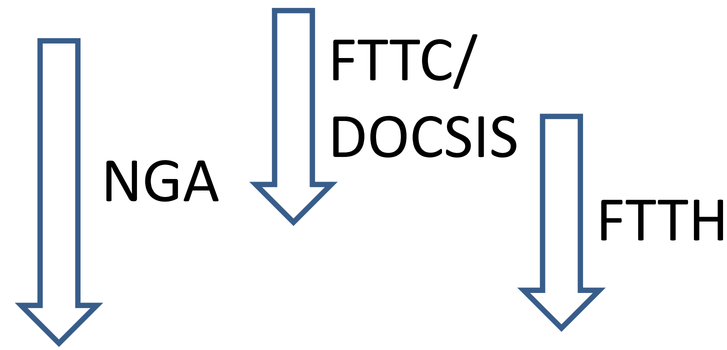
Focus on Cyprus

Key facts and issues to address

Key definitions for BB speed

- Basic: below 30 Mbps
- Fast: at least 30 Mbps
- Ultrafast: at least 100 Mbps
- Gigabit: 1 Gbps



1 Connectivity

1 Connectivity	Cyprus		Cluster	EU
	rank	score	score	score
DESI 2018	**19**	**60.6**	**55.0**	**62.6**
DESI 2017	20	55.5	50.1	58.5

	Cyprus					EU
	DESI 2018			DESI 2017		DESI 2018
	value		rank	value	rank	value
1a1 Fixed Broadband Coverage % households	**100%** 2017	→	**4**	**100%** 2016	**3**	**97%** 2017
1a2 Fixed Broadband Take-up % households	**76%** 2017	↑	**12**	**72%** 2016	**12**	**75%** 2017
1b1 4G Coverage % households (average of operators)	**77%** 2017	↑	**25**	**64%** 2016	**27**	**91%** 2017
1b2 Mobile Broadband Take-up Subscriptions per 100 people	**101** 2017	↑	**8**	**89** 2016	**9**	**90** 2017
1c1 Fast Broadband (NGA) Coverage % households covered by VDSL, FTTP or Docsis 3.0	**88%** 2017	→	**12**	**88%** 2016	**10**	**80%** 2017
1c2 Fast Broadband Take-up % homes subscribing to >= 30Mbps	**9%** 2017	↑	**27**	**3%** 2016	**28**	**33%** 2017
1d1 Ultrafast Broadband Coverage % households covered by FTTP or Docsis 3.0	**85%** 2017		**8**	**NA**		**58%** 2017
1d2 Ultrafast Broadband Take-up % homes subscribing to >= 100Mbps	**0.2%** 2017	↑	**27**	**0.1%** 2016	**27**	**15.4%** 2017
1e1 Broadband Price Index Score (0 to 100)	**65** 2017	↑	**27**	**62** 2016	**26**	**87** 2017

Fixed market structure

- **CYTA dominates** retail and wholesale markets
- All 4 players focus on **bundling to leverage a competitive advantage** with converged (fixed and mobile) services (through own network or MVNO agreement)
- BB **market shares are rather stable** with a slow decline in CYTA's share
- Migration towards **service-based competition** (on CYTA infrastructure)

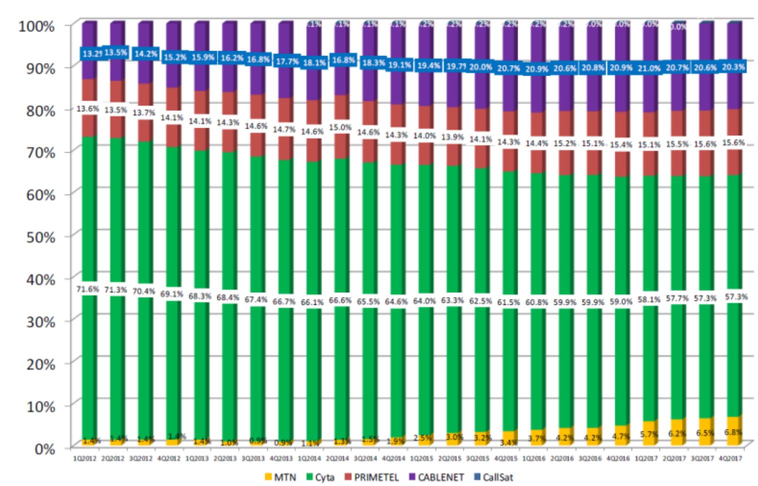
Fixed broadband market shares	CY-2016	CY-2017	EU-2017
Incumbent market share in fixed broadband	60.4%	57.6%	40.3%
Technology market shares			
DSL	79.6%	79.6%	64.2%
Cable	20.3%	20.4%	19.4%
FTTH/B	0.03%	-	12.9%
Other	0.1%	0.05%	3.6%

Source: Communications Committee. Data as of July 2016 and July 2017.

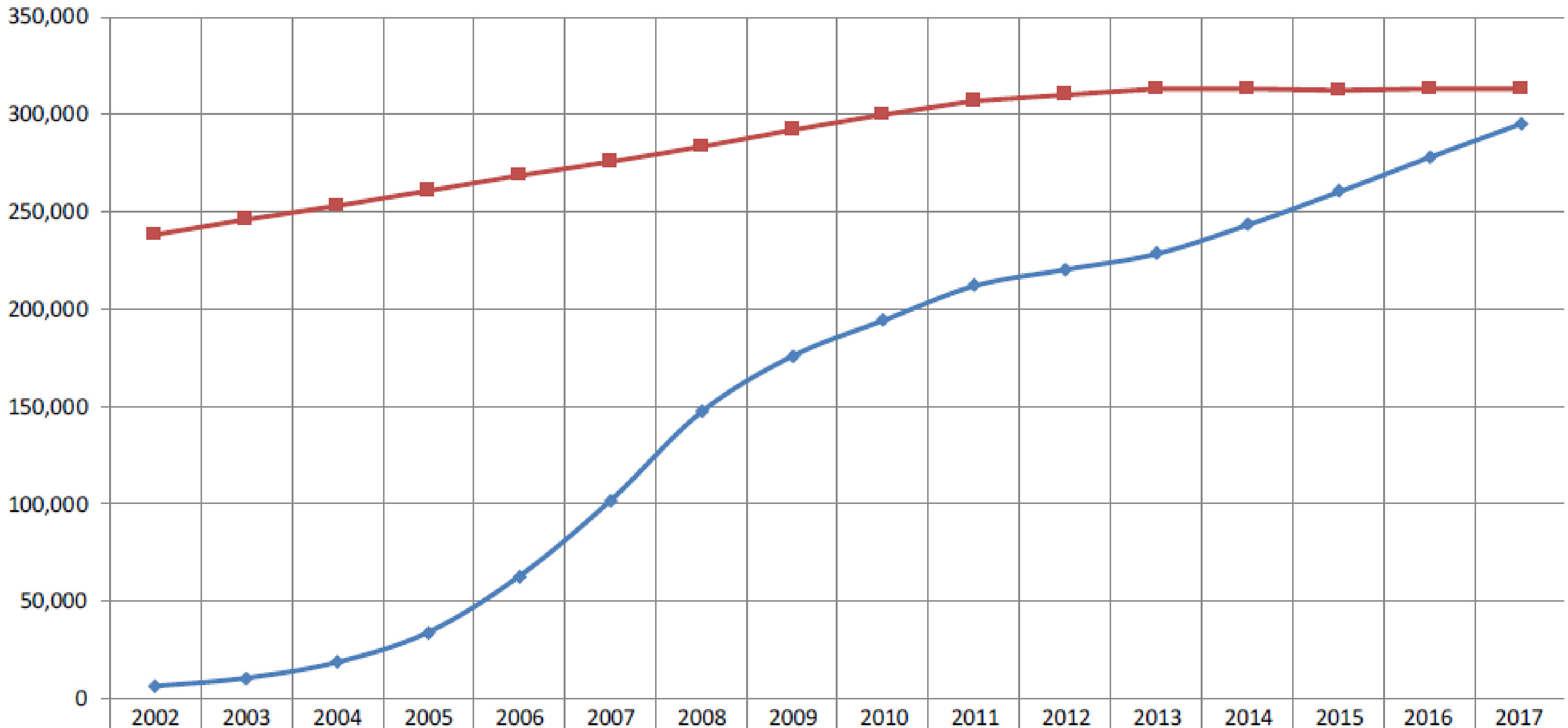
New entrants' DSL subscriptions by type of access (VDSL excluded)	CY-2016	CY-2017	EU-2017
Own network	-	-	0.5%
Full LLU	54.4%	47.4%	72.8%
Shared Access	0.04%	0.02%	4.1%
Bitstream	45.5%	52.5%	14.7%
Resale	-	-	7.8%

Source: Communications Committee. Data as of July 2016 and July 2017.

