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Broadband Regulatory Strategy vs. Implementation in Latin America and EU

Porto Alegre – May 10, 2011

Philippe Defraigne – Cullen International

Broadband

A story of greed, fear and politics

Which button to press?

State aid

Unregulated market forces

Universal Broadband

Universal service

Regulated wholesale markets

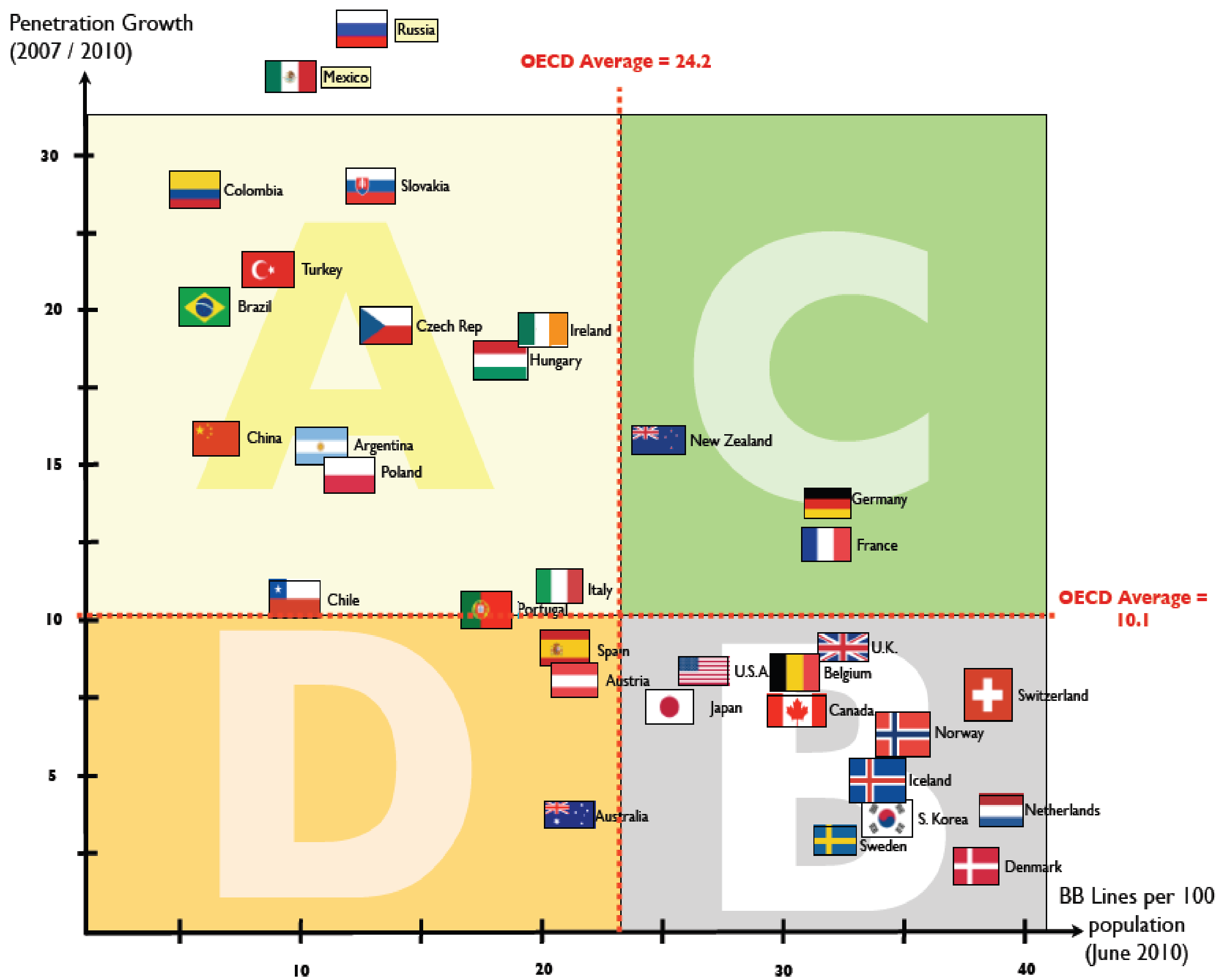
Next Generation Access

What operators have committed to?

What politicians say?

