Main Challenges of 4G Mobile Networks Deployment in Lithuania

Evaldas Stankevičius

Communications Regulatory Authority
of the Republic of Lithuania

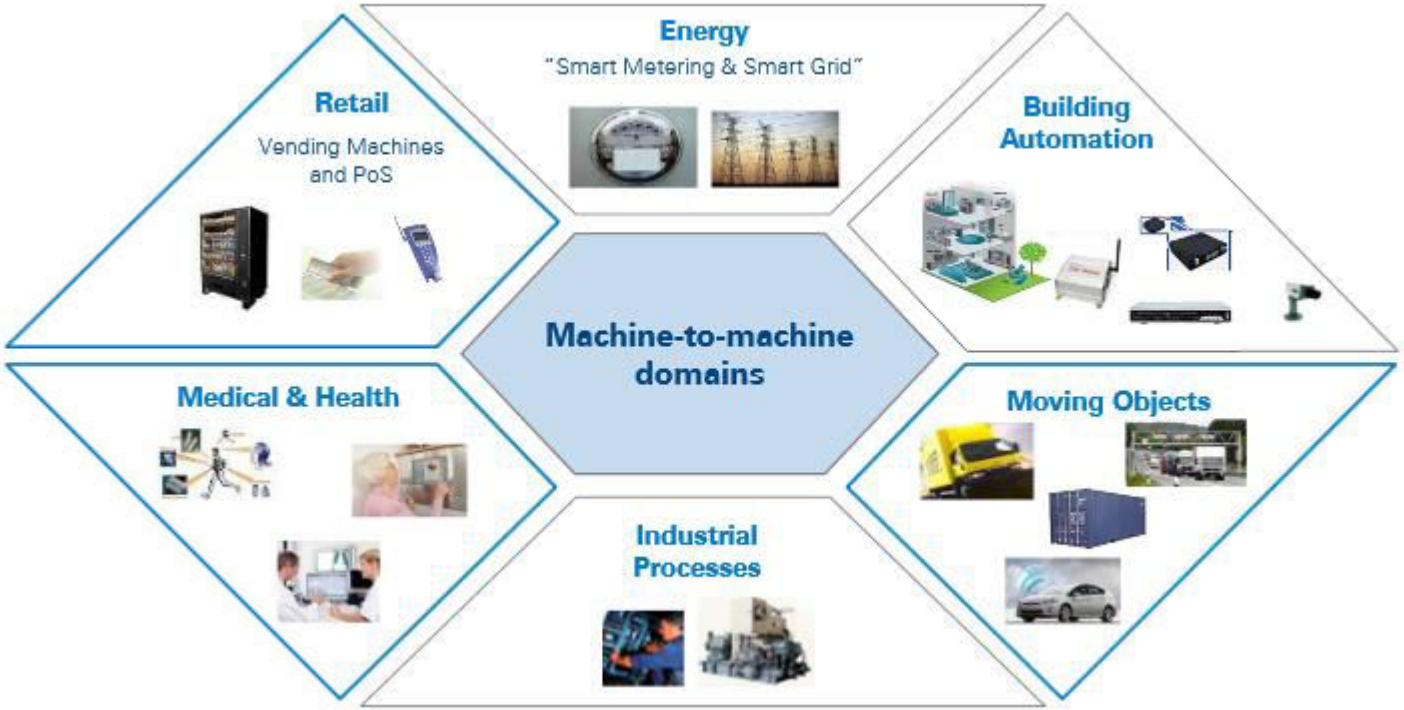
ITU Regional Forum on Development for CIS/RCC “Broadband for Sustainable Development” , Chisinau, Republic of Moldova,
31 March – 1 April 2015

4G networks. Key points.

		2G (GSM/GPRS)	3G (HSPA, HSPA+)	Wi-Fi (with fibre)	4G LTE
Applicability	Application breadth				
	Degree of mobility				
	Responsiveness				
	Richness / data-intensity				
	Application criticality				
	Device type	Feature phone, smartphone	Tablet, smartphone	PC/laptop, tablet, smartphone	PC/laptop, tablet, smartphone
Performance (typical measured)	Download speed (Mbps)	0.01 – 0.13	1 – 5	20 – 30	10 – 40
	Upload speed (Mbps)	0.008 – 0.13	0.2 – 0.5	2 – 10	1 – 15
	Latency (ms)	300– 700 (GPRS)	100 – 200	10 – 20	50 – 150

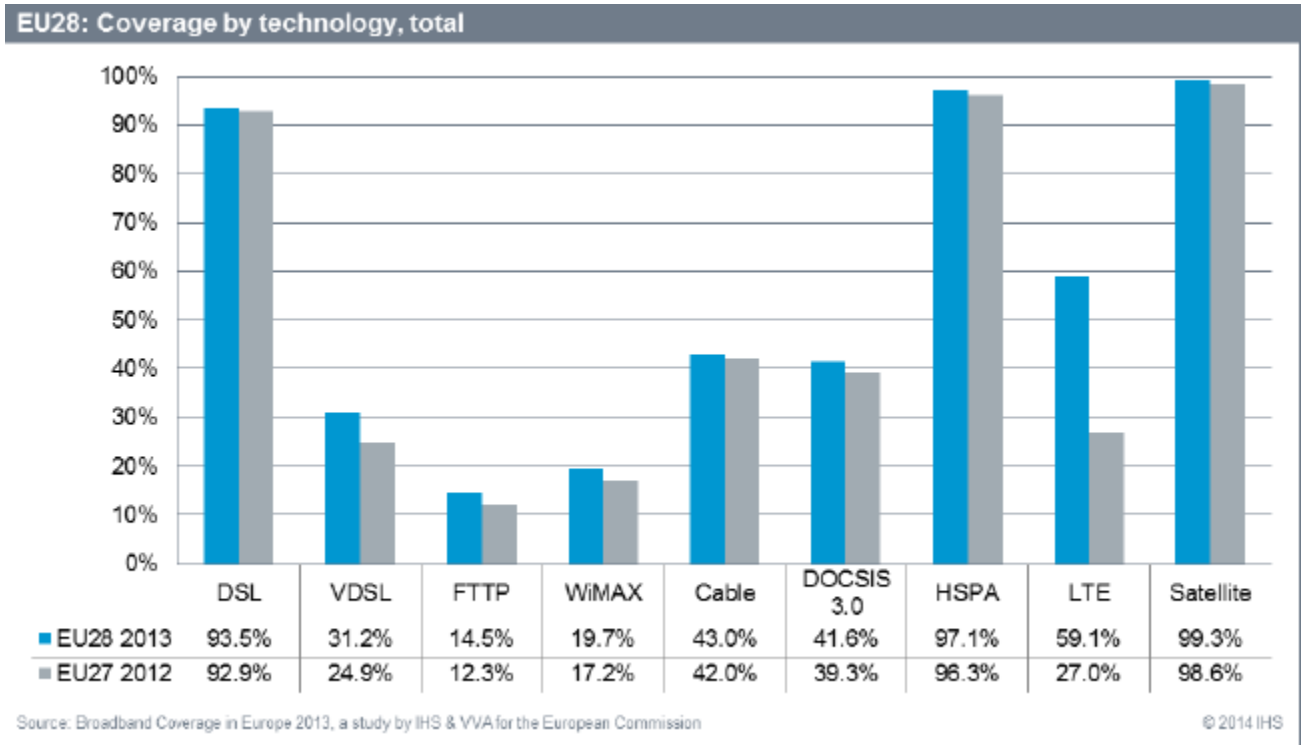
Sources: PCMag.com, LTEworld.org, mobile-phones-uk.org.uk, ISPreview, 3G Americas/RYSAVY Research, Agilent technologies, TeliaSonera, Verizon, AT&T, EE, Arthur D. Little analysis. Note: performance statistics are typical or average measured figures – not theoretical maximum/minimum

4G Ecosystem. Demand from industry



Demand for Wireless Broadband in EU

- 3G/HSPA provided nearly universal coverage, reaching over 97% of EU households in 2013.
- 4G/LTE coverage increased by 32.1%, 4G/Wimax by 2.5% in 2013 as operators expanded network coverage and new service providers launched.



