

Forecasting WiMAX Adoption in Eastern and Western Europe

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About Senza Fili Consulting



Technology focus

- Mobile and fixed wireless broadband technologies
- VoIP, convergence, mobile broadband applications
- Network infrastructure and devices

Approach

- Bridge between technologies and services
- Quantitative analysis
- International perspective

Services

- Business development and strategy
- Business plans and financial modeling
- RFP and due diligence
- Market analysis and forecast

WiMAX: Ambitions and reality.

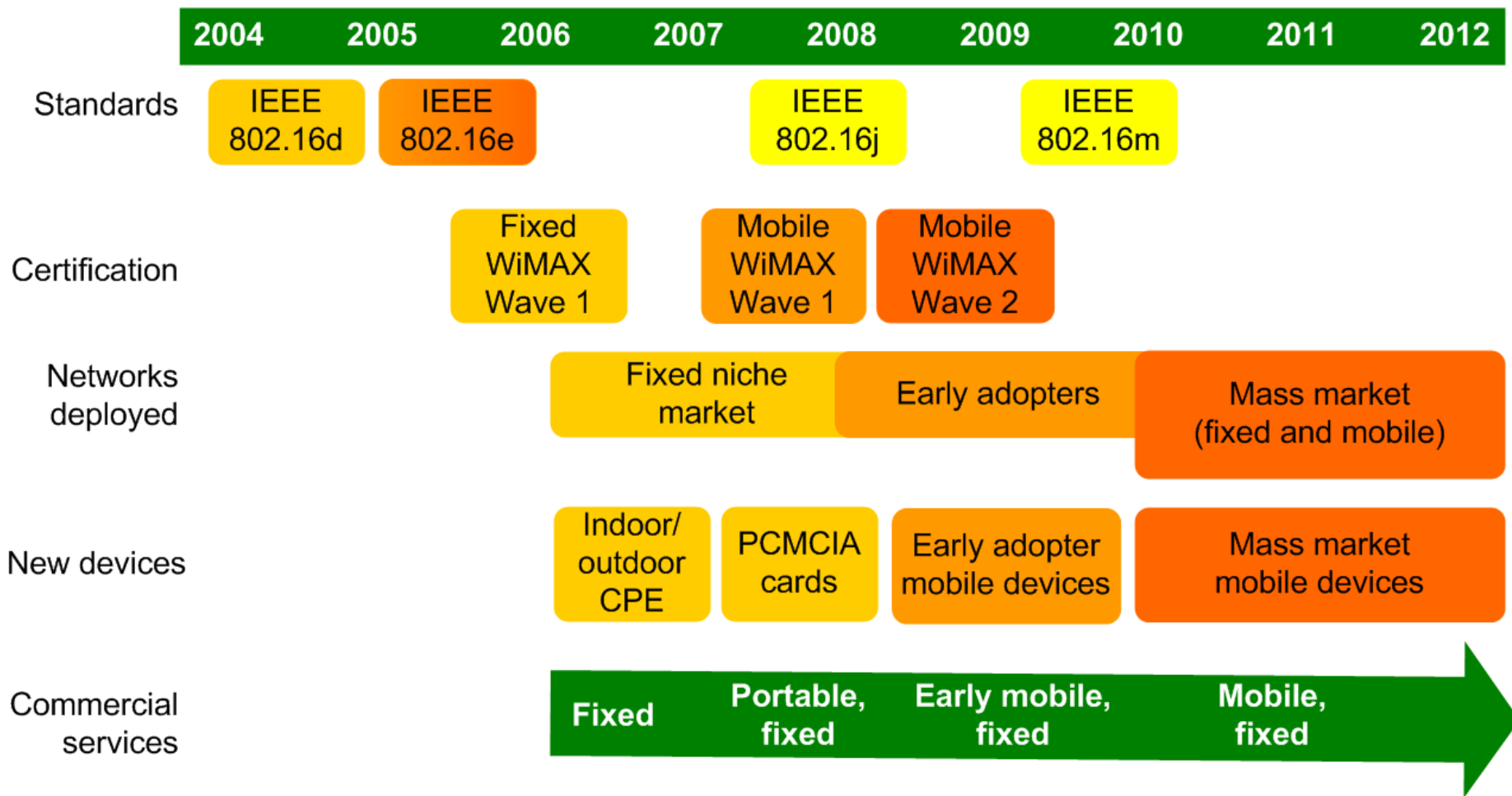
A detailed market assessment and forecast at the global, regional and country level (2006-2012)

