# National Vision on Mobile Web with focus on Indic Language Support

Presented by:

**Swaran Lata**

**Country Manager,W3C India Office**

**6,CGO Complex, Electronics Niketan**

**New Delhi**

**E-mail : slata@mit.gov.in**

# Mobile Subscriber base in India

- **The number of mobile subscribers:** 771.18 million figures by January 2011 end.

- The share of urban subscribers declined from 66.65 % to 66.42% in the month of January 2011 and the share of rural subscribers is increased from 33.35% to 33.58%.

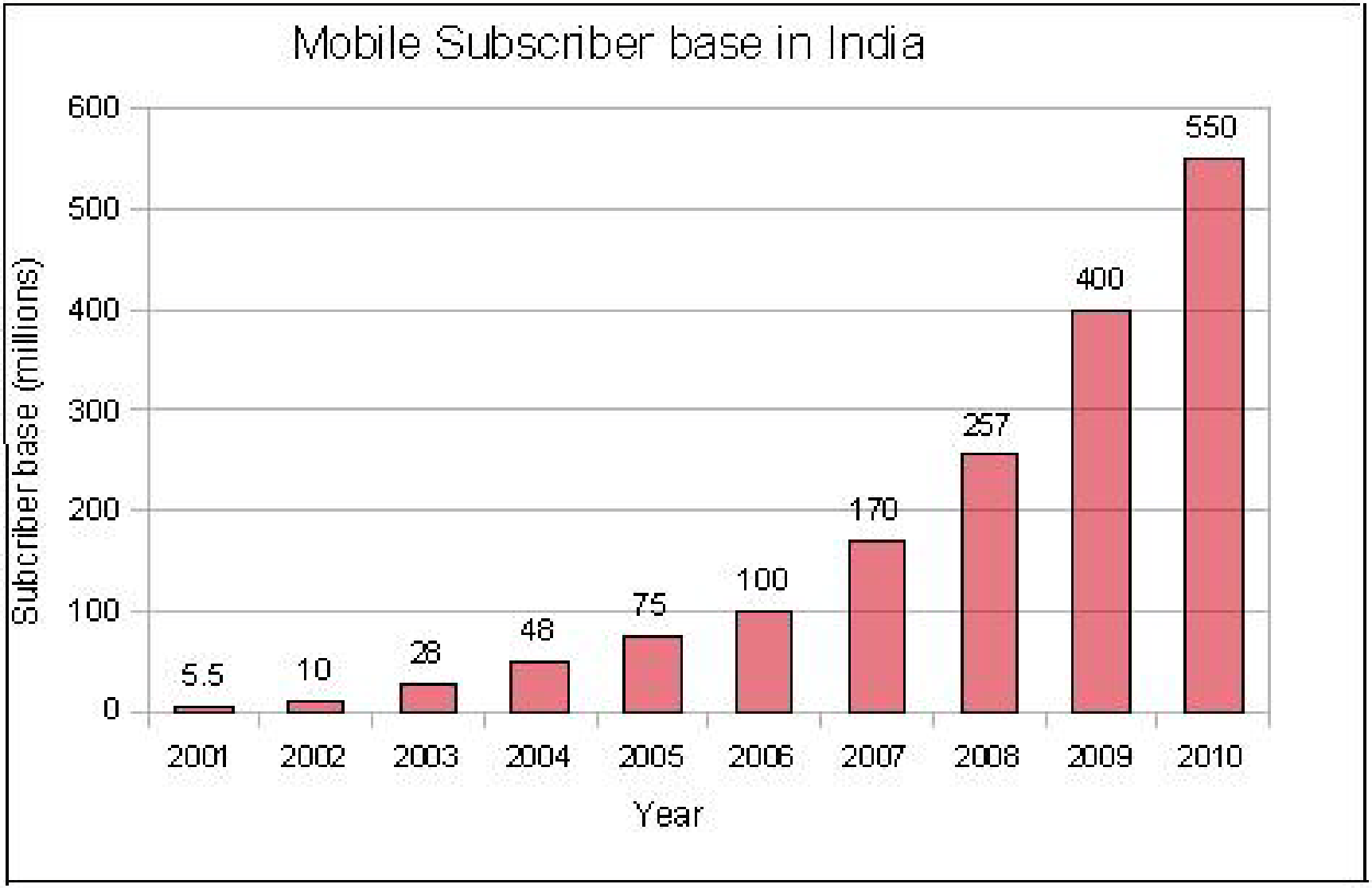
- **According to the Telecom Regulatory Authority (TRAI) :**

  The wireless user base grew 2.52 percent to 771.18 million in January from 752.19 million in the previous month.