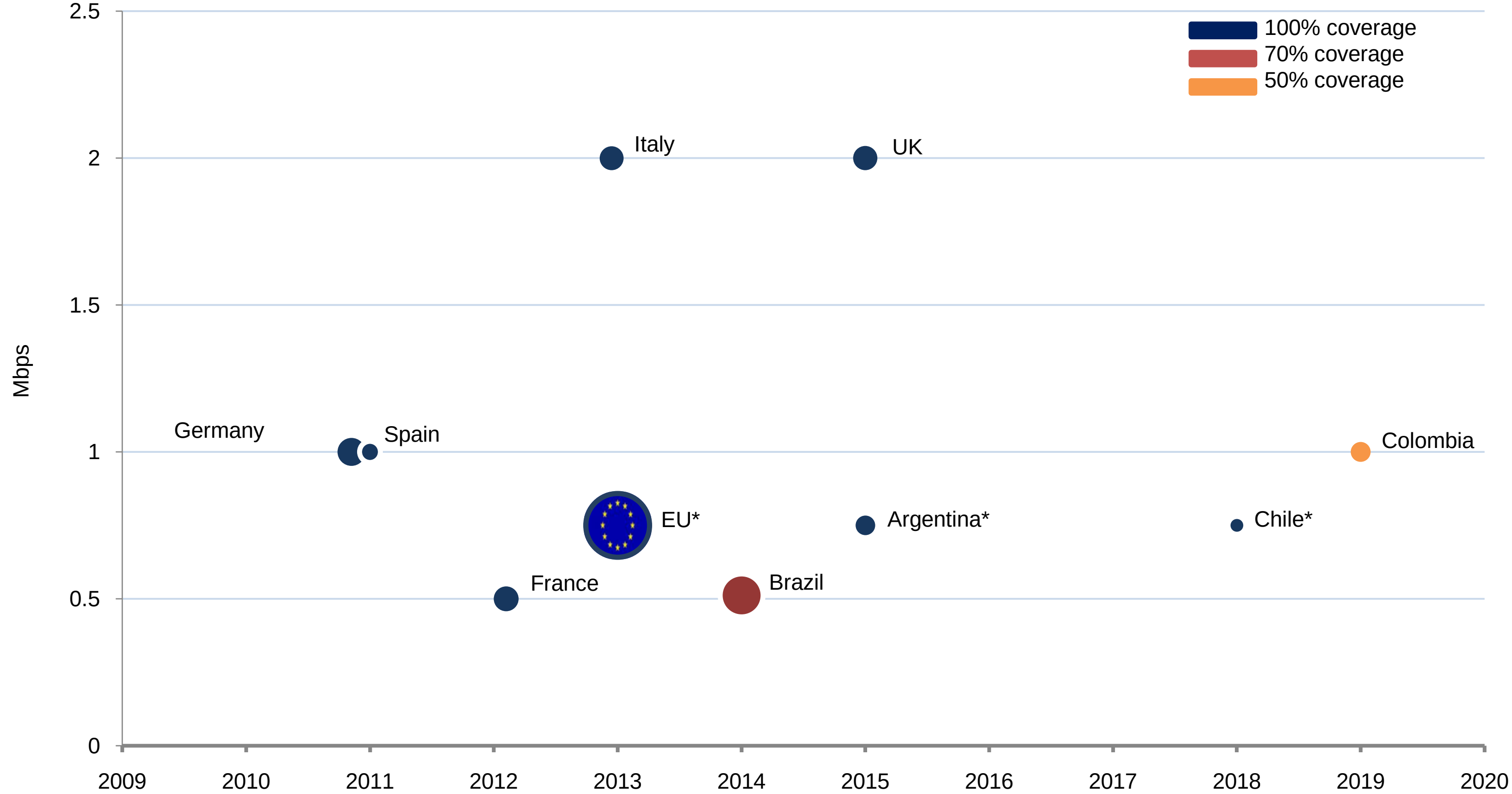
Where we are?

