

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

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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.

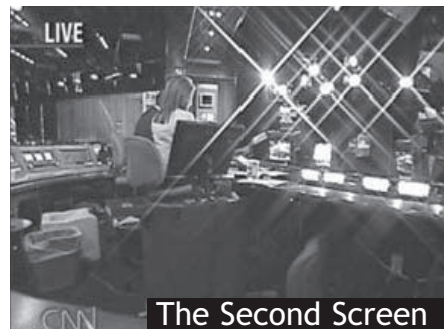
The "First Screen" is still to this day captivating the emotions of audiences in a unique way and the fascination of the "Silver Screen" turns the successful content creators and character actors into stars know around the world.

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.

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### 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

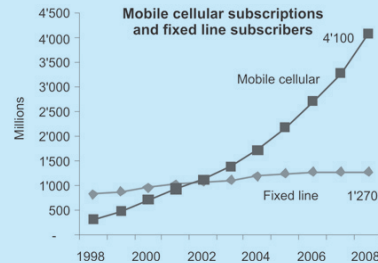
### The Indian Opportunity:



- **Access:** Cellular penetration increased from 2002 and 1 % to 20 % in 2007
- **Cost 1:** Out of 150 ITU member countries: second cheapest in terms of US \$
- **Cost 2:** Fourth cheapest in terms of PPP
- **Skills:** Significant increase on ALL indicators

Source: ITU, 2009

### Global Shift from fixed to mobile telephony



Source: ITU, 2009

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.



The Fourth Screen

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 indispensable 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.

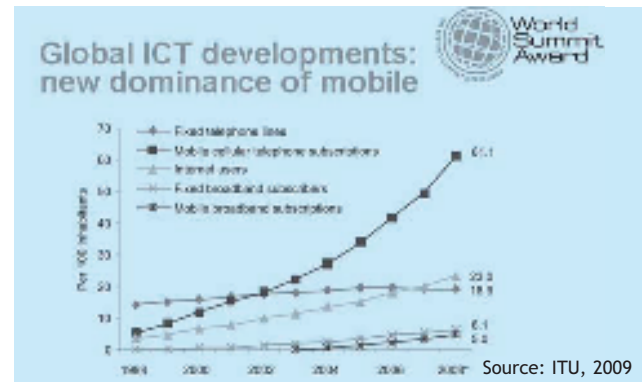
It used to be quite different. In the early 1990s, the mobile phone displays were not real screen and came with black text on dirty green backgrounds. Then more fanciful blue, amber and white illuminated versions showed up and backlights were added that seemed to make the mobile phone shine. In the late 1990s, 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 becoming 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 back-light 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.

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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<sup>1</sup>. 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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<sup>1</sup> 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.