farmers increased their bargaining power by having access to new markets and price information. Cellbazaar also allowed consumers to have wider choices and buy more efficiently. These value-added services have a direct impact in the lives of more than one million Bangladeshis that have the opportunity to use technology for their own advantage. The skills acquired by these people could be used in future for other Information Communication technology [ICT]-based services.

Voices from the ground

"In Dinajpur, I never got a reasonable price for my rice. The wholesaler would haggle me down. After Cellbazaar, I no longer need the middlemen. I get the price I want and ship most of my rice to Dhaka. This is nothing short of a miracle"

Nuran Nabi, rice-seller from Dinajpur, Bangladesh

"I had been desperately looking for a car for three months but found nothing. Then after going through Cellbazaar, I found an '89 Starlet, which seemed perfect. One phone call later I secured the deal and now I've forgotten what life was without car"

Md. Ferdous Sheikh from Shanmondi, Bangladesh

Lessons Drawn from Cellbazaar

>> Mobiles are often under-utilised and most of their capacities remain untapped. Growing penetration of mobile telephony in developing economies can be used to provide solutions to information lapses and give isolated populations instant access to the markets.

>> Even if mobile has become a popular tool, changing the way people use it in their daily lives and explaining the benefits they can get out of that usage were Cellbazaar's main challenges. Education at the grassroots level, partnerships with development organisations for training people on how to feed and consult the data and educational campaigns were paramount to spread Cellbazaar's usage.

>> Penetration and strengthening of rural mobile telephony markets is facilitated when the appropriate value services are proposed to the population. By generating a direct and immediate benefit to the final users, Cellbazaar fosters the use of mobile and is thus also profitable for telecom providers. Partnerships between various stakeholders including telecom companies and content generators are essential to bridge the digital divide in a sustainable way.

SMSONE

Pune, Maharashtra, India

CATEGORY
e-Youth & m-content

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SMSONE
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PLATFORM OF PRODUCT
Mobile/PDA

Summary

SMSOne establishes Short Message Service [SMS]-based local media by reaching out to communities through their mobiles, allowing them to receive useful information about their daily lives on issues such as health, government services and political information like elections, community events or education. This service enables deprived young people and dropouts from school to self-employ themselves by becoming the community mediators, sending targeted SMS to different groups within their community. These young people are able to get earnings and the system is financed essentially through local businesses advertising and by charging few paise per message.

Practice Background

Mobile penetration has incredibly grown in India over the past years and at the beginning of 2009, there were more than 370 million subscribers, many of them coming from rural areas. However, even if the masses have an access to mobile connectivity, most of the handsets' potential is still untapped - as the content delivered is often not directly related to their livelihood and their environment. Rural communities certainly need local information concerning health, education, government services and other valuable information that can improve their livelihood and meet their daily needs.

On the other hand, opportunities in rural areas for young people are very weak and rural education does not cover rural necessities and does not meet the requirements of local communities. In this context, young people, especially dropouts, are often unemployed or are forced to migrate to the cities looking for jobs. Providing occupation to these people in their own locality is essential to prevent massive migration.

SMSOne tackles these two problems at the same time. First, it fills the information gap existing in more than 500 villages in Maharashtra, updating its members through the local-based SMS newsletter with local news and other community-related information. The system is able to distribute messages to targeted communities, thus increasing its impact. SMSOne is a useful tool to transmit urgent information at any time and can be used to alert people about natural disasters, epidemic diseases and send other critical information. Secondly, SMSOne gives young dropouts the opportunity to self-employ themselves and earn monthly revenue, contributing at the same time to the development of their community.

Implementation Process

SMSOne is a concept proposed by YouthNet, a Pune-based group of youth and was first implemented in July 2007. The pilot project covered 70 communities in the state of Maharashtra. The diverse feedbacks from the community-mediators and newsletter members were taken into account to establish a generic process in order to make the project scalable and to ensure that the services were delivered to the community in a right and efficient way:

>> An unemployed youth, who has strong local links, contacts SMSOne in-charge to start the project in his/her locality and receives training and information for the implementation of the project.
>> He/she collects local citizens' data concerning their status, interests, needs and preferences, and permit from them that confirms their willingness to accept the local SMS newsletters and advertisements.
>> He/she creates the database and sorts the data according to name, gender, age, profession and interests in order to target the right people while sending SMS.
>> Later, he/she receives a one-day training to operate the SMSOne software to send bulk SMS through the computer.
>> After having his/her database and starting the service, the youth can contact local advertisers through whom he/she can finance this service by sending targeted advertising to the community.

Currently, SMSOne covers more than 500 villages in entire Maharashtra and provides self-employment to more than 350 youth across the state, bringing information and services to more than 350,000 people.

Project Features

>> Technology Platform

SMSOne does not need advanced equipment to be implemented, as it transforms mobile telephones into micro-media using their SMS capability. Therefore, end-users only need an entry-level mobile device without advanced features to receive the local SMS newsletter.
To send the SMS bulk-messages, a computer with Internet access and the SMSOne Express software are needed. A simple desktop and web-interface software was designed to centralise all the SMSOne activity throughout Maharashtra.

>> Accessibility & Inclusiveness

The fact of using mobile telephony to convey messages is inclusive per se due to the high penetration of mobile telephony in India. On average, every household has a mobile phone and only one SMS can reach an entire family. Word-of-mouth in the villages work as an amplifier for the information conveyed by SMS and helps to overcome the problem of illiteracy.

>> Community Participation

SMSOne empowers young people by giving them the opportunity to self-employ them and to participate actively in the development of their community. Through SMSOne, the young self-employed targets the needs of the local community and delivers social messages and advertising. The information sent is customised to attract the interest of the community and meet its demands. Locals are also able to send important messages to their counterparts through the mediator.

>> Sustainability and Cost Effectiveness

Young self-employed are the only people responsible for the local SMS community. Their revenue comes only from advertising, as they do not charge any fee to the community members. Therefore, their earnings depend on their capacity to attract people and organisations like political parties, schools, government agencies, and busi-

nesses willing to convey messages to the community. The community mediator is free to negotiate the price for each message and is thus able to create his/her own business structure under the SMSOne umbrella. SMSOne only keeps few paise per message sent.