Current new entrants' trend seems to favour service based competition, moving away from LLU and towards bitstream, increasing the share of the latter by seven percentile points.

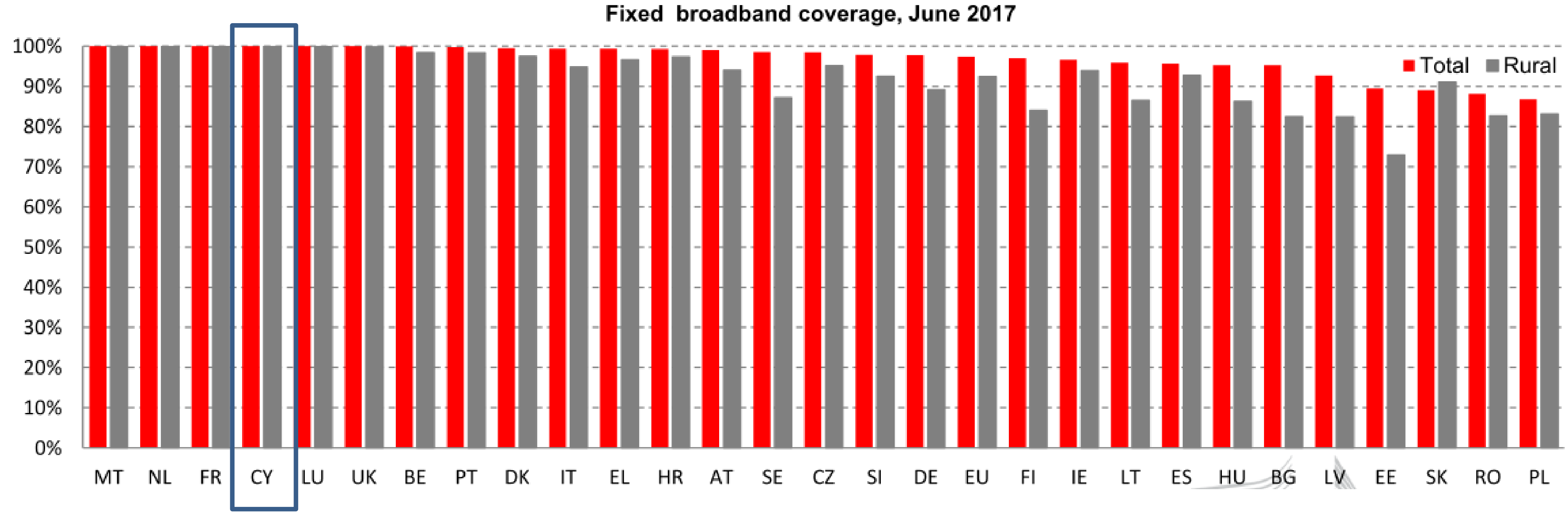


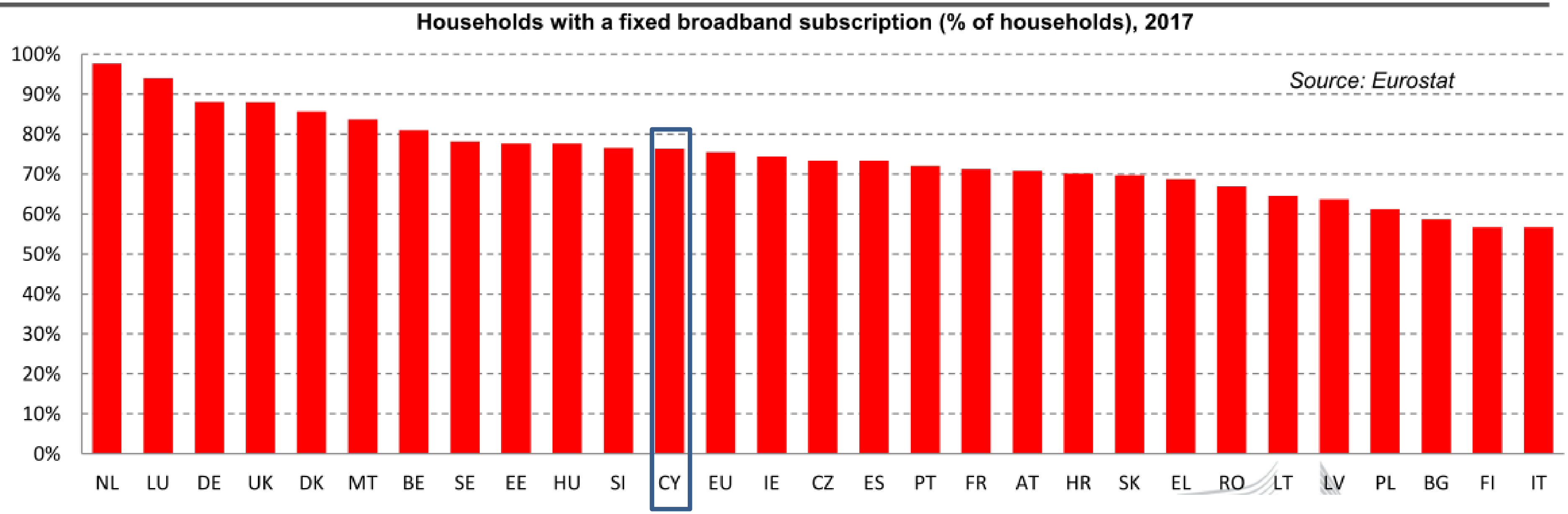
Broadband **is** a utility - penetration is ubiquitous



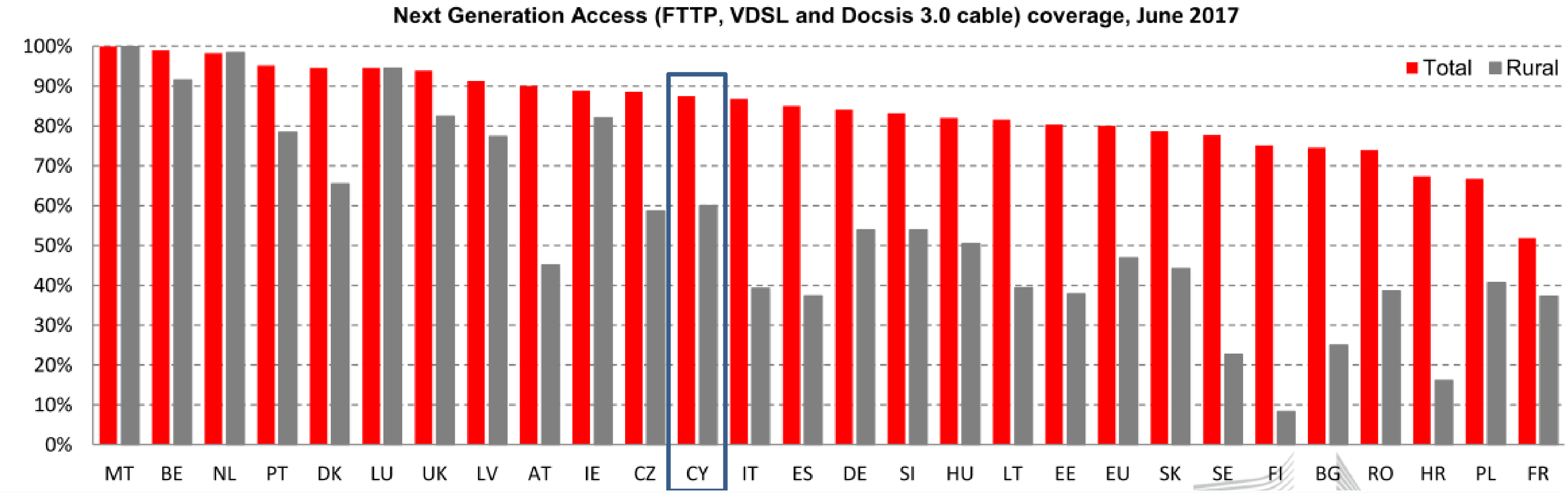
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Μέγεθος Αγοράς	238,510	245,985	253,465	260,873	268,741	276,125	283,989	292,112	299,684	307,135	310,105	313,104	313,104	312,700	313,000	313,000
Σύνολο Συνδέσεων	5,998	10,237	18,361	33,799	62,692	101,606	147,276	176,024	194,455	212,149	220,582	228,709	243,611	260,640	278,483	295,686
% Διείσδυσης	3%	4%	7%	13%	23%	37%	52%	60%	65%	69%	71%	73%	78%	83%	89%	94%