Fixed broadband penetration & growth



Source: Cullen International, May 2011, based on OECD and ITU data

National targets for basic broadband EU and Latin American countries

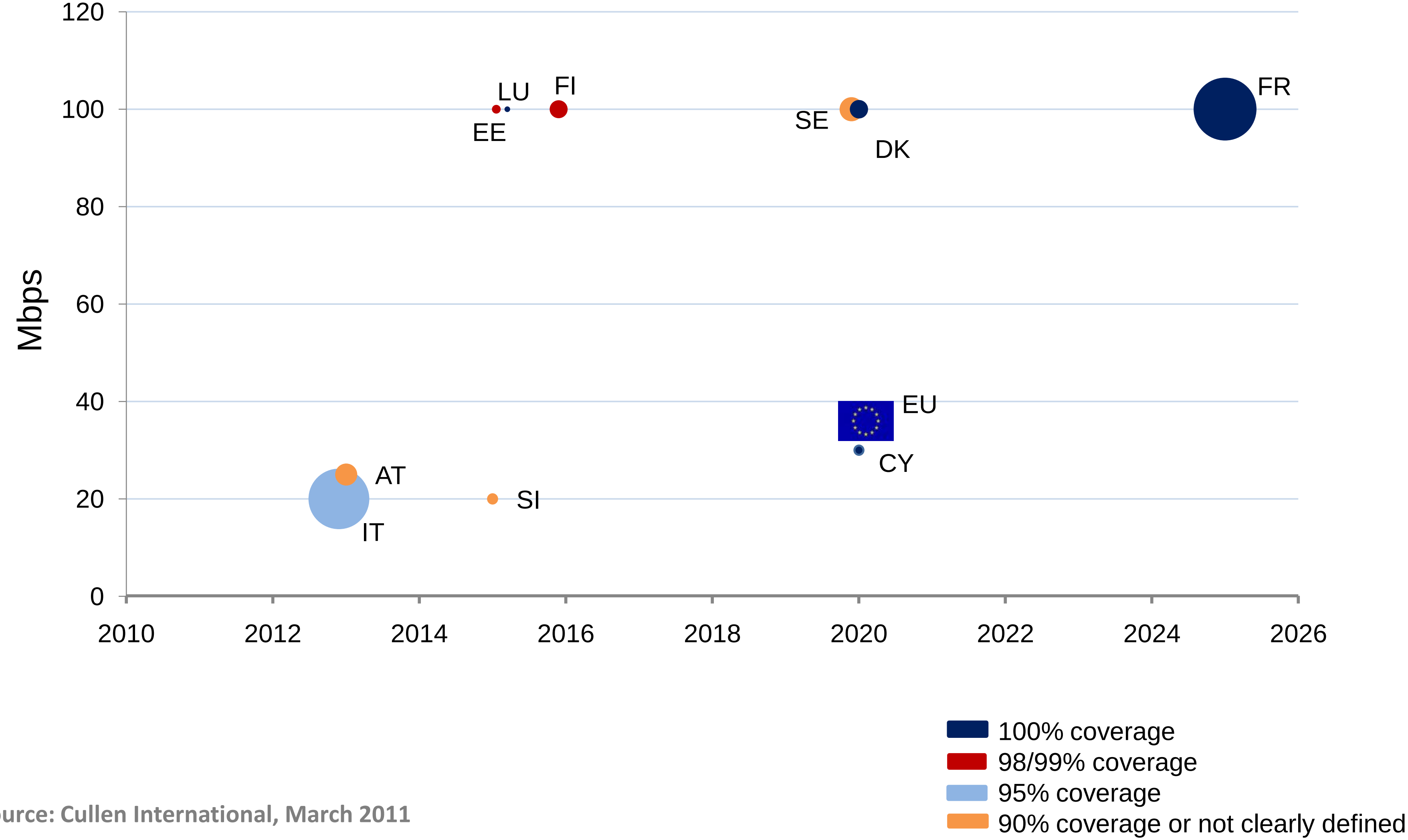


Source: Cullen International, March 2011

European Union broadband targets

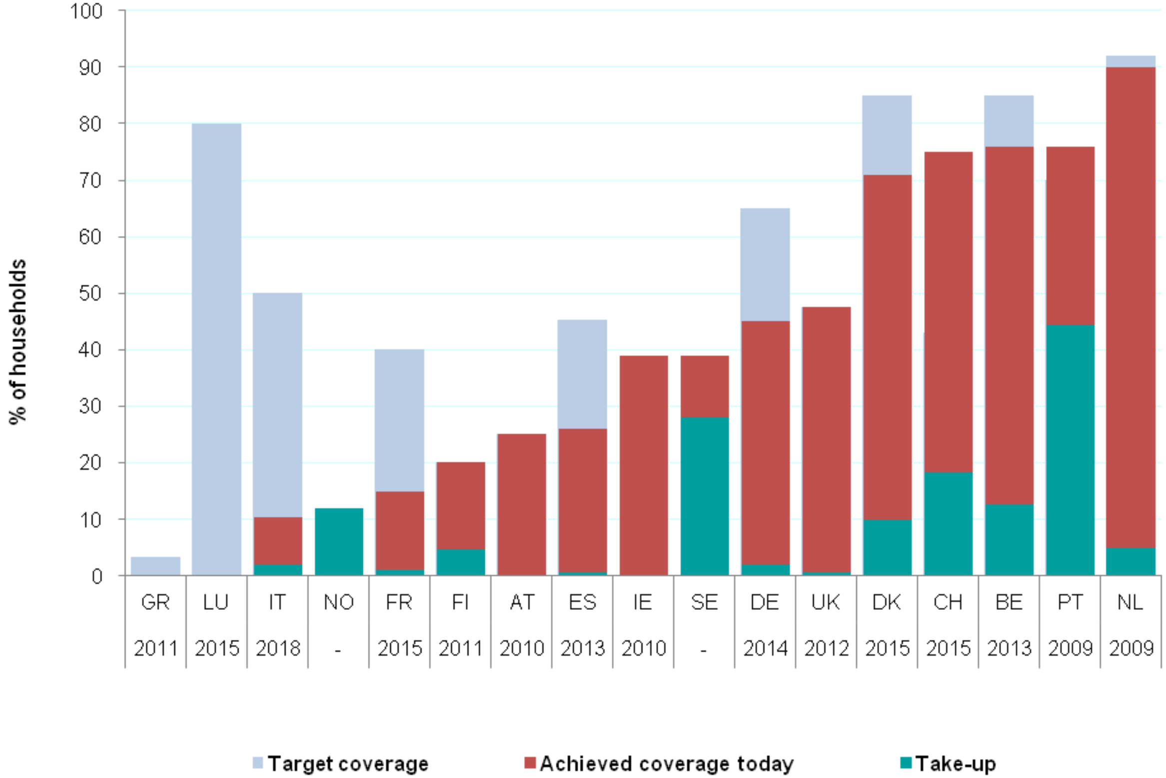
	Universal coverage *All EU citizens should have access to:*	Subscriptions *% of EU households having subscriptions with speeds above 100 Mbps:*
2013	Basic broadband (speed not defined)	No target
2020	Fast broadband with speeds of at least 30 Mbps	50% households
Estimated cost	EUR 38-58 billion	EUR 181-268 billion

National targets for high-speed BB in EU member states



Source: Cullen International, March 2011

Announced NGA plans and achievements in Western Europe



Germany: FTTC – VDSL2 and FTTH: incumbent and others HFC: cable operators

Netherlands: FTTH, FTTC, VDSL, and HFC. Additionally, deployment of passive infrastructure open to third parties

Belgium: FTTC – VDSL2 by the incumbent, and HFC by cable operators

Italy: FTTH plans by incumbent and alternative operators.

Spain: incumbent (FTTH, FTTC+VDSL2), and cable operator (HFC)

France: several plans by the incumbent and others. FTTH and HFC.

UK: plans by incumbent and one cable operator. FTTH, FTTC and VDSL2, HFC.