The system cannot generate any loss to the young entrepreneur as he/she does not have fixed costs and the revenues are for him/her, making the model sustainable. Other informational services can be added to the system and generate new incomes to the young entrepreneur.

>> **Replication & Scalability**

SMSOne can be replicated easily in other states of India and other developing countries. Through its innovative model, it can provide large-scale employment to rural youth and provide useful local information to underserved communities. There are three main factors that can foster the replication of the SMSOne model:

>> The growing penetration of mobile telephony in India - with more than 10 million new subscribers added every month - and other developing countries, especially in rural areas.
>> The growing informational needs of rural communities in terms of government schemes, public services, health and livelihood related information.
>> With Right To Information (RTI) becoming an Act in India, mobile could be considered as a medium for information transaction and empowerment though persuasive knowledge sharing.

SMSOne has only been implemented in the state of Maharashtra but through its franchisee model and partnerships with state wise NGOs, it is aiming to establish a pan-India presence with 10 million subscribers and 10,000 community mediators in the medium-term. SMSOne is also being approached by various network-based organisations that want to use the service to strengthen their network.

The system is also scalable as new users can be added to the database, increasing its attractiveness for advertisers and contributing to its sustainability.

Conclusions

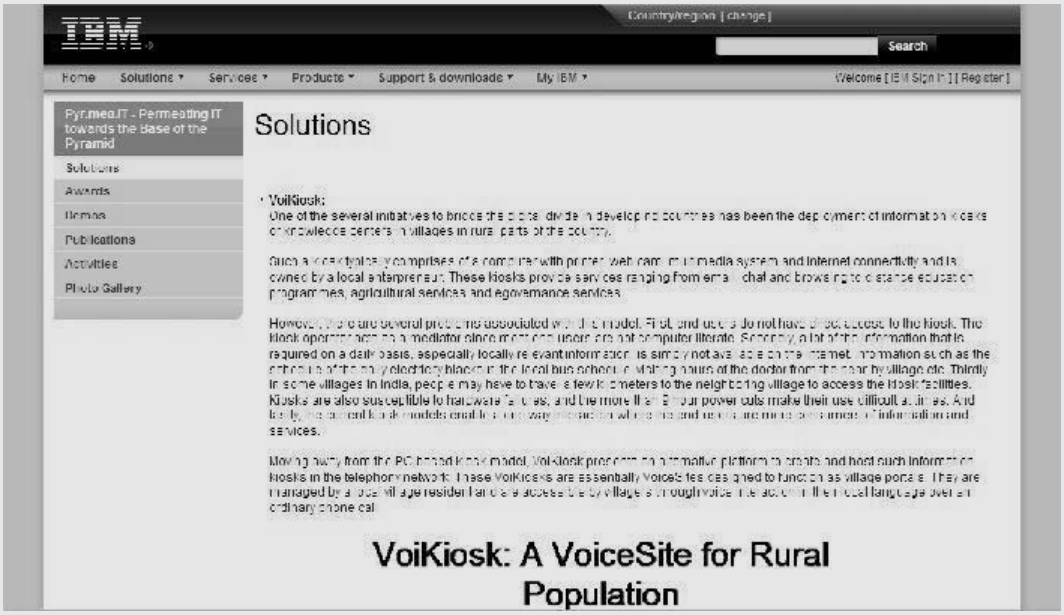
SMSOne tackles two major problems of the Indian countryside: isolation and lack of relevant information and youth unemployment inducing fewer opportunities. Its standardized implementation process and its simplicity make it easily replicable in other regions.
It is a cost-effective solution that provides free services to the community, targeting its special needs. Being managed by a young person from the locality, the information conveyed through the system is relevant for the subscribers and deals directly with their environment. SMSOne creates a virtuous circle as when it adds members to the service, it becomes more attractive for potential advertisers, providing more revenues to the young entrepreneur.

Lessons Drawn from SMSOne

>> While many projects focus on high-tech solutions involving Internet, SMSOne allows areas with basic mobile connectivity to benefit from informational services generated in the same localities. It uses the existing mobile network and does not need special equipment to work.
>> ICT solutions can provide self-employment in rural areas and can be essential to reduce rural-urban migration by providing opportunities at the rural community level.
>> ICT projects using the existing connectivity infrastructure and having a standardised implementation process are easy to scale-up and replicate.
>> SMS is not only a one-to-one medium but can also work as a community media. By collecting data on the subscribers, relevant targeted information can be sent to each group of the community.

VOIKIOSK

New Delhi and Hyderabad, India



CATEGORY
Innovation

COUNTRY
India,
Delhi / Hyderabad

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Summary

Created in the IBM Research laboratories, Voikiosk is a voice-driven application available on the telecom network and based on World Wide Telecom Web technology. It allows the creation and host of village portals on the telephone network by aggregating a set of Voisites comparable to websites by which users can navigate using vocal commands. Through this service, village communities can directly access and post relevant information about their daily lives on a vocal server through their telephones.

CONTENT XCHANGE
www.contentxchange.net

VOIKIOSK
http://domino.research.ibm.com/comm/research_projects.nsf/pages/pyrmeait.soln.html

WORLD WIDE TELECOM WEB TECHNOLOGY
http://domino.research.ibm.com/comm/research_people.nsf/pages/arun_kumar.WWTW.html

PLATFORM OF PRODUCT
Telephone

Practice Background

One of the main initiatives that have been undertaken by multilateral institutions, government agencies and NGOs to bridge the digital divide, is the implantation of Internet kiosks in rural areas. However, many problems remain associated with this solution: poor connectivity and power supply infrastructure in rural areas; illiteracy and villagers' lack of computer knowledge which force them to depend on the kiosk operator to post and find information; and a lack of reliable and locally relevant information on Internet for rural necessities.

Voikiosk allows rural underserved communities to overcome these problems and access the benefits of the information-based economy through their land or mobile telephone, without the need of sophisticated infrastructure or advanced technical knowledge. Voikiosk facilitates the access to information services in local languages and enables villagers to become information providers themselves.

The three main usages of Voikiosk are:

>> Information Dissemination that is relevant to local communities: local doctors' weekly visit schedule, bus schedule, crops and commodity prices, weather forecast, government schemes, educational information etc.

>> Interactive Services that allow users to demand services such as electricity lines, telephone connection, agricultural counseling, water provision, health checkups etc.

