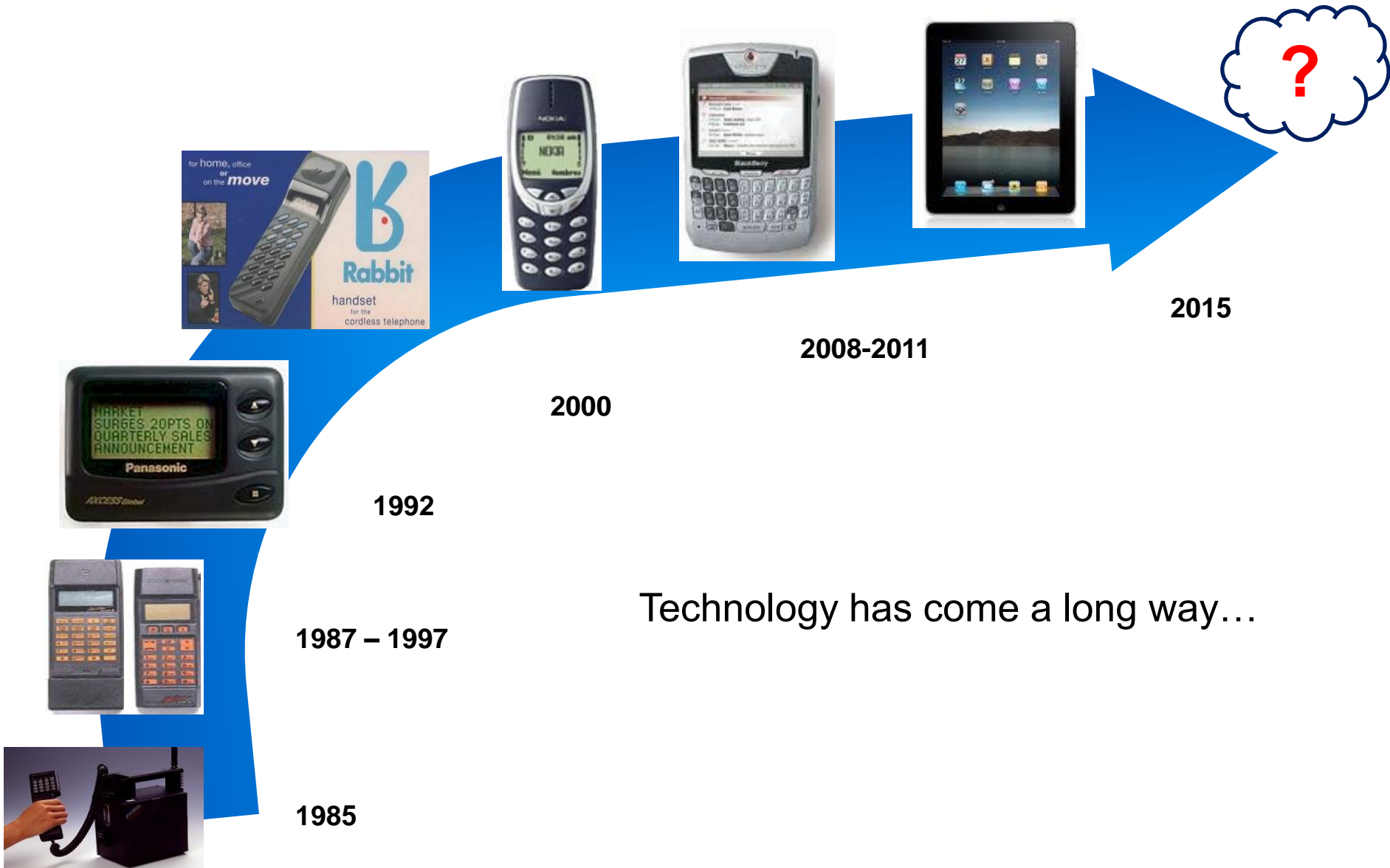


ICT Regulation: Challenges and Opportunities

Alexis Milo

Buenos Aires, Argentina. November 4th, 2011

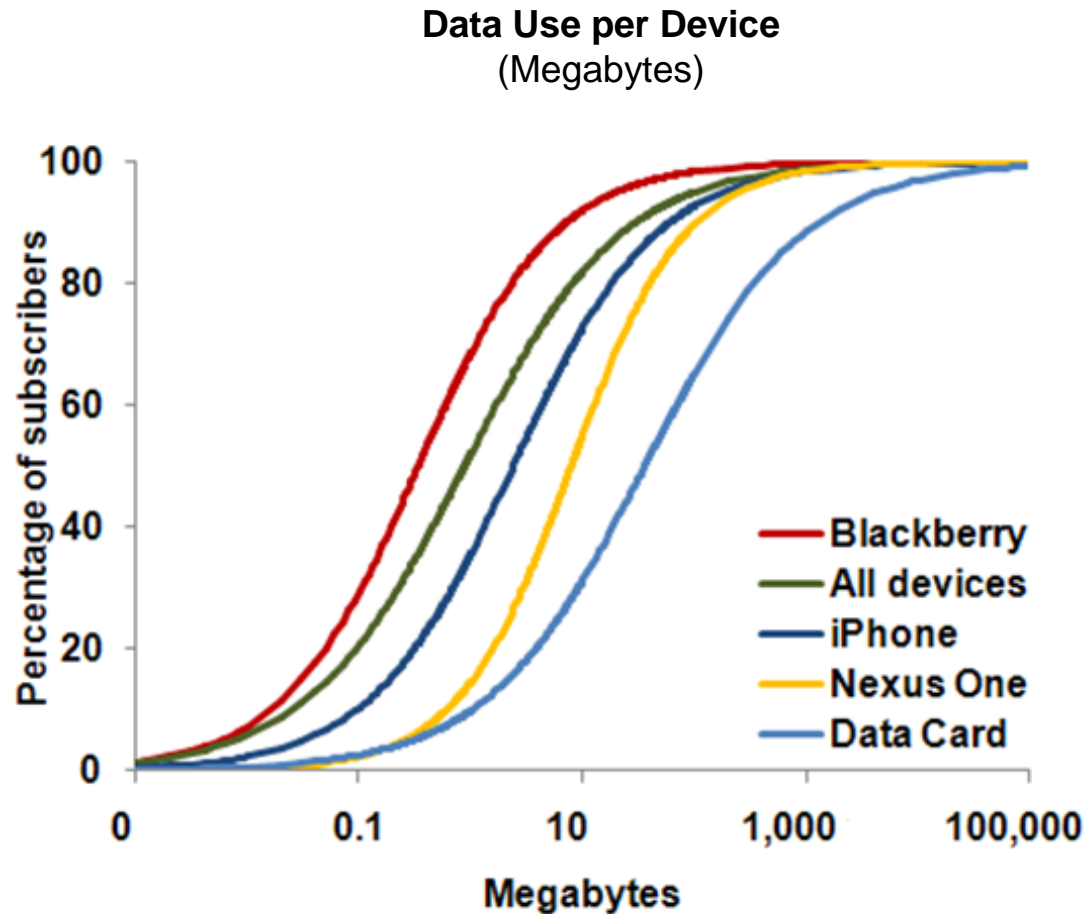