Source: Cullen International, March 2011

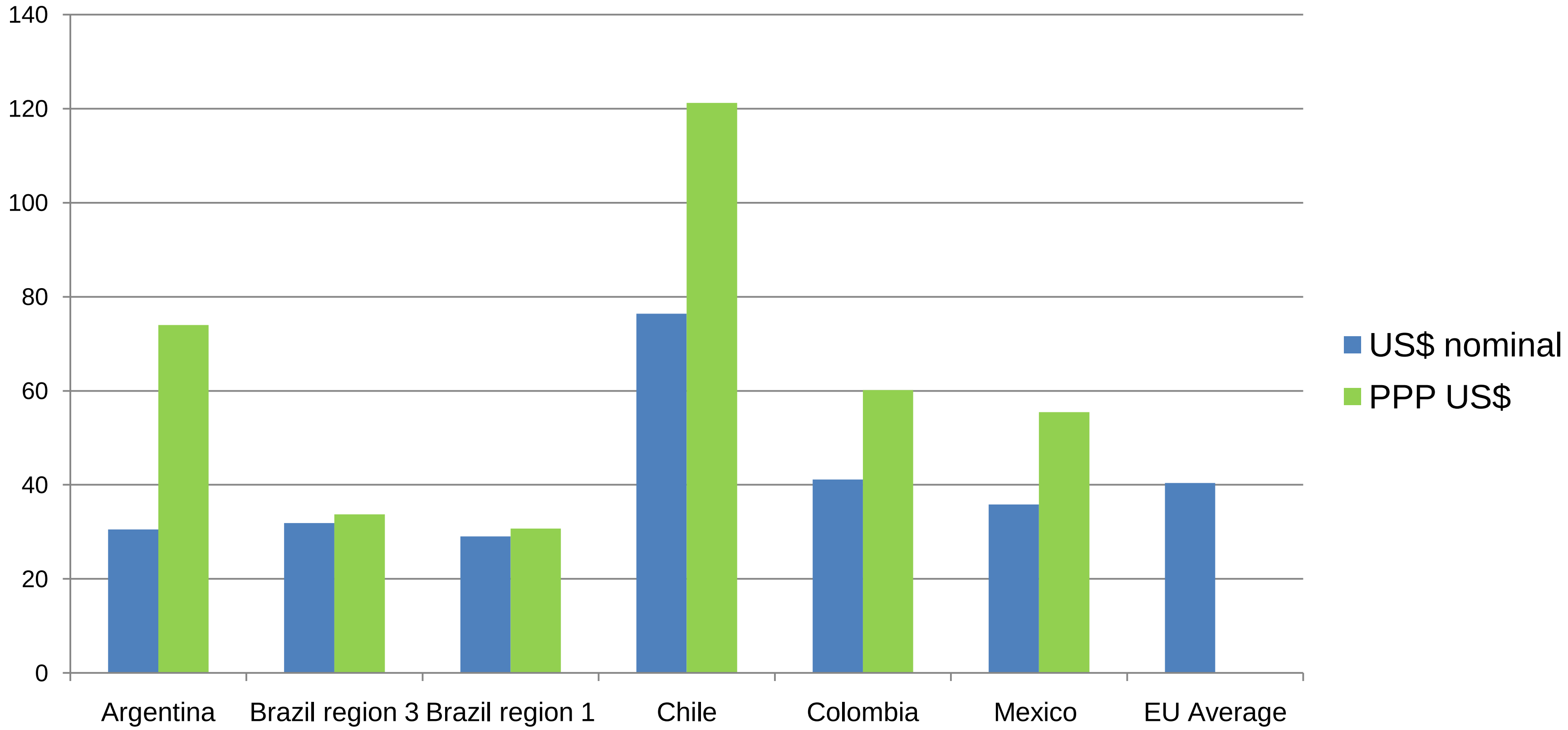
NGAN: Plans and achievements in Latin America

	Offer	Architecture	Coverage
Argentina	• Telefonica • Telecom Argentina • Cablevision	• FTTH GPON • FTTH GPON • HFC	• 2600 HH – Greenfield • N/A – Brownfields • N/A
Brazil	•Telefonica • Oi • Net • GVT	• FTTH PON • VDSL2/FTTB GPON • HFC • VDSL2/FTTH	• 400,000 in city of SP (1m HH by 2015, or ~8% of HH) • others: N/A
Chile	Movistar (Telefonica)	FTTH	17% of HH by 2014
Colombia	• UNE (incumbent) • Telmex	• FTTH/FTTC (trials) • HFC	• N/A • 700,000 (6.2% of HH)
Mexico	• Axtel	FTTB	1m HH (3.5% of HH) planned (3 main cities of Mexico)