>> User-Provided Services that allow users to create and provide content for the portal. Villagers can advertise their products and services to the rest of the community.

Implementation Process

Voikiosk was designed by the IBM Research laboratories in partnership with Byrraju Foundation, which had already been working on distance education programs, health, and agriculture-related services at the grassroots level in Andhra Pradesh since 2001. As a pre-pilot project, a kiosk template was developed for a group of villages in the region in the local language, Telugu. Three main services were selected for the deployment of the kiosk template after a study of the villagers' informational needs:

V-Agri: This service is directed to farmers and aims to provide them the necessary information for their crops. With this service, farmers would have the possibility to post their queries to be responded by an expert on Voikiosk

Ashwini Center: It is a distance education school in the villages where a teacher from the city teaches students through teleconference. Information concerning new programs and changes on the schedule of the classes were transmitted by word-of-mouth or by going there. Voikiosk would have an Ashwini Center section where students would be able to collect this information.

Local Advertisements: Users would be able to post their advertisements promoting their services (micro-business such as drivers, cooks, cows, bulls, fertilizers) in the way people post advertisements in a newspaper. Other people from the village could retrieve this information through Voikiosk and contact the person who proposed the service.

Two kiosk operators residing in two different villages participated in the testing and were responsible for uploading the principal content and maintaining the platform. A group of volunteers was constituted to follow the implementation of the project on the ground, collecting users' impressions and data.

The project immediately drew the attention of the villagers and the number of calls registered showed that they were really interested in the service, mostly for the section that allowed them to upload content. After the first two months, the village voice portal was receiving numerous repeat callers and new ones, showing its acceptability with illiterate and semi-illiterate populations. Besides, villagers generated content that was not anticipated by the researchers, such as marriage requests and personal messages, thus showing the platform's versatility.

Project Features

>> Technology Platform

Voikiosk is based on the World Wide Telecom Web technology (WWTW), which allows the storage and distribution of vocal information through the existing telecom infrastructure. WWTW is a network of Voicesites, - voice-driven applications - comparable to websites in the World Wide Web that can be linked to other VoiceSites through vocal hyperlinks supported by Hyper Speech Transfer Protocol (HSTP).

End-users access these Voicesites through the telephone to interact with the system and navigate through it, using voice commands. All the technology is integrated in the telecom network and is thus invisible for the end-users that do not require special knowledge or equipment to use it.

>> Accessibility & Inclusiveness

Voikiosk is accessible from every ordinary landline or mobile phone as the end user navigates through the system by vocal commands. Accessing a telephone is incredibly cheaper than accessing a Personal Computer and has several advantages for developing countries: it does not need a constant power source; mobile connectivity is expanding its out-

reach, and it does not require special skills for using it.

Voikiosk was designed to support various languages and is thus accessible to illiterate people - as oral communication remains the only way of passing information in many rural areas. However, expanding speech recognition and synthesis technologies to the bunch of languages in India is still a big challenge.

People suffering from some disabilities such as speaking or hearing disorders cannot interact properly on this platform.

>> Community Participation

Voikiosk is a community-centered project where the final users are habilitated to directly interact with the platform without any kind of intermediaries. Through their telephone, they can conduct their own research and become content-producers by creating Voicesites that could be further consulted by others. Therefore, content is locally generated and relevant to the local environment.

>> Sustainability and Cost Effectiveness

Voikiosk is a cost-effective solution to provide information in remote areas. It requires minimum training and equipment and can be hosted by the telecom provider or small organisations such as NGOs, voluntary organisations, Micro Small and Medium Enterprises (MSMEs) or Primary Health Centers (PHC) that would only need a web server and the right software, some of it available in open source.

Different business models can be drawn to make a Voikiosk sustainable. Local advertising can be a source of revenue and small fees can be charged for every call. Content concerning political campaigns, government schemes and personal Voisites can also be charged to make the platform sustainable. Many companies who target consumers in rural areas can also pay to use Voikiosk as an advertising medium.

>> Replication & Scalability

Voikiosk can be implemented over the existing telecom infrastructure. In India, out of a total of approximately 650,000 villages, nearly 90% are covered by telephone services and it is thus possible for them to have a local Voikiosk. However, the capability of the system to recognise other languages and accents can hinder its replication.

Voikiosk was designed to be scalable as it is a content aggregator and the villagers can add new services when needed. Nevertheless, its scalability poses some problems when the system handles too much information:

>> Browsing becomes difficult, as it is very hard to keep track of all Voicesites. The service can become too complex for the villagers and lose its appeal. New solutions for navigating through the different Voicesites are needed, such as the creation of an efficient voice browser capable of book marking favorite sites and storing the history of visited ones, learning the user preferences over time.

>> Searching information in the system would imply the adoption of advanced automatic speech recognition techniques for indexing, as well as methods to consider recognition errors.

>> In a country like India, where thousands of languages and dialects are spoken and where people constantly mix them, the integration of different languages in the platform and the compatibility between them can be a burden for the project's scalability.

Conclusions

The reality in the Indian countryside, where the lack of infrastructure is impressive and where literacy and computer knowledge are very low, has been the Voikiosk's driver. To overcome these problems, Voikiosk was designed to use the existing telecom network - present all over the country - and be accessed from every telephone through vocal commands.

Being entirely fed by the end-users, Voikiosk not only provides truly local information to rural areas but can also be used by villagers in ways that were not considered by its designers. Voikiosk is a flexible platform that can be adapted to the end-users' needs and shaped in a personalised manner for each community.

However, scaling up and replicating Voikiosk can pose some problems. The data organisation and the browsing system can become unusable when content becomes too important and the compatibility between languages and the recognition of different accents are issues that are still under research.

Lessons Drawn from Voikiosk

>> Efforts are on for bringing computers and Internet to the villages and remote area in order to provide locally relevant information. However, accessing a computer is not vital for villagers as what they truly need is information. Voikiosk makes the technology invisible to the end-users, utilising the existing equipment and overcoming barriers such as literacy and computer skills.

