Content Regulation and Net Neutrality
VAS Revenue Share and Broadband Challenges

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Agenda

- Value Added Services Revenue Share
- Wireless Broadband – Spectrum Challenges
Revenue share for commoditized services/apps are reducing, with operators keeping majority of the revenue

Mobile VAS Value Chain and Revenue Share in India

**Major Value Chain Participants**
- Content Developers
- VAP Application Developer
- Handset OEM & Mobile OS Providers
- Operators
- D2C
- Voice
  - SMS
  - WAP
  - Online
- Operator Billing

**Technology Platform Enablers**
- Produce variety of content
- Hold content rights
- VAS technology platform such as music on demand
- Provide hardware to connect to the mobile network
- Develop software platform to operate mobile handsets
- Owns the consumer
- Billing
- Multiple content delivery channels, each suitable for different types of content
- IN platforms & operator billing systems
- Non operator billing options (negligible no. of D2Cs)

**Revenue Share (FY2010)**
- 10% - 15%
- 5% - 10%
- 70%
- 60% - 65%
- 10%

**USD 2.2 bn**

Note: 1. Includes STK / UTK
Source: Analysys Mason, Industry Inputs
Moreover, billing remains the biggest challenge for non-telco players to successfully implement transaction based models.

### Process Flow

<table>
<thead>
<tr>
<th>On-Deck</th>
<th>Off-Deck with Carrier Billing</th>
<th>Off-Deck without Carrier Billing</th>
</tr>
</thead>
<tbody>
<tr>
<td>User → Carrier</td>
<td>User → Carrier</td>
<td>User → Payment Channel</td>
</tr>
<tr>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>20% - 25%</td>
<td>30% - 40%</td>
<td>98%</td>
</tr>
<tr>
<td>Content Aggregator / Developer</td>
<td>Content Aggregator / Developer</td>
<td>Content Aggregator / Developer</td>
</tr>
<tr>
<td>Flow of Cash</td>
<td>Flow of Cash</td>
<td>Flow of Cash</td>
</tr>
<tr>
<td>Flow of Content</td>
<td>Flow of Content</td>
<td>Flow of Content</td>
</tr>
</tbody>
</table>

### Definition

- **On-Deck**
  - VAS companies that provide white labeled vendor services to the carriers using their infrastructure, branding and promotions
  - **Flow of Cash**: 100%
  - **Flow of Content**: 20% - 25%

- **Off-Deck with Carrier Billing**
  - VAS companies that use carrier billing for their products and services, but the marketing and branding is independent of the carrier
  - **Flow of Cash**: 100%
  - **Flow of Content**: 30% - 40%

- **Off-Deck without Carrier Billing**
  - VAS companies that use carrier only as an access channel with billing, infrastructure, marketing and branding independent of the carrier
  - **Flow of Cash**: 100%
  - **Flow of Content**: 98%

### Challenges

- **On-Deck**
  - Operator controlled - No direct visibility and reach to consumer

- **Off-Deck with Carrier Billing**
  - Carrier is sharing 60% - 70% of revenue depending upon type of content, even though it is playing the role of payment mechanism in the process flow

- **Off-Deck without Carrier Billing**
  - Lack of scale and mass reach as compared to carrier channel
  - Limited credit card and mobile payments penetration lead to lower adoption of services

Source: Analysys Mason, Industry Inputs
This has led to content aggregators focusing on regional content for better margins.

Content Aggregation – Bollywood vs. Non-Bollywood

Composition of Non-Bollywood Content in India

- Non-Bollywood content is gaining traction and now contributes to 40% of total content aggregation market as compared to almost negligible share till 2006.

- Content aggregators make significantly higher gross margins on non-Bollywood content (such as regional and devotional) as compared to Bollywood content.

Source: Analysys Mason, Industry Inputs
Moreover, with new and innovative services, VAS providers have been able to command a better revenue share

Content Aggregator’s Gross Margins from Different Types of Content

- Agricultural Alerts: 50%
- Non-Bollywood Content: 70%
- Bollywood Content: 15%

Reuter Market Light Case Study: Agricultural Alert Services

<table>
<thead>
<tr>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>User Base</strong></td>
</tr>
<tr>
<td>~ 0.3 mn farmers have subscribed to RML (Q1 2010); targeting 0.5 mn by 2010 end</td>
</tr>
<tr>
<td>So far, the service has reached more than 1 mn farmers across 15K villages (Nov 10)</td>
</tr>
</tbody>
</table>

| **Pricing and Revenue** |
| Price: INR 175 (USD 3.8) for 3 months; INR 75 (USD ) per month by Idea Cellular |
| 2009 Revenue: Crossed USD 1 mn mark |

| **Distribution and Margins** |
| RML is focusing on building awareness through media; recently started TV ad campaigns |
| Offers a channel margin of 15 to 20% leading to retailers pushing the service |

- The service adoption is also driven by word of mouth / recommendations by friends / family, retailers and NGOs
- RML receives a revenue share of around 50%

Due to differentiated content / services, content aggregators are able to command a higher revenue share from such services, leading to higher overall gross margins

Source: Analysys Mason, Industry Inputs
Agenda

- Value Added Services Revenue Share
- Wireless Broadband – Spectrum Challenges
Wireless broadband deployment is scalable as compared to fixed line technologies such as xDSL, Cable and Fibre

Broadband Lines in India Split by Technologies, 8.77 mn (Mar’10)

- **Total**
  - 8.77

- **DSL**
  - 7.59

- **Cable**
  - 0.61

- **Wireless**
  - 0.10

- **Fibre**
  - 0.42

- **Others**
  - 0.05

**Capex / Sub**
- **USD 2,200**¹
- **USD 930**
- **USD 130**²
- **USD 1,400**³

Note: 1. DSL Capex per sub comprises of cost for FTTN New Copper line while for existing line Capex per sub is USD 800; 2. Wireless Capex per sub includes Capex for WiMAX of USD 133, HSPA capex per sub as USD 125 and Capex per sub for EvDO as USD 123; 3. Capex per sub for Fibre comprises of FTTB connection

Source: Analysys Mason, TRAI
However, with severe spectrum congestion in voice services, carriers find it difficult to spare capacity for wireless data

Almost all major GSM carriers are already facing spectrum congestion in the metro areas for offering basic voice services, and do not have network capacity to offer EDGE based data services.