Source: Cullen International, Latin America Service, March 2011

ADSL: >1 <2 Mbps prices

incl. VAT

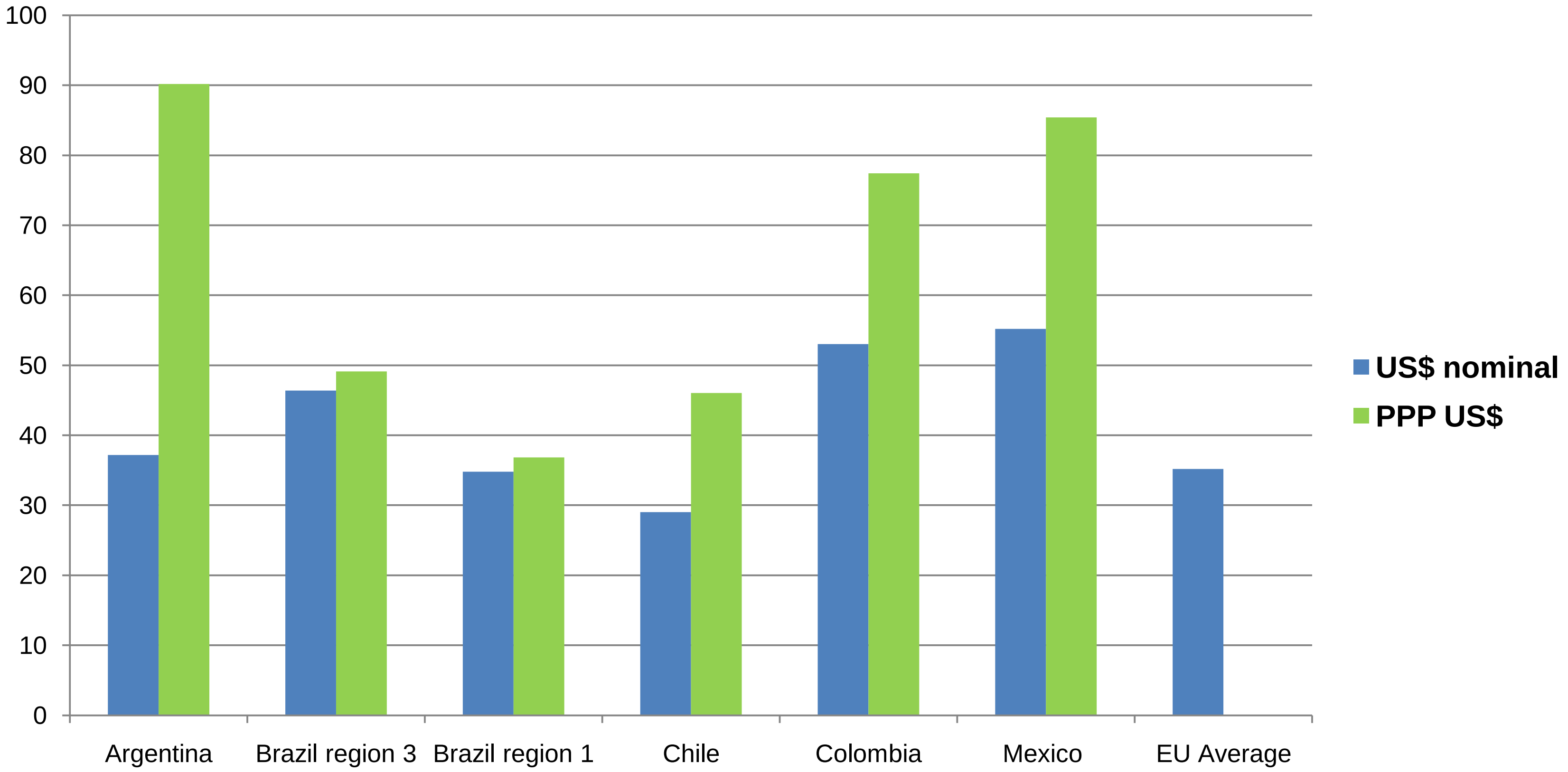


Source: Cullen International estimates based on the following sources (as advertised in the respective websites – May 2011)
Latin America: prices of advertised incumbents' offers (May 2011)

EU average : source Van Dijk Management Consultants, 2009 - PPP values: based on United Nations Statistics Division's data