>> With minimal infrastructure, it is possible to equip remote villages with their own kiosk in which locally relevant information can be exchanged directly by the villagers, without the need of intermediaries.

eNGO

DIGITAL
EMPOWERMENT
FOUNDATION

eNGO is a programme initiated by DEF to offer FREE websites to the orgnisations working at grassroots level. eNGO would like to see that maximum number of organisations finds a virtual face, identity and be visible to global and national audience. eNGO programme offers websites in any Indian recognized language

EMPOWERING GRASSROOTS ORGANISATIONS

@ Village, Panchayat, Tehsil, Block & District Level *through*

FREE websites

eNGO Secretariat

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The Digital Equalizer

An initiative of American India Foundation has proved that the role ICT in education at the school level needs serious planning, handholding, management, and constant innovation

SUNDAR KRISHNAN

Technology can be applied in the classroom (and the community) in countless ways, and with numerous benefits. The flexibility of technology and the limitless amounts of information available allows schools to use Digital Technology in very different ways, adapting Technology Aided Learning (TAL) to the specific needs of their own school.

AIF's Digital Equalizer (DE) Program is a Technology Enabled Learning Program that bridges the education and digital divide in India by preparing a large number of youth and children to compete in the digital economy. Targeting children in grades 6 and above, AIF provides on-site support to a DE school for 3 years and prepares the school for complete self-sufficiency after that period.

DE Philosophy

In DE the focus is on teachers, as the underlying belief is that meaningful education, whether Technology enabled or otherwise, can take place only with skillful teaching. AIF works with subject teachers once a week, for three years in under-resourced schools which are mostly:

1. First generation learners.
2. Girl children.
3. Located in rural/remote locations.
4. Below poverty line.
5. Disabled
6. No opportunities to work with computers.

The DE Program which started in 2002, with few demonstration DE centers, has grown exponentially in the last 3 years. By 2009, DE would have touched the lives of 600,000 children and 15,000 teachers in more than 1500 under-resourced schools in 14 Indian States.

DE Mantra

To achieve this meaningful impact, the mantra of DE has been Innovation, Partnership and Systemic Intervention. The challenges of education are not new, and traditional solutions that have been used for decades have only shown incremental results. Innovation within and outside the classroom is no longer a choice, but an imperative. AIF's innovations include On-site weekly teachers' training conducted over three years in every DE school, integration of computers in the curriculum through project-based learning, and changing the role of the learner from consumers of content to creators of content.

A huge number of children in India are not realizing their potential because innovative educational interventions tend to be localized in small clusters. To break away from this "for-ever-pilot" syndrome, AIF partners with individuals, corporations, governments and NGOs to reach the remotest places across the country. This mantra of partnership is built upon the principles of understanding, trust and accountability.

If AIF's interventions have to create a lasting impact on education, it is not enough to work with only teachers and students. AIF works with school, district and state administrators to positively influence their values, beliefs and motivations. These systemic interventions help create an environment that nurtures learning beyond the three years that AIF engages with each DE school.

Reflections: Implementation Perspective

We think that putting computers and setting DE Lab in schools is easy. The challenge is to transform the teaching-learning process in schools. The first step in addressing this is to uncover the difference between learning "from computers" -where Teachers/ students use computers as a tutor-and learning "with" computers, where Teachers/ students use technology as a tool.

Second, technology is not a panacea. Technology cannot solve all the problems faced by our schools, nor will it replace teachers. Technology will have little impact unless it is accompanied by reform at the classroom, school, and district levels. All too often, technology is purchased without a clear vision of how it is to be integrated into the mission of the school or district. Technology projects should be implemented only after a planning stage, where administrators and other stakeholders develop clearly articulated goals for technology use. Schools will need to revisit this plan on an ongo-

ing basis to take advantage of the new opportunities and innovations. Also, schools and districts often forget that maintaining technology can be expensive. Therefore, the costs of educational technology should be built into school budgets on a regular basis.

Third, technology is only one of the tools. There are many instances when technology is not the most appropriate tool to use. The advantages and disadvantages of technology must be weighed by teachers, depending on the circumstances and the goals for the learner.

Fourth, technology is the most meaningful tool when used for problem solving, conceptual development, and critical thinking. Students can learn basic skills "from" computers, but technology should be used to explore, organize, and analyze information promoting

Higher-order thinking skills

This is a very big challenge as assigning projects that entail students to think and at the same time extend the learning to the concepts of the curriculum, involves training and imaginative thinking.

Fifth, when technology is integrated with project-based, real-world situations, students are engaged in the learning and teachers are energized and the learning that one achieves is long lasting.

Finally, technology will have a positive impact only if certain conditions are met some of which are

>> Technology will have little effect unless teachers are adequately and appropriately trained with a review process in place. All too often, schools and districts spend the majority of their technology resources on equipment, and devote very little to training. Even when teachers are provided with training, too often they focus only on fundamental computer operations rather than on how to use technology as a teaching tool or how to integrate technology into curriculum. For instance majority of teachers trained under the DE program have not even heard of National Curriculum Framework (NCF 2005).
>> Getting the right people for training the teachers is an extremely daunting task. Very often this can make a huge difference to programs like DE. The DE resource person has to wear multiple hats like facilitator in education and technology, a catalyst, a trainer and above all a motivator.
>> At a systemic level, we believe that unless an enabling environment is created in the school ecosystem which drives the teachers to embed technology into their lesson-plans, administrators to use ICT for day to day management, there will be little motivation for the schools to use technology in an integrated manner. For instance, if the system reviews, reflects and recognizes the innovative efforts undertaken by the teacher/ school, it will have huge value.
>> Our experience has shown that teachers must understand how technology fits into the larger curricular framework to use it effectively in the classroom. Unfortunately, many teachers use technology as an "add-on" to an already complete curriculum. Some teachers "teach technology" and focus on word processing or the use of keyboard resulting in mere cut and paste from various resources. However, we have also seen that when technology is integrated into the curriculum, students not only learn how to use the hardware and software, but learn skills that are valuable in the workplace, such as critical thinking, collaborative learning and effective communication.
>> We have found that the introduction of technology cannot radically change teaching; instead, it served as an icebreaker (change in mindset). Over the course of a three to four year period, we are seeing shifts in teachers' teaching practices. Curriculum delivered in a didactic mode was first strengthened through the use of technology, and then was gradually replaced by more dynamic learning experiences for students such as collaborative, project-based, interdisciplinary learning. In order to see real transformation, a well developed plan (technical and financial) should be in place in an enabling environment.
>> Even with a well-developed plan in place, technology won't have a significant impact unless teachers have ongoing support. Consequently, the effective use of technology requires an adequate school and district infrastructure and must include timely, on-site technical support. Depending upon the maturity level of the school, the support varies for technical and instructional areas.