# Subscriber figures for Jan 2011

| Group Company wise % market share - Jan'2011 | | | |
|---|---|---|---|
| Sl. No. | Name of Company | Total Sub Figures | % Market Share |
| 1 | Bharti Airtel | 15,57,96,598 | 27.61% |
| 2 | Vodafone Essar | 12,73,64,342 | 22.57% |
| 3 | IDEA | 8,42,89,641 | 14.94% |
| 4 | BSNL | 8,35,91,015 | 14.81% |
| 5 | Aircel | 5,18,31,796 | 9.19% |
| 6 | *Reliance Telecom | 2,38,73,674 | 4.23% |
| 7 | Uninor | 2,03,05,550 | 3.60% |
| 8 | Videocon | 60,11,233 | 1.07% |
| 9 | MTNL | 51,52,831 | 0.91% |
| 10 | Loop Mobile | 30,62,120 | 0.54% |
| 11 | Stel | 25,14,777 | 0.45% |
| 12 | Etisalat | 4,52,574 | 0.08% |
| | Total GSM | 56,42,46,151 | 100.00% |

# Growth of mobile subscriber base in India



# Mobile technology evolution

| Generation | Requirements | Comments |
|---|---|---|
| **1G** | No official requirements.<br>Analog technology. | Deployed in the 1980s. |
| **2G** | No official requirements.<br>Digital Technology. | First digital systems.<br>Deployed in the 1990s.<br>New services such as SMS and low-rate data.<br>Primary technologies include CDMA2000 1xRTT and GSM. |
| **3G** | ITU's IMT-2000 required 144 kbps mobile, 384 kbps pedestrian, 2 Mbps indoors | Primary technologies include CDMA2000 EV-DO and UMTS-HSPA.<br>WiMAX now an official 3G technology. |
| **4G** | ITU's IMT-Advanced requirements include ability to operate in up to 40 MHz radio channels and with very high spectral efficiency. | No technology meets requirements today.<br>IEEE 802.16m and LTE Advanced being designed to meet requirements. |

## Growth potential

## 3G

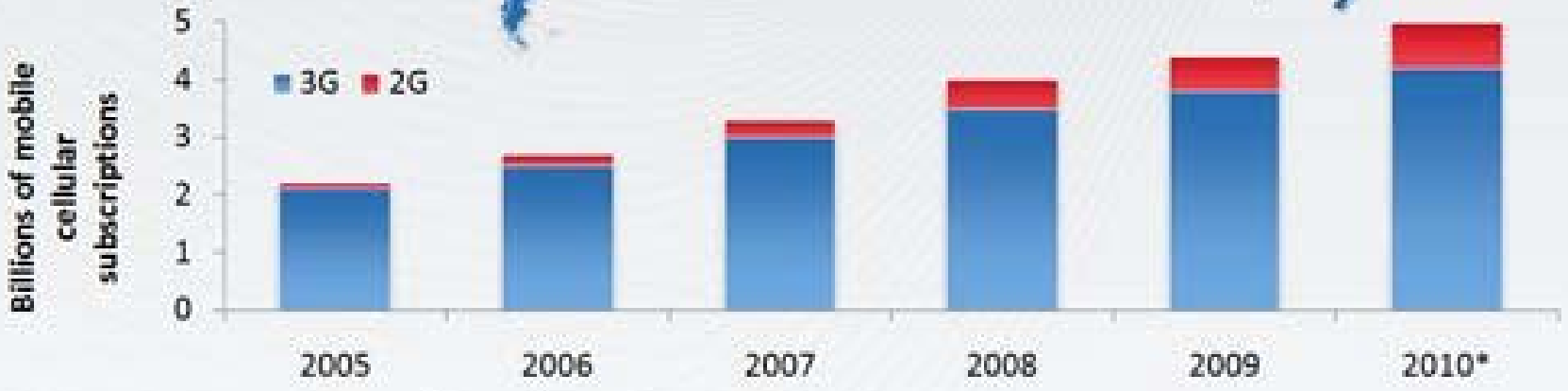
- 3G service is high-speed access to data and voice services, made possible by the use of a 3G network.
- A 3G network is a high-speed mobile broadband network, offering data speeds of at least 144 kilobits per second (Kbps).
- 3G networks can offer speeds of 3.1 megabits per second (Mbps) or more; that's on par with speeds offered by cable modems.