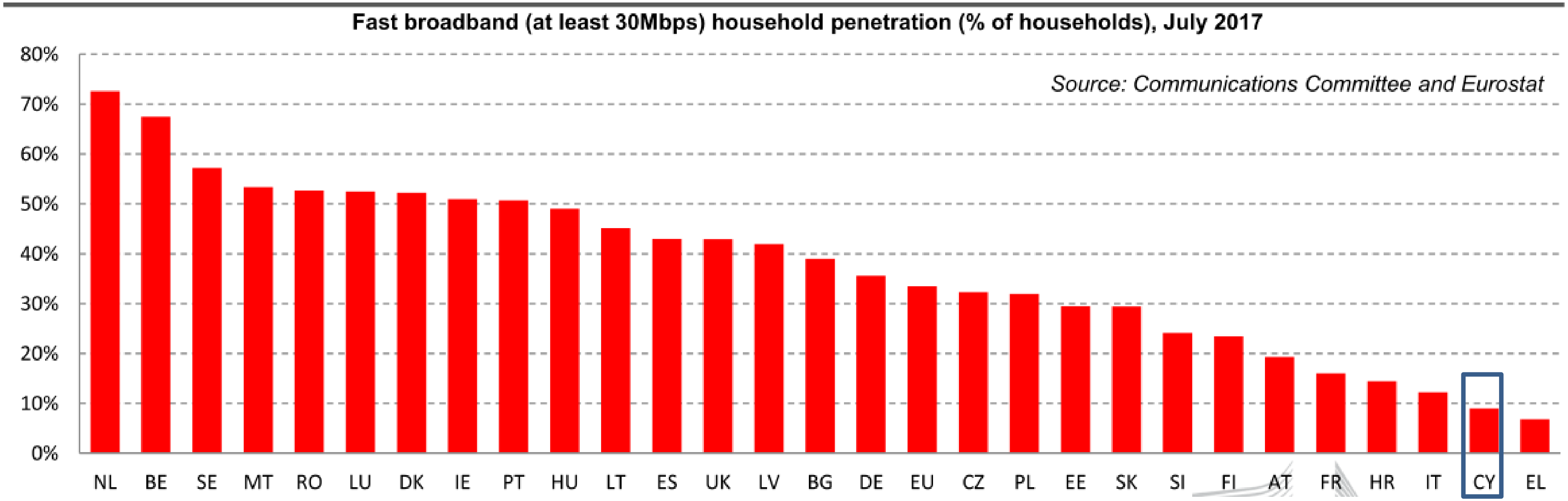
Basic BB: excellent overage and good uptake



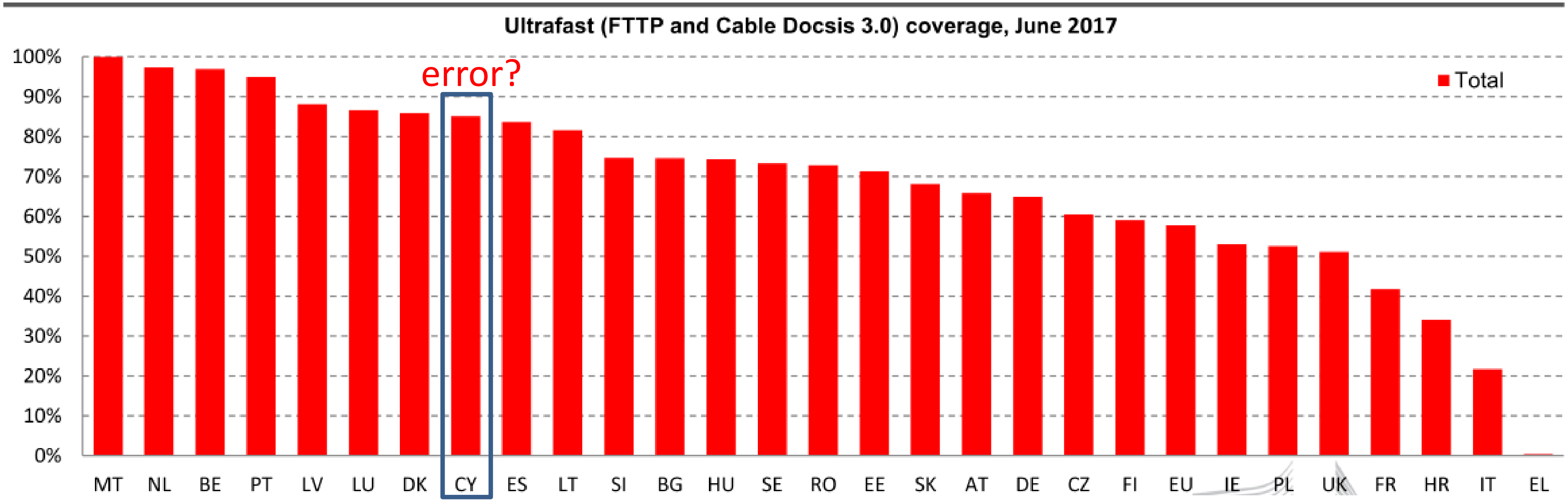


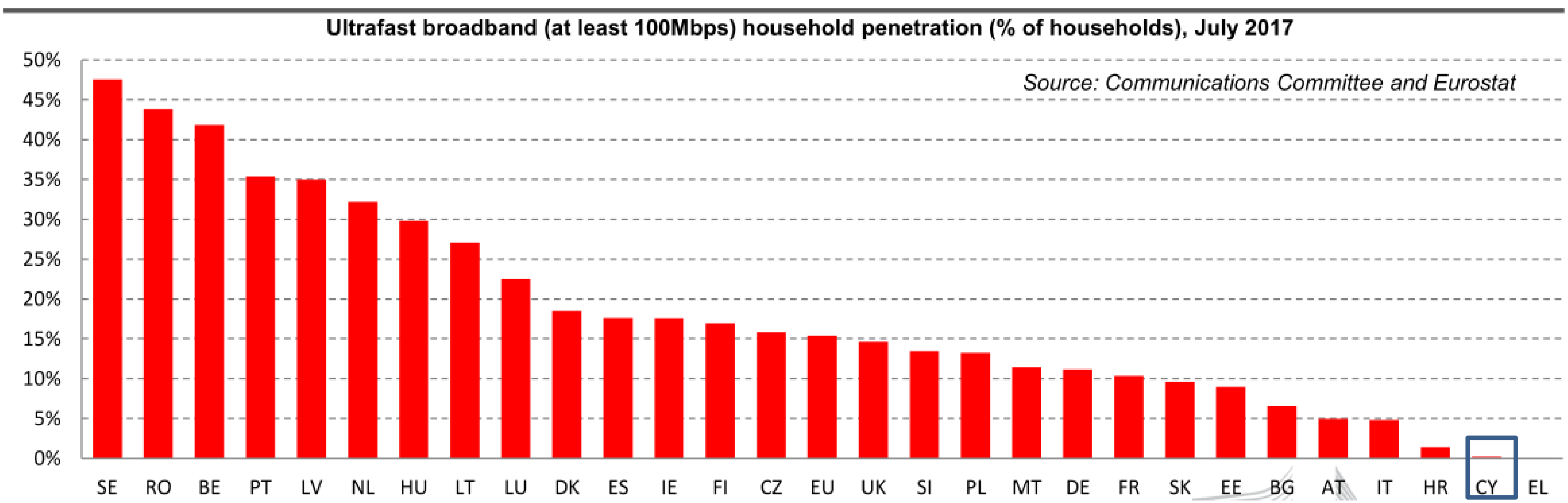
Fast BB: good coverage, very poor uptake





Ultrafast BB: good coverage, extremely poor uptake





Potential error?