- Senza Fili Consulting latest report and forecast on the global WiMAX market
 - Results presented here for the first time
- **Regions:** Asia Pacific, North America, Western Europe, Eastern Europe, Latin America, Middle East/North Africa, Sub-Saharan Africa
- **Countries:** Argentina, Australia, Brazil, Canada, China, France, Germany, India, Italy, Japan, Korea, Mexico, Spain, Russia, UK, USA
- **Forecast data for each country and region**
 - Fixed and mobile broadband subscribers
 - Fixed and mobile WiMAX subscribers
 - Data and VoIP service revenues
 - Device types in use and sale volume
 - Equipment revenues for network infrastructure and subscriber devices

Today's presentation

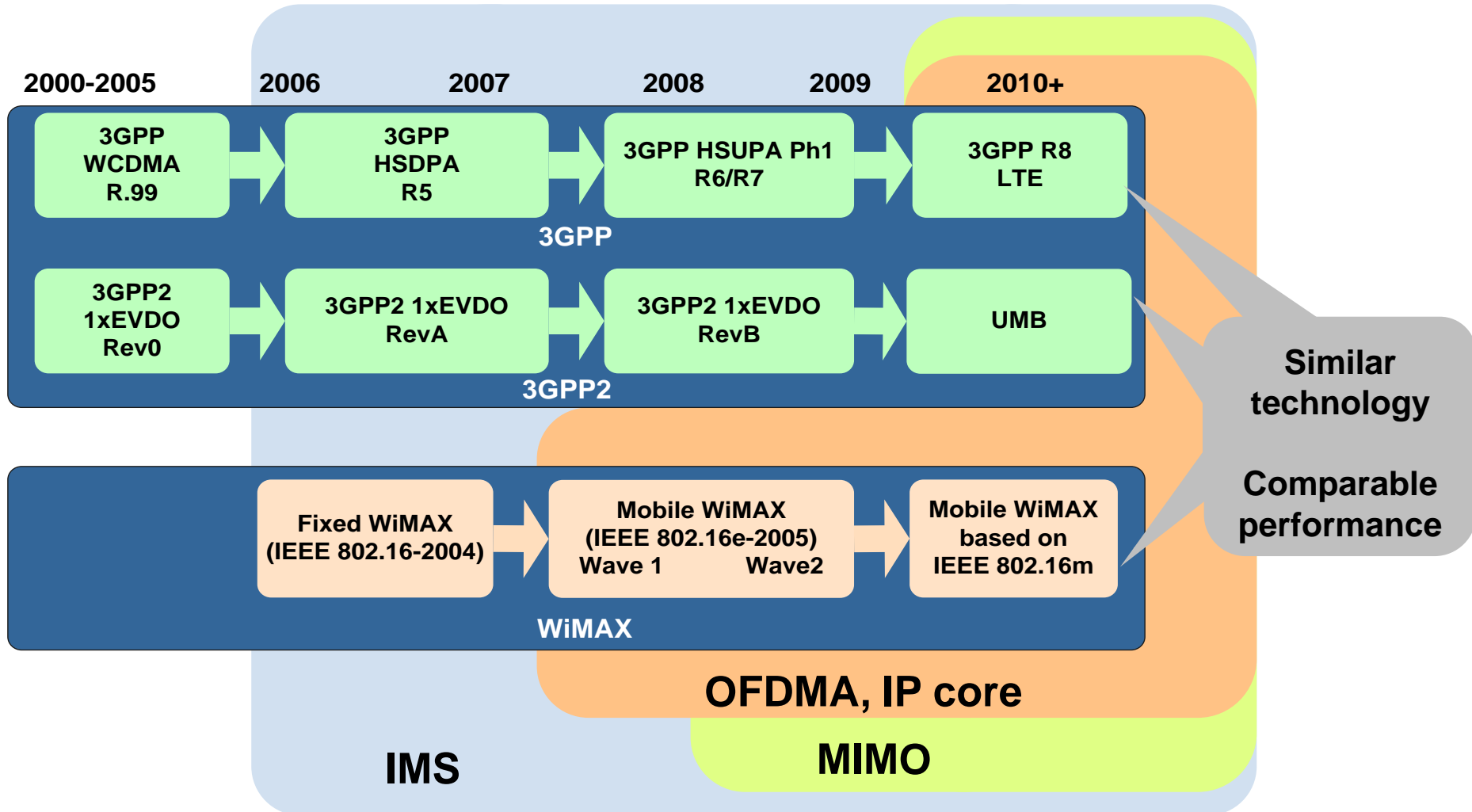
- Overview of market opportunities and challenges
- Forecast assumptions and model
- Global forecast
- Eastern Europe and Western Europe forecast
- Concluding remarks: What it takes for WiMAX to succeed

