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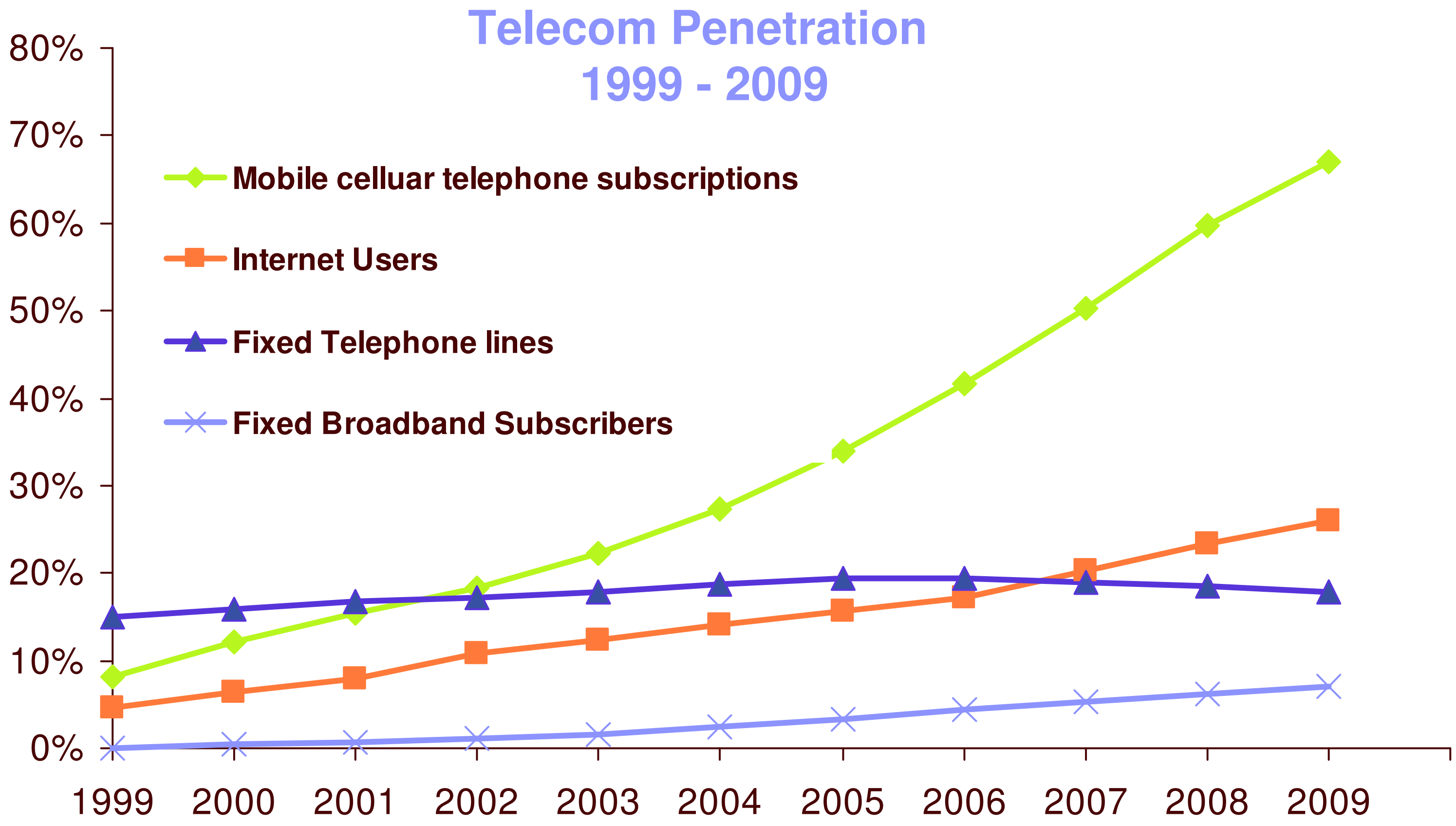
Telco 2015
IBM Innovation Forum, Moscow

Agenda

- A decade of structural change in telecoms and future challenges
- Scenario Planning for 2015
- Scenario Synopsis and Financial Modeling
- -Critical Success Attributes
- Key Imperatives

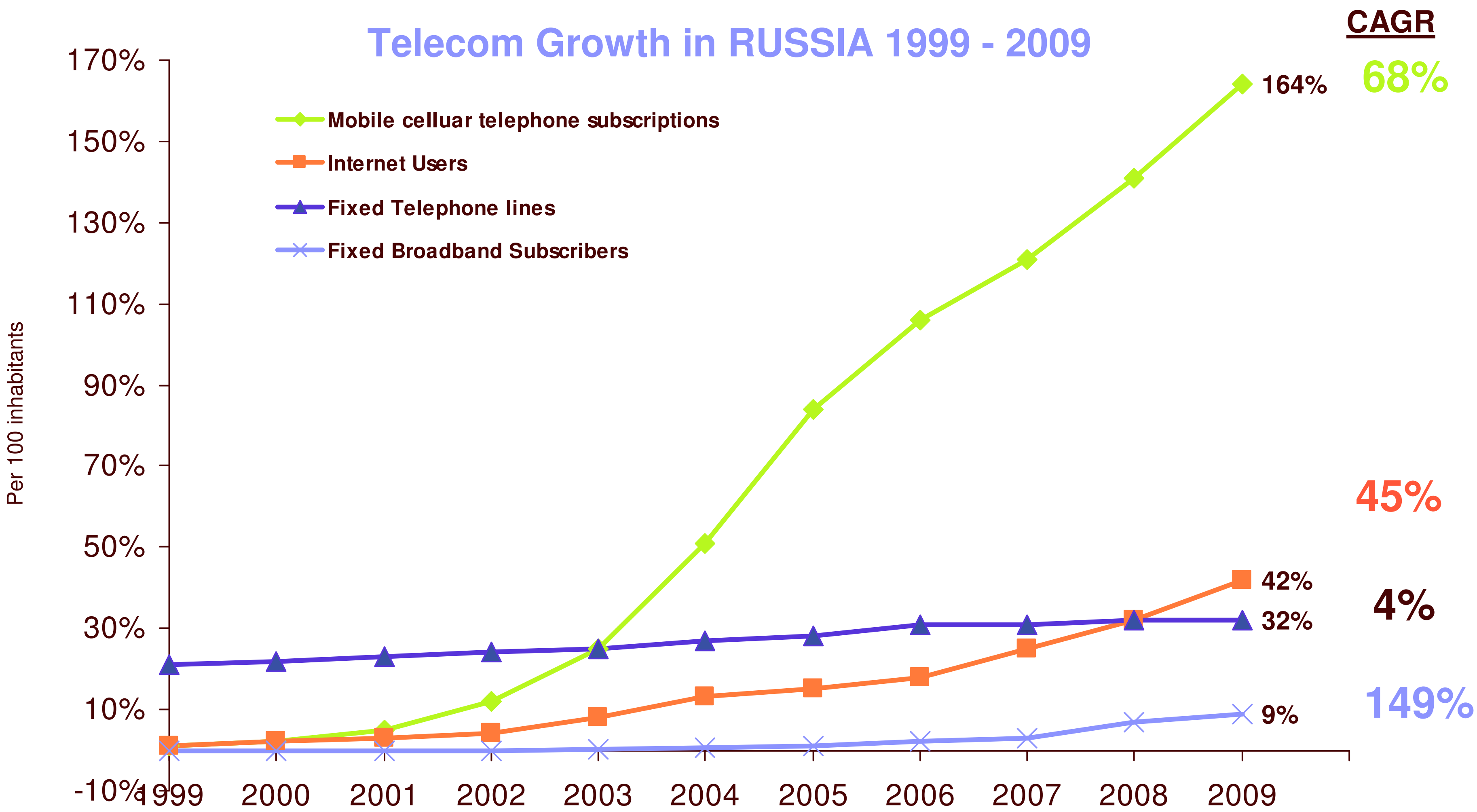
Over the past decade global communications penetration and mobile cellular telephony specifically, has been phenomenal



Over a century after it was first invented, less than 1 in 6 of the world's population had access to a telephone. In the last decade, however, this increased approx. 350% and now nearly 7 in 10 people have access to telephony