Increasing Capacity



Technology has come a long way...

Data intensity

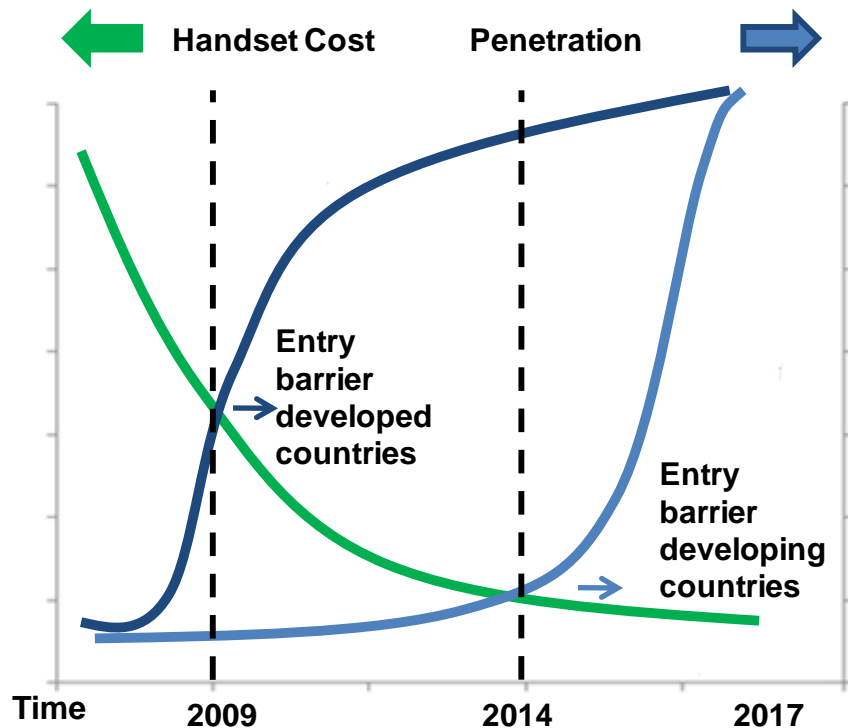
- Newer handsets tend to be more data intensive.