Mobile WiMAX is almost ready to go, but it will be used for fixed access initially



CPE: Customer Premises Equipment ; IEEE: Institute of Electrical and Electronics Engineers

Moving ahead, LTE poses the biggest challenge to WiMAX



The challenge of LTE

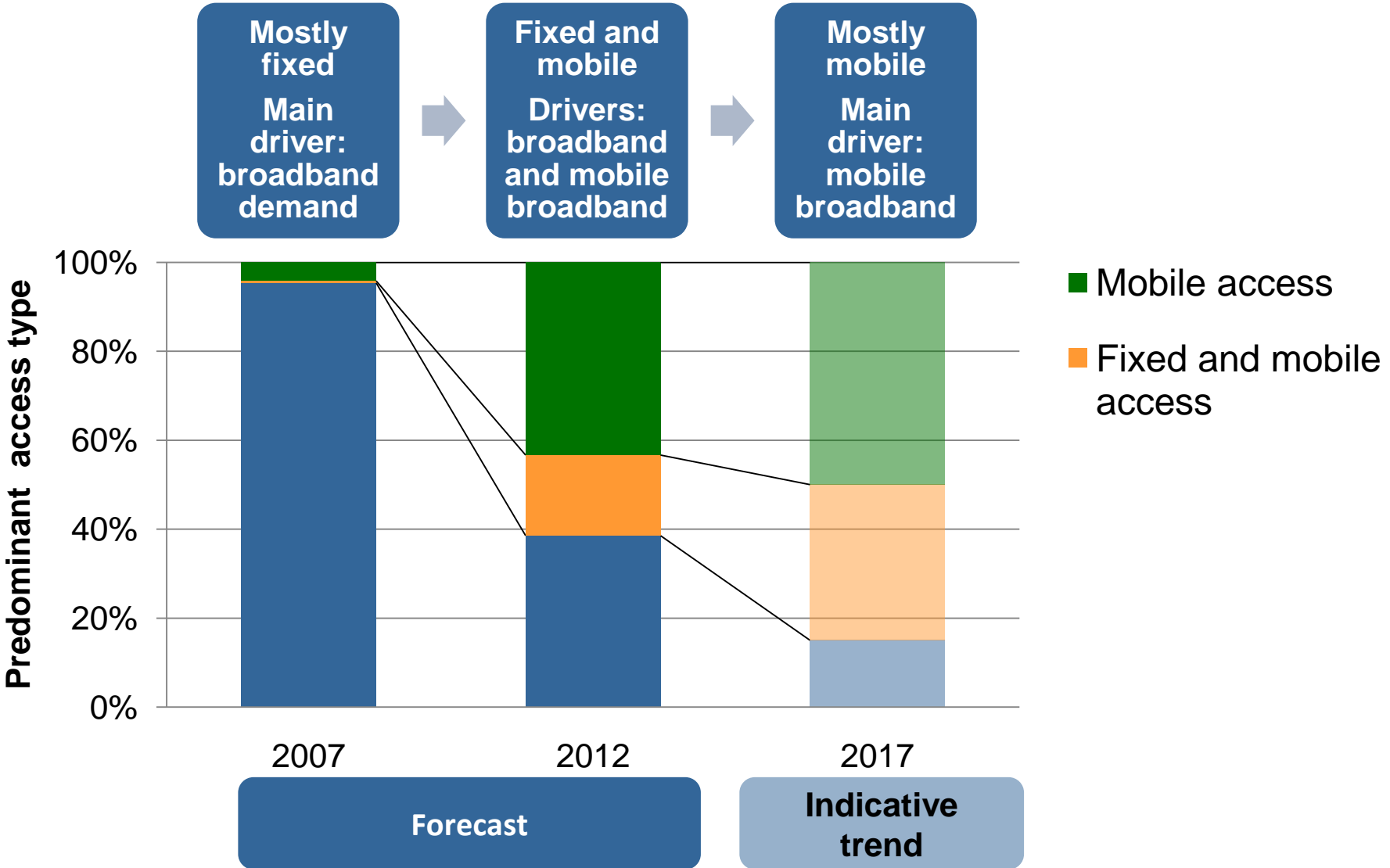
- Competition will **not** be on technology
 - Performance sufficiently similar
- What will matter:
 - Operator community commitment
 - Maturity
 - Devices
 - Ecosystem
 - Business model
- Does it matter whether LTE or WiMAX will prevail?