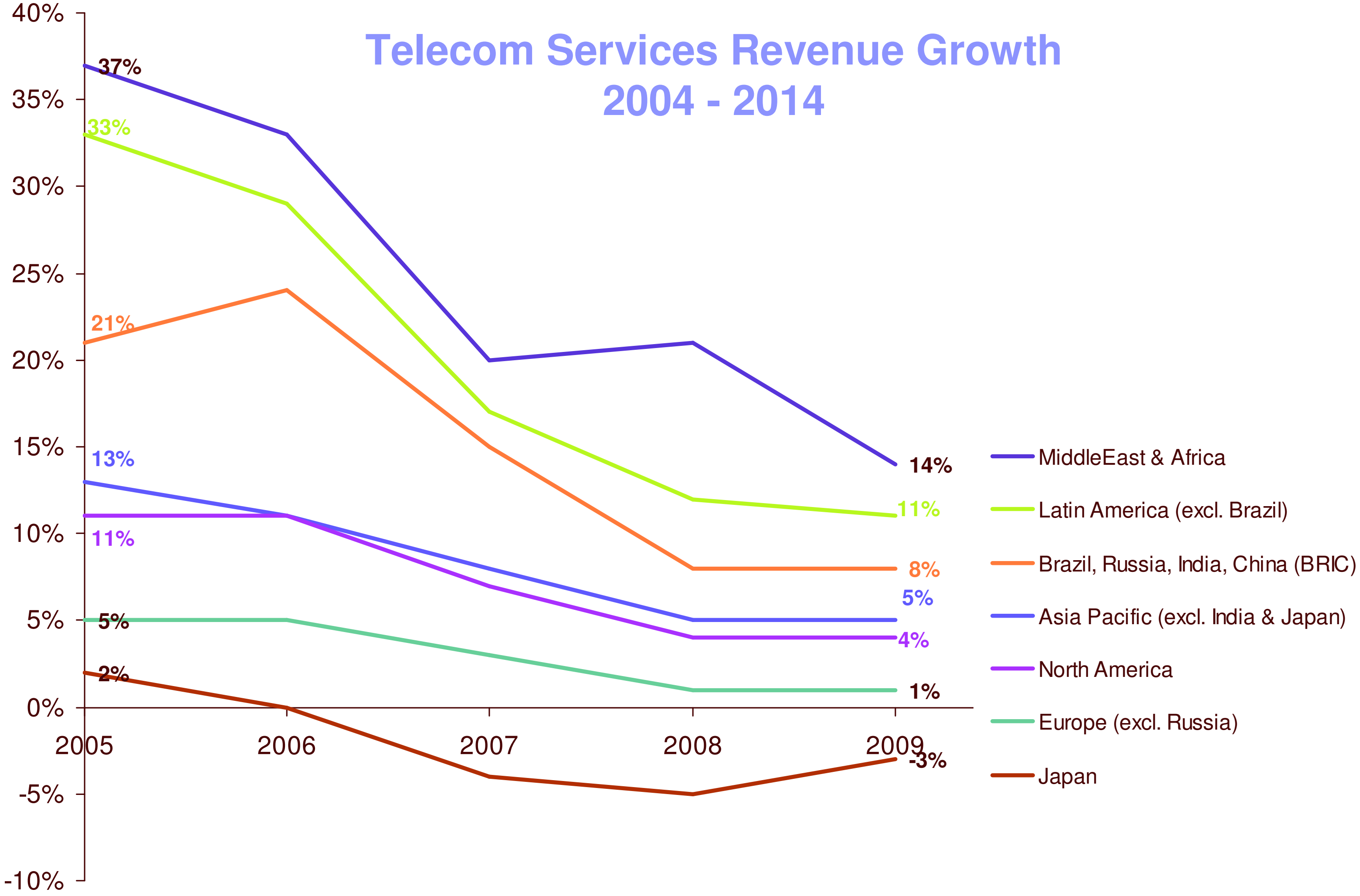
Source: International Telecommunications Union (ITU) ICT Statistics Database available at http://www.itu.int/ITU-D/icteye/Indicators/Indicators.aspx . 2009 figures are estimated published in ITU, "The world in 2009: ICT Facts and Figures"; ITU Geneva 2009, available at http://www.itu.int/ITU-D/ict/material/Telecom09_flyer.pdf

Over the decade mobile penetration In Russia has grown from one of the lowest to the Top 12 in the world; fixed telecom has grown too



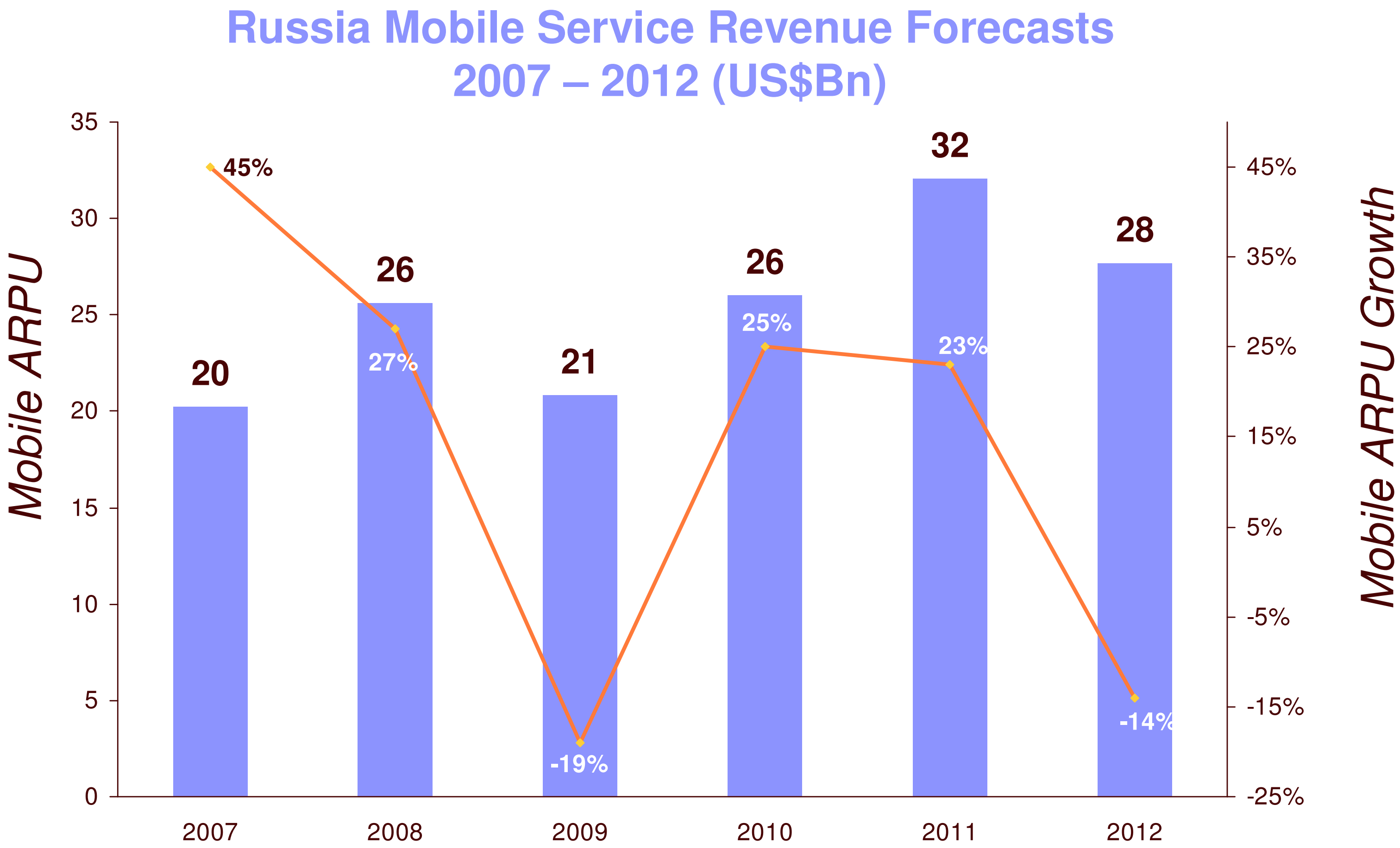
Estimated number of Internet users includes those using the Internet from any device (including mobile phones)
Total fixed (wired) broadband Internet refers to to high-speed access to the public Internet with downstream speeds equal to, or greater than, 256 kbit/s
Source: International Telecommunications Union (ITU) ICT Statistics Database available at http://www.itu.int/ITU-D/icteye/Indicators/Indicators.aspx . 2009 figures are estimated published in ITU, "The world in 2009: ICT Facts and Figures"; ITU Geneva 2009, available at http://www.itu.int/ITU-D/ict/material/Telecom09_flyer.pdf