Situation in Lithuania on Wireless Broadband

Statistic	National
Population	3,007,758
Persons per household	2.3
Rural proportion	34.3%

- 3G/HSPA coverage increased by 0.2% in 2011-2013.
- 4G/Wimax coverage increased by 25% in 2011-2013.
- 4G/LTE coverage increased by 17.2% in 2011-2013.

Today coverage is about 80% !

	Lithuania 2013		Lithuania 2012		Lithuania 2011		EU28 2013	
Technology	Total	Rural	Total	Rural	Total	Rural	Total	Rural
DSL	69.1%	15.2%	68.8%	15.1%	68.5%	14.8%	93.5%	82.3%
VDSL	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	31.2%	11.1%
FTTP	93.7%	55.3%	80.0%	42.2%	59.4%	22.1%	14.5%	4.2%
WiMAX	85.0%	82.0%	84.9%	81.4%	60.0%	60.0%	19.7%	17.6%
Cable	53.3%	0.5%	53.0%	0.3%	52.8%	0.3%	43.0%	7.8%
DOCSIS 3.0	42.8%	0.0%	42.2%	0.0%	41.7%	0.0%	41.6%	7.0%
HSPA	95.2%	91.0%	95.1%	85.7%	95.0%	85.6%	97.1%	85.5%
LTE	29.3%	0.0%	18.7%	0.0%	12.1%	0.0%	59.1%	14.9%
Satel	50.0%	50.0%	0.0%	0.0%	0.0%	0.0%	99.3%	99.3%
Overall broadband	98.6%	95.5%	97.8%	93.5%	n/a	n/a	99.4%	96.7%
Overall fixed broadband	97.1%	91.0%	96.8%	90.7%	88.4%	70.1%	97.2%	89.8%
NGA broadband	96.7%	55.3%	80.0%	42.2%	62.2%	22.1%	62.0%	18.1%

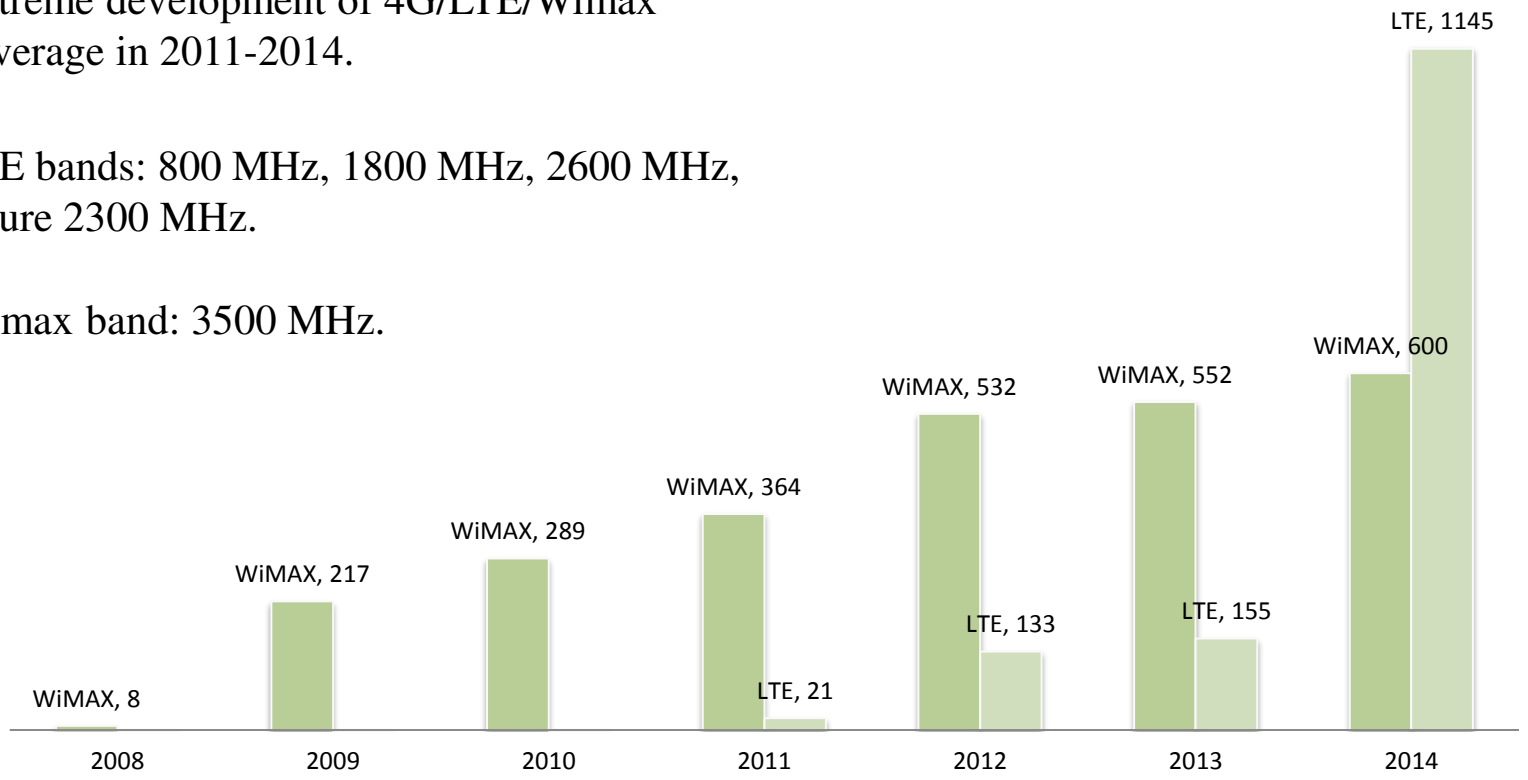
Source: European Commission annual report " Broadband Coverage in Europe 2013 "

Registration of Wimax and LTE base stations 2008-2014

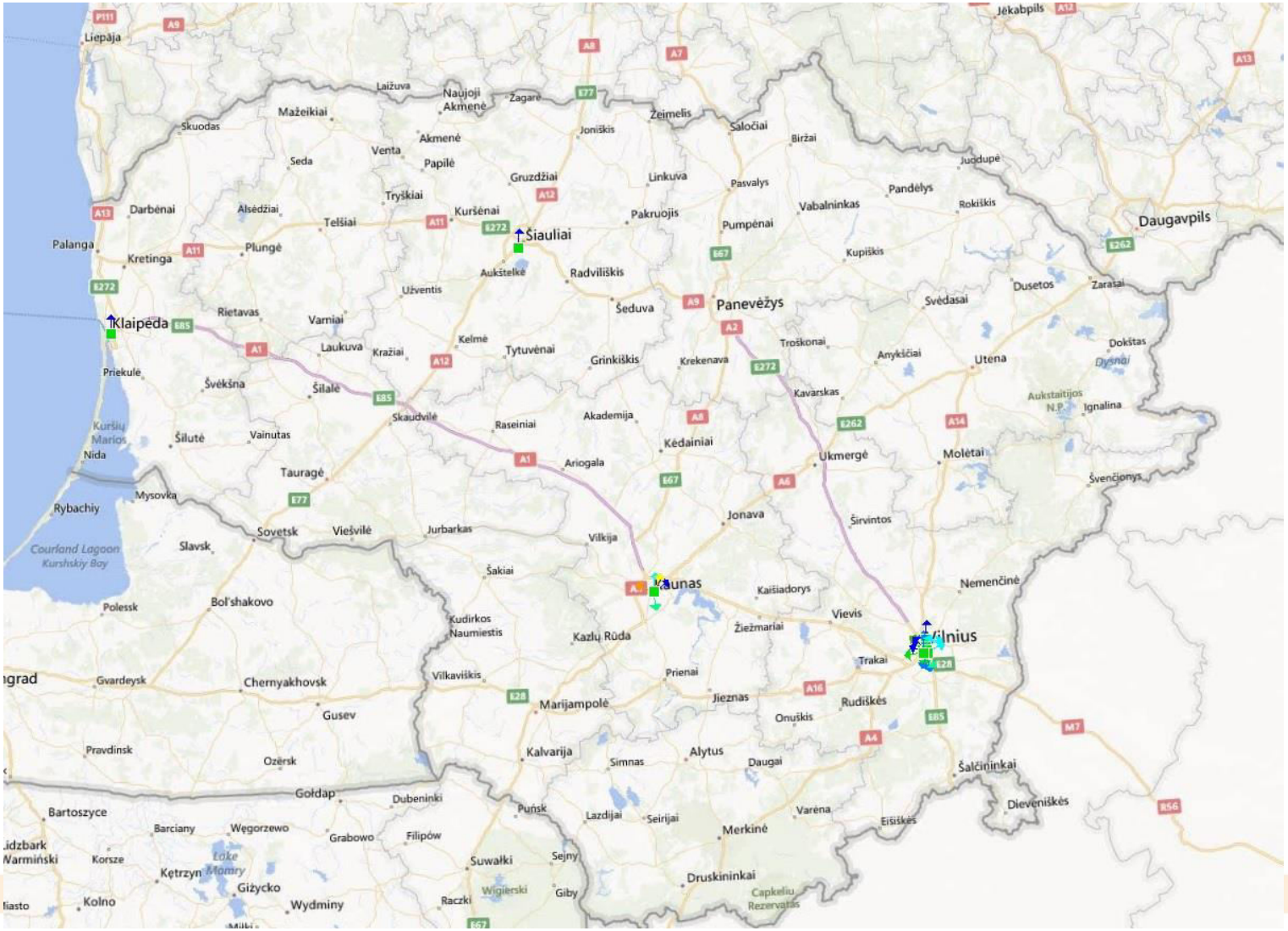
Extreme development of 4G/LTE/Wimax coverage in 2011-2014.