Likely scenarios beyond 2012

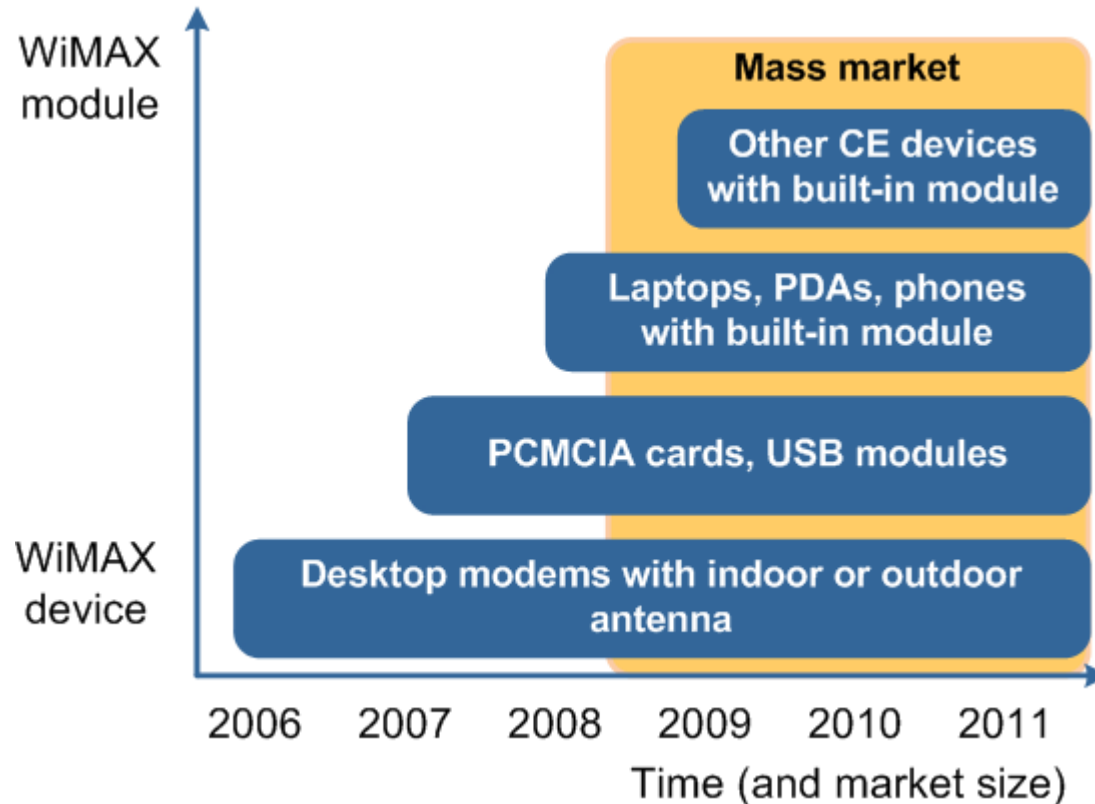
- WiMAX mostly deployed by fixed and greenfield operators; LTE by mobile operators
- WiMAX deployed initially by fixed and greenfield operators; success leads mobile operators to opt for WiMAX