However, the key engines of growth - mobile telephony and emerging market expansion - have lost their steam and begun to stall



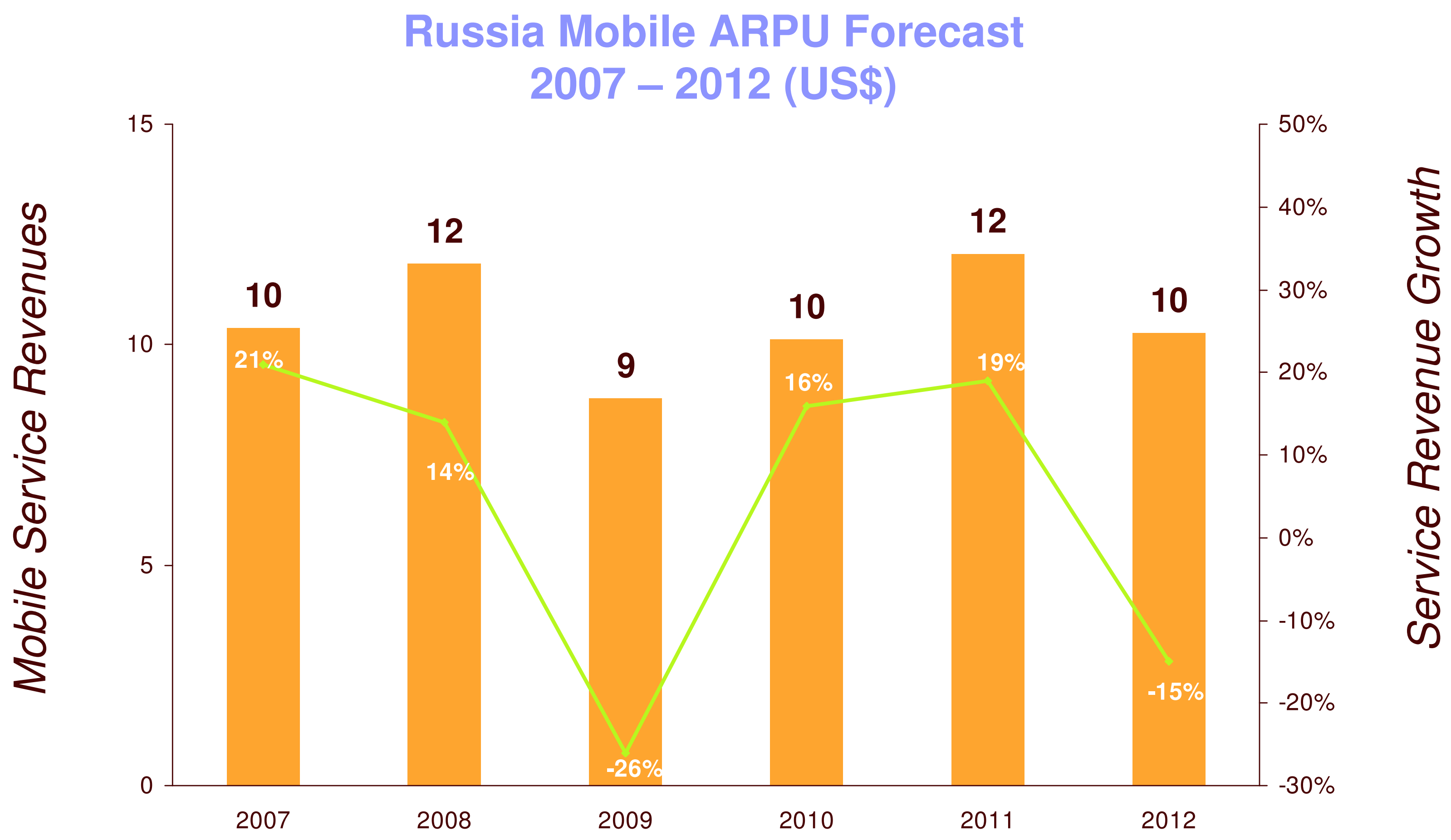
 Source : IDATE, in "World Telecom Service Market", 2008 Edition - January 2009, revision in July 2009; IBM Institute for Business Value (IBV) Analysis

Mobile service revenues are set to rebound in 2010 and 201 but expected to decline by 2012…



 Source : Global Wireless Matrix 3Q10, Merrill Lynch;_ IBM Institute for Business Value (IBV) Analysis

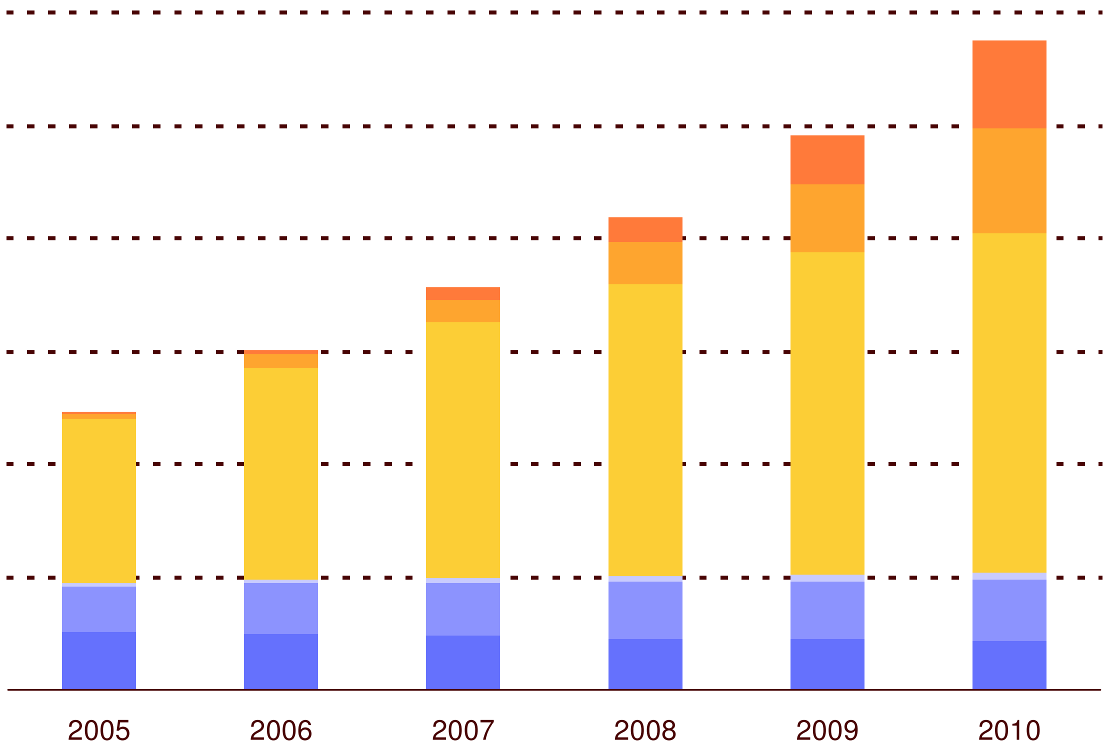
And ARPU is set to return to 2007 levels by 2012



 Source : Global Wireless Matrix 3Q10, Merrill Lynch;_ IBM Institute for Business Value (IBV) Analysis

While overall communication have increased, much of the growth has been over-the-top with share of traditional unchanged

FRANCE TOTAL COMMUNICATIONS MARKET
(billions of call minutes and equivalents[1])



Wireline **Mobile** **SMS/MMS** **E-mail(excl. spam)** **IM** **P2P VoIP**

Notes: (1) An SMS/MMS or e-mail is considered as a 30 second call.