In order to see real transformation, a well developed plan (technical and financial) should be in place in an enabling environment

Final Lessons

>> The program's success depends on whether one can crack the question "What is in for me" from a teacher's perspective?
>> For measuring the success on ICT use, we use the following parameter: the quantity of digital content of "acceptable quality" that is created by students themselves followed by teacher guided student projects followed by teacher's own creative ideas put into practice in that order.
>> The ultimate success of ICTs for learning will be attained when we shift our discourse from ICTs and focus our energies to the wonders of learning. After all anything that is worth knowing cannot be taught.

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Content Strategy for Community Radio

KIRON BANSAL

For the success of any medium, content holds the key. In the case of Community Radio, it is all the more important in view of its specific nature, scope and objectives. As we are aware, a community radio is people's radio which reflects the hopes, concerns and aspirations of a community. Covering a small geographical area of not more than 15-20 km. radius, it works on the premise of the citizens' 'right to disseminate knowledge'; the citizens' 'right to know'. It aims to initiate development from the grassroots and bring in the voices of the excluded to the centre. To develop a sustainable content strategy for a community radio station, some factors need to be considered.

Audience Profile

Like any other form of media, content planning for community radio cannot be made in isolation as it has to cater to the needs of the community it aims to serve. Thus, the first question a community radio broadcaster has to answer is - Content for whom? Who the community members are? What is their demographic profile (in terms of distribution of age, gender, income levels, occupation, educational levels)? What types of media options are available to the people - do they have access to newspapers, radio or television? What kind of folk media are being used? In addition, it is equally important to ascertain the kind of environment in which the local community is placed - the climate, type of landholding and the crops produced and so on.

In case the programmers are from the community itself, they will have some understanding about the local issues and problems

Development Status

Apart from the audience profile, a good understanding of the development indices in a community such as health, education, economic status, agriculture, rural development etc. will be required. The community may also be confronting some day-to-day civic problems or those related with law and order, irrigation, sanitation, water distribution among others. Some of these issues can be taken up in the programming with an aim to address them.

In case the programmers are from the community itself, they will have some understanding about the local issues and problems. However, if they are from outside and represent any agency/organization etc., then it would be desirable for them to interact with the local community members, field functionaries and senior officials to thoroughly understand and identify the concerns of the community. In any case, regular interactions with the community members will always be required to develop a sustainable strategy for content generation.

'Needs' and 'Wants'

Among the various types of needs, a radio programmer has to keep in view the felt or expressed needs and the latent needs of a community while planning the content. Felt needs are those which a person is able to identify and articulate oneself while latent needs are those which a person or community may not be aware of but requires for its growth, progress and development. An analysis of both types of needs will help to identify the 'real' need of the community for effective programming of a station. Focus group discussions (FGDs) which give an in-depth view of an issue have been found useful tools for assessing the needs and wants of a community as compared to the survey method which gives a 'big picture'.

Specific Issues

Yet another important area which merits consideration is a focus on specific issues being faced by a community. For example, we all are aware that health is an important development indicator which needs adequate reflection in radio programming. But health being a broad area; it will be useful for the programmer to narrow it down to the specific health needs of a community for optimal

impact of the programming. It is possible that a village may be afflicted with any disease like gastroenteritis, chicken pox or dengue fever requiring immediate attention. In such a scenario, it makes little sense to discuss health problems of far off places such as encephalitis or swine flue. The local health functionaries, doctors, officials etc. may be involved in imparting relevant information to contain the spread of the disease.

Linkages

The above example brings us to a very relevant question - should the programming of a community radio station be confined to the local issues only or offer some scope for projecting larger national issues as well? It would be useful for a community radio to pick up some important issues projected in the mainstream media having bearing on their lives and interpret them with the local perspective. In this way, it will make the community aware of the national issues and broaden their horizons to help them bring into the mainstream of life.

Positive in Nature

The content of a community radio can contribute in making people aware about their rights and responsibilities and can serve as an effective tool to foster communal harmony and national integration. The content planner needs to be careful about hidden propaganda, controversial and contentious subjects that may conflagrate conflicts and tensions among people. This, however, does not imply that a community radio station shuns real issues - far from it, it is rooted in reality and to meet the objectives of social responsibility, its primary aim is resolution of a problem rather than its aggravation.

Entertainment

Yet another crucial area for content planning is that of entertainment. It is often argued that since the objectives of community radio are information and education, there is hardly any scope for entertainment in it. Even if there is, it is limited to folk songs and folk music. However, community radio programming need not be dull and boring; otherwise it will lose its inherent strength to draw people to its fold. Fun and games are part and parcel of our lives and there is no need to ignore or shy away from them. Even broadcast of film music may also be considered in this regard. What is important is to maintain a judicious balance between information, education and entertainment in the content planning.

Formats

Apart from the basic formats like talks, discussions and interviews, a community radio station can also make use of drama, quiz and phone-ins (the latter in case telephone facility is easily available). In different areas, local festivals, melas and exhibitions are organized from time to time which witness active participation from artists of different art forms or genres. Their interviews can serve as a rich source of content. Since community radio operates on low budgets, it would be useful to broadcast more live programmes to minimize the need for recording and editing.

To emerge as a true representative of a community, a community radio station has to give ample scope for local talent in its content planning

Local Talent

To emerge as a true representative of a community, a community radio station has to give ample scope for local talent in its content planning. Local people may share their special skills and talents in singing, storytelling, dramatics, gardening and even cookery. They may use the forum to share their own success stories - how they have faced the odds in their lives and overcome them - to inspire and motivate other community members.

For developing a sustainable content strategy for a community radio station, some of the issues discussed above may be kept in view. If a radio station is able to voice the needs and hopes of the community and address their concerns by actively involving the people themselves then it leads to a marked improvement in their quality of lives. Thus the goal of community radio is achieved.

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Having endured great hardships, I realized that many more retired people would be facing similar problems. From that day on, I decided to do something in this direction

Career begins at 60!