Too early to know which scenario may win

The WiMAX market will gradually shift from fixed to mobile access

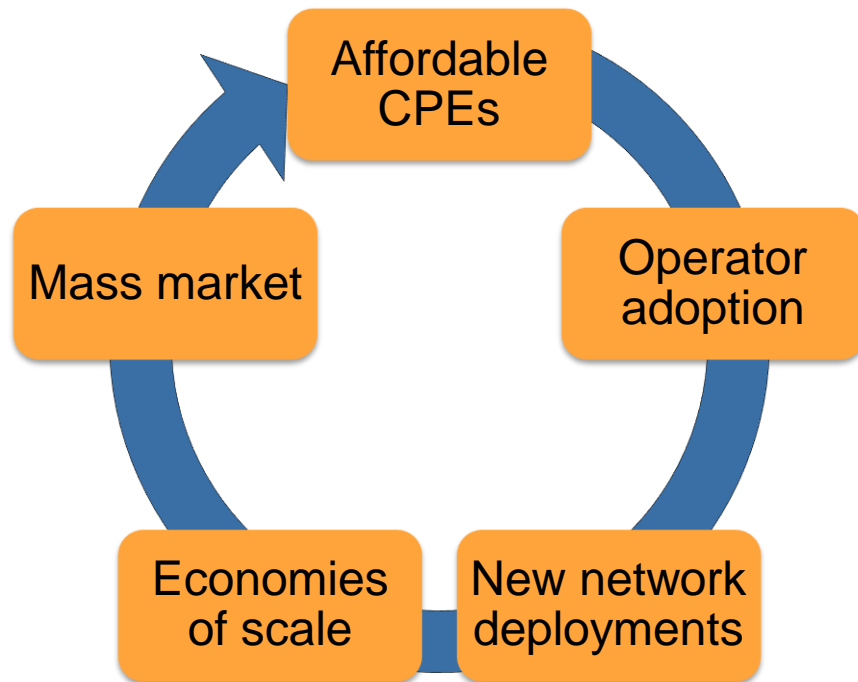


Devices (not applications) will be the key drivers to WiMAX adoption



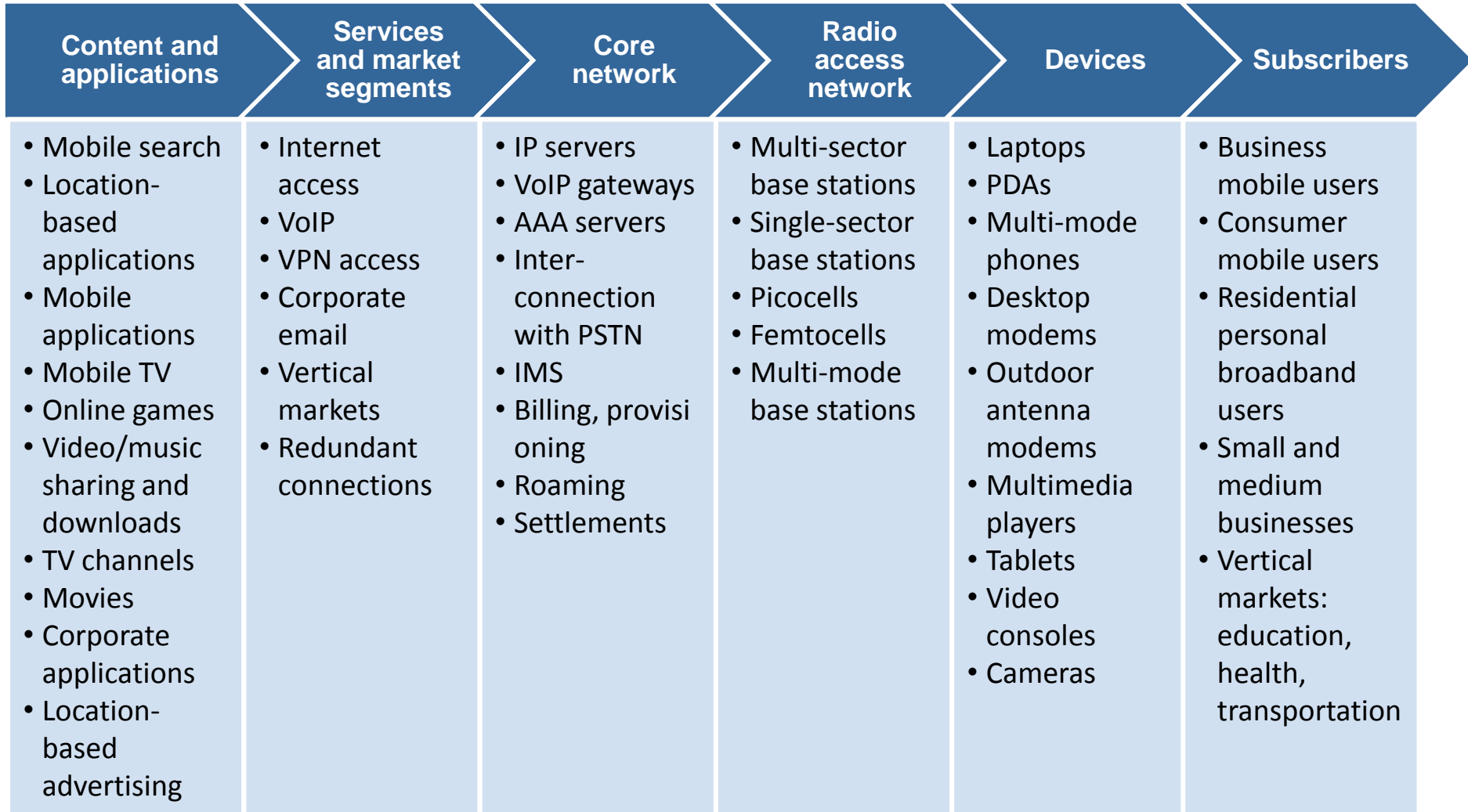
- Move beyond the laptop model and the handset model
 - Enable mobility and broadband
- Develop low-cost devices aimed at emerging markets