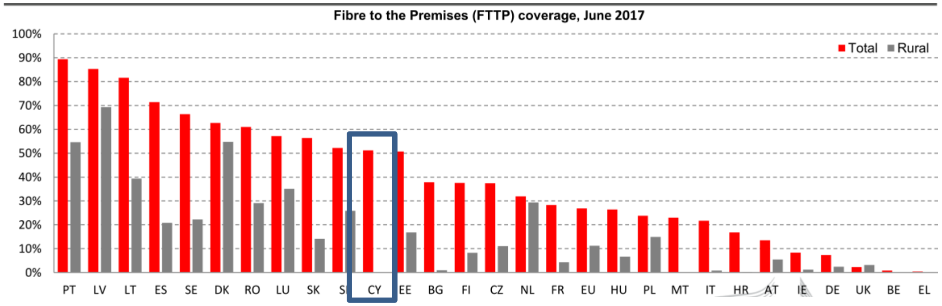
5.5.3 Data tables for Cyprus

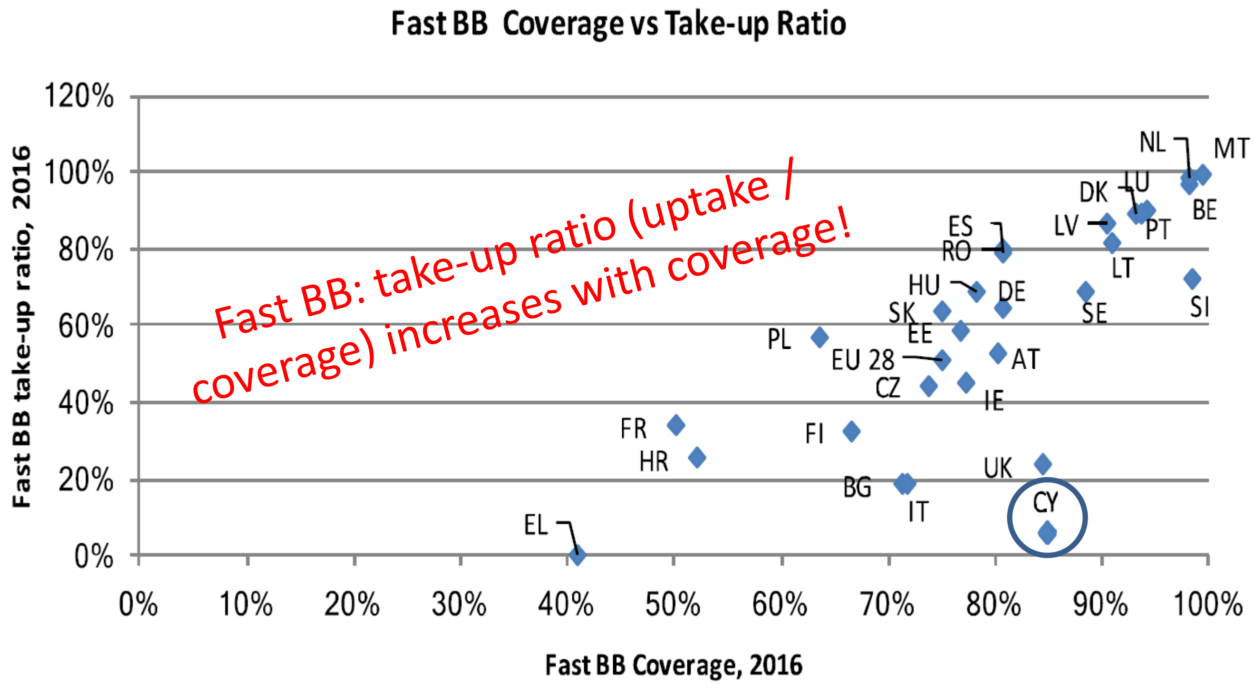
Statistic	National
Population	848,319
Persons per household	2.8
Rural proportion	11.6%

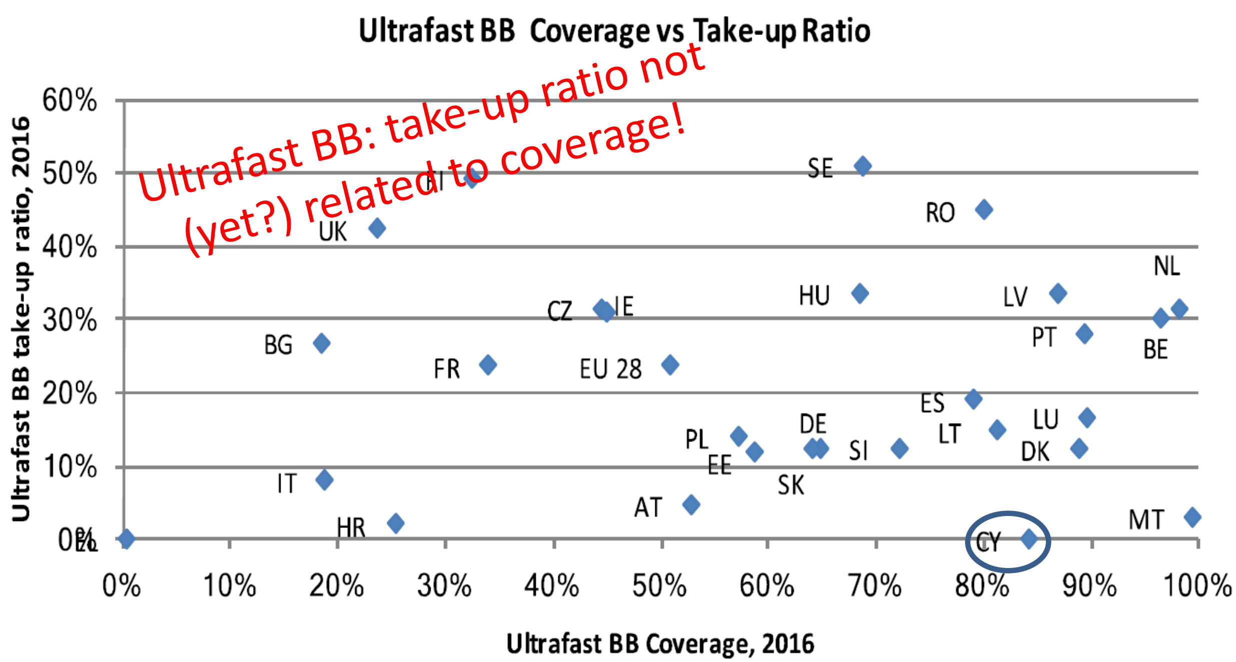
Coverage	CY-2016	CY-2017	EU-2017
Fixed broadband coverage (total)	> 99.5%	> 99.5%	97.4%
Fixed broadband coverage (rural)	> 99.5%	> 99.5%	92.4%
Fixed NGA coverage (total)	87.5%	87.5%	80.1%
Fixed NGA coverage (rural)	60.0%	60.0%	46.9%
Ultrafast coverage (total)	no data	85.1%	57.8%
4G coverage (average of operators)	64.2%	77.3%	90.8%

Source: Broadband Coverage Study (IHS and Point Topic). Data as of October 2016 and October 2017.