## How will 3G improve my mobile experience?

With a 3G enabled phone and access to the 3G network, one can

- Send and receive video calls
- Watch live TV
- Access the internet
- Receive e-mails
- Download music tracks
- Have basic features of voice calls and messaging services
- Music and streaming video

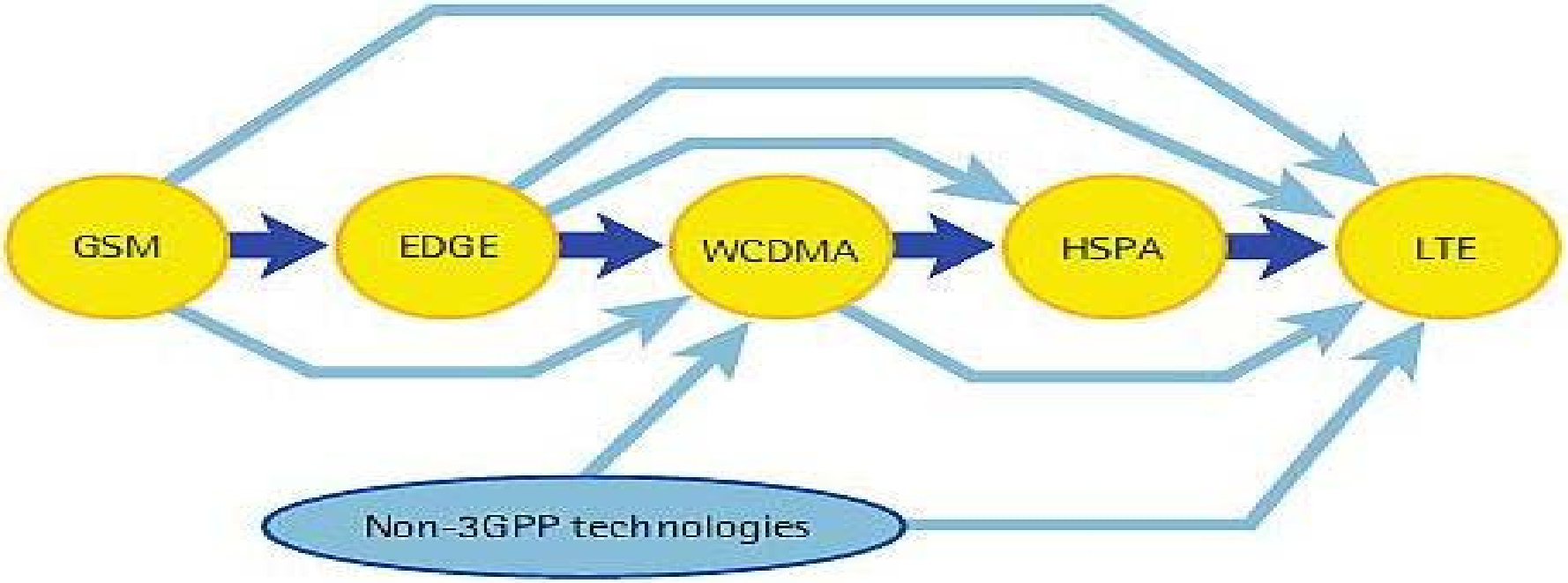
# The rise of 3G




*Notes: The map shows countries that are offering 2G/3G services commercially. *Estimate*
*Source: ITU World Telecommunication/ICT Indicators database*
http://www.itu.int/ITU-D/ict/material/FactsFigures2010.pdf