The cost of subscriber devices has to come down to accelerate adoption

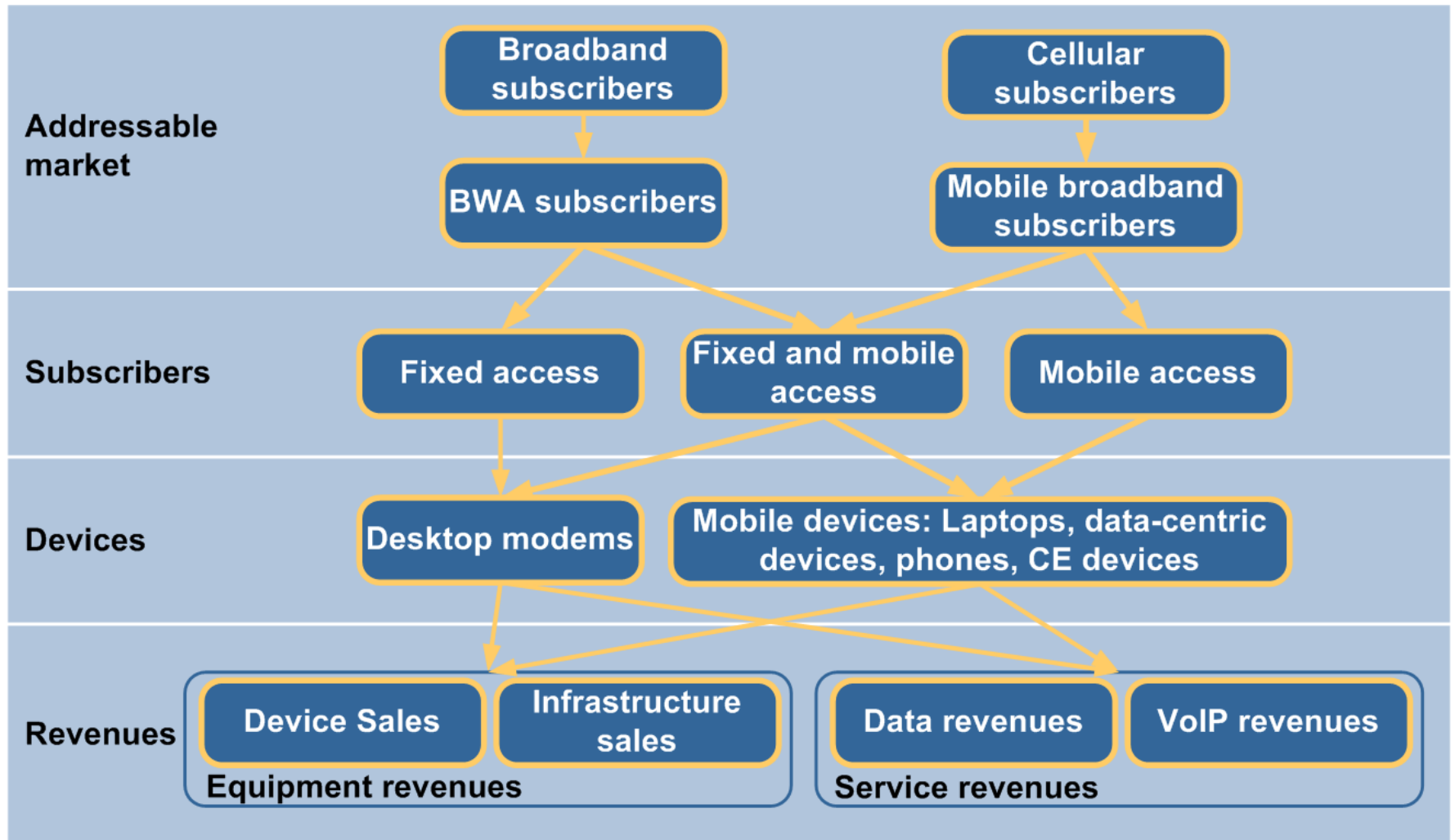


- A EUR150 subscriber device is not sustainable in markets with ARPUs below EUR15/month
- “Zero-subsidy” model does not address the issue
 - Someone has to pay for the device
 - Subsidies may be needed to compete with wireline operators