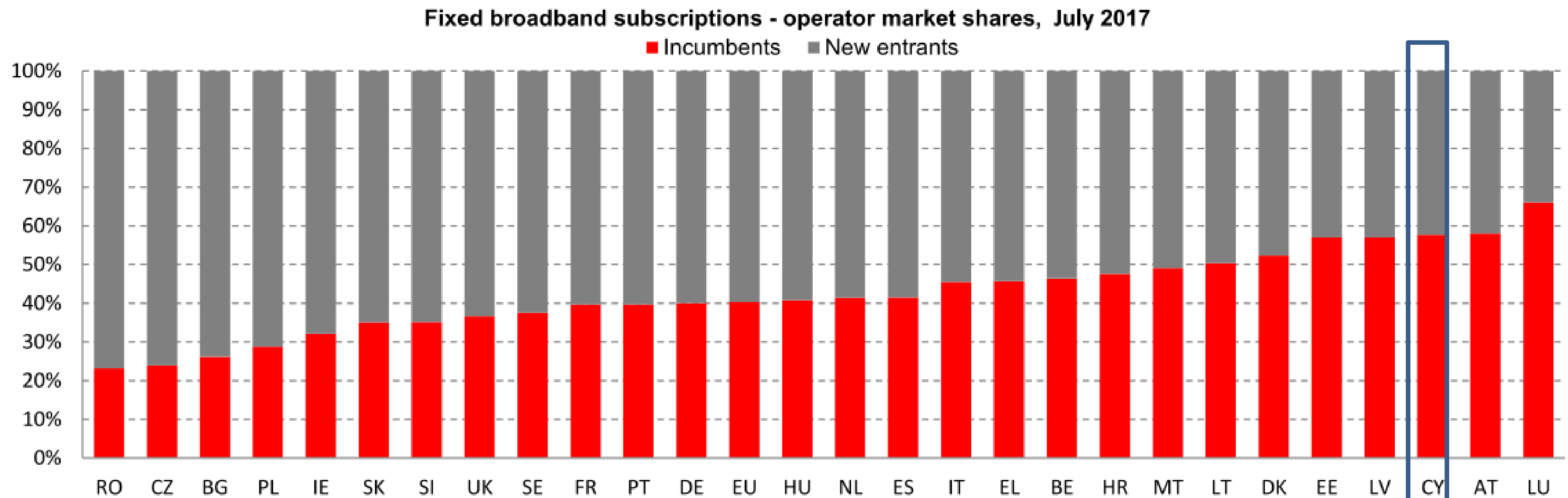
	Cyprus 2017		Cyprus 2016		Cyprus 2015		EU28 2017	
Technology	Total	Rural	Total	Rural	Total	Rural	Total	Rural
DSL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	94.1%	86.3%
VDSL	75.0%	60.0%	75.0%	60.0%	68.0%	56.6%	53.4%	32.5%
FTTP	51.2%	0.0%	51.2%	0.0%	49.3%	0.0%	26.8%	11.3%
WiMAX	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	18.0%	18.2%
Cable	70.2%	0.0%	68.7%	0.0%	57.5%	0.0%	45.1%	11.4%
DOCSIS 3.0	70.2%	0.0%	68.7%	0.0%	57.5%	0.0%	44.7%	10.8%
HSPA	99.6%	99.0%	99.0%	99.0%	99.0%	99.0%	97.9%	92.4%
LTE	78.8%	77.8%	74.3%	0.0%	60.2%	0.0%	97.9%	89.9%
LTE average operator coverage (DESI indicator)	77.3%	-	64.2%	-	-	-	90.8%	-
Satellite	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	99.4%	99.4%
Overall broadband	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	99.9%	99.4%
Overall fixed broadband	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	97.4%	92.4%
NGA broadband	87.5%	60.0%	87.5%	60.0%	84.0%	56.6%	80.1%	46.9%
Overall DOCSIS 3.0 & FTTP coverage	85.1%	-	-	-	-	-	57.8%	-
At least 2 Mbps	100%	-	100.0%	-	100.0%	-	96.0%	-
At least 30 Mbps	85.1%	-	84.3%	-	78.7%	-	79.0%	-
At least 100 Mbps	85.1%	-	84.3%	-	78.7%	-	55.1%	-



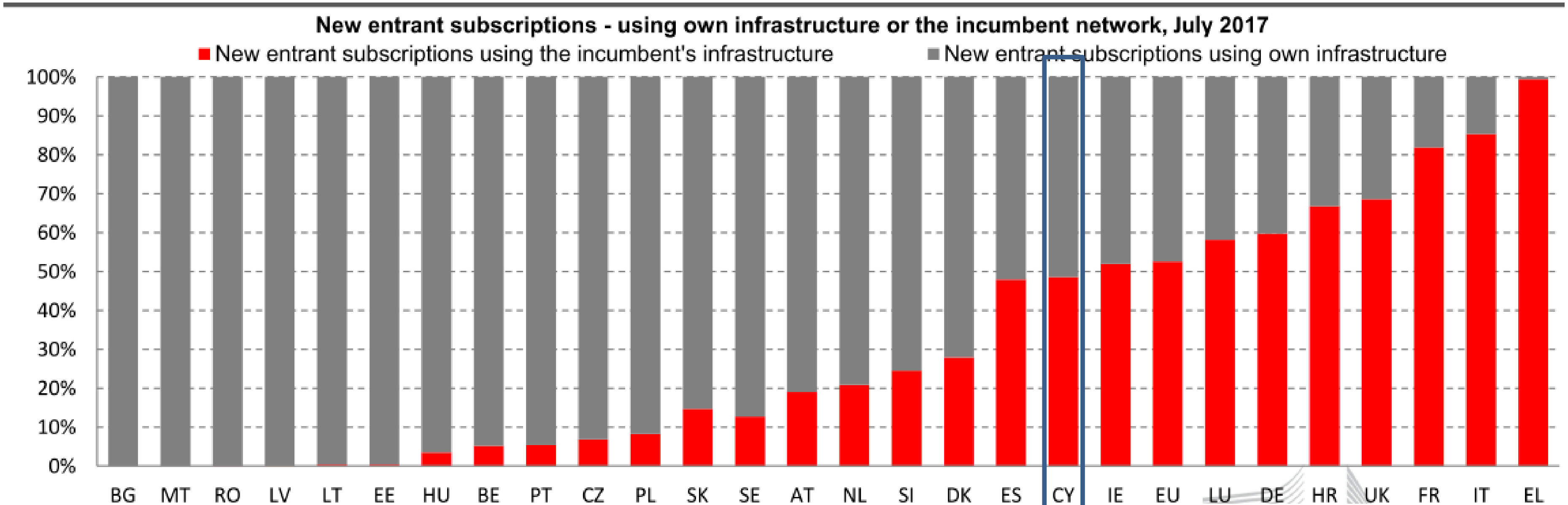

Fast BB Coverage vs Take-up Ratio
Fast BB: take-up ratio (uptake / coverage) increases with coverage!
Fast BB take-up ratio, 2016
Fast BB Coverage, 2016
120%
100%
80%
60%
40%
20%
0%
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
NL
MT
DK
LU
BE
LV
PT
ES
RO
LT
HU
DE
SK
SE
SI
PL
EE
EU 28
AT
CZ
IE
FR
FI
HR
UK
BG
IT
CY
EL


Ultrafast BB Coverage vs Take-up Ratio
Ultrafast BB: take-up ratio not (yet?) related to coverage!
Ultrafast BB take-up ratio, 2016
Ultrafast BB Coverage, 2016
60%
50%
40%
30%
20%
10%
0%
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
SE
FI
RO
UK
NL
CZ
IE
HU
LV
PT
BG
BE
FR
EU 28
ES
DE
LU
PL
LT
EE
SI
DK
IT
SK
AT
MT
HR
EL
CY