About me

My name is Ravi Kumar Panagaria. After working for 37 years in various capacities, I took Voluntary Retirement Scheme (VRS) and moved to my home town in Jaipur. Prior to this, I was working as the Senior Vice President and Profit Centre Head at HEG Ltd., in Durg. With a rich experience and good contacts, I thought it would be easy for me to restart my post-retirement career at Jaipur. However, within two months I realized that it was going to be a challenging task. Having endured great hardships, I realized that many more retired people would be facing similar problems. From that day on, I decided to do something in this direction.

How the Internet came into my life

On 1st January 2008, we advertised in a local daily calling for employment-seeking retired people to contact us. The response that we received was truly amazing. We received several applications within a few days. Applicants included Government officials, bank officials, compounders, forest officials, accountants, army officers, technical persons and so on. We also received several enquiries from various organizations offering jobs for retired people.

This encouraged us to take this idea further. But printing advertisements in all national dailies was very expensive and we did not have the required resources. I realized that the Internet could help me fulfill my objective of helping retired people find suitable employment. That´s when we decided to launch a website for this initiative.

The power of the Internet helped me turn dreams into reality

www.jobsretired.com was launched on 30th June 2008. The basic idea was to create a platform where both retired jobseekers and employers could meet. Job seekers can register on the website to post their resume. The process is simple: jobseekers can email or post their resume to us and we upload them on our website. They can also apply for the posts advertised by organizations on the website, either online or by email. Organizations too can advertise their job requirements and can access resumes posted on our website from a databank, after registering with us. Today, we have over 1000 CV´s in our databank and the website has been visited more than 13000 times.

With the Internet, I´ve achieved my goals. Now, I´ll transform the future.

Lately, we have also started counselling retired people, who approach us for guidance for their children. Without the computer and the internet, our initiative would not have been possible. Life has transformed with the advent of the computer and I hope more people can learn basic computer skills and take advantage of this great technology. We plan to train retired people to make them computer-savvy and teach them the basics of computers and the Internet. We also plan to launch another web-based initiative very soon.

Thank you

This story is taken from www.connectedindians.com

I was glad, because the IT job brought me value and dignity in society. After two years in the job, I started working independently

From Goldsmith to Web Designer

About me

My name is Joseph Thomas. I was born in Thrissur, (a small town in Kerala), in a family that was financially weak. Since we lived within our financial limits, we were not in any debt, but life was tough. My father had a shop in the fish market in Thrissur. However, it was eventually lost because of some accounting issues. Soon after that, my father went from being the employer to employee in the same shop. He worked in his ex-employee's shop for a few days and finally quit.

The early days

We are a family of 10 consisting of 8children. Two of my elder brothers worked as masons for daily wages. I was always a good student at school but I dropped out of college in the second year, mainly because I thought I would end up becoming a mason or a shop salesman, no matter how further I studied. After I dropped out of college, I started working as a telephone booth operator for a salary of Rs. 250 per month then in a juice shop for Rs. 20 a day, an office boy for Rs. 450 per month and finally a goldsmith for a salary of Rs. 600 per month. It was in this job that I got to know about computers.

How the Internet came into my life

I also started reading English magazines. One such magazine used to feature special articles on computers and the Internet. I was amazed at the amount of information that the internet makes available to everyone. So along with a friend, I enrolled in an institute for a basic computer course that lasted for 3 months. I learned how to operate a computer, how to create folders, MS Word, Excel, etc. I also created an HTML page using MS Frontpage Express, even though I had no knowledge of HTML. Upon seeing my first webpage, my computer instructor asked me not to give up after the basic course and to join a web designing course. But I was not sure that it would have been possible as the academic courses on web designing were too expensive.

With the Internet, my career raced towards success!

With my family´s support, I joined the course but on the condition that 'upon completion of the course, I would find a good job in the same field. 10 months into the course, I started looking for a job in the IT sector. A few months later, I got my first job, with a salary of Rs. 4000 per month. I was glad, because the IT job brought me value and dignity in society. After two years in the job, I started working independently. I did freelancing for a US client from home and it went on for 2 years. Now I work in an MNC and earn a good 5 figure salary. I´ve built my own home too.

The Internet transformed my life

The amazing medium of Internet has also helped me interact with people all over the world and it was not just my career that it helped. The web 2.0 technologies lead me to start the first Malayalam podcast called M-Pod (http://www.mpod.in - which featured in the Podcast User Magazine issue #18 and in Tehelka) and I launched a global platform for amateur musicians called Blogswara *(http://en.wikipedia.org/wiki/Blogswara) (http://www.blogswara.in)*. I was featured in the national news media The Indian Express and The Hindu for online efforts. I maintain a blog (web-log) where I keep track of activity in the Indian music blogging world (http://audioindia.blogspot.com). I was also among the first to start music blogging in India, it was a wonderful tool which gave me exciting opportunities in the music industry. I have composed and sung the title song for a Malayalam telefilm which is a UK Malayalee production that will be aired on a prominent Malayalam TV channel. I also could have work with a Reggaeton artist from the US, named Deevani, on her yet to be scheduled music album. My life would have been on a different plane if not for this wonderful medium called the Internet.

Thank you

This story is taken from www.connectedindians.com

WSA INDIA INTERNATIONAL E-CONTENT SUMMIT ON 21ST CENTURY INDIA THROUGH DIGITAL CONTENT

A Digital Content Policy is the need of the hour

The WSA India International e-Content Summit on '21st Century India through Digital Content' highlighted the need to integrate digital content with mainstream development policy framework

PRITAM SINHA

The WSA India International e-Content Summit on '21st Century India through Digital Content' highlighted the need to integrate digital content with mainstream development policy framework.

The Summit intended to be India's largest Digital Technology and Digital Content Summit was held on the occasion of 2009 World Summit Award Grand Jury. With India as the host through Department of Information Technology, the Summit witnessed a gathering of digital technology and content experts, policy experts, research and academicians who are into technology and development, representatives from private and civil society stakeholders, digital technology and content innovators and practitioners and community leaders, who shared the platform to discuss digital technology and content areas in development. With several round table sessions, the Summit ended with key outcomes! Among key speakers included Chief Guest, Mr. Wajahat Habibullah, Chief Information Commissioner of India; Prof. Peter Bruck, Chairman, World Summit Award; Mr. R. Chandrasekhar, Special Secretary, DIT, Govt. of India; Mr. S R Rao, Additional Secretary, DIT, Govt. of India. The Summit, held on April 2, 2009 in New Delhi, was organized by Digital Empowerment Foundation with support from Department of Information Technology, Govt. of India and strategic support from World Summit Award, Austria.