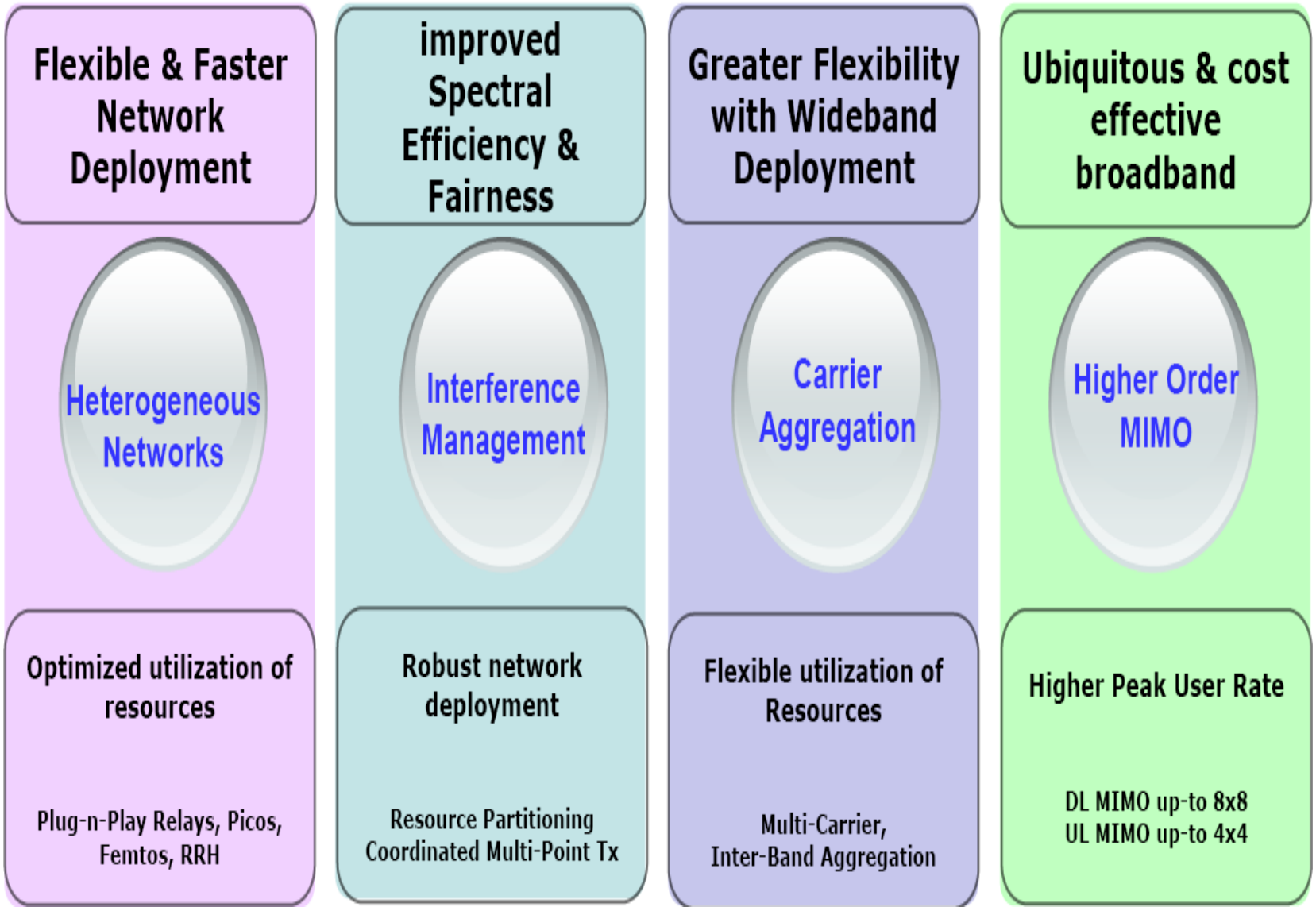
## LTE(Long Term Evolution ) Evolutionary Approach

- 3GPP has completed the specification for Long Term Evolution as part of Release 8.
- LTE will allow operators to achieve even higher peak throughputs in higher spectrum bandwidth.
- Work on LTE began in 2004 with an official work item started in 2006 and a completed specification early 2009.




**Provides a smooth evolutionary path for operators deploying all 3GPP and non-3GPP technologies**

# Goals of LTE-Advanced



# Contd…

- Flexible and Faster Network Deployment - Heterogeneous Networks
- Better Coverage and Improved Spectral efficiency (Cell Edge and Average) - Robust Interference Management
- Greater Flexibility with Wideband Deployments - Wider Bandwidth by Carrier Aggregation Across Bands
- Ubiquitous & Cost Effective Broadband - Higher Peak User Rate by Higher Order DL and UL MIMO

# Technical Features LTE Advanced

- Support of wider bandwidth
- Spatial multiplexing
- Coordinated multiple point transmission and reception
- Relaying functionality

# Synchronized Multimedia Integration Language (SMIL)

- SMIL is defined as a set of markup modules, which define the semantics and an XML syntax for certain areas of SMIL functionality.

- SMIL was adopted because it was a well-defined, standard language to describe the layout and timing of the content inside MMS messages.

- MMS uses SMIL to define the layout of multimedia content.

SMIL documents look a lot like HTML. SMIL files need to be written according to the following rules:

- SMIL documents must follow the XML rules of well-formedness.
- SMIL tags are case sensitive.
- All SMIL tags are written with lowercase letters.
- SMIL documents must start with a <smil> tag and end with a </smil> closing tag.
- SMIL documents must contain a <body> tag for storing the contents of the presentation.
- SMIL documents can have a <head> element (like HTML) for storing metadata information about the document itself, as well as presentation layout information.