- Increased share of communication services by Internet Communication services providers
- Stable use of traditional communications services

Source: Idate: Telco's views of Openess, Digiworld Summit 2009

Social media sites dominate global and Russian web activity but in Russia sites like Vkontakte are ahead of global brands like Facebooj

Top 11 Russia Websites

1	Яндекс yandex.ru
2	V Kontakte, vkontakte.ru
3	Почта@Mail.ru, mail.ru
4	Google google.ru
5	**Google**, google.com
6	LiveJournal.com, livejournal.com
7	**Youtube**, youtube.com
8	**Wikipedia**, wikipedia.org
9	Рамблер, rambler.ru
10	Одноклассники.ru, odnoklassniki.ru
11	**Facebook**, facebook.com

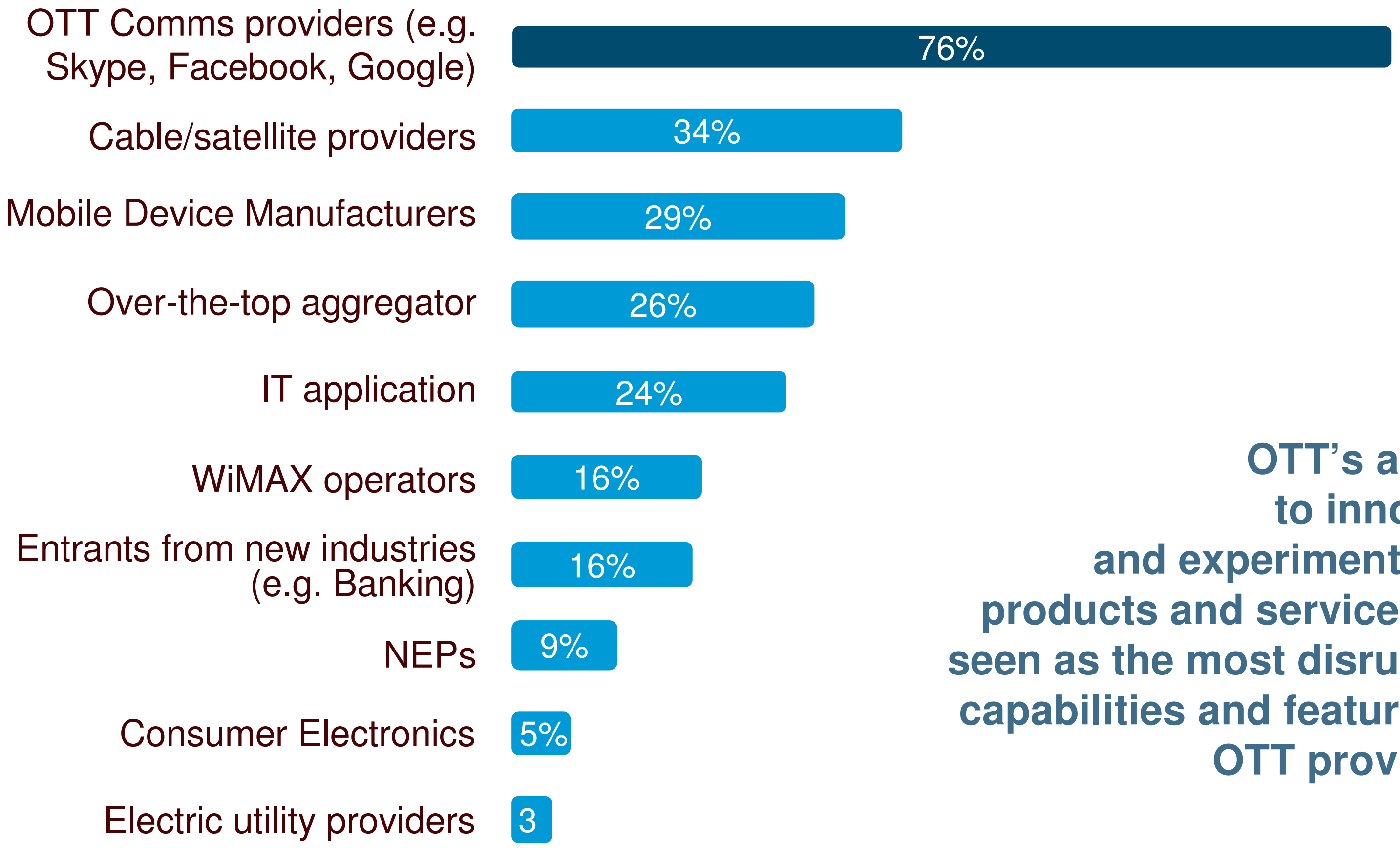
Top 11 Global Websites

1	**Google**, google.com
2	**Facebook**, facebook.com
3	**Youtube**, youtube.com
4	Yahoo!, yahoo.com
5	Windows Live, live.com
6	Baidu.com, baidu.com
7	**Wikipedia** wikipedia.org
8	Blogger.com, blogspot.com
9	QQ.COM, qq.com
10	Twitter, twitter.com
11	MSN, msn.com

Source Alexa, IBM Institute for Business Value (IBV) Analysis

Operators consider such over-the-top communication greatest competitive threat...

Which of the following do you anticipate will pose the greatest competitive threat to you over the next 5 – 10 years?

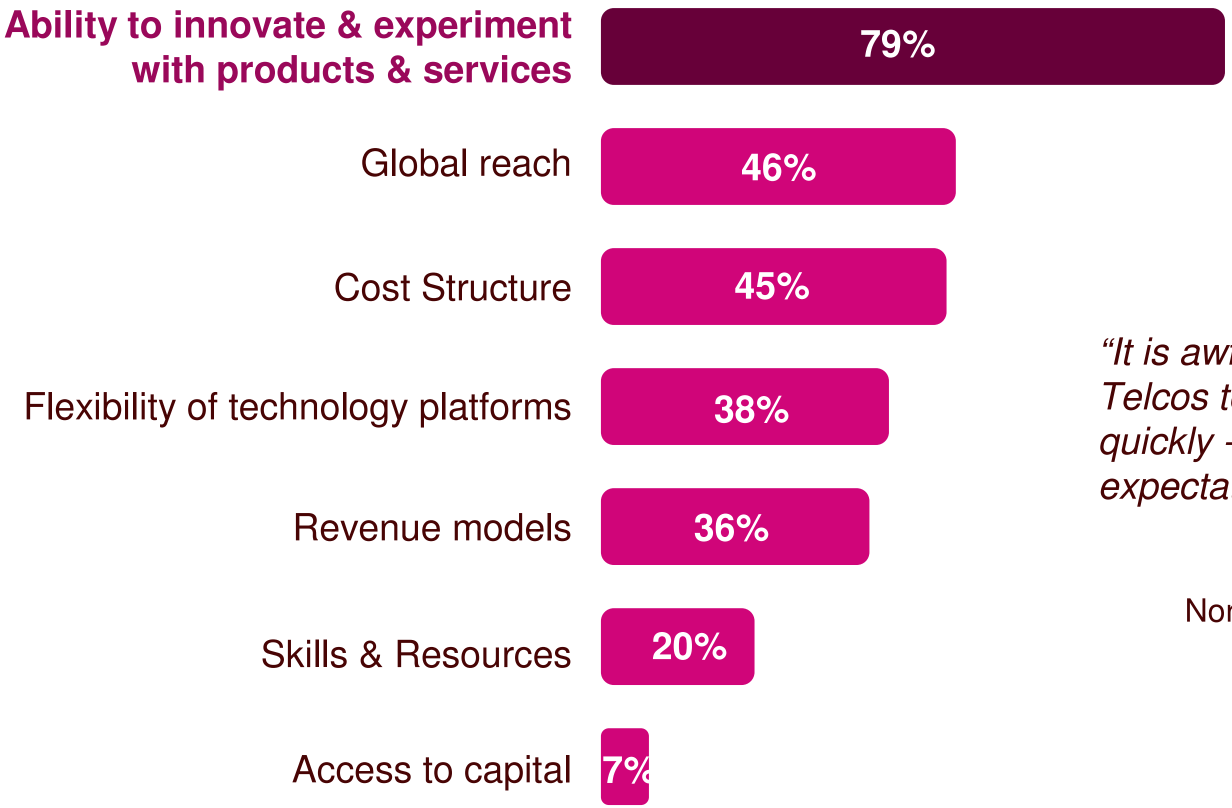


OTT's ability to innovate and experiment with products and services are seen as the most disruptive capabilities and features of OTT providers

2009 IBM Institute for Business Value ***Telecom Industry Executive Survey***

And in particular, their ability to innovate and experiment are considered the most potentially disruptive

What capabilities and features of new entrants (e.g. over-the-top Internet providers) do you believe will most disrupt the competitiveness of traditional telecom providers over the next 5-10 years?