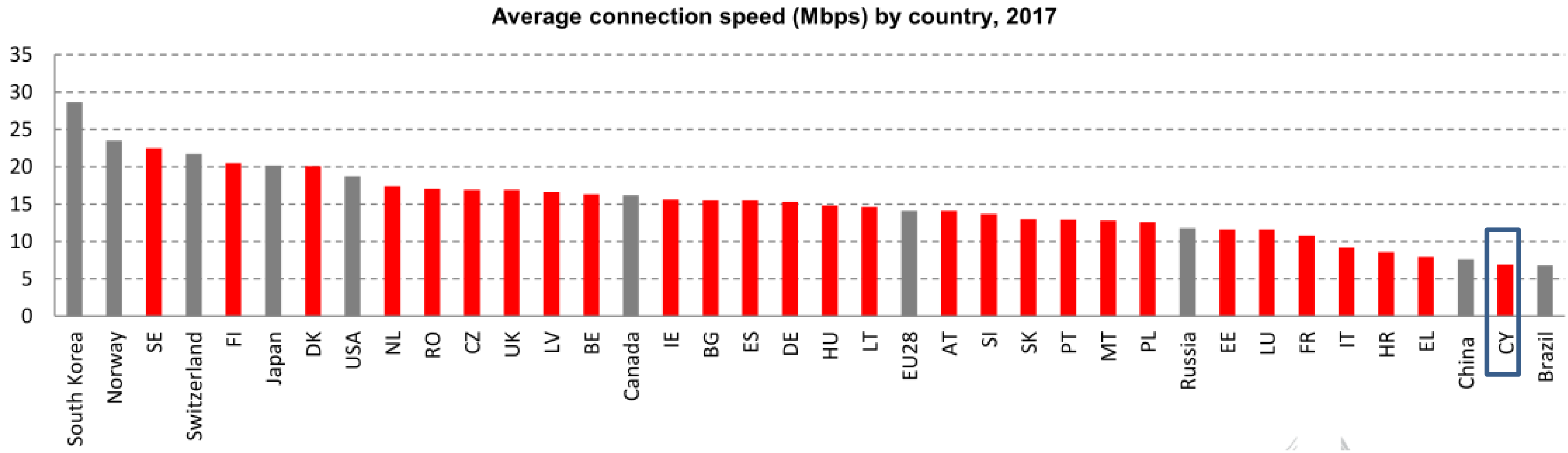
Cyta is dominant and regulated access is critical

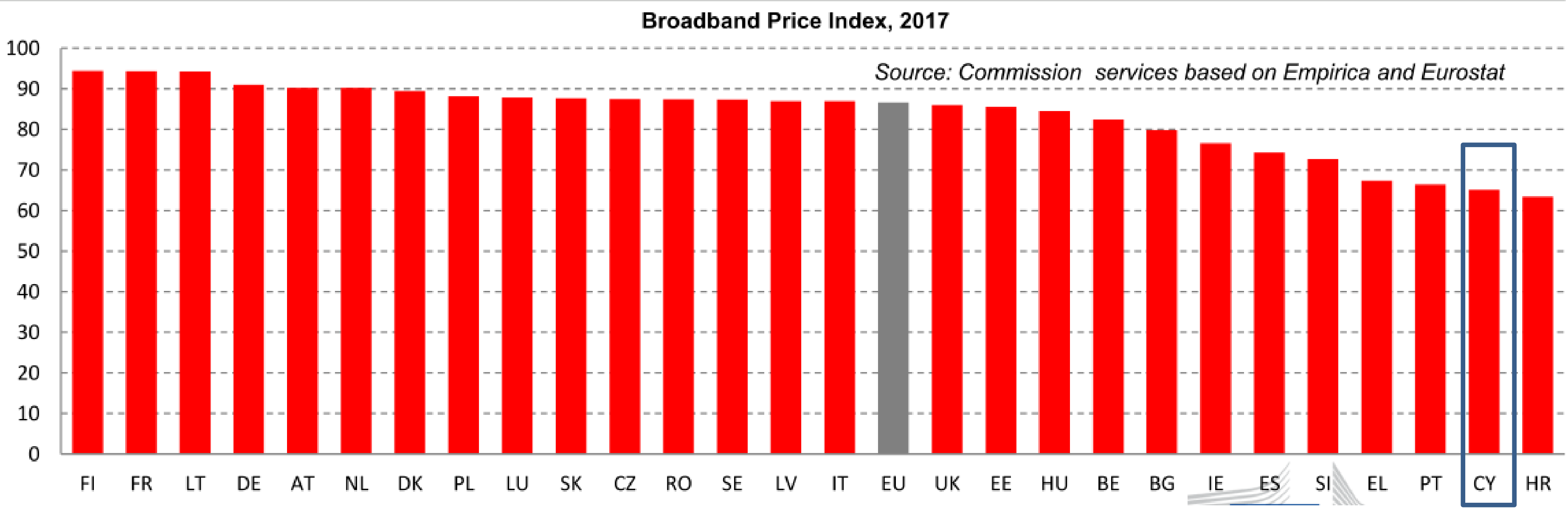


Source: Communications Committee

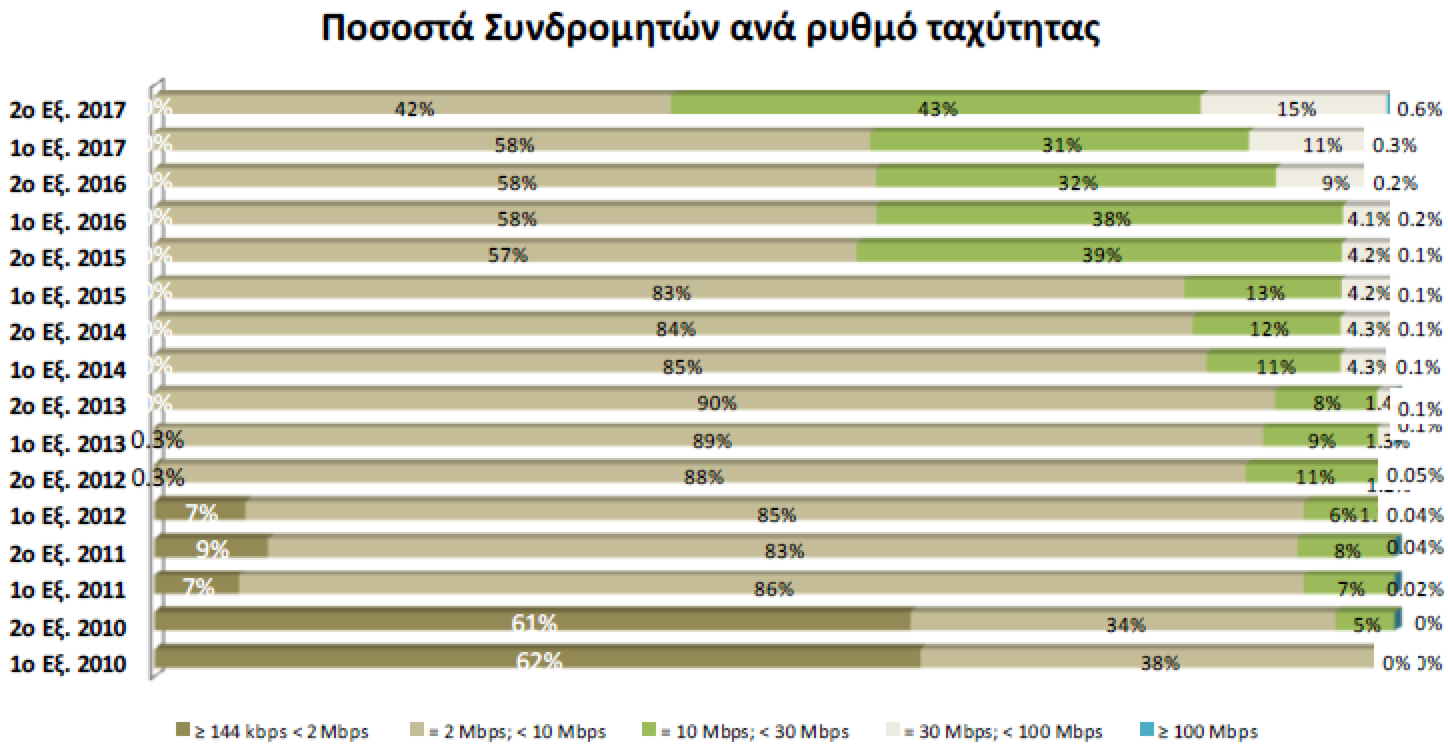


Speeds are low and prices are high





Migration to higher speeds is slow



Στα ποσοστά συνδρομητών ανά ρυθμό ταχύτητας κατά το 2° εξάμηνο του 2017 παρατηρείται αύξηση στο ποσοστό συνδρομών με ρυθμό ταχύτητας μεγαλύτερο του 10mbps γεγονός που οφείλεται κυρίως στις δωρεάν αναβαθμίσεις ταχυτήτων από Cyta, Primetel και MTN .