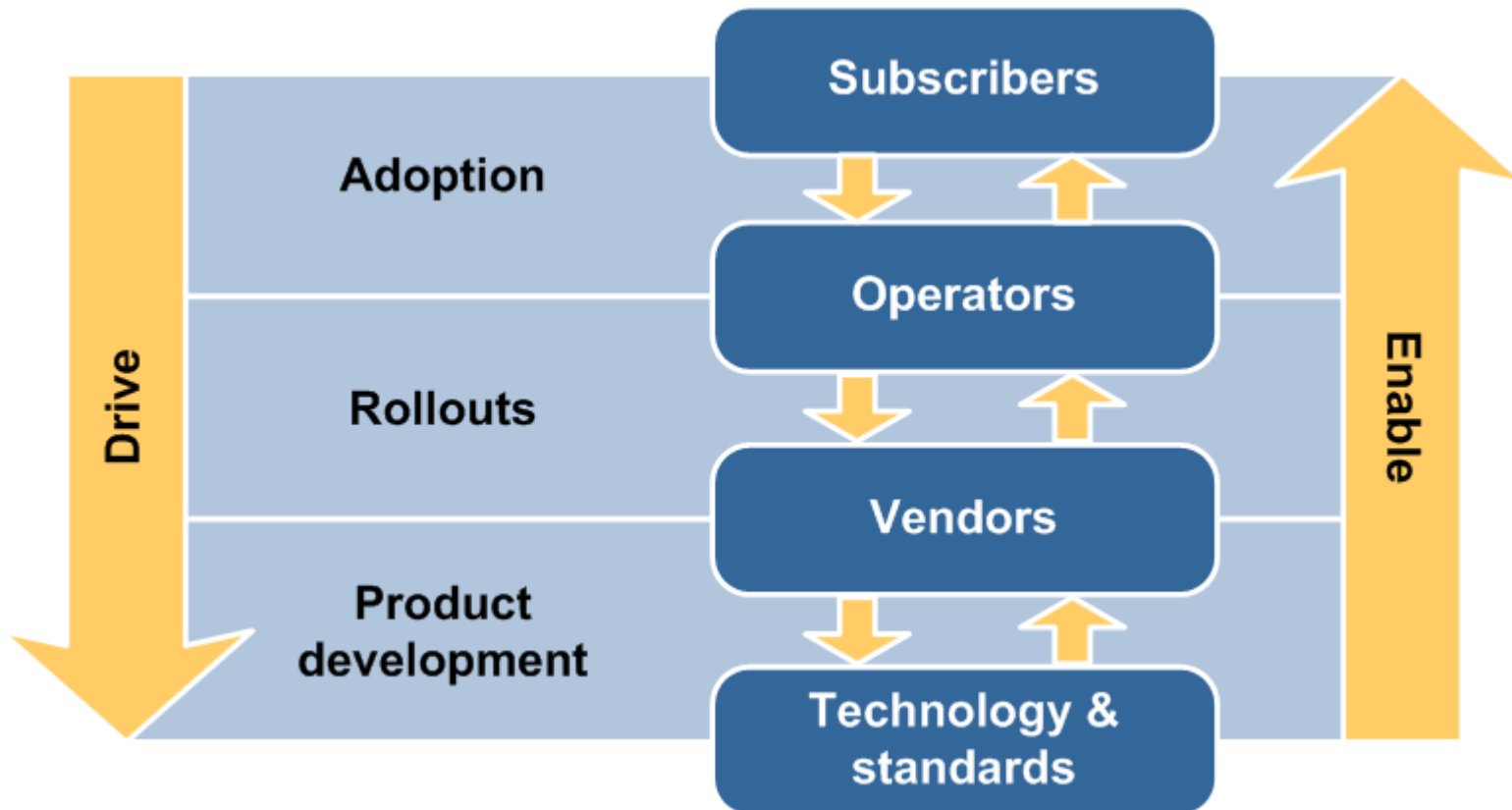
A strong ecosystem will be a powerful weapon against LTE