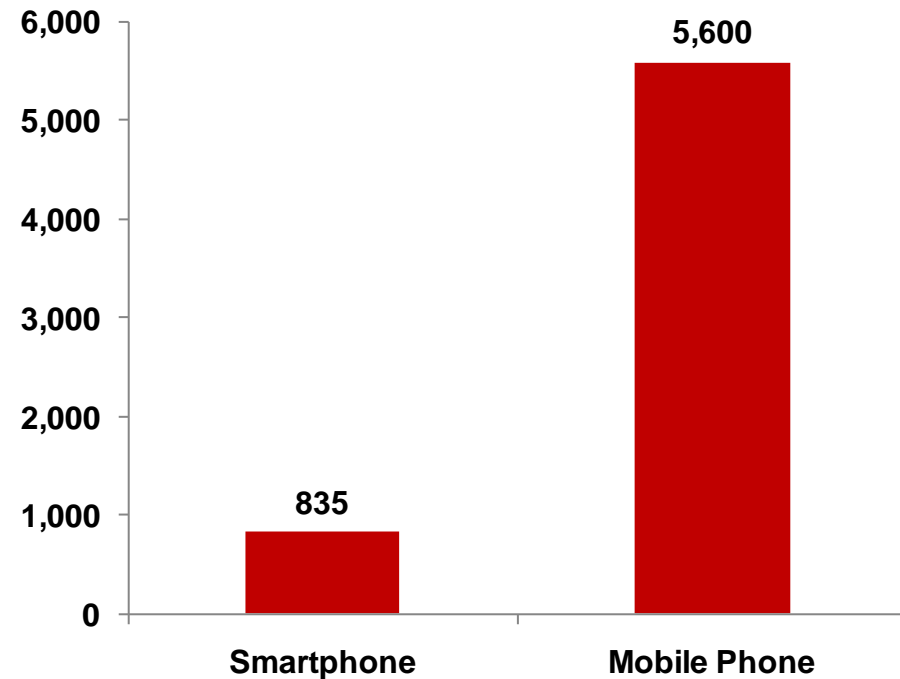
Demand

- Handset cost reduction will accelerate adoption of mobile services. There is plenty of room ahead.

Smartphone Market Dynamics
(cost and %)

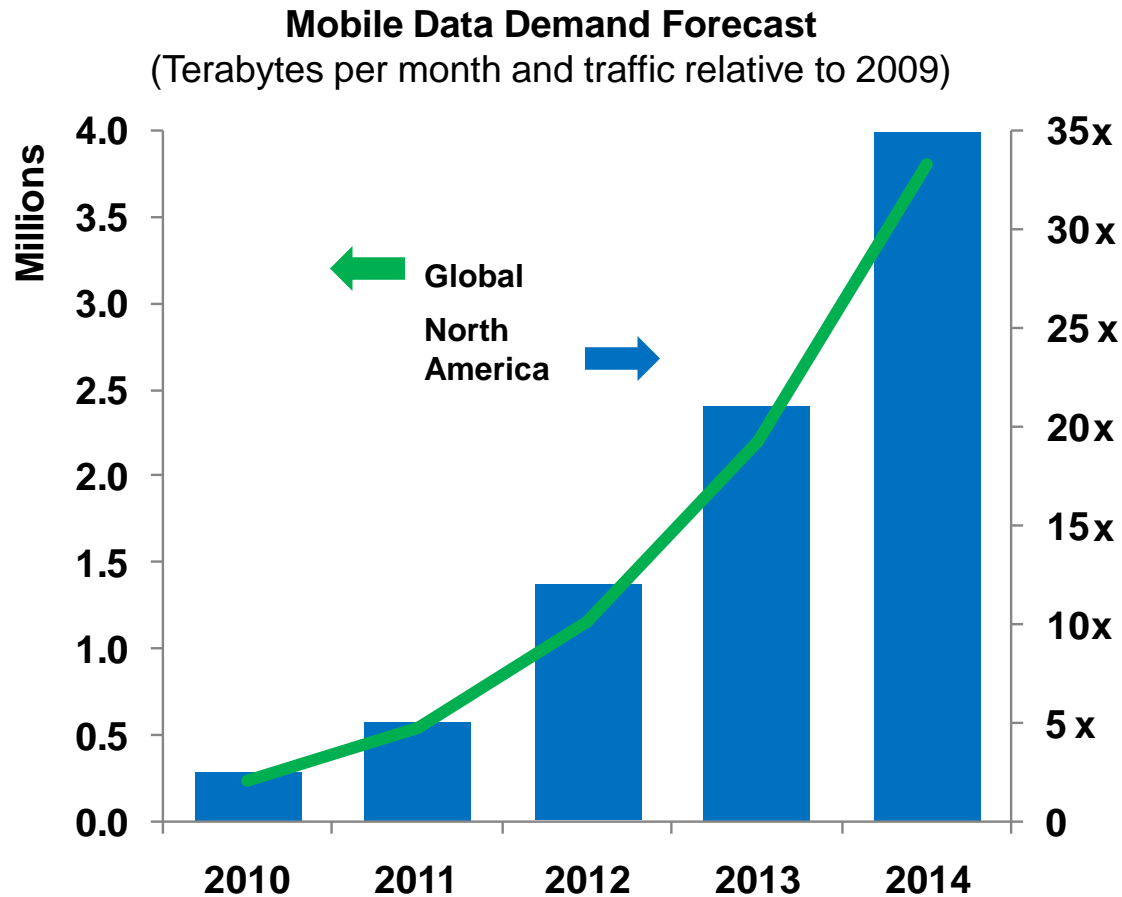


Global Mobile Phone and Smartphone Subscribers
(millions of subscribers, 2011e)



Demand

- Accelerated adoption will multiply mobile data demand.