With the allocation of 3G and BWA spectrum, some of the voice congestion will get relieved, and operators will have spare capacity to offer data services.

However, 3G spectrum allocation is only 5 MHz and will only be able to support limited number of wireless broadband users.

Note: 1. Dotted line indicates DoT Criteria for maximum number of subscribers per MHz (at 10 MHz spectrum for GSM and 5 MHz for CDMA)
Source: Analysys Mason, TRAI
This lack of spectrum will be a formidable constraint to realizing the broadband potential

- The current spectrum allocation will not support the projected number of broadband users
- A high level analysis based on projected demand per user, available spectrum and current network coverage indicates that the operators will not be able to serve more than ~80 million subscribers without significant additional investments in sites
- The associated investments for smaller cell size and more dense coverage is unlikely to make the take-up of broadband in suburban and rural areas economically viable

Spare Spectrum Availability Based on Existing Allocation

<table>
<thead>
<tr>
<th>Year</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bandwidth per User (Kbps)</td>
<td>383</td>
<td>570</td>
<td>916</td>
<td>1,414</td>
<td>1,978</td>
<td>2,476</td>
</tr>
<tr>
<td>Allocated Bandwidth (MHz)</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
</tr>
<tr>
<td>Cell Capacity (Users)</td>
<td>1,233</td>
<td>874</td>
<td>597</td>
<td>436</td>
<td>352</td>
<td>309</td>
</tr>
</tbody>
</table>

Note: 1. Represents average subscriber bandwidth of concurrent users
Source: Analysys Mason
A clear policy roadmap for allocation of additional spectrum is required to help achieve this growth potential

**Frequency Bands and Key Issues**

<table>
<thead>
<tr>
<th>Frequency Band</th>
<th>Key Issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.3GHz</td>
<td>Existing Allocation and Availability</td>
</tr>
<tr>
<td>2.5GHz</td>
<td>Future Roadmap¹ / Satellite Interference</td>
</tr>
<tr>
<td>2.3GHz</td>
<td>Capacity Constraint²</td>
</tr>
<tr>
<td>2.1GHz</td>
<td>Capacity Constraint / Future Roadmap</td>
</tr>
<tr>
<td>1800MHz</td>
<td>Capacity Constraint</td>
</tr>
<tr>
<td>900MHz</td>
<td>Capacity Constraint</td>
</tr>
<tr>
<td>800MHz</td>
<td>Capacity Constraint</td>
</tr>
<tr>
<td>700 MHz</td>
<td>Future Roadmap</td>
</tr>
<tr>
<td>450MHz</td>
<td>Future Roadmap</td>
</tr>
</tbody>
</table>

- **Future Roadmap**: Future allocation of various frequency bands is not clear making it difficult for carriers to plan network rollout and establish their technology roadmap for services.
- **Digital Dividend**: Lower frequency bands such as 450 MHz and 700 MHz are best suited for providing rural broadband services and can substantially reduce roll-out cost.
- **Existing Allocation & Availability**: Better coordination between different Govt departments tracking where / how much spectrum is being used, and thus support re-farming to increase total capacity available and allow more efficient allocations.
- In addition, there are other policy constraints limiting broadband adoption such as Right of way, active infrastructure sharing and mandate provision of fiber capacity.

Note: 1. Future Roadmap refers to frequency band with no existing allocation for commercial usage and can be used for offering wireless broadband services; 2. Capacity constraint refers to frequency band already allocated and with no spare capacity available.

Source: Analysys Mason
In addition, supply and demand side policy constraints exist in both urban and rural areas.

### Key Issues

#### Urban
- Right of way
- High cost of roll-out
- Capacity in tier II/III cities
- Mandate provision of fiber capacity
- Spectrum availability & allocation

#### Rural
- Right of way for backbone / transport and middle mile / edge
- High cost of roll-out
- Active infrastructure sharing
- Equipment capacity

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**Policy Constraints – Supply Side**

1. **Policy Constraints – Supply Side**

2. **Policy Constraints – Demand Side**

- Relevance / Utility of content and applications
- Entry barrier: device price

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Source: Analysys Mason
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Appendix
Analysys Mason is the world’s premier adviser in telecoms, IT and media

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Integrated service offering

• Analysys Mason is a trusted adviser on telecoms, technology and media. Through our global presence, we deliver strategy advice, operations support and market intelligence to leading commercial and public-sector organisations in over 100 countries.

• For nearly 25 years, our intellectual rigour, operational experience and insight have helped our clients resolve issues ranging from development of operator strategy, evolution of national sector regulation and execution of major financial transactions, to the deployment of public and private network infrastructure. Analysys Mason consistently delivers significant and sustainable business benefits.

• We are respected worldwide for the exceptional quality of our work, our independence and the flexibility of our teams in responding to client needs. We are passionate about what we do and are committed to delivering excellence to our clients. The company has over 250 staff worldwide, with headquarters in London and offices in Cambridge, Dubai, Dublin, Edinburgh, Madrid, Manchester, Milan, New Delhi, Paris, Singapore and Washington DC.
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