LTE bands: 800 MHz, 1800 MHz, 2600 MHz, future 2300 MHz.

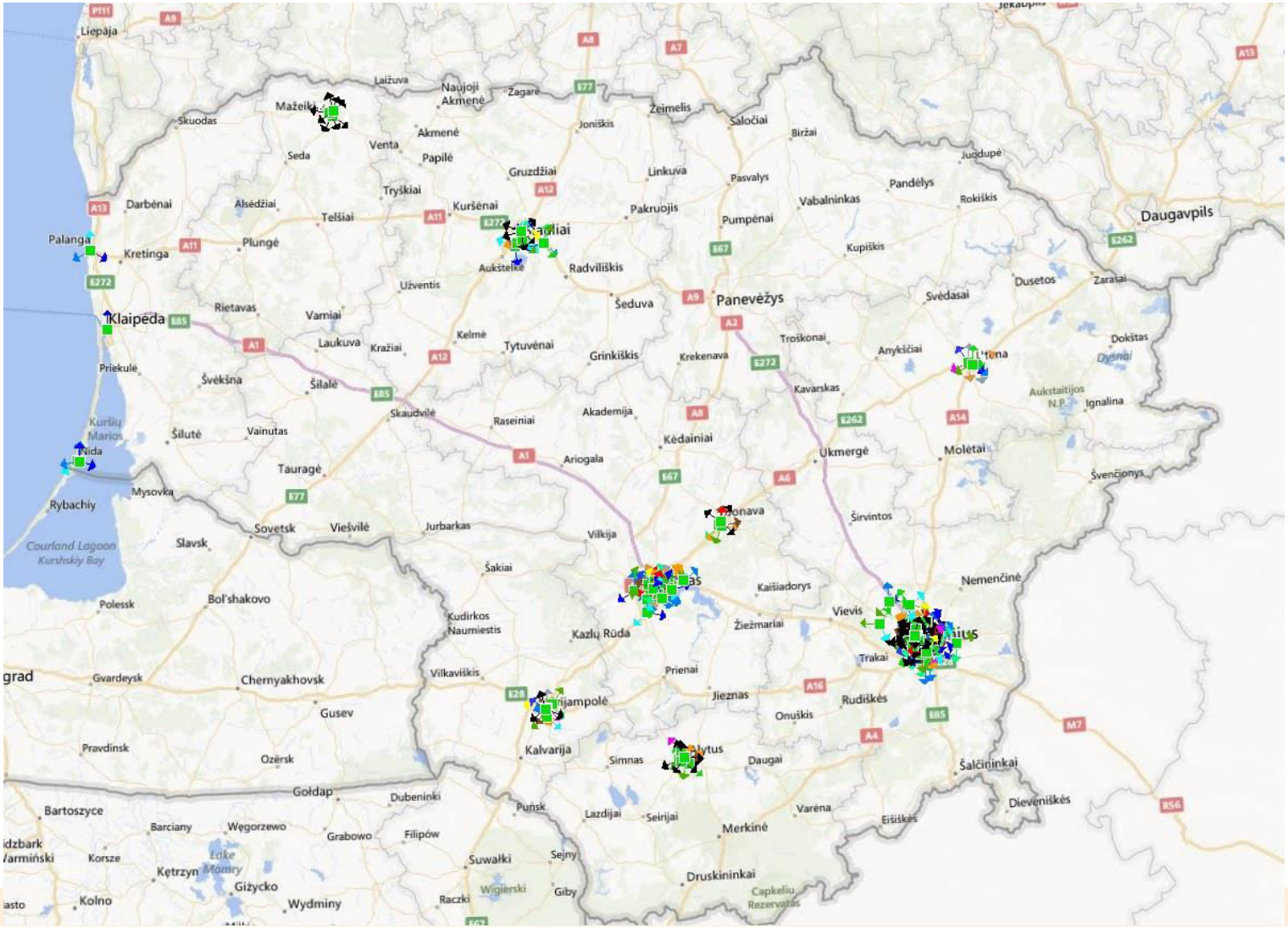
Wimax band: 3500 MHz.



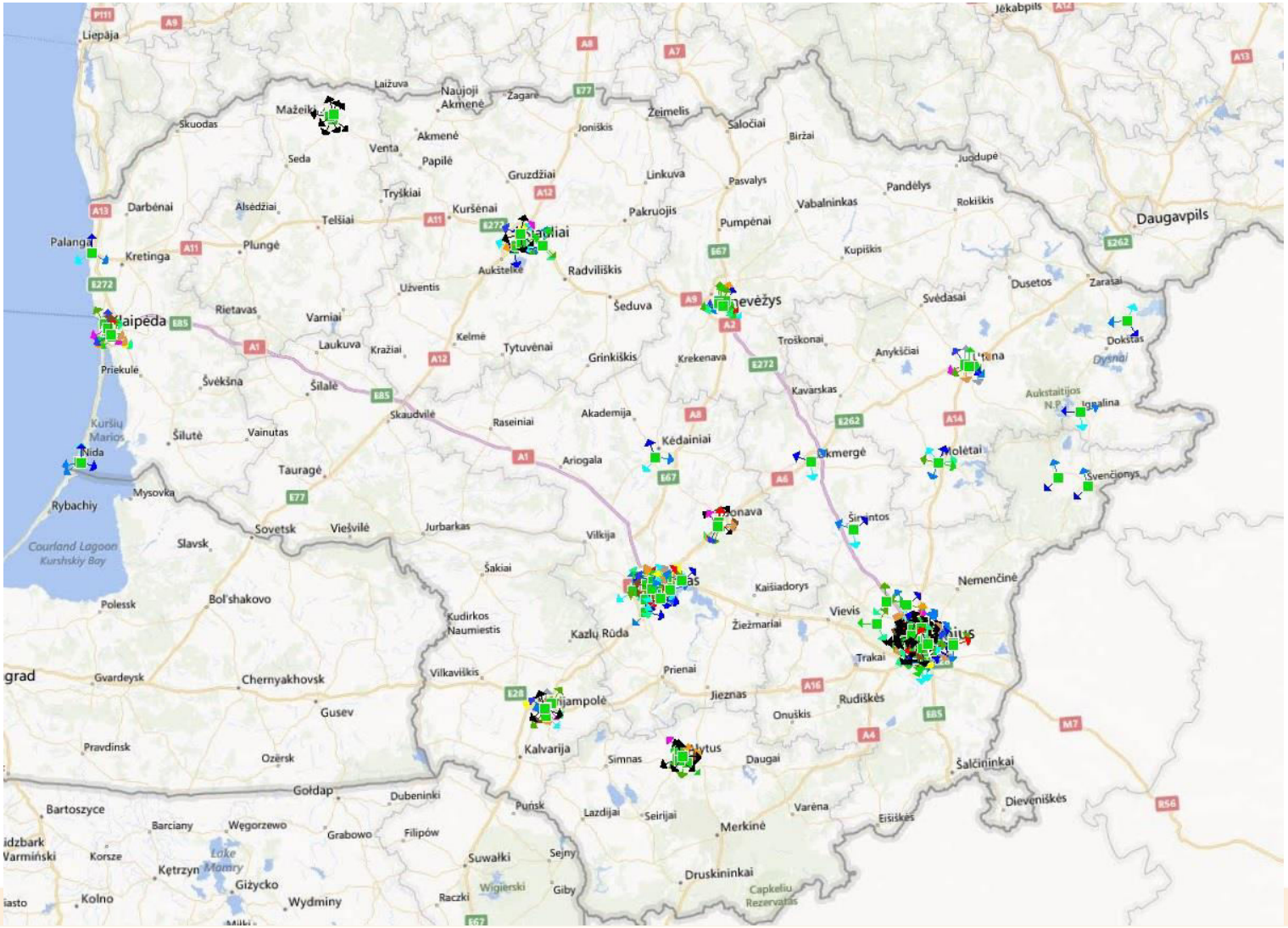
LTE BS density in Lithuania. 2011.