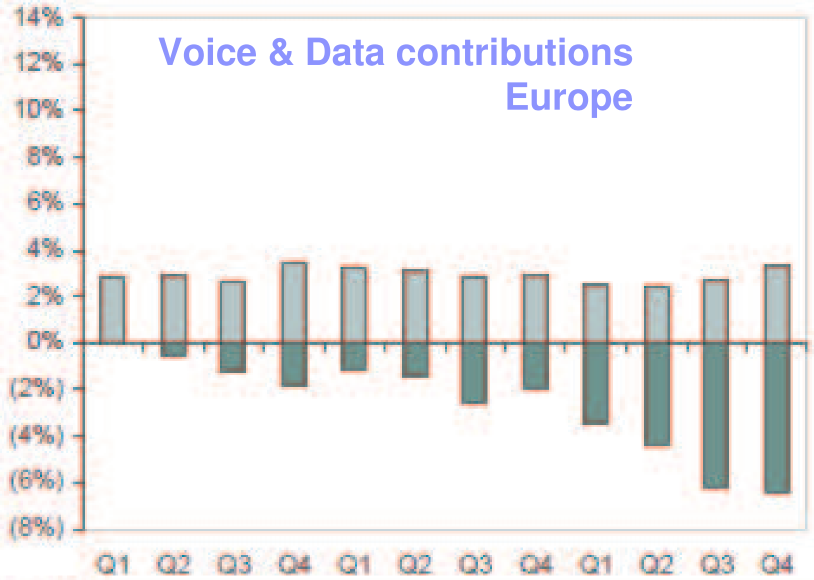


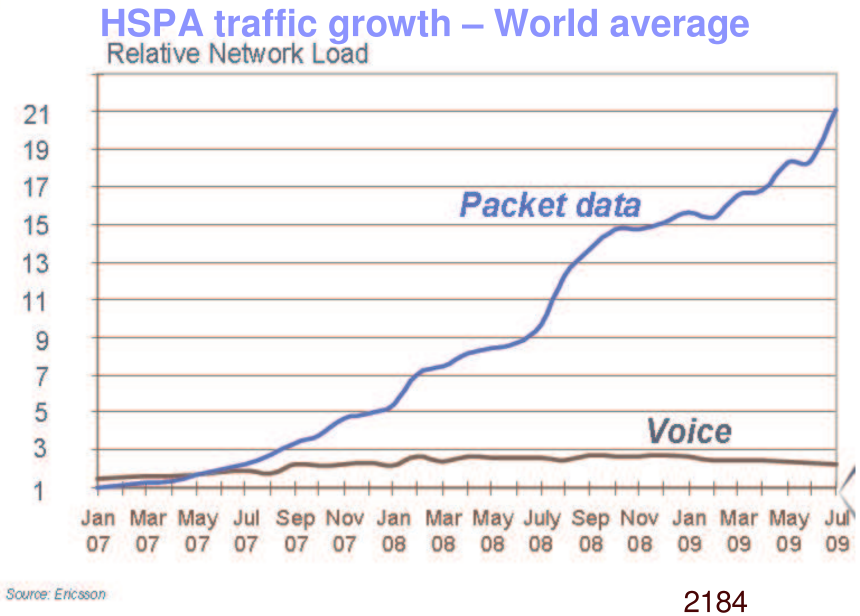
"It is awfully hard for the legacy Telcos to beta/launch products quickly - often due simply to the expectations driven by the brand"

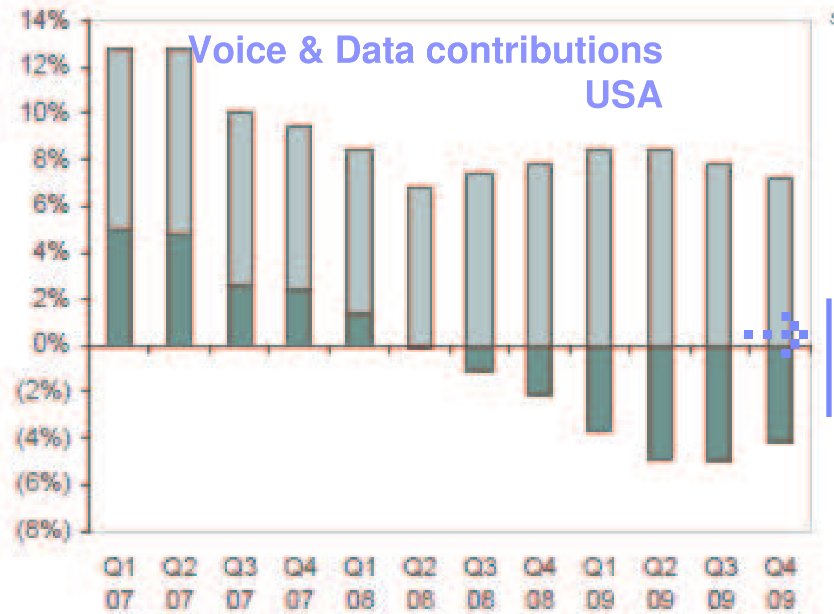
Director of Marketing
North American Telecom Provider

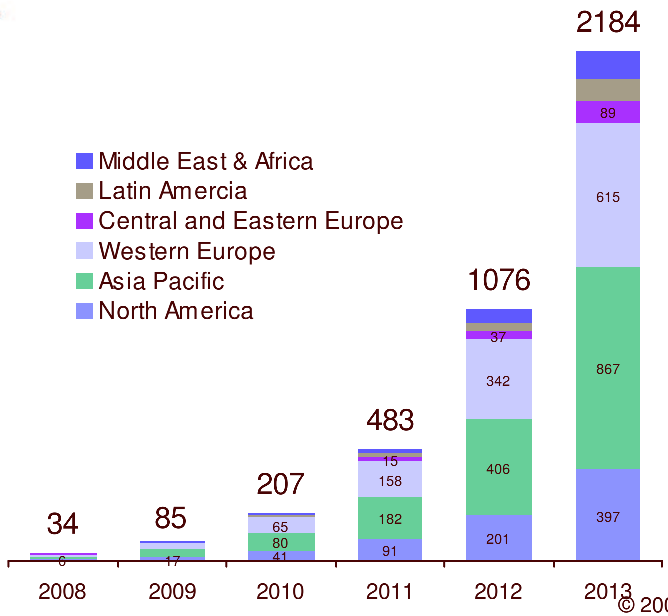
*2009 IBM Institute for Business Value **Telecom Industry Executive Survey** N=61*