ADSL: >2 <5 Mbps prices

Incl. VAT

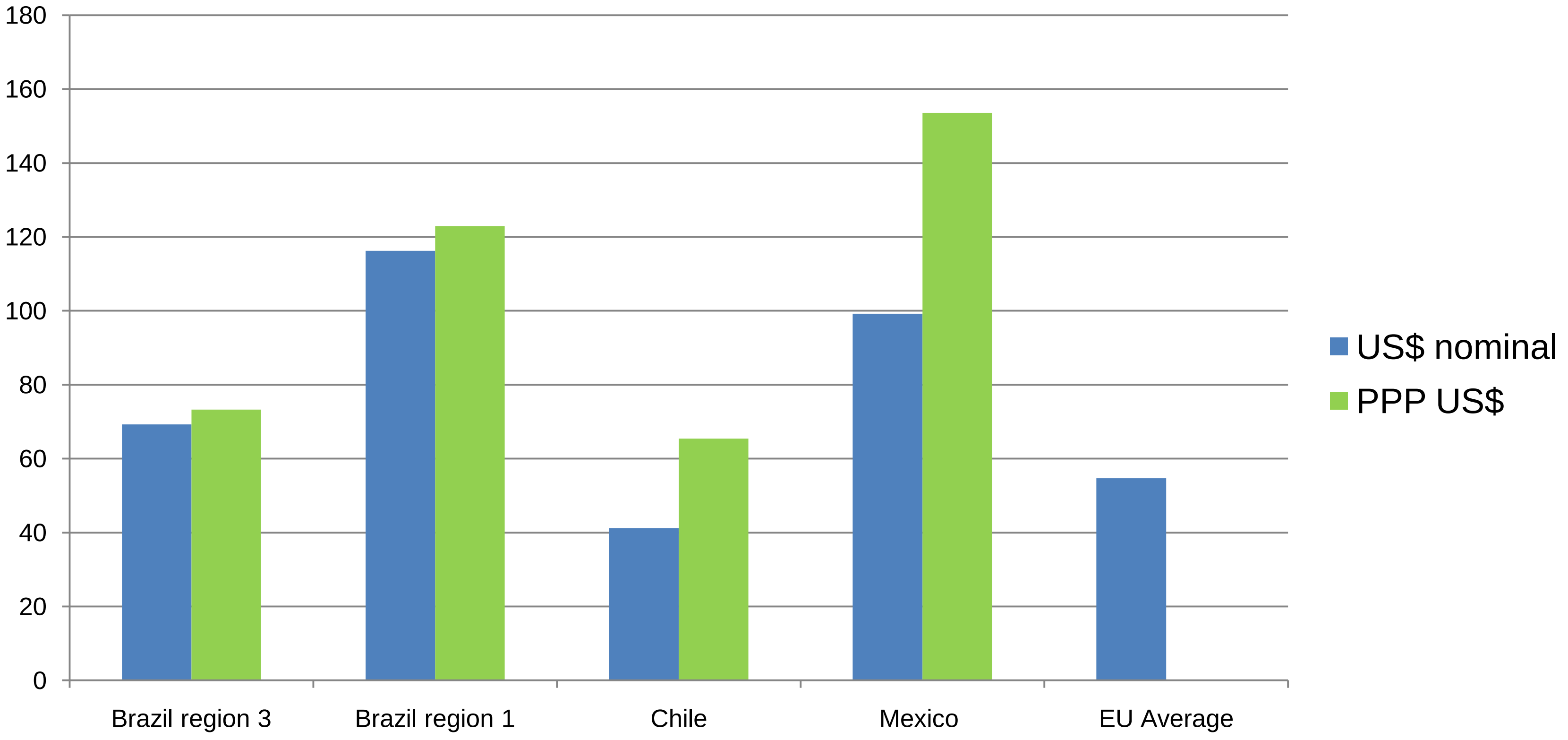


Source: Cullen International estimates based on the following sources (as advertised in the respective websites – May 2011)
Argentina: Telefonica (3 Mbps); Brazil Reg. 1: Oi (5 Mbps) - Reg. 3: Telefonica (4 Mbps); Chile: Movistar (4 Mbps)
Colombia: ETB (4 Mbps); Mexico: Telmex (5 Mbps)

EU average : source Van Dijk Management Consultants, 2009 - PPP values: based on United Nations Statistics Division's data

>30 Mbps prices

Incl. VAT



Source: Cullen International estimates based on the following sources (as advertised in the respective websites)
GVT - Brazil region 1 (35 Mbps); Axtel - Mexico (35 Mbps). Brazil region 3 and Chile: incumbents' offers as advertised in the respective websites. No 30 Mbps offers in Argentina and Colombia (incumbent or alternative operators)

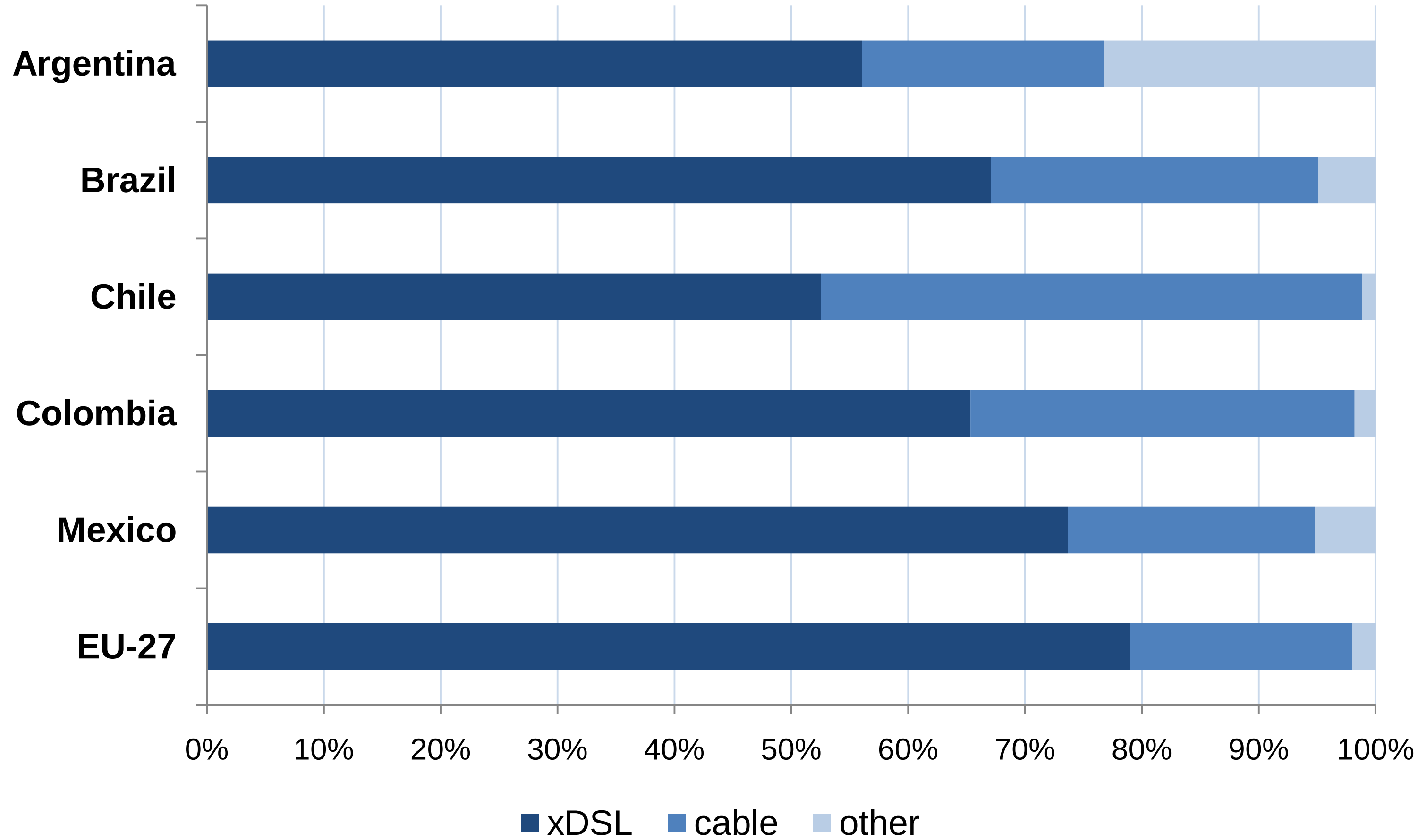
EU average : source Van Dijk Management Consultants, 2009 - PPP values: based on United Nations Statistics Division's data