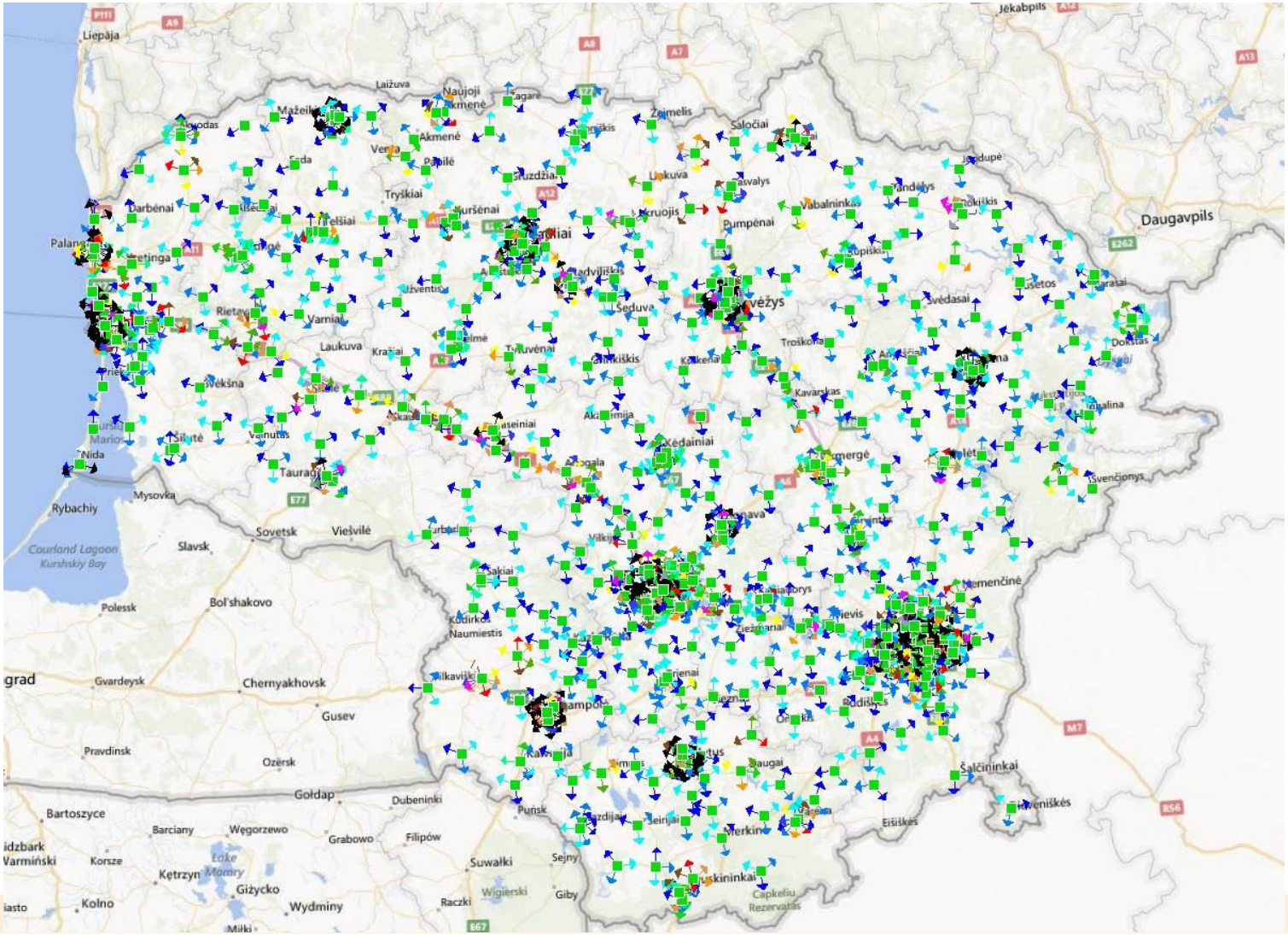
LTE BS density in Lithuania. 2012.

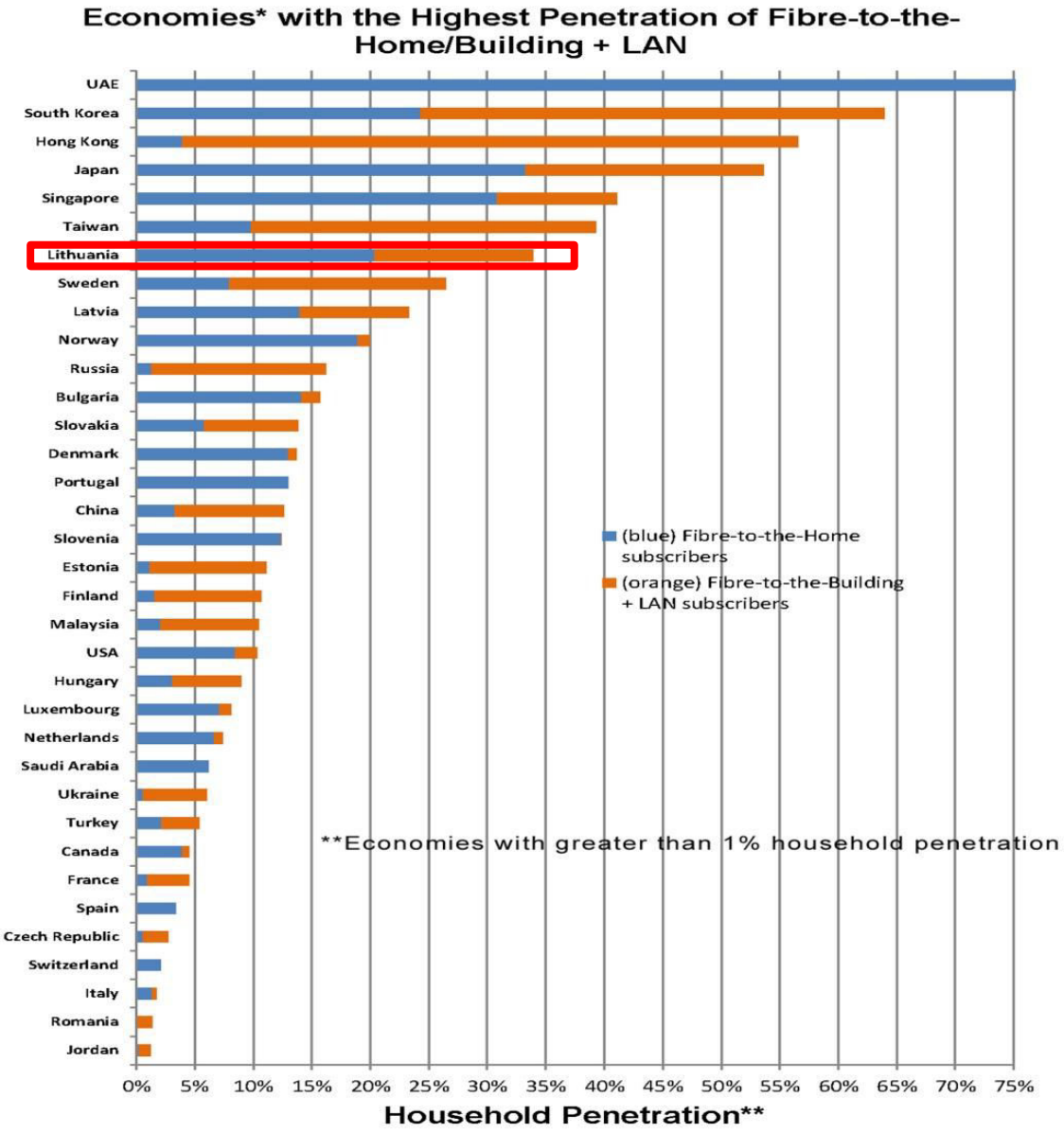


LTE BS density in Lithuania. 2013.