Summit Objectives

Key Summit objectives included:

1. To share best practices and lessons learned about digital technology and content for development from international and national experiments;
2. To share tools and strategies for digital technology and content for development;
3. To have focused and targeted deliberation on the linkage between digital technology and content and social, economic, and cultural capital;
4. To increase the level and scope of knowledge about the strategies and resources available to build social, economic, and environmental capital, especially in light of the changing technology and content environment;
5. To deliberate on key policy aspects of digital technology and content for last mile development.

Summit Outcome

Working Session I: Digital Content in Business, Enterprise & Livelihoods

The focus of this session was to discuss the role of digital content & services on various ICT tools and media platform. The idea was to bring forth international learning and put them into Indian perspective and vice versa. The special focus was on ICT enabled sustainable business models providing livelihood, entrepreneurship and growth.

Thematic Session I: ICT Enabled Enterprise: Bridging Demand-Supply Gap

Key Outcomes

1. There is need for clear-cut definition of an ICT enabled enterprise
2. There is extreme need for stakeholders to come together to meet the disparity between demand and supply of ICT enabled enterprises
3. Development in an ICT enabled enterprise has to be at three levels- development of infrastructure, development of practice and creation of user specific content
4. There is need to address the issue of misalignment between content and efficiency. Content is available in a large quantity but has to be realigned in order to be user specific and hence enhance the efficiency of the enterprises.
5. In order to develop an

enterprise it is deemed important to be precise about the target audience and whether it would be a public or private enterprise or a partnership between the two.

Thematic Session II: Digital Technology & Supporting Role in Infrastructure Development

Key Outcomes

1. Technology cannot replace need for basic infrastructure requirements
2. Overall infrastructure is the base and technology can be built on it
3. Technology has great ability to supplement infrastructure gaps fulfillment
4. Information communications technology needs to be deployed to meet key short, medium and long term information and communication gaps
5. Infrastructure policy decisions must take into account ICT policy decisions and vice versa.

Thematic Session III: Content creation, language content, new media platforms and content service delivery

Key Outcomes

1. Content creation with a focus on local content and not only local language
2. Access is not that big a challenge. Wherever there is access, local content is missing
3. Localisation is not only translation. It has to be converted to learning objectives
4. Incentivising the creation of local content should be done
5. The value of digital content has to be conveyed to the people so that they realise it

Thematic Session IV: Access, Affordability & Bandwidth for convergence enabled content flow

Key Outcomes

1. The focus should be on development of content rather than only development of technology
2. In order to develop content and technology there is a need create infrastructure that works
3. Mobile technology should be emphasized as it provides the lowest cost of ownership.
4. ISP (Internet Service providers) should be incentivised in order to overcome their previous failure.
5. Fiscal incentives must promote ICT and content usage and outreach.

Working Session II: Digital Content in Education & Culture: Scaling up Social & Cultural Capital

The focus of this session was on the essence of ICT deployment and content enablement to support education and learning processes for quality outcome. The focus was on preserving cultural resources and capital through effective deployment and creation of digital technology and content storehouses. The stress was on the issues involved in preserving social and cultural capital vis-à-vis content generation and promotion.

Thematic Session I: Digital Content in Education and Culture: The Policy Thrust

Key Outcomes

1. There is need for digital content policy to streamline the content ecosystem which is expanding every day
2. Strengthening networks like the National Knowledge Network in India and the proposal to power up network connectivity be taken vigorously
3. Avoiding structures like most content is in English and accessible only to people with technical know-how and education
4. Need for regulation of content under a creative common license and the need for inter-operable content.
5. For content on the internet, standardisation of language fonts for regional languages is important.

Thematic Session II: Scaling up Educational Indicators through Digital media and Content

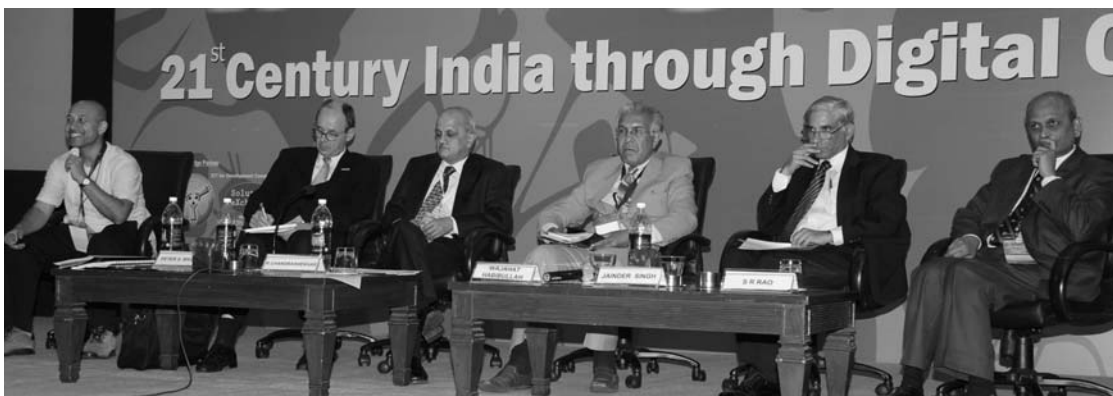
Key Outcomes

1. The process of content development is equally important than the content itself. The content should be developed on the basis of present demand and not on the availability of technology
2. There should be adequate accreditation and certification of content
3. There should be standardization of both quality and quantity of content
4. Emphasis on content being open source
5. Medium of the content should be highly flexible.