A bright spot has been the phenomenal growth of mobile broadband



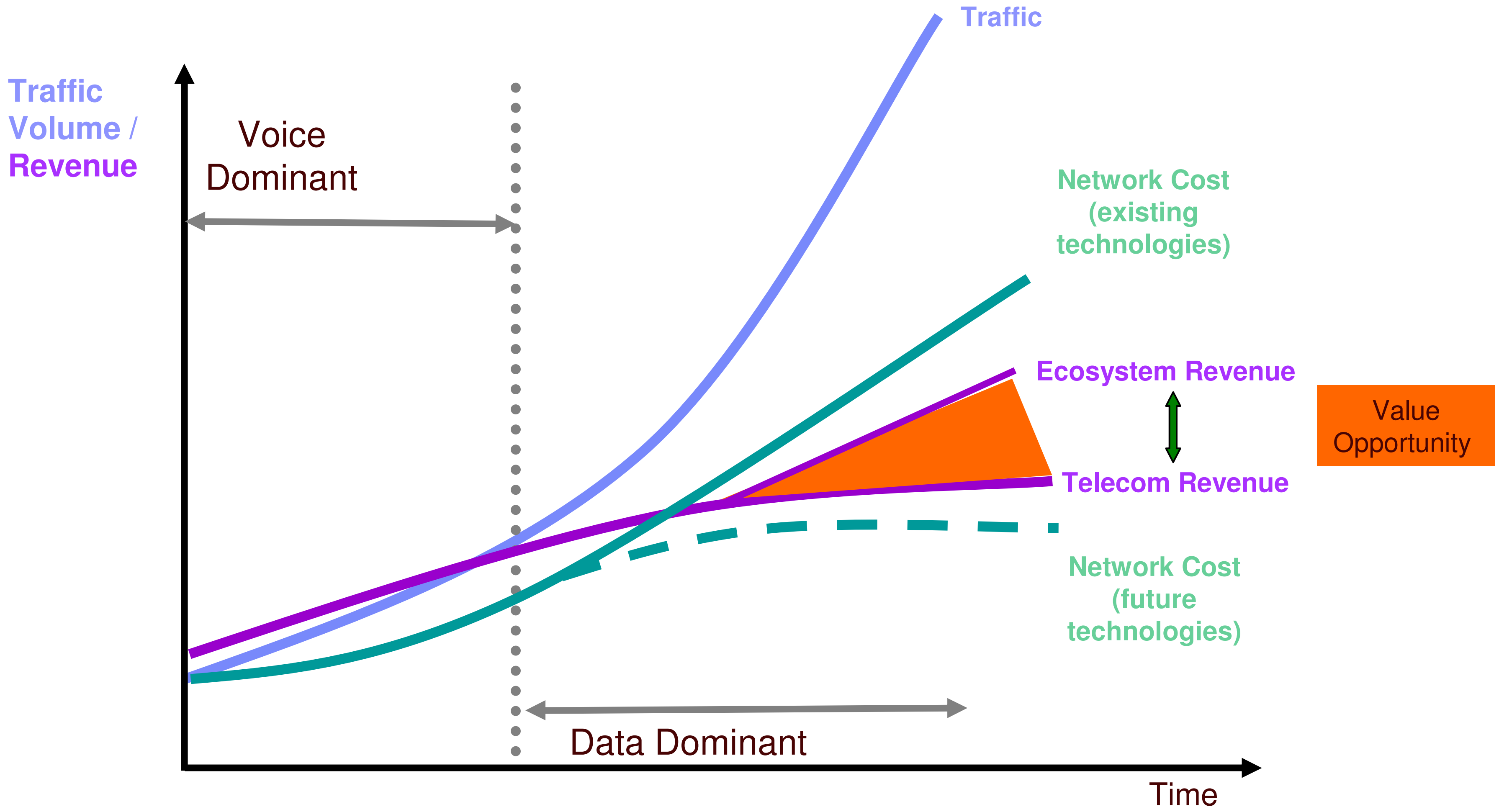






Source:, Frédéric PUJOL, « Open Mobile », IDATE , 2009, Antoine Pradayrol, “European mobiles: is the data opportunity big enough?”, Exane BNP Paribas;

Telecom revenues do not track to increases in network traffic

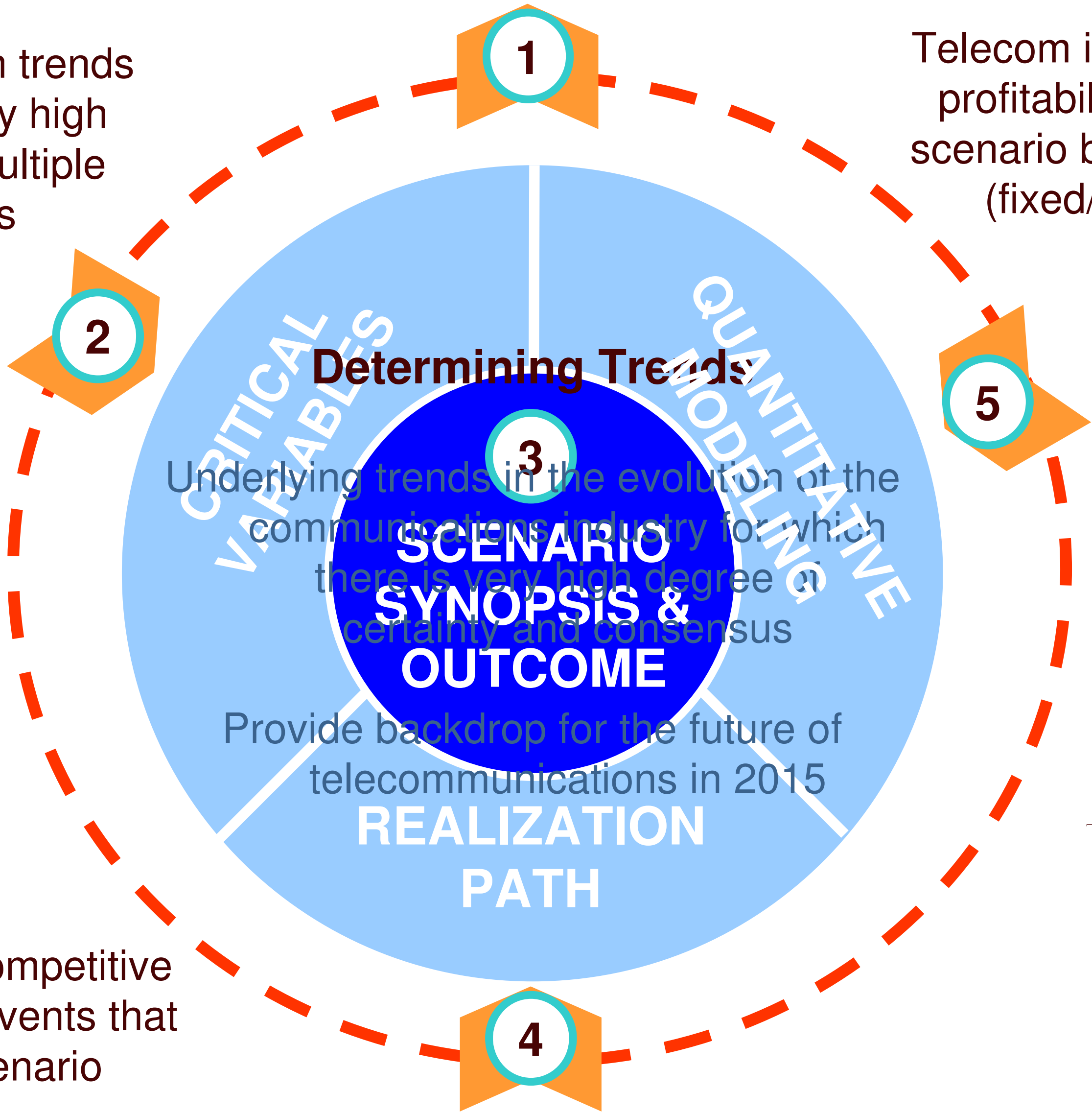


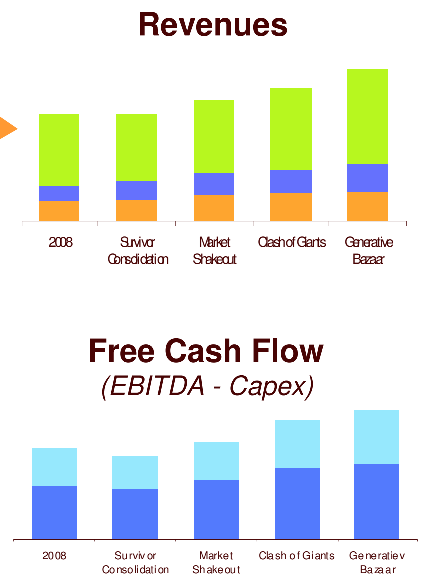
Source: Nokia-Siemens; IBM Institute for Business Value (IBV) Analysis

Scenario Planning enables us to analyze different plausible outcomes in an increasingly complex world

Likely but uncertain trends with potentially high impact and multiple outcomes

Telecom industry revenue and profitability outlook for each scenario by region and access (fixed/mobile) for 2015





Major economic, competitive and technological events that trigger each scenario

The world of telecom in 2015

USAGE/ SERVICES

- PSTN decline accelerates
- VOIP (incl. mobile VOIP) grow
- Ubiquitous and seamless access
- High digital content consumption
- Communication remains fragmented

INDUSTRY STRUCTURE

- New infrastructure competition from government, municipality
- Net Neutrality remains
- Mobile and fixed termination converge
- Pure plays disappear