LTE BS density in Lithuania. 2014.



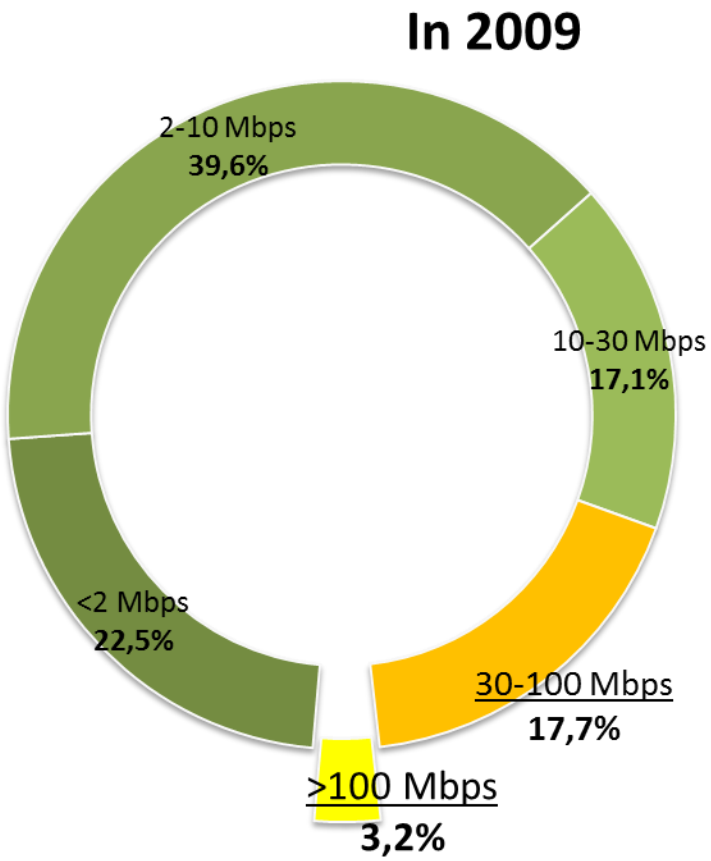


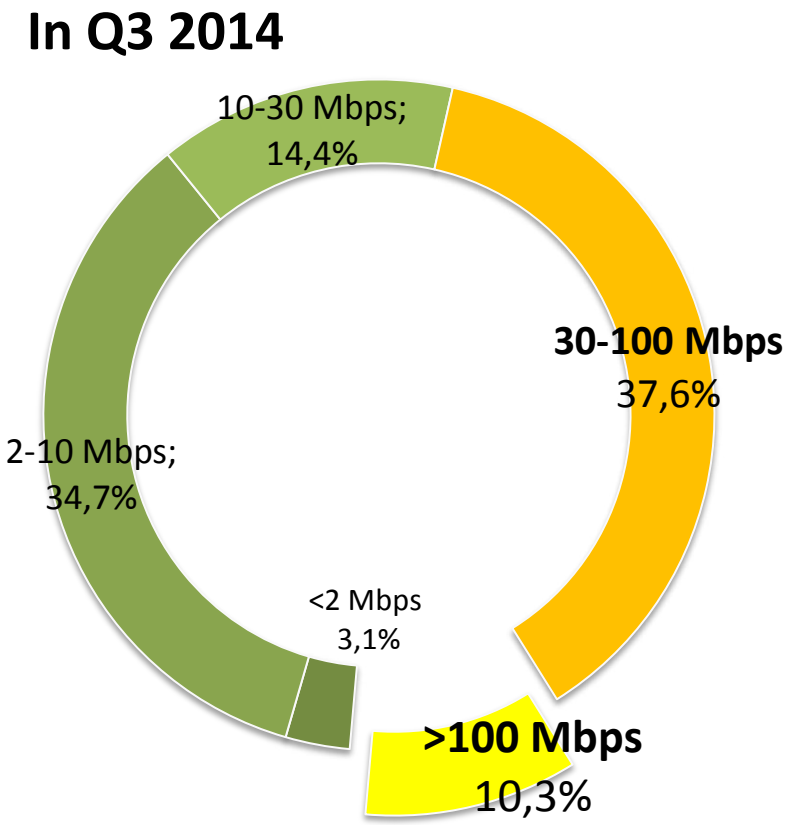
Dense Fiber networks assure reliable transmission in LTE Backbone network

December 2013 Ranking
Source: Fibre to the Home Councils
February 2014

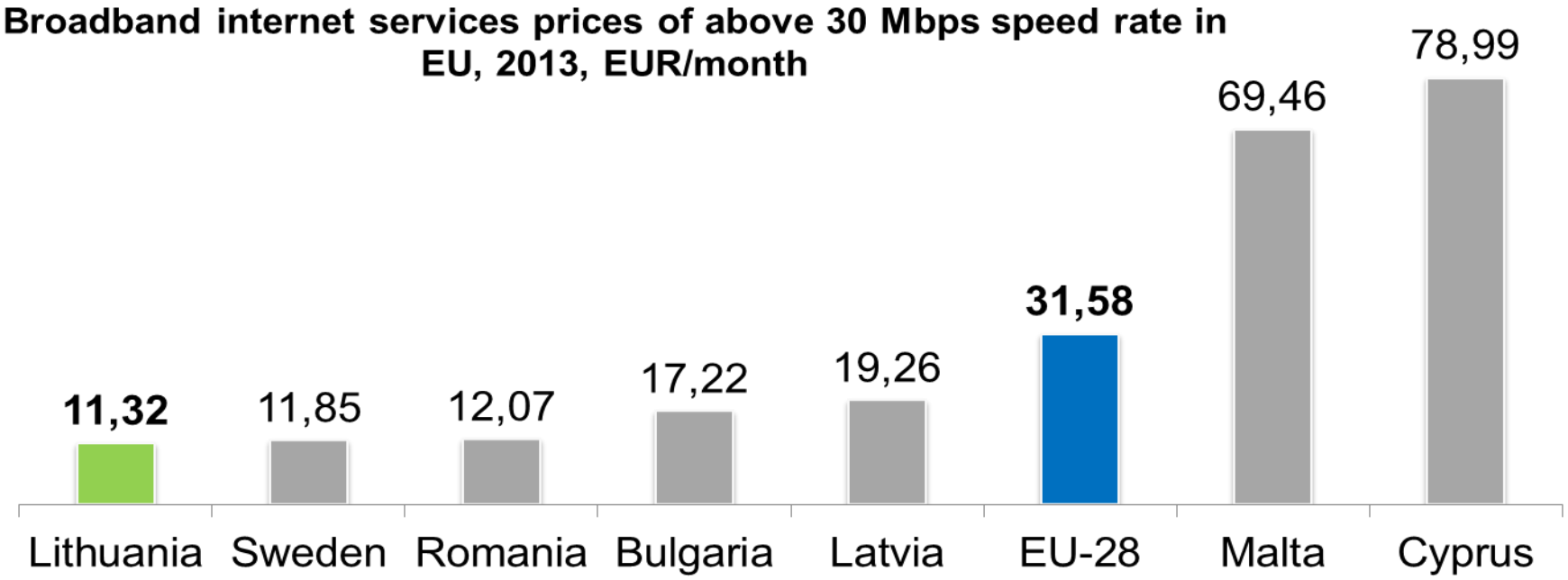
*Economies with at least 200,000 households