# SMIL and supported media types

- **SMIL**

  -HTML- like language with timing capabilities

  -SMIL defines when and where different MMS message elements (i.e. text, audio) are presented

  -First phones offer only limited SMIL

  -Alternatives of example HTML, but it does support timing

  -Conclusion: SMIL must be supported in the future. To help this there are already documents concerning SMIL+XHTML

- **Supported media types**

  -Picture: JPEG, GIF, WBMP

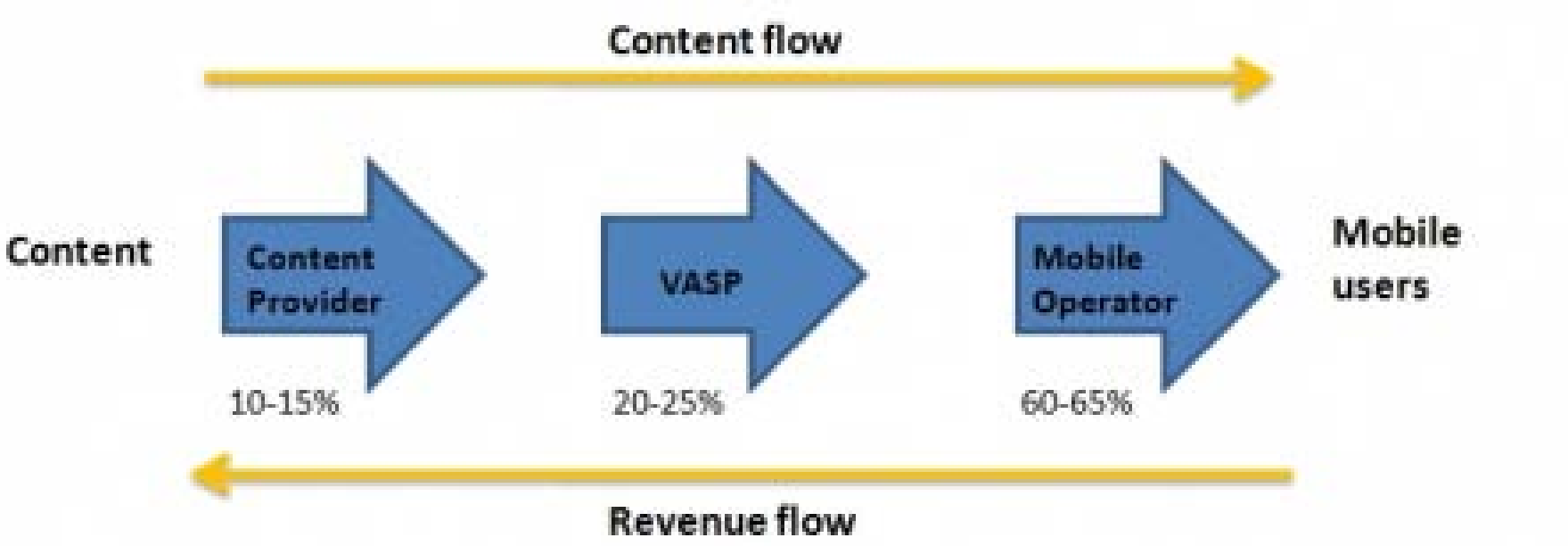
  -Text: UTF-8/16

  -Speech: AMR (Adaptive Multi-Rate)

  -Personal information Management: vCalender and vCard

# Mobile Value Added Services in India

- Mobile Value Added Services (MVAS) does not constitute as a basic service offered to a subscriber.
- It is provided to subscriber as an add-on service, for which the operator charges a premium.
- Subscribers or mobile users using the MVAS content and services.




**Value Added Services Chain**

•MVAS is offered to add “value” to subscriber and can also be stated as services beyond voice communication which are offered by mobile operators to their subscribers at premium.

•With continual technological improvements in mobile devices and various MVAS available to mobile subscribers, the mobile handset has gradually become an “Information Swiss Army Knife”.