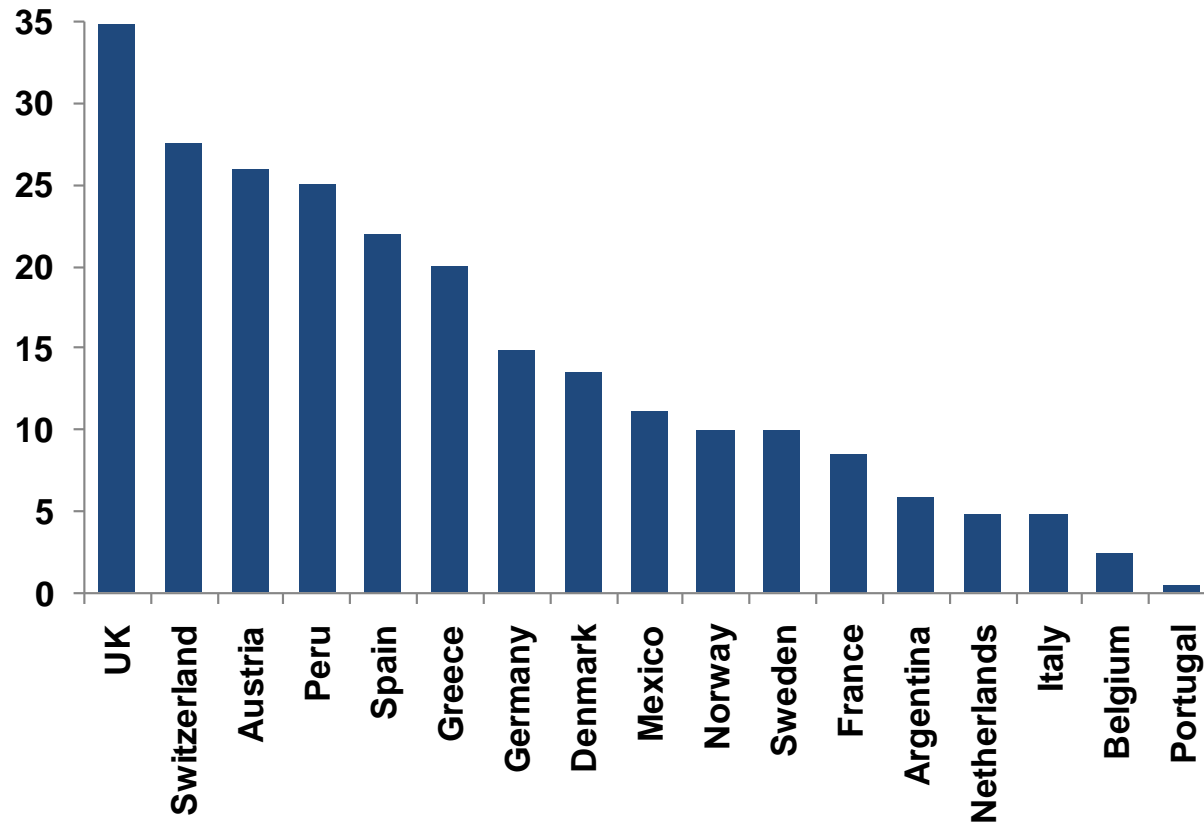
Opportunities

- How can regulators deal with these challenges?
 - Spectrum allocation & availability
 - Infrastructure sharing