LT today: high speed internet usage





LT today: lowest prices in EU

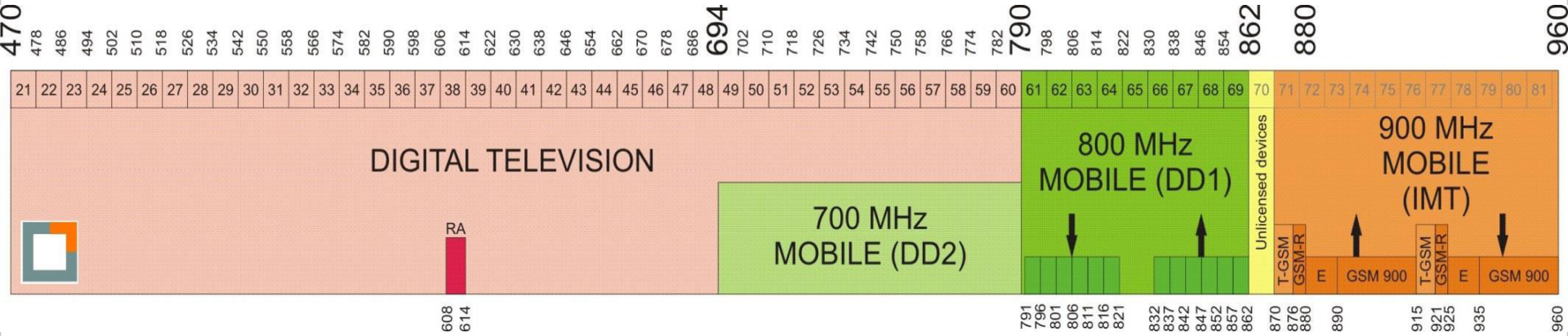


Main hop in 4G development – Digital Dividends

- WRC-07 allocated the band 790 - 862 MHz (‘800 MHz') to the Mobile Service on a Primary basis in Region 1 including Europe.

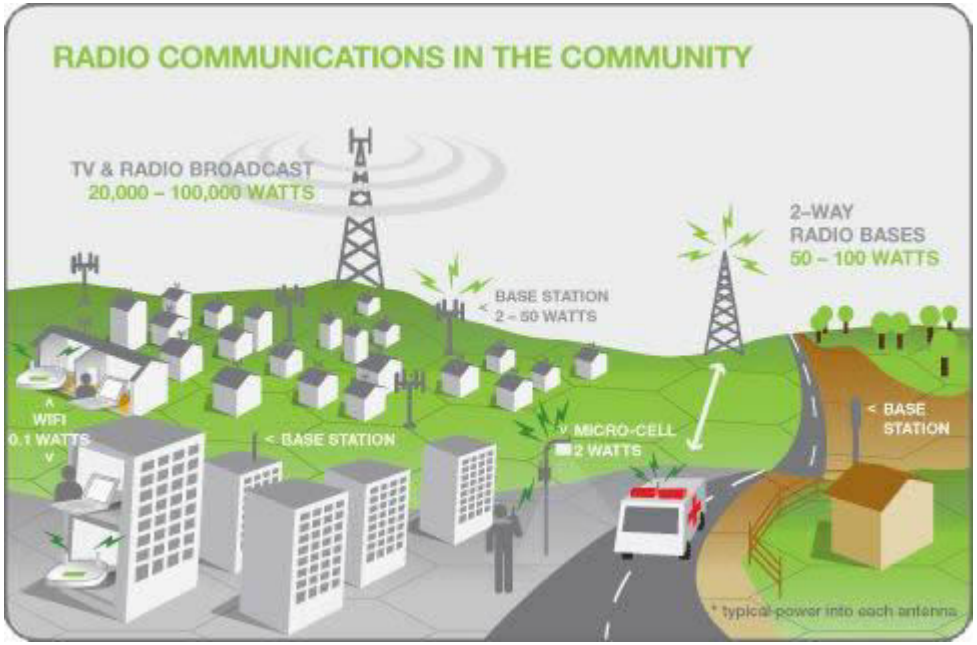
- European Parliament has approved plans to make sure all member states have freed up the 800MHz band for mobile broadband usage by the 31st of December 2012.

- WRC-12 agreed on an allocation of the 694-790 MHz ('700 MHz') band to the mobile service in ITU Region 1 with immediate effect after WRC-15, alongside broadcasting services.