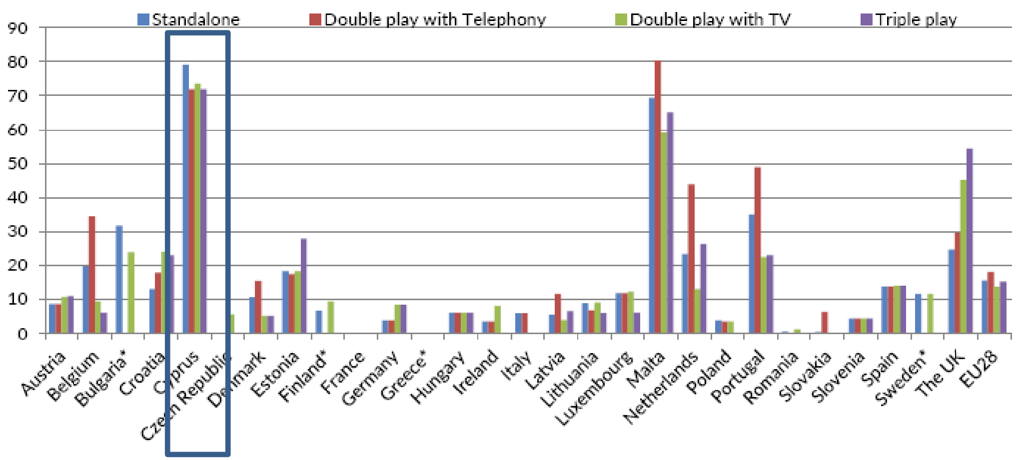
Higher prices for ultrafast and unbundled services

	Single play			Double play with TV			Double play with fixed telephony			Triple play		
	12-30 Mbps	30-100 Mbps	100+ Mbps	12-30 Mbps	30-100 Mbps	100+ Mbps	12-30 Mbps	30-100 Mbps	100+ Mbps	12-30 Mbps	30-100 Mbps	100+ Mbps
Lithuania	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑
Sweden	↑	↑	↑	↑	↑		↑	↑	↑	↑	↑	
Finland	↑	↑	↑				↑	↑	↑			
Latvia	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑
Romania	↑	↑	↑	↑	↑	↑	↗	↗	↑	↗	↗	↑
Poland	↑	↑	↑	↑	↑	↑	↑	↑	↑	↗	↗	↑
Slovakia	↑	↗	↑	↑	↑	↑	↗	↗	↑	↑	↑	↑
France	↗	↗	↑	↗	↗	↑	↗	↗	↑	↑	↑	↑
Czech Republic	↗	↗	↑	↘	↗	↑	↑	↑	↑	↑	↑	↑
Hungary	↑	↑	↑	↘	↘	↗	↗	↗	↑	↗	↗	↑
Bulgaria	↑	↑	↗	↑	↓		↑	↑	↗	↑	↗	
Germany	↗	↗	↑	↑	↑	↑	↗	↗	↑	↗	↗	↑
Italy	↗	↗	↗	↑	↗	↑	↗	↗	↑	↑	↗	↑
Estonia	↑	↑	↗	↗	↘	↗	↑	↑	↑	↗	↗	↗
Denmark	↗	↗	↗	↑	↑	↗	↗	↘	↗	↗	↘	↗
Austria	↗	↗	↗	↑	↗	↗	↗	↘	↗	↗	↘	↗
Netherlands	↗	↗	↗	↑	↑	↘	↗	↗	↗	↗	↗	↗
Greece	↗	↘		↑	↗		↘	↓		↗	↘	
The UK	↗	↗	↘	↗	↗	↘	↗	↗	↘	↗	↗	↘
Slovenia	↘	↘	↗	↓	↓	↗	↘	↘	↗	↗	↗	↗
Luxembourg	↗	↘	↘	↘	↘	↗	↘	↘	↗	↘	↘	↗
Belgium	↗	↗	↗	↘	↘	↘	↘	↘	↗	↘	↘	↗
Croatia	↘	↘	↗	↘	↘	↘	↘	↘	↘	↘	↘	↘
Portugal	↘	↘	↘	↘	↘	↘	↘	↘	↘	↘	↘	↘
Ireland	↘	↓	↗	↓	↓	↗	↓	↓	↘	↓	↓	↘
Spain	↓	↓	↘	↓	↓	↘	↓	↓	↘	↘	↘	↗
Malta	↗	↘	↓	↗	↘	↓	↘	↘	↓	↘	↘	↓
Cyprus	↘	↘	↓	↓	↓	↓	↘	↘	↓	↗	↗	↓
	Cluster Centres											
↑	€13,53	€14,68	€21,86	€19,02	€21,42	€27,32	€17,82	€19,23	€29,03	€24,81	€25,75	€32,84
↗	€21,50	€24,08	€40,43	€24,94	€27,74	€43,68	€26,91	€29,12	€48,75	€36,34	€38,05	€61,49
↘	€32,19	€34,53	€57,22	€31,98	€34,47	€64,17	€40,99	€42,69	€70,00	€55,09	€55,23	€82,00
↓	€43,05	€43,66	€108,00	€43,24	€44,21	€116,50	€56,50	€58,00	€108,00	€75,00	€75,00	€117,00

source: Fixed Broadband prices in Europe report 2016, Empirica

Very high price premium for ultrafast services

Speed premiums from 30-100 to 100+ Mbps per country



3-play offers are more attractively positioned:

- in the 12-30 Mbps basket the least expensive price (PPP) in Cyprus is
  - 6.8% higher than the EU average for 3-play services but
  - 31.8% higher for Internet + telephony and
  - 45.4% higher for Internet only services
- in the 30-100 Mbps basket the least expensive price (PPP) in Cyprus is
  - 2.9% higher than the EU average for 3-play services but
  - 24% higher for Internet + telephony and
  - 31.9% higher for Internet only services

This reflects an **emphasis from the part of operators to push bundles, particularly including TV services**.

Prices in Cyprus compared with EU average

12-30Mbit

Singleplay	2play Phone	2Play TV	3play
58%	71%	30%	17%

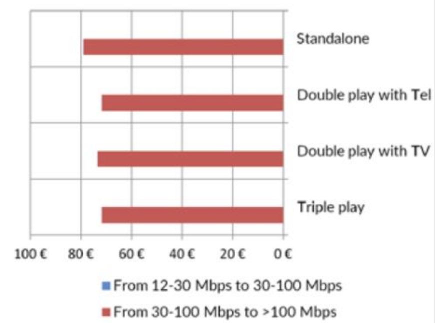
30-100Mbit

Singleplay	2play Phone	2Play TV	3play
35%	48%	16%	7%

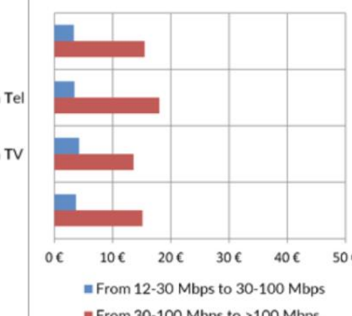
100+ Mbit

Singleplay	2play Phone	2Play TV	3play
179%	141%	138%	105%

Very high speed premium - Cyprus



Very high-speed premium EU28



source: Fixed Broadband prices in Europe report 2016, Empirica

Why prices are so high?