Spectrum Allocation

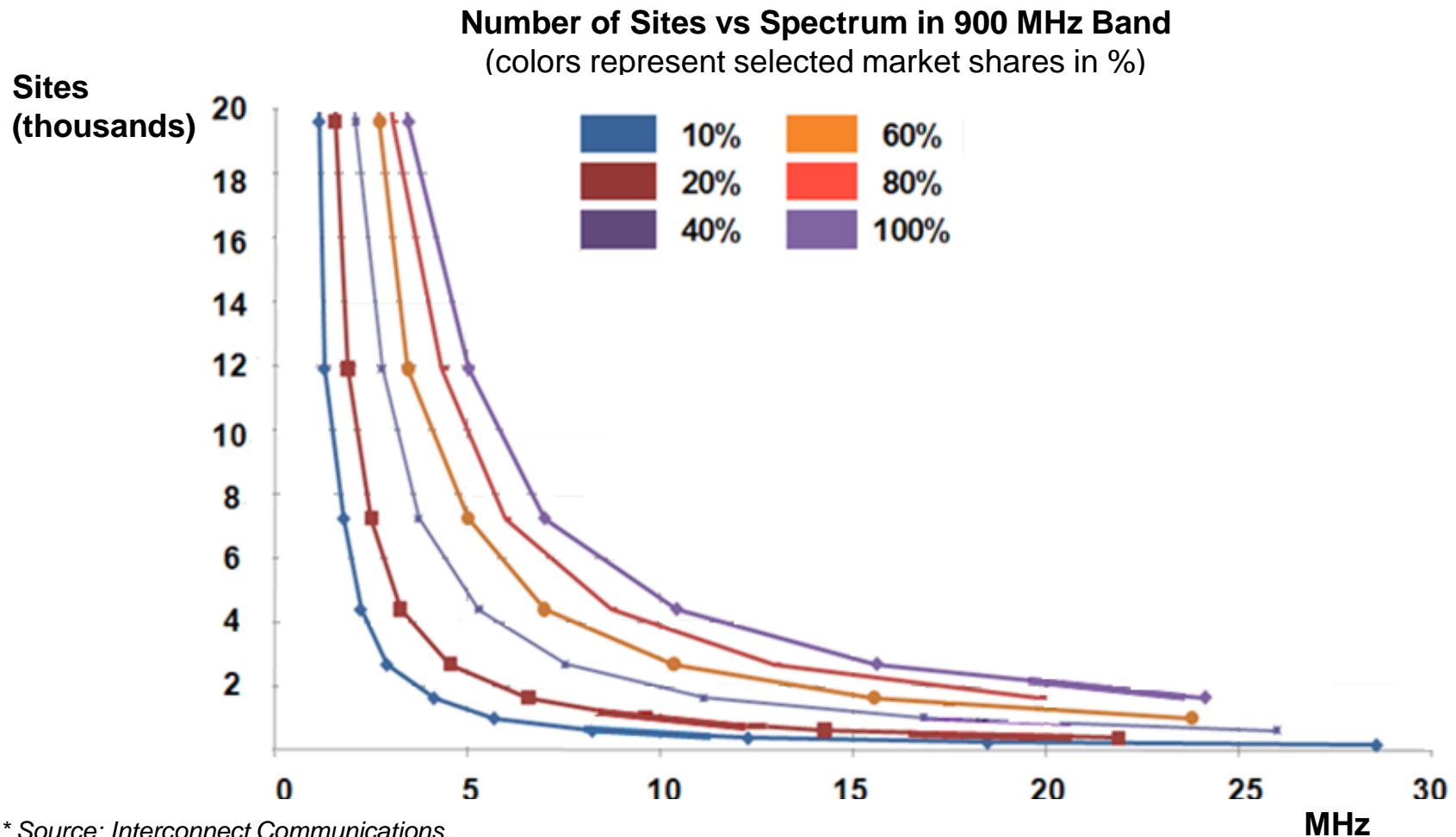
- Countries exhibit differences in their spectrum allocation.

Difference in Spectrum Allocation among Operators in the 900 MHz Band (MHz)



Spectrum Allocation

- Differences in spectrum across operators change the infrastructure requirements.



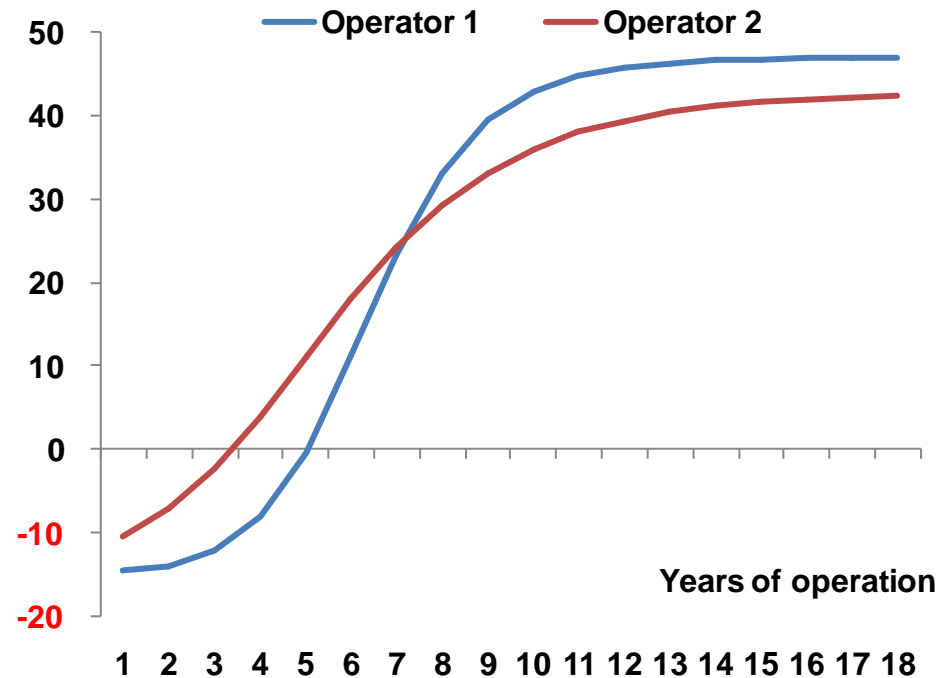
Spectrum Allocation

Hypothetical CAPEX Assuming Unequal Spectrum Allocations in the 900 MHz Band

900 MHz spectrum allocation Operator 1	20	MHz
900 MHz spectrum allocation Operator 2	10	MHz
Annual CAPEX Operator 1	28,000,000	USD
Annual CAPEX Operator 2	67,200,000	USD