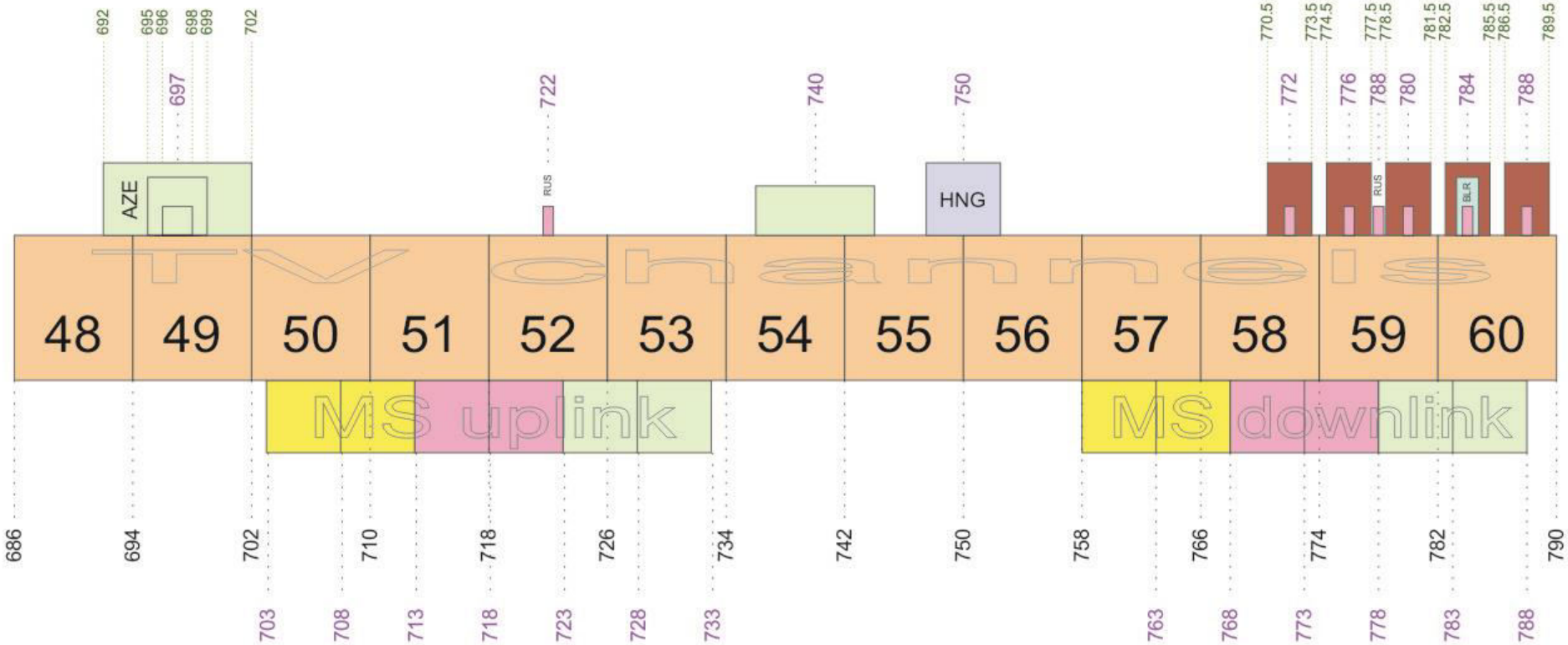


Main challenges by implementing 800/700 MHz band

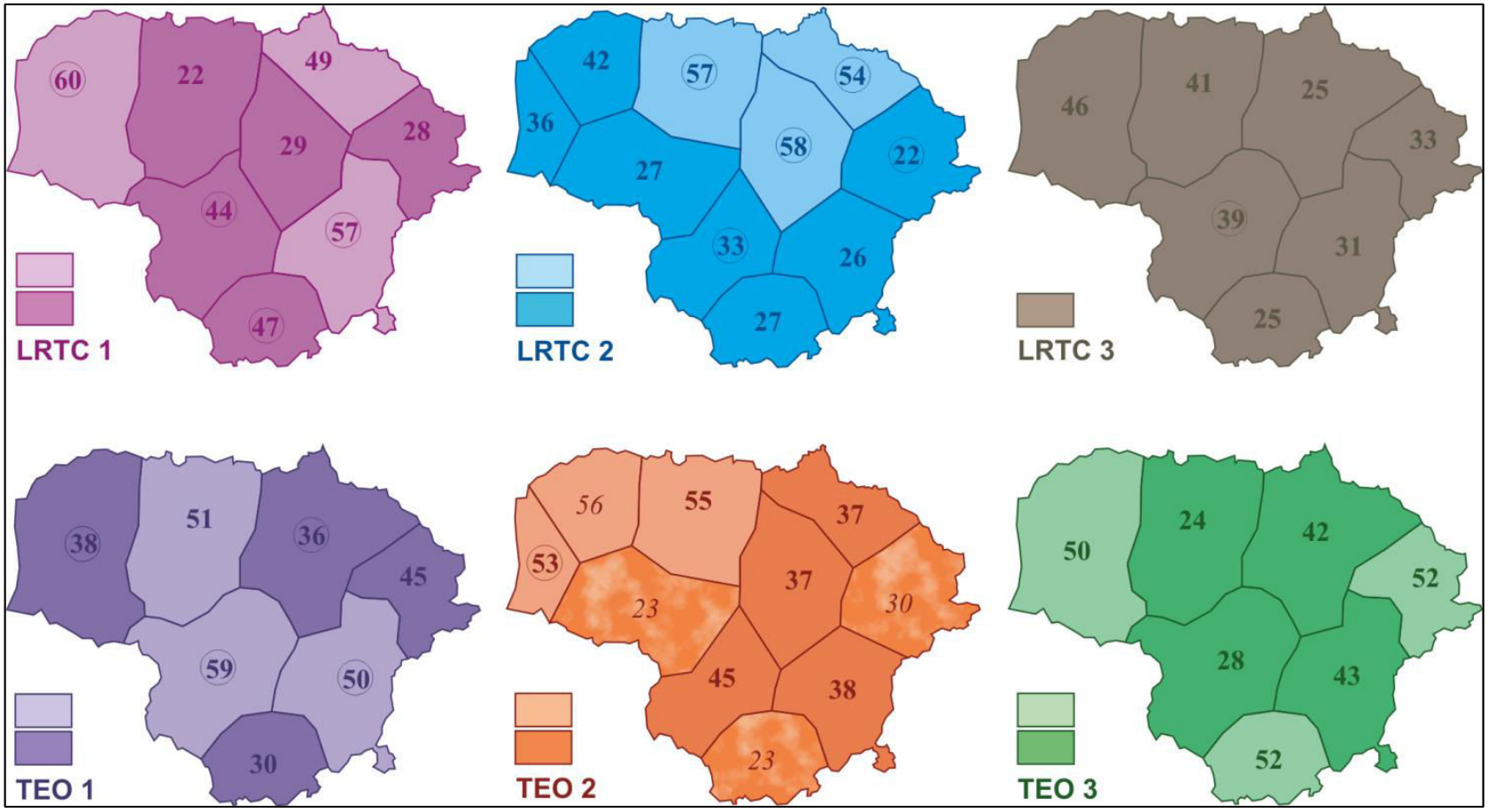
- Electromagnetic compatibility with neighbouring systems.
- Cross-border coordination.
- Replanning of DVB-T channels.



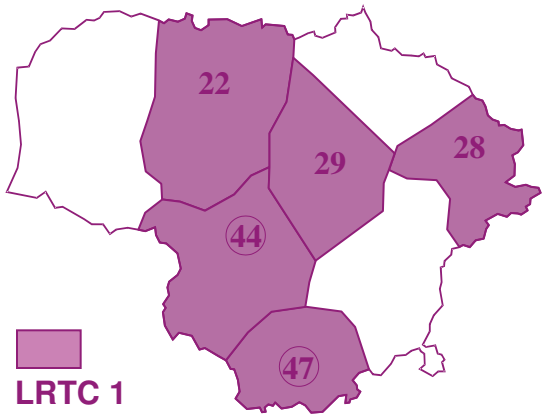
Electromagnetic compatibility between Aeronautical Radionavigation Services (ARNS) and LTE in 700 MHz band

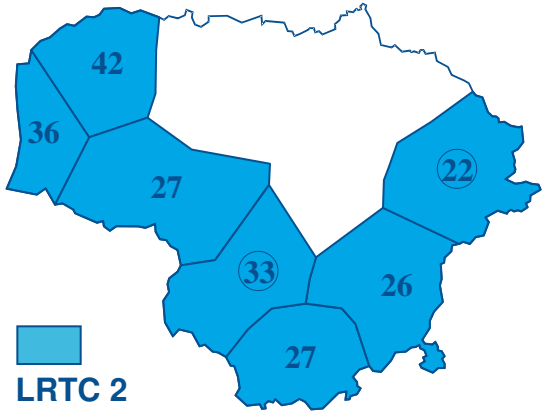


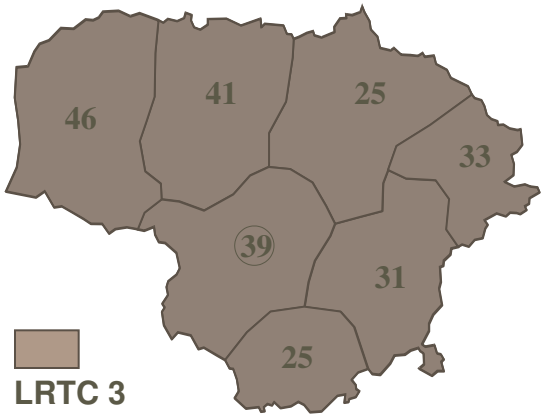
Situation in Lithuania. DVB-T replanning

