The challenges facing mobile operators

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29 Throgmorton Street
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The growth of mobile communications...

6.9bn mobile connections (2008-2013, CAGR 11.9%)

2.9bn internet users

1.1bn telephone main lines

Source: ITU 2014 mobile connections & region definitions

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Common themes globally ...

**Mobiles are driving Internet access**

83% of Chinese users access the Internet via mobile

Driven by availability of cheaper smartphones: sub-US$99 devices already >25% of all shipments

>57% of global phone shipments are now smartphones

Hastened by rollout of fast 3G / 4G networks (& Wi-Fi) in most regions

Driving growing mobile data consumption worldwide

Globally, mobile data traffic in 2013 was equivalent to 39x the volume of traffic five years earlier (in 2008)

1.4 Exabytes per month in 2013 (equivalent to 372m DVDs)

sources: China Internet Network Information Center, The Economist, Gartner, Cisco
... but regional differences

Europe – mature markets
- Slowing migration to contracts from pre-paid
- Always connected: 4G / Wi-Fi / Broadband
- Growing adoption of ‘triple & quad-play’ bundles
- Enterprise unified communications & convergence
- Growing digital commerce & machine-to-machine

Asia-Pacific – mix of growing & mature markets
- Increasing migration to 3G & 4G services
- Less than 100% penetration in most countries
- Mobile devices are primary means of access to Internet
- Cost of telecoms service & handsets are key considerations

Arab States – growing ahead of global averages
- Real contrasts between North Africa & Arab Middle East
- Increasing migration to 3G / 4G services
- Greater than 100% penetration
- Mobile devices are primary means of access to Internet

Sub-Saharan Africa – low levels of penetration
- Basic & feature phones dominate
- Voice & SMS key services – access to information
- But innovative e.g. Mobile banking (m-Pesa Kenya)
- Cost of telecoms service & handsets are key considerations

North America – quasi-mature market
- Majority customers on post-paid contracts with smartphones
- But sub-100% penetration driven by high cost of services
- Big consumers of voice, text & data
- Significant digital commerce & machine-to-machine activities

South America – dynamic market
- Greater than 100% penetration in most countries
- Rapid migration to 3G, 4G in infancy
- Mobile devices are primary means of access to Internet
... and significant variances in KPIs & forecasts

<table>
<thead>
<tr>
<th>Region</th>
<th>ARPU 2013</th>
<th>Connections 2013</th>
<th>% 4G BY 2020</th>
<th>Data GB/MTH 2013</th>
<th>Minutes 2013</th>
<th>Texts 2013</th>
<th>% PAYG 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>EUROPE (Excluding Turkey)</td>
<td>$18.3</td>
<td>689m</td>
<td>53%</td>
<td>0.7</td>
<td>151</td>
<td>125</td>
<td>60.2%</td>
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<tr>
<td></td>
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<td></td>
<td>CAGR 2013-20: 1.4%</td>
<td>CAGR 2013-18: 47%</td>
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<tr>
<td>N. AMERICA (Excluding Mexico)</td>
<td>$49.1</td>
<td>341m</td>
<td>75%</td>
<td>1.0</td>
<td>628</td>
<td>467</td>
<td>37.0%</td>
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<td></td>
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<td>CAGR 2013-20: 2.2%</td>
<td>CAGR 2013-18: 44%</td>
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<tr>
<td>S. AMERICA (Including Mexico)</td>
<td>$9.7</td>
<td>694m</td>
<td>80%*</td>
<td>0.31</td>
<td>173</td>
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<td>78.3%</td>
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<td>CAGR 2013-20: 3.6%</td>
<td>CAGR 2013-18: 35%</td>
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<td>ASIA-PACIFIC</td>
<td>$9.3</td>
<td>3.4bn</td>
<td>28%</td>
<td>0.15</td>
<td>334</td>
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<td>82.3%</td>
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<td>CAGR 2013-20: 5.0%</td>
<td>CAGR 2013-18: 57%</td>
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<tr>
<td>SUB-SAHARAN AFRICA</td>
<td>$6.6</td>
<td>564m</td>
<td>52%*</td>
<td>0.10</td>
<td>112</td>
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<td>95.4%</td>
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<td>CAGR 2013-20: 7.7%</td>
<td>CAGR 2013-18: 58%</td>
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<tr>
<td>ARAB STATES (Blended N.Africa &amp; Middle East)</td>
<td>$11.5</td>
<td>400m</td>
<td>63%*</td>
<td>0.19</td>
<td>300</td>
<td></td>
<td>90.0%</td>
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<td></td>
<td></td>
<td></td>
<td>CAGR 2013-20: 4.1%</td>
<td>CAGR 2013-18: 70%</td>
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</tbody>
</table>

*3G & 4G by 2020
*3G only by 2020
*CAGR 2013-18:

sources: GSMA 2013 / 2020 figures & regions, CISCO VNI to 2018 for forecast data growth
Inter-related challenges...