Main regulatory approaches for broadband - Latin America vs. EU

Region	Characteristic regulatory approach	Competition	State aid rules	Radio spectrum
EU	Regulation (when necessary) imposed on operators with SMP in relevant markets Strongly encouraging market competition (e.g. asymmetric regulation)	• Infrastructure competition encouraged • Regulated access to bottleneck infrastructure of SMP operators when needed • NGA Recommendation	EC guidelines - Aid admitted in underserved areas - rules when state acts as "investor"	Making new spectrum available for 3G and 4G mobile broadband (over 500 MHz of paired spectrum)
Latin America	Rights and obligations stemming from authorisation title or service-specific regulations	• Based on own infrastructure • Limited availability of wholesale access options	No specific rules on public intervention	Same, but spectrum resources are far more limited

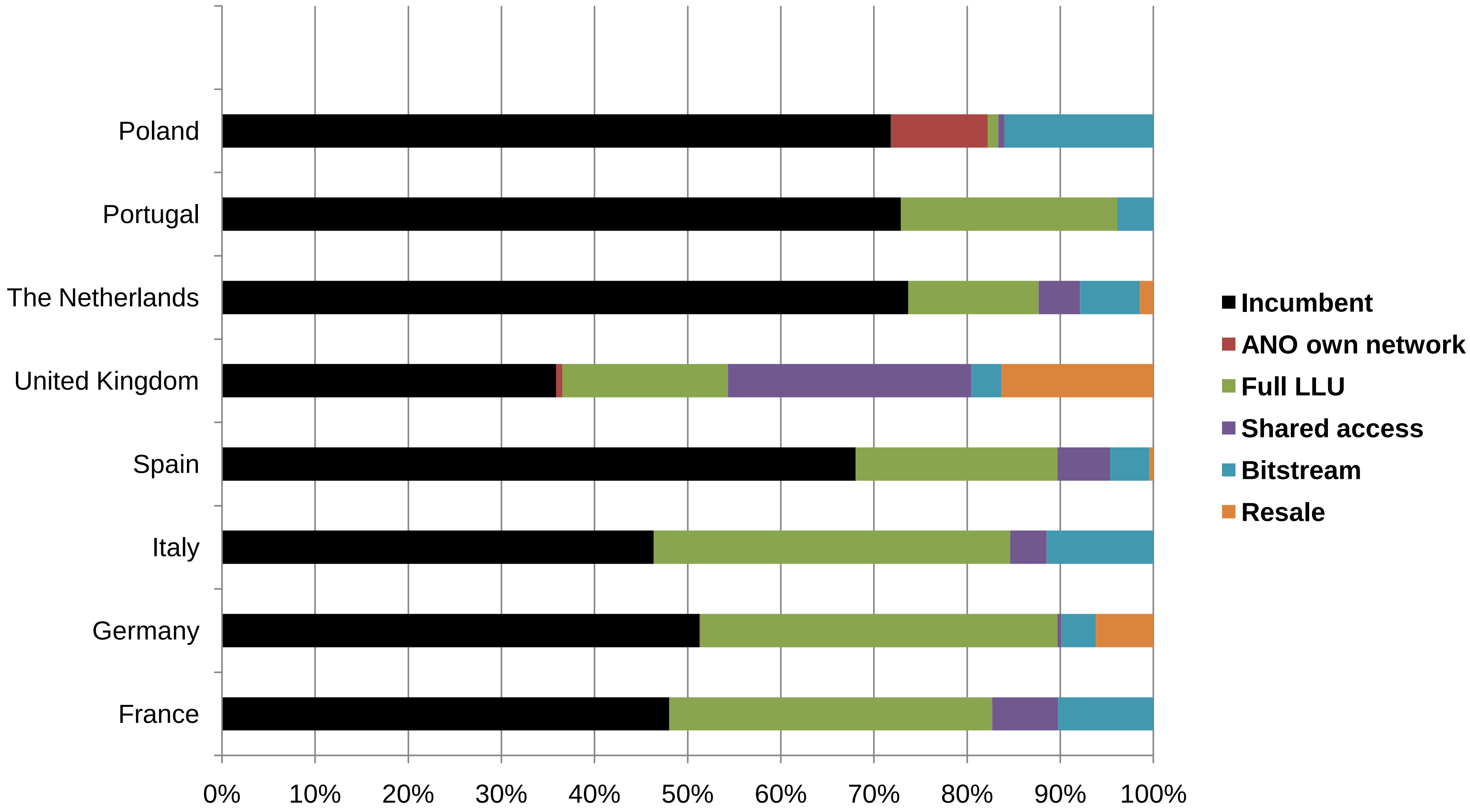
Source: Cullen International

Broadband access platforms



Note: Other includes fixed and wireless/satellite. Argentina includes mobile (cellular) access (3G/HSDPA).
Source: Cullen International Latin America service, March 2011