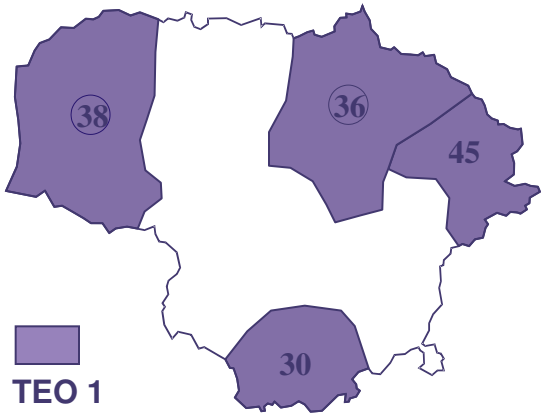


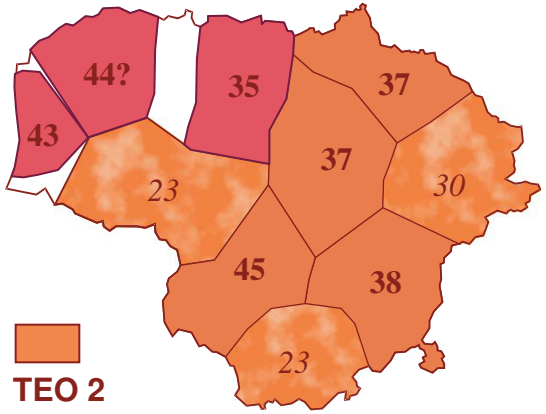
Possible modification of DVB-T channels

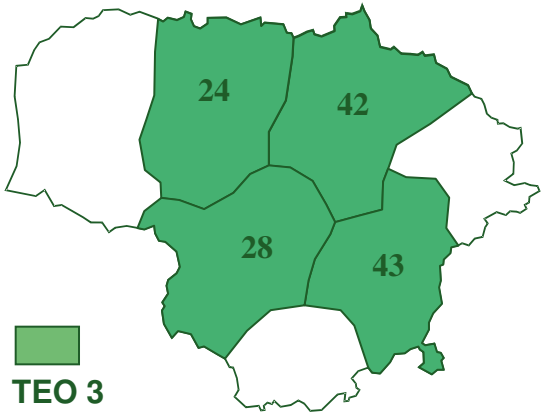




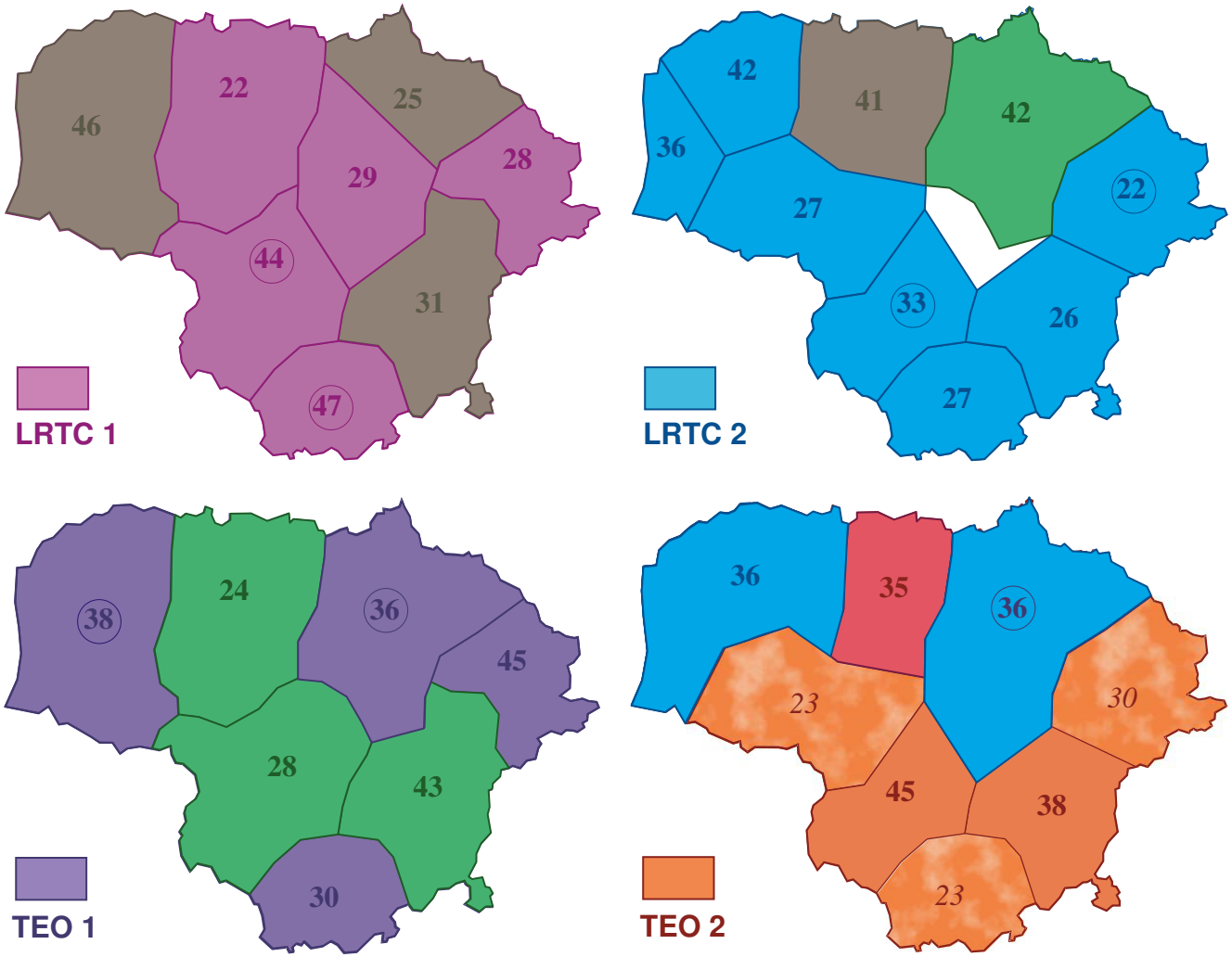






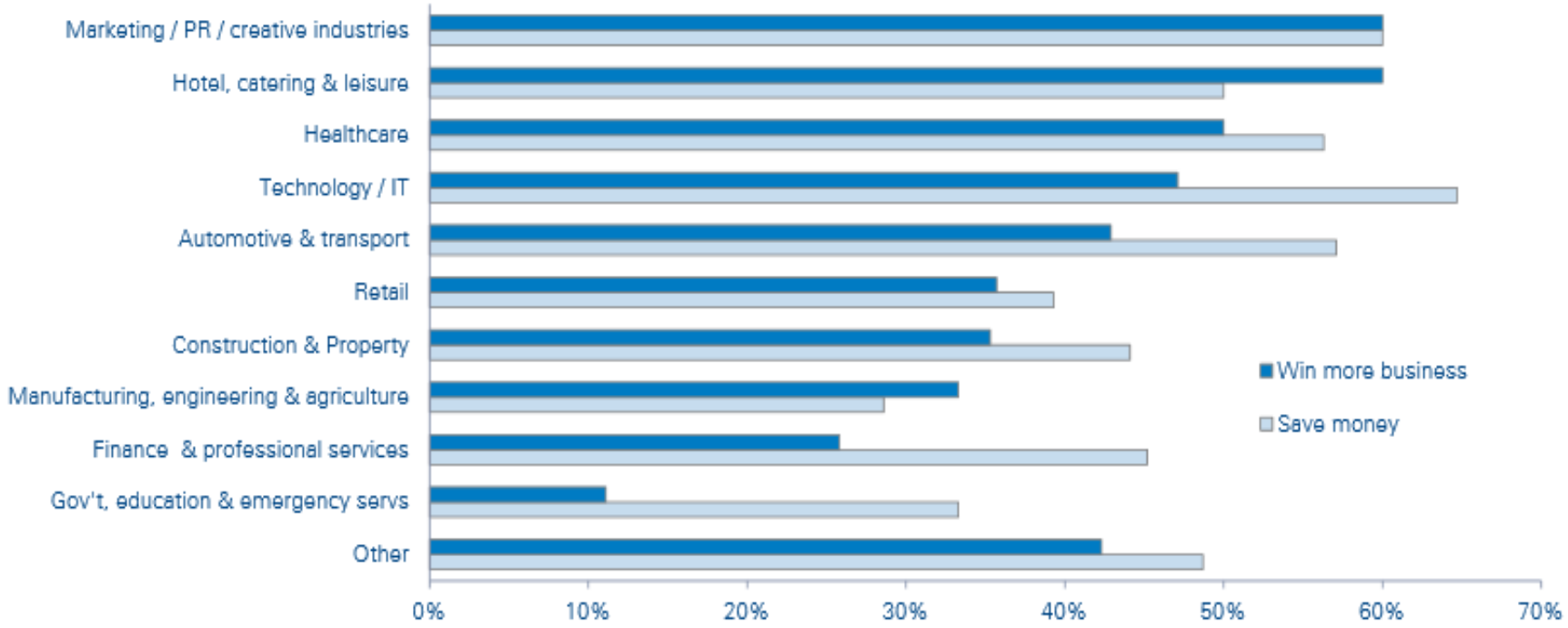


Possible result of DVB-T replanning



Result: Broadband for Sustainable Development

EU survey: Has 4G helped your business to win more business or save money?

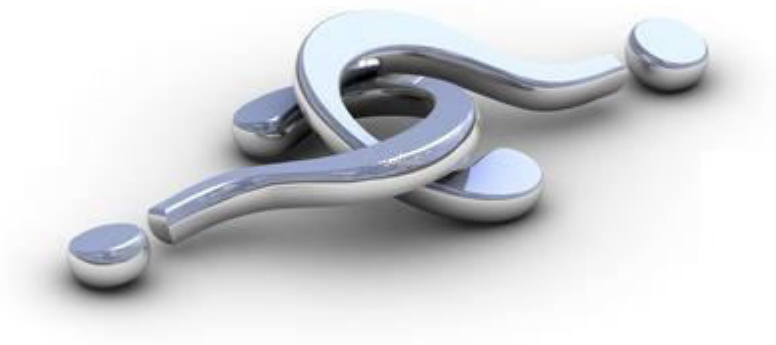


Sources: EE survey

Conclusions

- Wireless broadband (i.e. 4G LTE/Wimax networks) is intensively developing in Lithuania by cooperating Mobile operators and Communication Authority (RRT).
- Capacious fiber networks over all country warrant sustainable development for wireless broadband.

Thank you for your attention!



evaldas.stankevicius@rrt.lt

Communications Regulatory Authority of the Republic of Lithuania

www.rrt.lt