Brand Affinity  ARPU  Churn  Growth  Technology  Regulation  New Media  Valuations
Inter-related challenges...

Who is more important to consumer?
Relevance of operators’ brands & consumer perceptions
Inter-related challenges...

Pressures on Average Revenue per ‘User’

Declining in most markets & likely to continue
Significant competition, especially in mature markets
Regulatory interventions
Voice & text substitution

Increasing focus on Average Revenues per Customer rather than per User which traditionally meant per Connection (SIM)
Of course can’t guarantee these SIMs are all connected to the same network – and anonymity of pre-paid makes it difficult to link SIMs with customers
Inter-related challenges...

Managing churn (customers leaving)

1 in 7 customers churn annually
N.America: 37% PAYG

3 in 7 customers churn annually
S.America: 78% PAYG

Pre-paid vs contract churn

Driven by quality of service, devices, pricing & competition
Pay-as-you-go customers less loyal
Mobile number portability simplifies moving
Effectiveness of retention strategies
Rise of SIM-only offers (& soft SIMs)
Where will growth come from?

Pay-As-You-Go to Contract migration: *(limited by domestic banking, credit & tax rules)*

Organic growth versus M&A?

Product innovation

Smart-devices, Internet of Things & new M2M apps
Inter-related challenges...

Technology choices
- Migration to 4G / LTE (& 3G UMTS)
- Capital investment needs
- Cost of spectrum if auctioned
- Managing convergence: fixed, mobile, broadband, media
- How to manage forecast growth in data consumption
- Network sharing & outsourcing

Global connections by technology

source: GSMA
Inter-related challenges...

Regulatory predictability & impact

- Reduction in mobile termination rates
  *(charges paid or received to terminate a call: ‘hidden’ revenue)*
- Roaming regulations: ‘Roam like at home’
- Net neutrality rules: *can’t charge more for Facebook access*
- Spectrum auctions
- Mandated Mobile Virtual Network Operators
- Taxation rules
Competition from new players

Rise of the new media companies: disintermediation
Downstream integration by Google & Amazon into devices
Upstream content & media delivery, mobile payments, cloud services
Voice-over-IP & messaging services
(‘OTT’ services from Skype, Snapchat etc eroding traditional income)
Who funds infrastructure to support rising data demands?
Inter-related challenges...

Enterprise values of utilities
Valuation multiples (‘EV/EBITDA’) lower than many new entrants
Impacts market capitalisation & ability to undertake M&A
### A mobile operator’s business model...

<table>
<thead>
<tr>
<th>Key Partners</th>
<th>Key Activities</th>
<th>Value Propositions</th>
<th>Customer Relationships</th>
<th>Customer Segments</th>
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<td>• Handset &amp; equipment vendors</td>
<td>• Product marketing</td>
<td>• Service bundles</td>
<td>• High-touch</td>
<td>• Consumers</td>
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<tr>
<td>• Other carriers</td>
<td>• Operations</td>
<td>• Multi-product bundling</td>
<td>• Customer care</td>
<td>• Enterprise</td>
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<tr>
<td>• Distribution partners</td>
<td>• Logistics</td>
<td>• Value Added Services (e.g. money transfer)</td>
<td>• Agents</td>
<td>• Wholesale (MVNO)</td>
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<tr>
<td></td>
<td>• Carrier relations</td>
<td>• Loyalty schemes</td>
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<td>• Segmented offers</td>
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<td>• Product managers</td>
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<td>• Direct &amp; online</td>
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<tr>
<td>• Operations</td>
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<td>• Indirect resellers</td>
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<th>Key Revenues</th>
<th>$ Revenue</th>
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<tbody>
<tr>
<td>• Selling &amp; distribution</td>
<td>• Pay-As-You-Go top-ups</td>
<td>• Voice 60 – 90%</td>
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</tr>
<tr>
<td>• Network maintenance &amp; investment</td>
<td>• Post-paid service revenues</td>
<td>• Data 10% - 40%</td>
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<tr>
<td>• People</td>
<td>• Wholesale revenues</td>
<td></td>
<td></td>
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<tr>
<td>• Marketing</td>
<td>• Mobile termination revenues</td>
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Potential strategies

**Drive growth**
Bundling of services to grow ‘share of wallet’
Launch differentiated products: make relevant
Focus on key segments:
*enterprise – require convergence & single sourcing*

**Reduce costs**
LTE offers lower ‘$ per bit’ costs – *but still have legacy 2G / 3G*
Offload data: for example onto Wi-Fi – *get someone else to pay*
Automate & drive self-service
Outsource or share operations

**Acquisitions / enter new markets**
Convergence: mobile + fixed
Enter new markets through acquisition or MVNO
*regulatory hurdles & market remedies*
*significant barriers to entry*
*market sentiment & ability to buy*