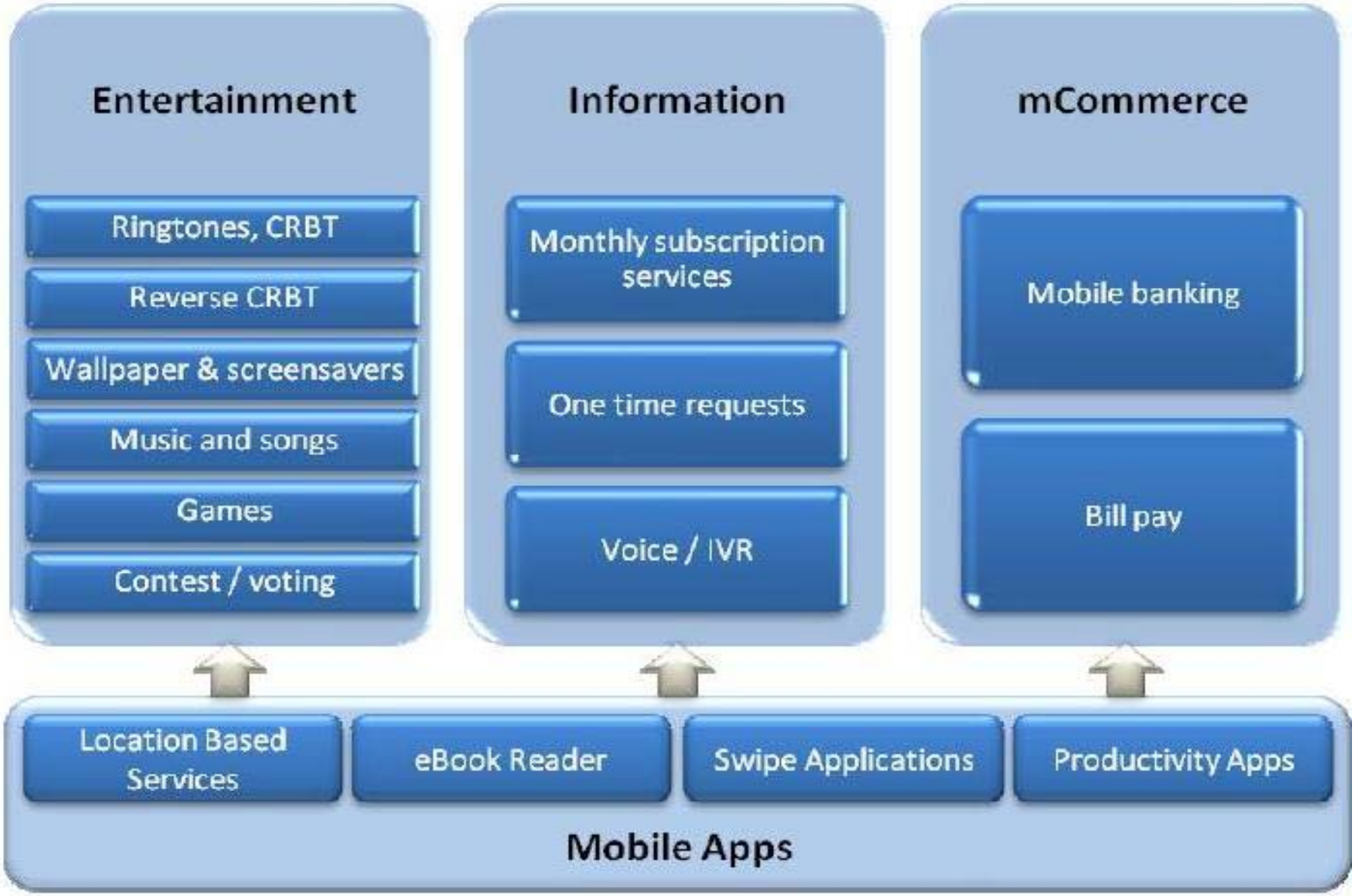
## Mobile Device & MVAS: An Information Swiss Army Knife