ACCESS

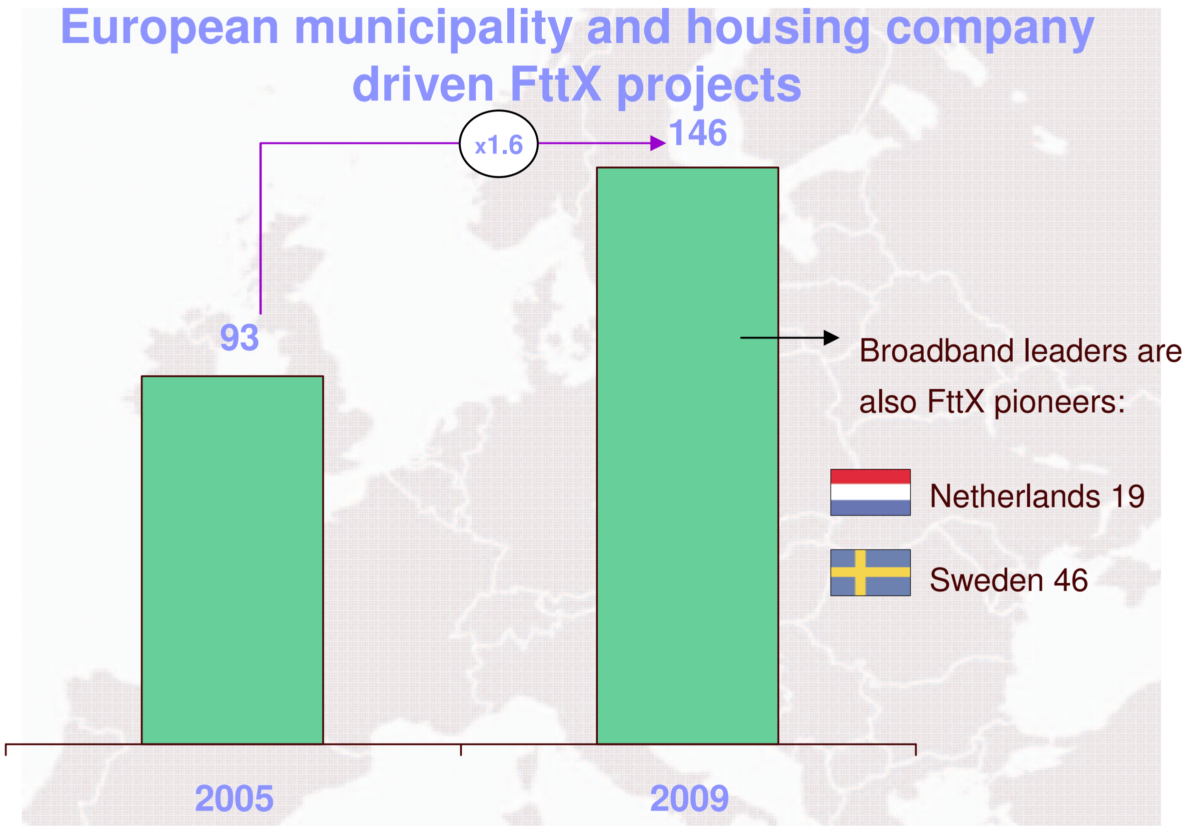
- Broadband pervasive as TV
- Mobile broadband favors LTE
- Ultra low-cost devices grow
- One in three devices is smartphone, MID, or Netbook

BUSINESS MODEL

- Voice monetized as a feature of connectivity
- Green Telecom revenues
- 3rd – party revenues
- Cost structures changes

Source: IBM Institute for Business Value (IBV) Analysis

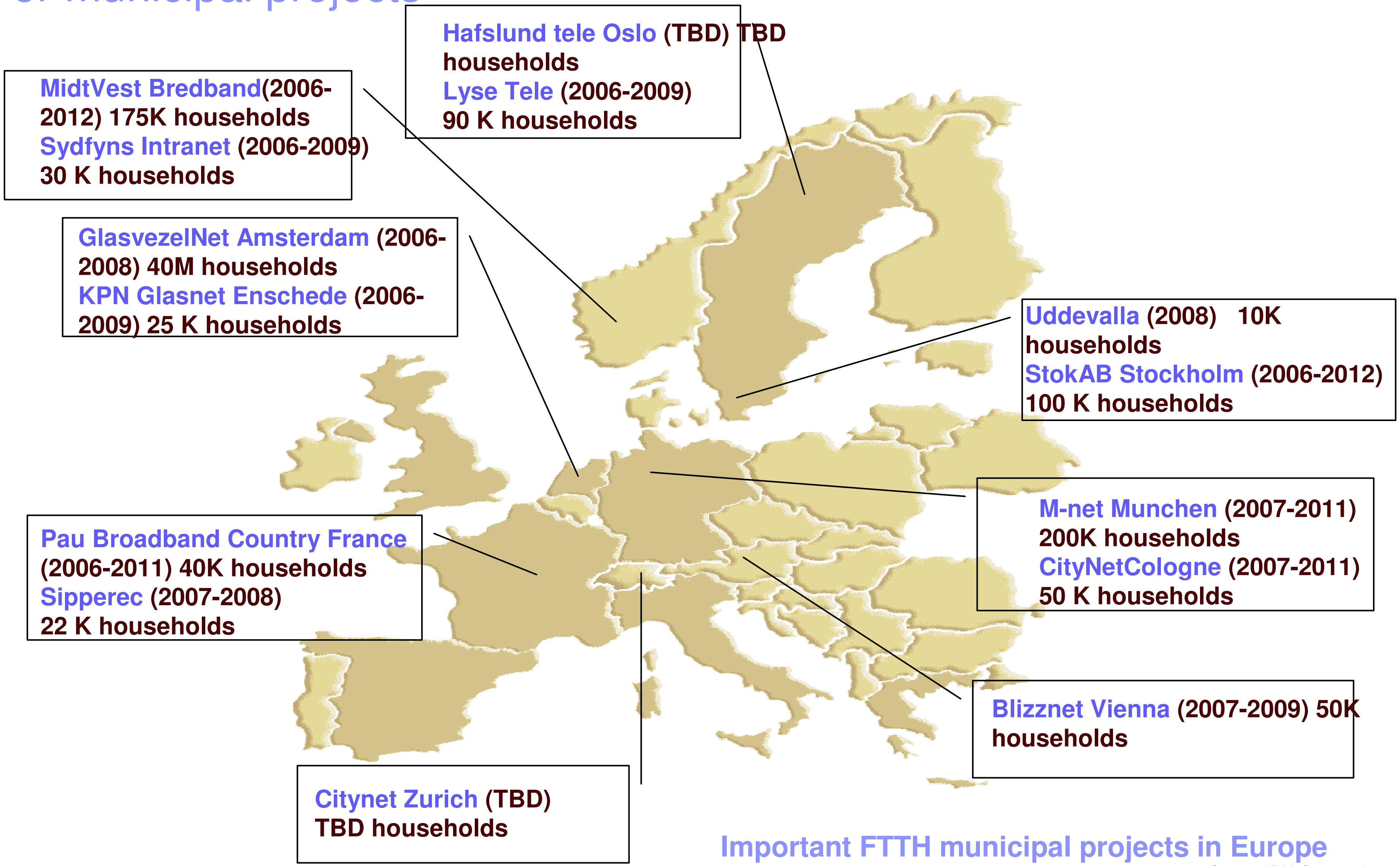
Increasingly new infrastructure competition will come from government, municipalities and local initiatives



- Where incumbents and other telcos fail to build out fiber networks non-traditional players will step in
- Local FttX networks driven by local players, including communities, typically adopt an open access approach

Source: IDATE

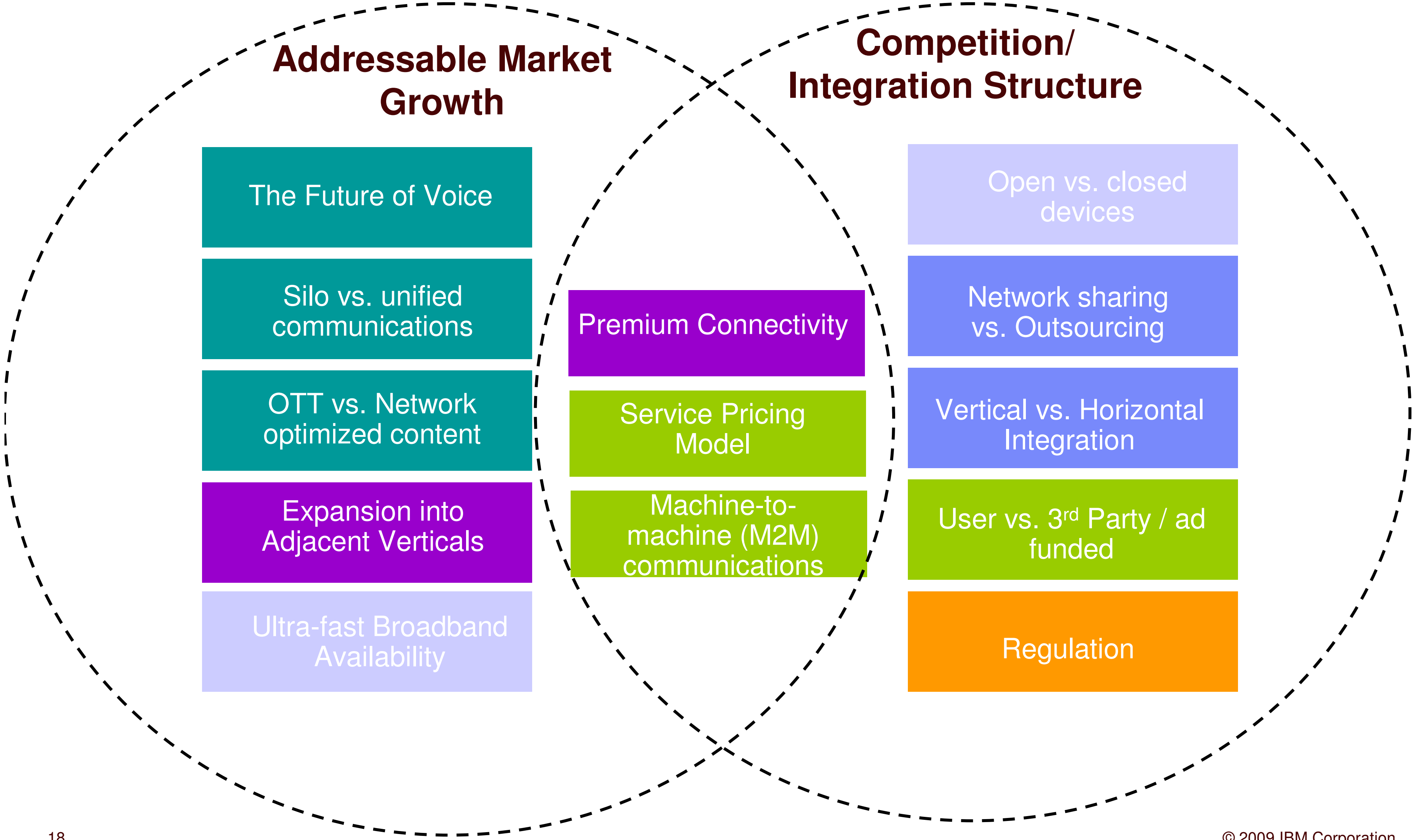
Across Europe a significant portion of FTTH deployments are local or municipal projects