2.4x

Hypothetical EBITDA Margin Assuming Unequal Spectrum Allocations in the 900 MHz Band (%)



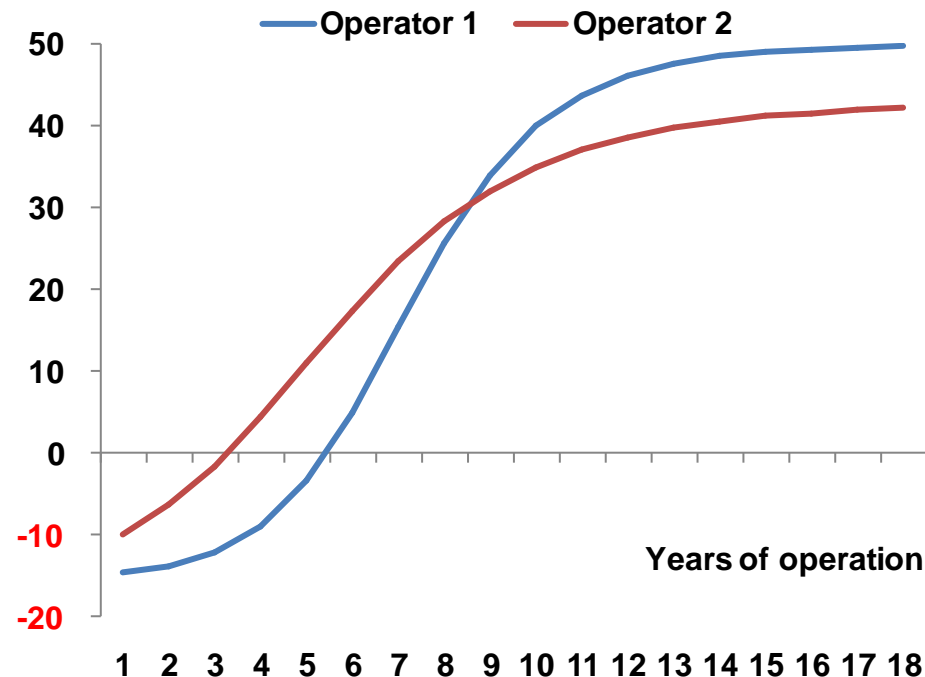
Spectrum Allocation

Hypothetical CAPEX Assuming Unequal Spectrum Allocations across Spectrum Bands

Operator 1 uses spectrum in band	< 1 GHz	
Operator 2 uses spectrum in band	> 1 GHz	
Annual CAPEX Operator 1	28,187,777	USD
Annual CAPEX Operator 2	40,634,197	USD

1.4x

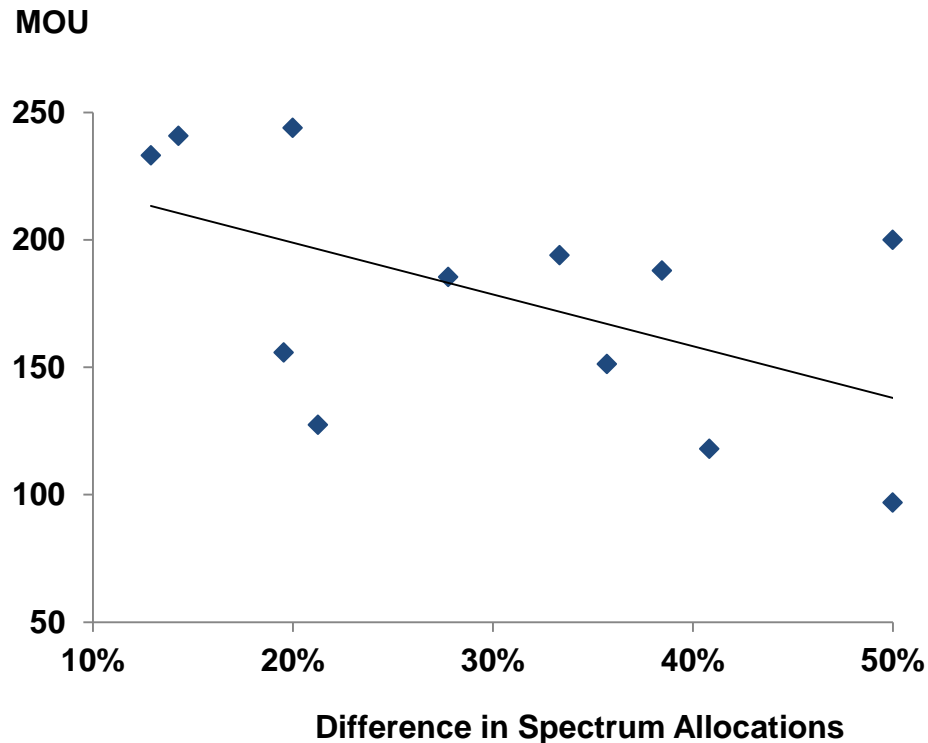
Hypothetical EBITDA Margin Assuming Unequal Spectrum Allocations across Spectrum Bands (%)