Past


Present

Near Future

# VAS CATEGORIES

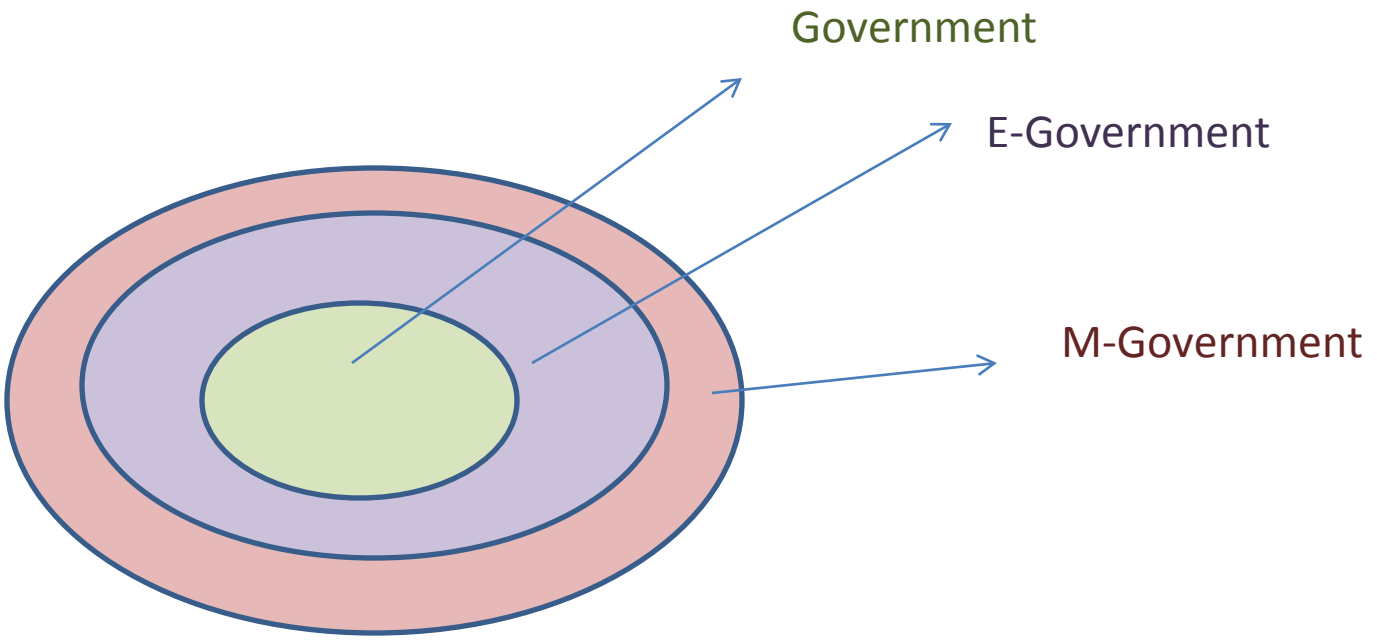


# What is m-Governance?

- m-Governance is a sub-domain of e-governance & is complimentary.
- Helps in extending the reach of governance to a much larger population suited more for developing world.
- Potential to make public information and government services available "anytime, anywhere" to citizens and officials.
- Mobile services are cheaper, widely accessible in many rural areas in India, leverage renewable energy for hinterlands.
- Quick and Convenient.

• M-Governance is defined as the strategy and implementation involving the utilization of all kinds of wireless and mobile technology services, applications and devices for improving benefits for citizens, business and all Government units.

• E-Governance is all about making available conventional Government services to the citizens through Internet portals, through Internet connected computers.



# Key Drivers

**Increasing Penetration of Mobiles**

- Improvement in connectivity
- Personal / Business Compulsions
- Reducing costs of Handsets
- Internet enabled Mobiles
- Reducing Tariffs
- Ease of Use
- Necessity in case of emergencies

**Increasing expectations for better services by citizens**

- Convenient way to receive services
- Comparisons from Private Sector

**Convenient tool for Government Officials**

- High Penetration of Mobiles
- Access from remote locations
- Little or no training / change management

# Few Examples of M-Governance in India

**Kerala Public Service Commission:** M-Services Planned

a. Examination details: A candidate may send the barcode number which is available on the application form and can get the details of the various stages of the selection process.

b. The information at each stage will be as follows:

1. Application Received
2. Application being processed
3. Examination Date
4. Date and Venue of Examination
5. Valuation in Progress
6. Result of the Examination
7. Date of Interview and Venue
8. Rank list Processing
9. Result of Interview and Rank

**Kerala State Road Transport Corporation:** M-Services Planned

a. Schedule of Long Distance Buses: As a reply to a SMS from citizen a list of long distance buses can be given. The detailed schedule can then be given for a selected bus.

b. Contact Telephone numbers of important stations

**Transport:** M-Services Planned

a. Status of an application on sending the Number available on the Acknowledgement.

b. Details such as the ‘Tax paid upto”, “Insurance paid upto”, Engine number, Chassis Number etc can be given as reply of a SMS sending the registration number of the vehicle. This service will be very useful for a person who wants to buy a second hand car.

c. Information regarding availability of a fancy number can be provided as a reply to a SMS sending the number required.

**Kerala Water Authority:** M-Services Planned

a. Complaint Monitoring: When a complaint is registered at the KWA call centre a token number is generated and given to the caller. He can later query the position of the complaint through SMS based on the token number.

b. Feed back on complaints: A citizen can be informed when the complaint is attended and completed through a SMS.

**Controller of Entrance Examination:** M-Services Planned

a. Result: The result and marks of entrance examination can be informed if the registration No is sent as a SMS.

b. Allotment: The allotment details (College and Course) can be informed as a reply of the SMS sending the register number.

## Bridging the vast rural section through Indic Language support

- With the impending explosion in the number of subscribers from rural areas, the need for Indian language SMS is expected to grow manifold for the simple reason that English literacy is extremely low in these areas.

- At the same time, service providers will not be able to leverage growing customer base in rural areas to further augment revenues accruing from VAS.

# Requirements of Indian Language Support

- India is a large multilingual society with as many as eighteen constitutionally recognized languages including English and the National language is Hindi.