Thematic Session III: Quality Content & Services in Education: Demand & Supply Issues

Key Outcomes

1. Quantity and supply of



content cannot bypass quality check at various levels
2. There is need to strictly enforce standardisation aspect of content services
3. There is urgent need to have content authority in education services in a country like India where there are every new player each day
4. Timely assessment needs of teachers and learners necessary to streamline content demand and supply
5. Education content need not replace traditional quality learning processes and instead facilitate this

Thematic Session IV: Sustaining Cultural Communities through Digital Media & Convergence

Key Outcomes

1. There is need to preserve transformation of culture
2. There is need to decentralize the process and more participation should be asked from communities
3. The technology to be given in the hands of those we are archiving and a special attention is to be given to tribal history
4. Archive culture is to be continued to nurture
5. There is need to build local community capacity to preserve the culture as is done in countries like Egypt who will not be able to pick up unless they build their capacity to national standards.

Working Session III: Policy Framework for Governance & Inclusive Development

The focus of this session was on the policy parameters, policy compatibility in enabling a governance framework that caters to inclusive development through supporting role of technology and digital content. The session deliberated on the pros and cons of having an effective policy framework catering to governance and inclusive development needs using digital content and technology.

Thematic Session I: Digital Content in e-Governance: Policy Focus

Key Outcomes

1. Keeping the relevance of digital content for e-Governance in view, policy may primarily focus on all relevant aspects of G2C/C2G and G2B/B2G domains of content, to start with.
2. Government is a natural content producer and basically the main producer of content for mass consumption. Therefore, Government should ensure that key standards and obligations are embedded in the Policy
3. Technology aspects should be dealt in the policy at the delivery levels e.g. bandwidth requirements, various media and platforms of delivery etc. Policy for these aspects should be distinct from all other policy matters relevant to digital content generation
4. Big bang idealistic policy measures should be avoided because past experience revealed that idealistic policy measures to have "Single Window Delivery" or "Universal/Content Management Scheme" did not yield planned results in other countries
5. Creation of National Content Commission which would take care of creation, preservation, use, re-use, IPR and all other related issues. Commission may be empowered to prepare rules and procedures.

Thematic Session II: Time Bound Technology Infrastructure Development & up-scaling Successful Pilots

Key Outcomes

1. Learning from pilot should be quickly assimilated and made part of policy
2. A master plan should be made before the project actually starts
3. For time bound technology infrastructure development - use of technology which can be deployed faster
4. Having right kind of manpower available inside the government or the bodies which are going to implement
5. Legal and business process reengineering should be looked into and it should be fully settled before up scaling work starts

Thematic Session III: Efforts on Inclusive Content Development through Mass Participation: Web 2.0 Technologies and Media

Key Outcomes

1. Content creation should involve people with special needs
2. Not just technologically free access but we need to show the benefit in getting involved in using the internet
3. The government needs to participate in the develop-

ment of policies and content. By government it means, not only the national government but the State government and also the local government
4. Education is the key
5. Web 2.0/3.0 gives voice to anyone who wants to participate in democracy

Thematic Session IV: Sustainability of the Technology Driven Projects: Public Private Partnership Modalities

Key Outcomes

1. With changing times due to global and national economic dynamics it has become important that Public - Private partnerships takes the lead in fulfilling key growth needs including in ICTD domain
2. Need to concentrate on PPP empowering and capacity building along with good practices and PPP success stories
3. Flexibility should be ensured and so should be the ability of utilizing new and evolving technology,
4. Need for having an 'enabling framework' for PPPs; there is importance of drawing out agreements between parties and having a clear RFP
5. While implementing, one needs to have benchmarks against which the assessment shall be made and there has got to be mechanisms for proper evaluation

Pritam Sinha is Research Associate, Digital Empowerment Foundation, New Delhi

Summit Recommendations

The Summit ended with key recommendations at large for policy and planning consideration.

Key cluster of recommendations were made during the 12 panel breakout sessions. The content community must keep up with the rapid pace of evolution of ICTs. The world is moving from the "third" screen (PCs) to the "fourth" screen (mobiles, handhelds). The nature of the mobile medium calls for some different criteria of content design, interactivity, security and location awareness. Stronger alignment is called for between key stakeholders in content generation. Alliance models like PPP have been touted for a long while in areas like community content and telecentres, but greater clarity is needed to ensure continuity and ownership after the partnership period expires. For content to be relevant to local audiences, it must be in the local language; it should include not just global content translated into local needs, but uniquely created content specifically for local user needs.

Another dimension of balance is between top-down and bottom-up (and even middle-out) models of content promotion. Greater resources should be dedicated to building capacity among ICT users for not just creating content, but also monitoring, assessing, rating, tagging and validating content out there on the Internet (e.g. students should not treat Wikipedia content as fact, but as pointers to authentic content elsewhere). From multilingual fonts to library taxonomies, there are strong movements emerging for standardisation of digital content (or at least for interoperability among different platforms and codes). Standards movements in different verticals should be tracked (e.g. education, health, government, payment) and best practices gathered across sectors and countries.

It is important for content promoters to fully grasp not just legal issues at the creation end of the content spectrum (e.g. creative commons license) but also at the access end (e.g. freedom of information, right to information, security). In an increasingly ICT and media driven world, it is important for citizens to enrich the infosphere by imbibing a "content culture" which includes eagerness to publish and share content, assist in co-creation of value, and democratically harness content for a range of applications and functions. The 21st century is marked by increased regional and global cooperation for content promotion and collaboration. For instance, the World Summit Award itself is a good example of international collaboration for periodic benchmarking of best practices in content publication around the world.

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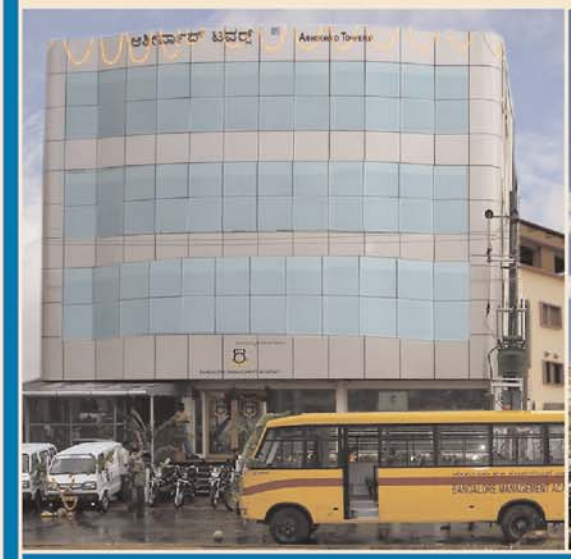

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