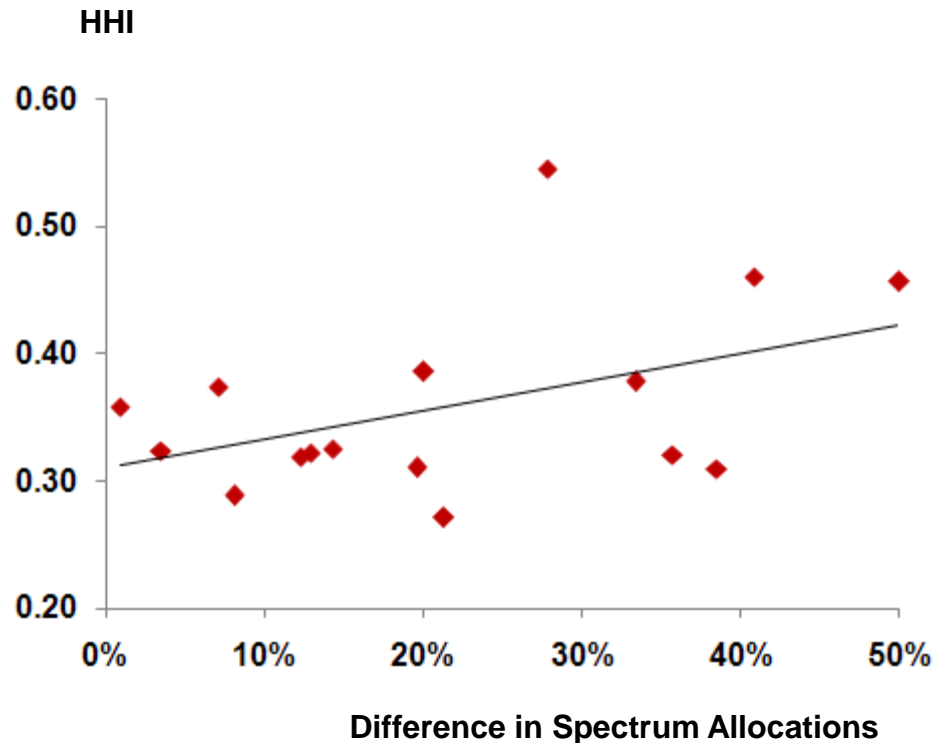
Spectrum Allocation

- Differences in spectrum allocation tend to be correlated with traffic and competitiveness.

Minutes Of Use vs Difference in Spectrum Allocations (900 MHz band)



Market Concentration Index vs Difference in Spectrum Allocations (900 MHz band)



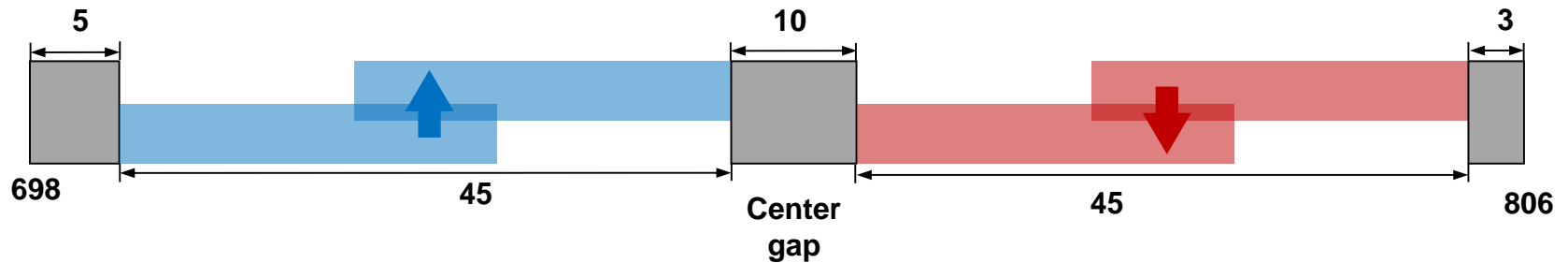
* Source: Based on information from Cullen International and Merrill Lynch.