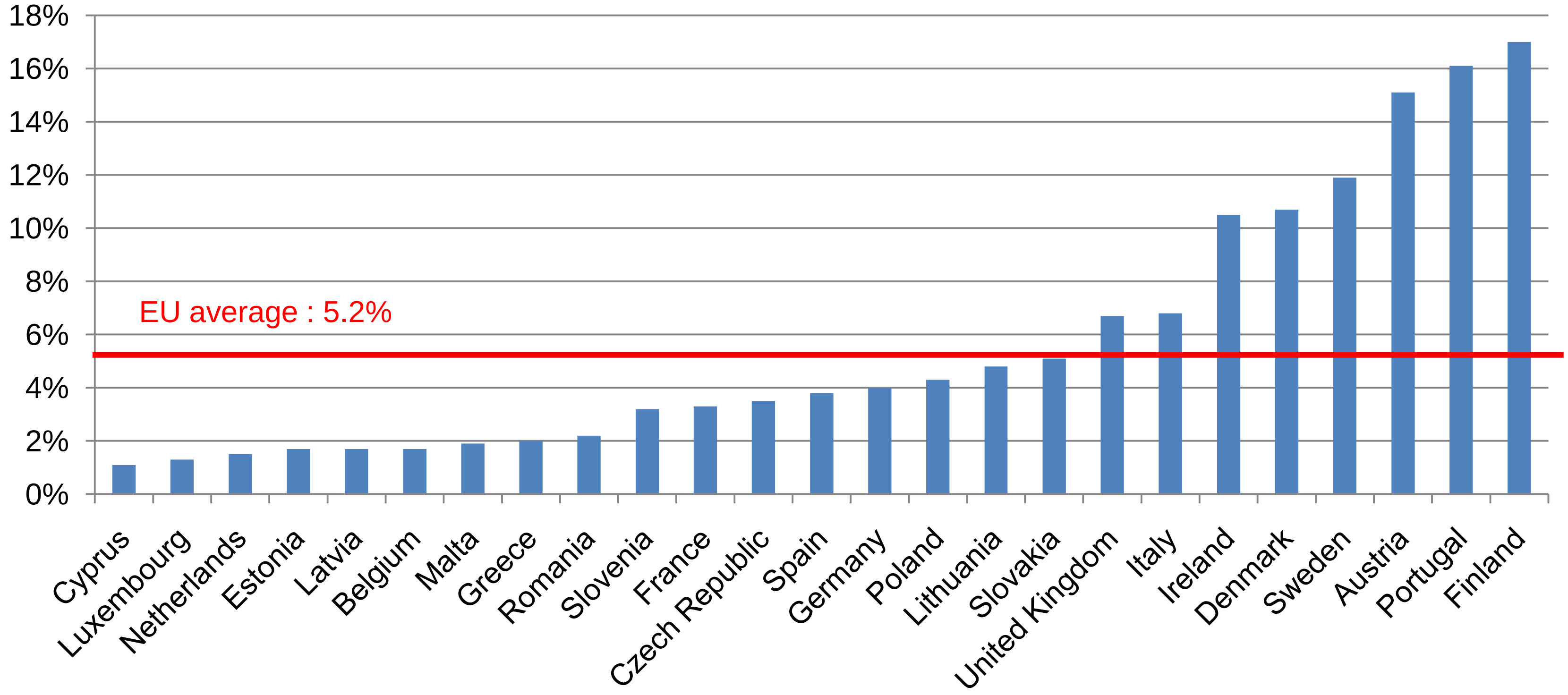
EU: use of fixed wholesale access products in practice



Source: Cullen International based on European Commission data (May 2010)

Use of mobile BB is growing in the EU

Per 100 inhabitants, January 2010
3G data cards only, excluding smart phones



25 million 3G data cards. Take-up in the EU doubled from Jan. 2009 to Jan. 2010 (source: European Commission)

According to data published by Anatel in Dec. 2010, there were 20.6 million 3G mobile BB accesses in Brazil (138% growth from 2009)

Mobile broadband perspectives

	Availability of 3G service	Use of digital dividend	Award of 2.6 GHz for wireless BB	Award of 3.5 GHz for wireless BB	Specific targets for wireless BB ?
Argentina	✔	Undecided	Undecided	✔	✘
Brazil	✔	Undecided	Undecided (refarming approved in 2010)	✔	✘ 60m broadband connections by 2014 (proposed)
Chile	✔	Undecided	2011	✔	✘
Colombia	✔	108 MHz in the 700 MHz band	May 2010 Other auction foreseen by 2013	✔	✘
Mexico	✔	108 MHz in the 700 MHz band (proposed)	Currently used for pre wimax solutions (no mobility).	✔	✘ Promote use of 700 MHz for new communications services
EU-27	✔	72 MHz in the 800 MHz band in Austria, Finland, France, Germany, Sweden, and the UK	Completed so far in Austria, Denmark, Finland, Germany, the Netherlands, and Sweden.	✔	✘ RSPP: member states have to allocate sufficient spectrum to ensure that "*wireless applications contribute effectively*" to achieve the target of 30 Mbps by 2020 for all Europeans

Source: Cullen International, Latin America service (March 2011)

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THANK YOU!