Important FTTH municipal projects in Europe

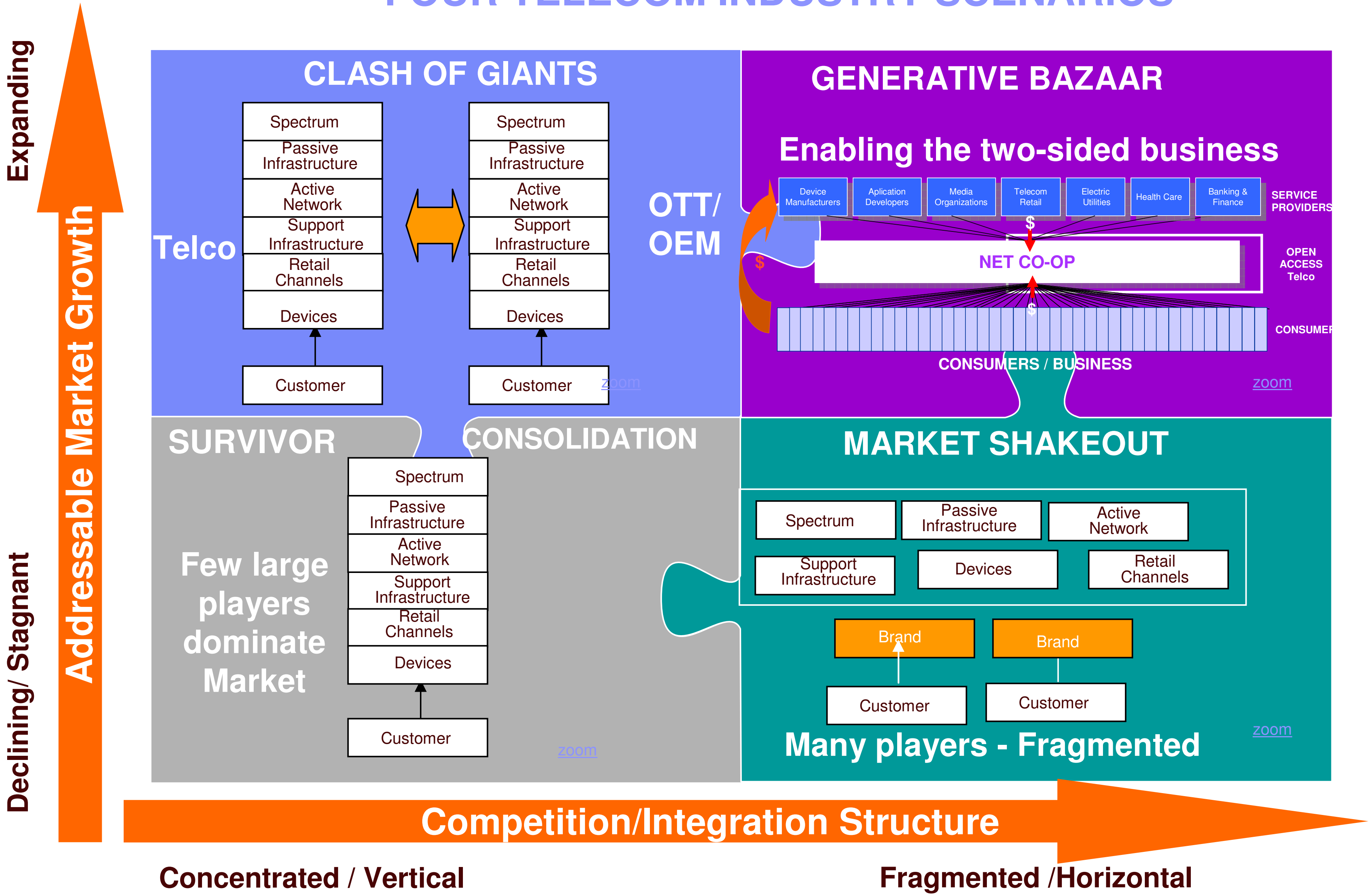
Source: IDATE, IBM Institite for Business Value (IBV) Analysis

Dominant themes across selected critical variables - addressable market growth and the competition/integration structure



Source: IBM Institute for Business Value (IBV) and IDATE Analysis

FOUR TELECOM INDUSTRY SCENARIOS



So who will be most successful?

CLASH OF GIANTS

1. Collaborative inter/intra-industry alliances
2. Innovative and differentiated network-optimized experiences
3. Enhanced service provider roles in vertical markets
4. Efficient and competitive cost structure
5. Scale

GENERATIVE BAZAAR

1. Structural separation of network and services operations
2. Pervasive open network access infrastructure
3. Third-party applications /services innovation
4. Dynamic Business Design
5. Customer and network analytics

Common Critical Success Attributes

- Cost-effective ultra-fast broadband deployment
- Customer/ network insight for experience and to optimize cost
- Culture of collaboration
- Agile, flexible processes and infrastructure
- Cost containment

SURVIVOR CONSOLIDATION

1. Scale
2. Reduced cost to serve
3. Contained ARPU erosion
4. Significant fixed / mobile broadband market share
5. Share of high value customers

MARKET SHAKEOUT

1. Clarity of role in value chain
2. Powerful brand/reputation
3. Viable premium connectivity propositions for 3rd party providers
4. Agile, flexible and reconfigurable processes and infrastructure
5. Ubiquitous and cost-effective ultra-fast broadband access

Source: IBM Institute for Business Value (IBV)

Edge/Network and Infrastructure Innovation provide opportunities of significant of costs savings and revenue generation

- **Network / Edge Innovation - Utilize Network Investment Wisely and Grow Effectively**
  - Sending all of the data, all of the way, all of the time is becoming untenable
  - Offloading all of the data without maintaining Subscriber awareness and Charging lowers the value of the network
  - Combining IT Traffic Optimizations with Mobile Technology Delivers significant results
- **Infrastructure Innovation – Leverage Cloud to reduce costs and extend reach**
  - Datacenter operations still represent significant costs (hardware, energy, etc…)
  - Opportunity to share costs through by offering Infrastructure as a service (IaaS) to 3rd parties
  - Examples include IBM Cloud and CSP2, Amazon AWS, Google App Engine, Microsoft Azure,

Data and Open Innovation are critical for capturing business insights for competitive advantage and extending the open platform

- **Data Innovation – Transform Data into Revenue**
  - Dumb Pipes result in a business model quandary due to flat rate expectations
  - Smart Pipes move the data more effectively and efficiently, lowering costs
  - Smarter Pipes Leverage an Open Ecosystem Plus Analytics to Grow Revenue
  - Extracting real-time business insight on the usage of the infrastructure resources to drive improved marketing, partnership & end user experience
- **Open Innovation– Enable an New Ecosystem of Application Providers**
  - Innovation of an Open Economy
  - Internet Timescales to drive speed
  - Harvest new investments by others
  - Open, Standard, Hi Volume Technology

Key contacts

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