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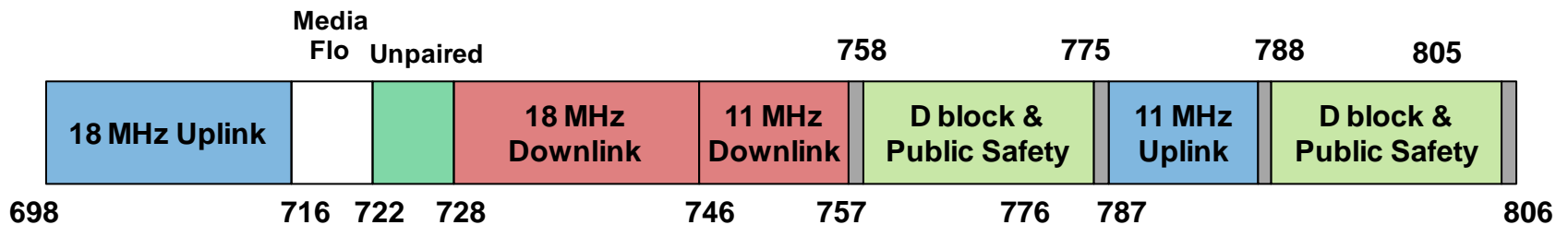
700 MHz Band

- Spectrum may be allocated to non-commercial uses.

700 MHz Band Plan: Asia-Pacific
(Frequency Division Duplex, MHz)

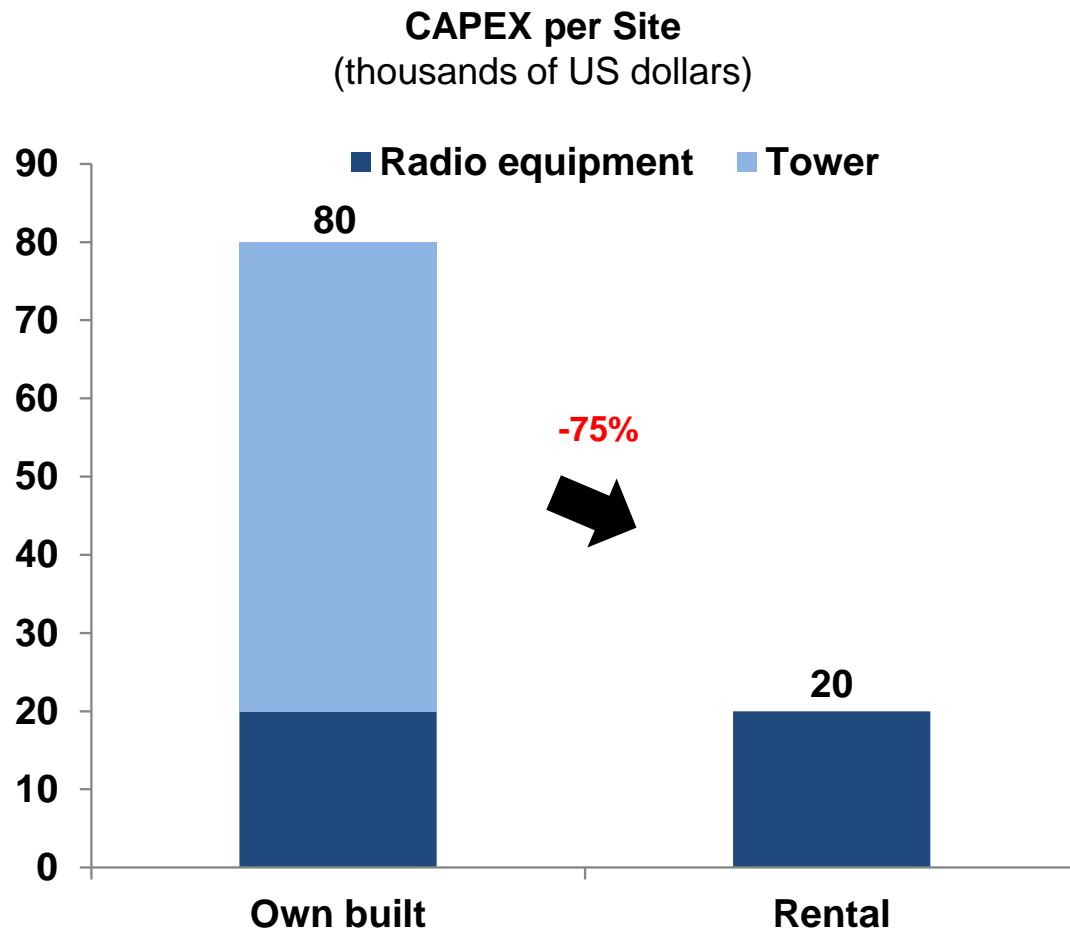


700 MHz Band Plan: United States
(MHz)



Infrastructure Sharing

- In the short run, infrastructure is hard to replicate. Sharing reduces costs and time in the deployment of networks.



The Future

- Are supply-side policies enough to fill the gap?
- Should we consider a price mechanism that induces a better allocation of capacity?

The Future

- Markets do not always incorporate relative scarcity as fast as they should.

Oil hog



Spectrum hog ?



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