The forecast model

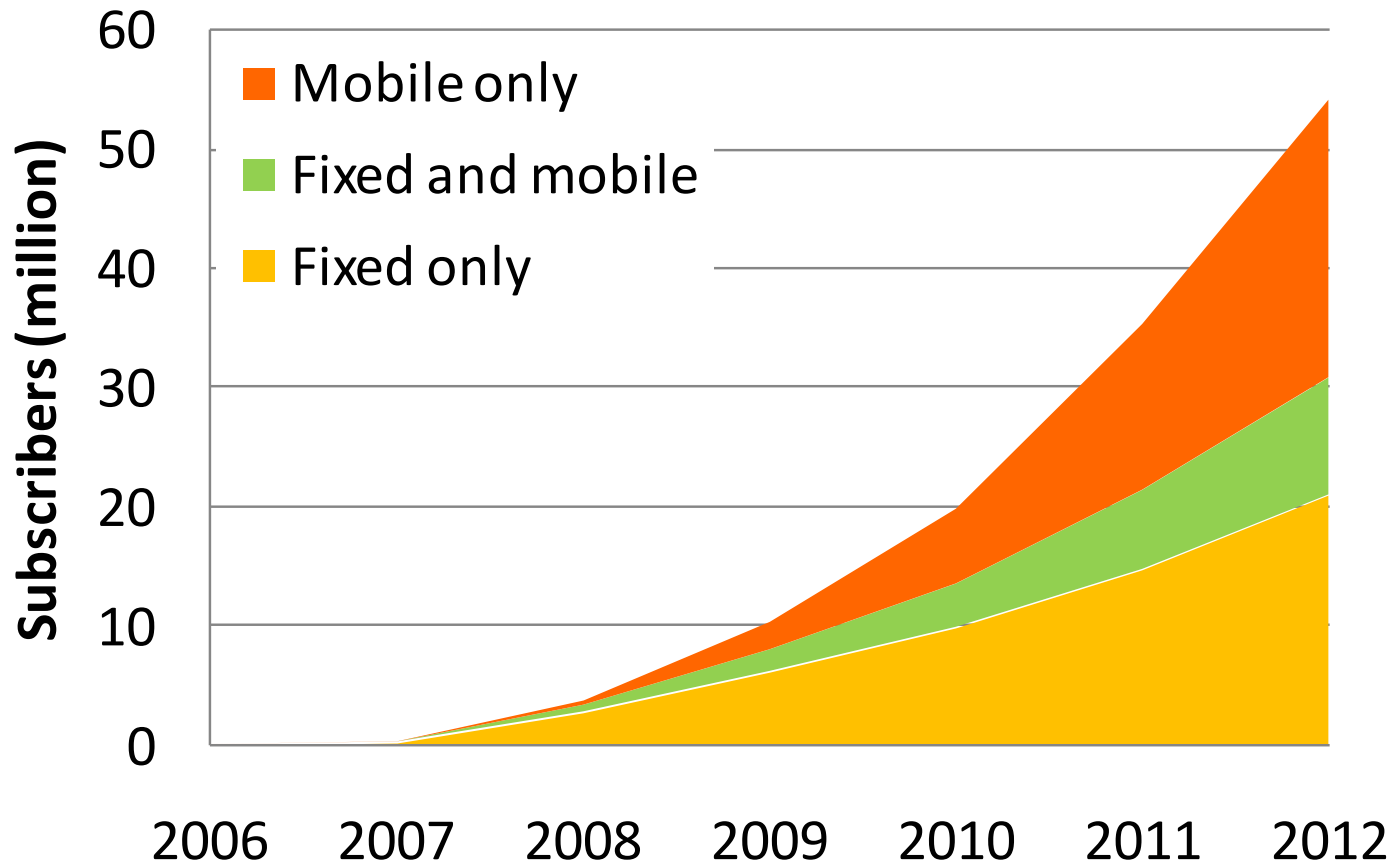


Our approach: demand is driven by subscribers



By 2012, there will be 54 million WiMAX subscribers

WiMAX subscribers



Western Europe is the most challenging market for WiMAX

- Spectrum
 - 3.5GHz band limited to fixed access and limited portability
 - 2.5GHz spectrum not yet assigned
 - Mobile operators likely to grab most of it
- Highly competitive broadband market makes it difficult for fixed operators to succeed
- Underserved areas are a limited opportunity, expensive to serve
- Widely available 3G infrastructure
 - Adoption growing
 - Mobile broadband data-only subscribers are still few
- Future prospects
 - Mobile operators leaning towards LTE

Eastern Europe is a high-growth market

- Initial growth driven by demand for fixed access
 - Lower broadband penetration, but strong demand for the service
 - Increasing competition, but still room for new entrants
 - Insufficient wireline infrastructure
 - Less developed 3G infrastructure
- Portability and mobility will follow soon
 - Device availability, cost and form factor will determine timing
- Personal broadband services will lead transition to mobility
 - Same contract will enable subscribers to have fixed and mobile access
 - Compelling service to subscribers
 - Powerful differentiator for operator

Broad market trends will shape WiMAX future

- Fixed broadband market: low-risk opportunity, niche market
- Mobile broadband market: bigger opportunity, higher risks
- Fixed versus mobile distinction no more relevant
 - Network choice depends on device, application and convenience, rather than availability
- Shift towards multiple devices per subscribers
 - Move beyond the one-subscriber, one-ARPU, one-device
- Strongest growth in emerging markets
 - Initially in fixed broadband but soon in mobile broadband

How can WiMAX succeed?

- Timely introduction of products
- Fast transition to Wave 2 functionality
- Initial focus on fixed deployments
- Reach maturity ahead of LTE/UMB introduction
- Building a complete ecosystem is a short term priority to help WiMAX get off the ground
- Get low-cost subscriber devices in the market in the short-term
- Introduce compelling new devices with innovative form-factors

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