- There are multiple scripts for these languages. As India is the country where unity resides in diversity so Information Technology (IT) appears to be a promising tool for the development of ILP systems which aim at overcoming the language barrier.

# Contd….

The ILP tools could be designed using many approaches such as:

- Natural Language Interface/Environment for Data Input/Output support.
- Operating System level support at the native level for the Indian languages.
- Indian Language shell over the existing operating systems and applications.
- Localising existing applications.
- Developing specific applications.
- Designing language compilers in natural languages.

# Issues

**Fonts**

- Mobile devices often have few fonts and limited support for font sizes and effects (bold, italic etc.)
- As a result of this, the use of font size, face or effect, for example while underlining any Hindi statement it will be difficult interpret matras and may not achieve the desired effect.

**Issues in Mobile Keypads**

**Multi-tap issues**

- Too many taps per key for each char No way to know which char is on which Key.
- Never support more than one language on the keypad because there is not enough space on the key face to print more characters.

**Dictionary Based**

- Difficult to learn and operate for the target segments.
- Everyone in this room has a different spelling for मुत ,मुरती, मूितर् even मुरथी, many permutations. Which is the one to be mapped
- Difficulty in writing non dictionary words
- Dictionary Off, Mode Change etc – difficult to teach, learn and operate.

**Transliteration**

- The man who needs to type in Hindi because he doesn't know English does not know one has to write kya for क्या The person who knows kya is for क्या does not need to type in Hindi.

# Challenges

- Large linguistic diversity with 22 officially recognized languages and 12 scripts.
- One-language Many Scripts ; Many Languages – One Script
- Specificity for each language and script is unique in nature and cannot be easily replicated , even if they share common characteristics.
- Difference in perceptions of usage among various stake holders, e.g. State Governments , Academia and industry.
- Some of the languages have coverage across different nations across SAARC countries.
- Involves interdisciplinary research in advanced and sophisticated computer processing involving Artificial Intelligence and Machine Learning in one hand ; linguistic knowledge for incorporating human communication techniques on the other hand.
- Still in research stage in many areas despite huge efforts by academia and scientists in India as well as abroad.

# Role of device manufacturers, service providers and application developers

**The mobile Web experience is being transformed, and the users are in the driver's seat.**

- For one, current mobile device networks don’t run in the same speed as broadband devices.
- In addition, there are also a myriad of ways our mobile web designs are displayed in, from touch screens to net books, which make even the smallest desktop monitors look like giants.

**Delivering the Design**

- One of the early elements that need to be considered for producing a mobile-device-friendly site is the way the experience will be delivered.

**Complications in Delivery Method**

- The ideal scenario would be that each device simply scales and adapts to your existing website — and some devices, such as the iPhone, are able to because of their built-in web browser. But because of so many devices out there, a cross-device mobile design is difficult to make.

# Contd…

## Role Of Service Provider

- Finding an internet Service Provider is critical to the successful use of internet and world wide web.

- An ISP will ensure that all your personal and business needs are met through the provision of four basic elements:
  - -Access
  - -Tools
  - -Training
  - -Technical Support

# Contd…

## Role of Application developers

Because of the wide spread use of World Wide Web technologies over the Internet, a variety of content and services are now easily accessible from desktop and notebook computing platforms.

## Scope of recommendations

Most of differences between fixed and mobile user experience are fall in these categories:

- Types of content
- Network and device capabilities
- Context in which the content is received (e.g., sitting at a desk vs. sitting on a bus).

# Adaptation of standards

Web technologies have become powerful enough that they are used to build full-featured applications; this has been true for many years in the desktop and laptop computer realm, but is increasingly so on mobile devices as well.

The features that these technologies add to the Web platform are organized under the following categories:

- Graphics
- Multimedia
- Forms
- User interactions
- Data storage
- Sensors and hardware integration
- Network
- Communication
- Packaging
- Performance & Optimization

# Vision

- Mobile web will bring a true Web experience to mobile devices, yet take advantage of the specific opportunities for new and useful user experiences enabled by mobility and telephony.

- It will integrate smoothly with device features, including easy initiation of phone calls from Web pages, access to local search, maps and directions.

- It will solve basic usability challenges have generally prevented the mobile Web experience from being pleasant and enjoyable, even though people have a critical need for data when on the go.

# Contd…

- Firefox will be the mobile Web browser that content and application developers can target to create great software for mobile phones, rather than the plethora of native platforms and programming languages required to reach people in a mobile environment today.

- Firefox provides a platform for creating rich mobile applications. Using the latest Web technologies like HTML5, CSS and JavaScript developers can innovate faster, more easily and extend their reach.

- Developers can build great sites and apps by tapping into the device capabilities of the phone.

# Thank You