- Responses to public consultation of Cyprus Broadband Plan?
- Universal service obligations for Cyta
- Small market (standard costs shared amongst fewer customers)
- High cost of Electricity (3rd most expensive EU country for non-household consumers – 0.14 € / KWh)
- Very granular speed tiers for wholesale products
- International internet connectivity
- EBIDTA margins of main operators

Operator	EBIDTA margin
CYTA	34.5%
Cablenet	39%
Primetel	25%
MTN	33%

International internet connectivity

- 10 international cable systems landing in Cyprus
- CYTA recently (2015) fined (1M euros) for abusing dominant position in international connectivity ([απόφαση Επιτροπής Προστασίας Ανταγωνισμού 07/2015]())
- Quantum Cable (160Tbps) in parallel with the EuroAsia Interconnector to be operational by 10/2020

- CADMOS
- MedNautilus Submarine System
- POSEIDON (CY-CY)
- TE North/TGN-Eurasia/SEACOM/Alexandros
- UGARIT
- Aphrodite 2
- Hawk (incl. Primetel)
- Lev Submarine System
- SeaMeWe-3
- Tamares North

Discussion on existing BB plan proposals

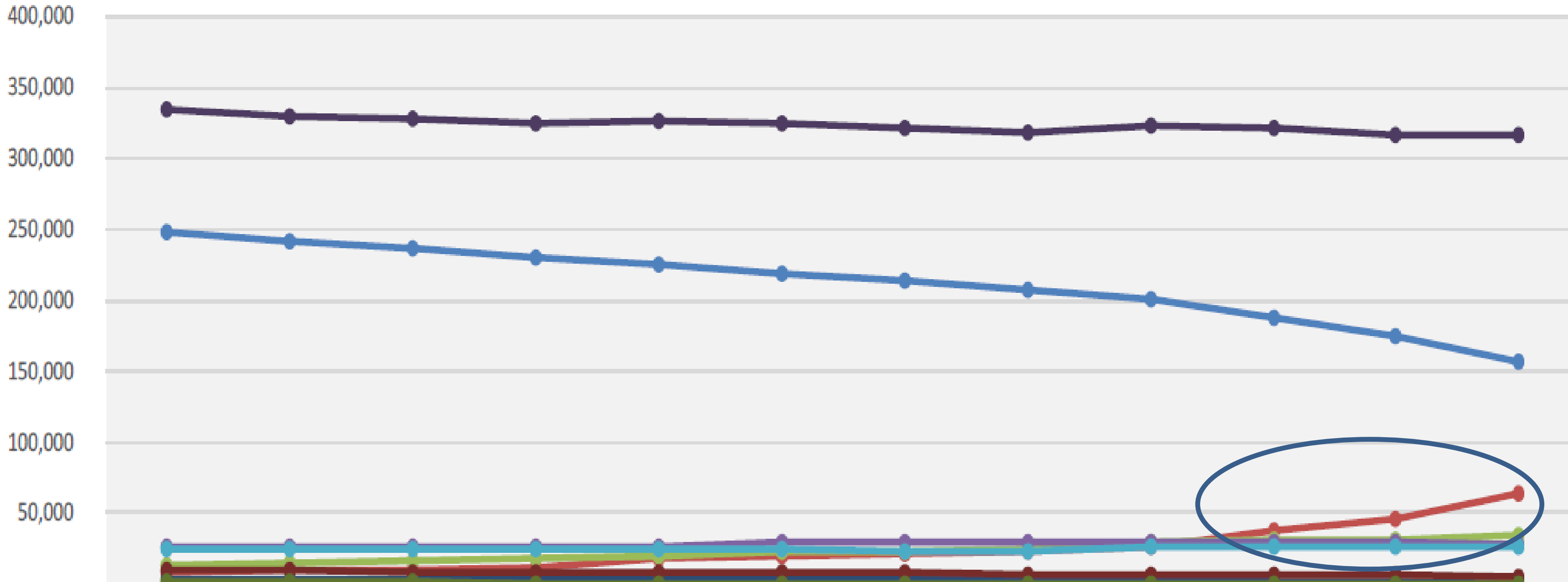
- A proposal for the deployment of fast and ultra-fast broadband networks, fixed and mobile, in **remote villages and rural areas**, where due to their low population density commercial network roll-outs are not financially viable, will be submitted for financial support (e.g. guarantees, project bonds, loans) in the framework of the European Fund for Strategic Investments (EFSI)
- A proposal for carrying out a **study funded by the EIB for the assessment of the status of the international sub-marine cable network**, connecting Cyprus with Europe, Middle East and Africa, will be submitted in the framework of the European Fund for Strategic Investments (EFSI)

Regulated VULA price by NRA

- Multiple (14!) intermediate speed tiers 10/20/30/40 etc with guaranteed speed (80% of nominal)
- Distribution of cost amongst speed tiers based on commercial policy and not based on real costs – see Commission Recommendation of 11 September 2013 on consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment (2013/466/EU), paragraph 49: *In addition, pricing flexibility at wholesale level is necessary to* ***allow both the access seeker and the SMP operator's retail business to introduce price differentiation on the retail broadband market in order to better address consumer preferences and <u>foster penetration of very high-speed broadband services</u>.***

Προϊόν	Μέγιστος Ρυθμός μετάδοσης (Mbps)	Τέλος σύνδεσης με ΦΠΑ €	Τέλος συνδρομής με ΦΠΑ €	Ποιότητα
B E ΛΣ VLAN O 1	10/.8	36.96	6.44	Unicast N:1
B E ΛΣ-VLAN O 2	20/.8	36.96	7.47	Unicast N:1
B E ΛΣ-VLAN O 3	30/1	36.96	9.18	Unicast N:1
B E ΛΣ-VLAN O 4	50/4	36.96	10.64	Unicast N:1
B E ΛΣ-VLAN O 5	80/4	36.96	13.09	Unicast N:1
B E ΛΣ-VLAN O 6	160/4	36.96	22.25	Unicast N:1
B E ΛΣ-VLAN O 7	10/1	36.96	16.58	Unicast 1:1
B E ΛΣ-VLAN O 8	20/1	36.96	18.00	Unicast 1:1
B E ΛΣ-VLAN O 9	30/2	36.96	19.42	Unicast 1:1
B E ΛΣ-VLAN O 10	50/8	36.96	20.37	Unicast 1:1
B E ΛΣ-VLAN O 11	100/8	36.96	22.26	Unicast 1:1
B E ΛΣ-VLAN O 12	200/20	36.96	47.43	Unicast 1:1
B E ΛΣ-VLAN O 13	400/30	36.96	94.00	Unicast 1:1
B E ΛΣ-VLAN O 14	1Gpbs/60	36.96	232.26	Unicast 1:1

Migration to BBT is a good test case for copper switchover



	Q1-2015	Q2-2015	Q3-2015	Q4-2015	Q1-2006	Q2-2016	Q3-2016	Q4-2016	Q1-2017	Q2-2017	Q3-2017	Q4-2017
PSTN	247,967	242,063	236,443	230,705	224,928	218,956	213,668	207,780	201,462	188,342	175,080	156,378
BBT	7,515	8,965	10,089	11,774	17,307	19,250	21,034	23,478	26,602	37,086	46,275	63,705
Naked DSL	13,632	14,625	15,585	17,558	19,717	21,988	22,321	24,397	28,555	30,633	31,257	33,602
LLU	25,397	25,511	26,620	26,757	26,775	28,720	29,016	28,689	29,066	28,981	28,941	28,448
Cable	24,803	25,011	24,879	24,594	24,394	24,026	23,091	23,019	26,046	26,203	26,161	26,518
Fiber Optic	1,236	1,296	1,367	1,461	1,594	1,749	1,778	1,845	1,880	2,059	2,092	2,198
WLR	3,326	3,280	3,057	2,941	2,854	2,752	2,735	2,676	2,329	1,580	1,254	629
ISDN 2B + D	9,800	9,298	8,843	8,432	7,927	7,504	7,214	6,810	6,475	6,064	5,690	5,338
ISDN 30B + D	724	701	675	654	623	591	572	544	510	481	444	425
Σύνολο	334,400	330,750	327,558	324,876	326,119	325,536	321,429	319,238	322,925	321,429	317,126	317,241

Mobile market structure

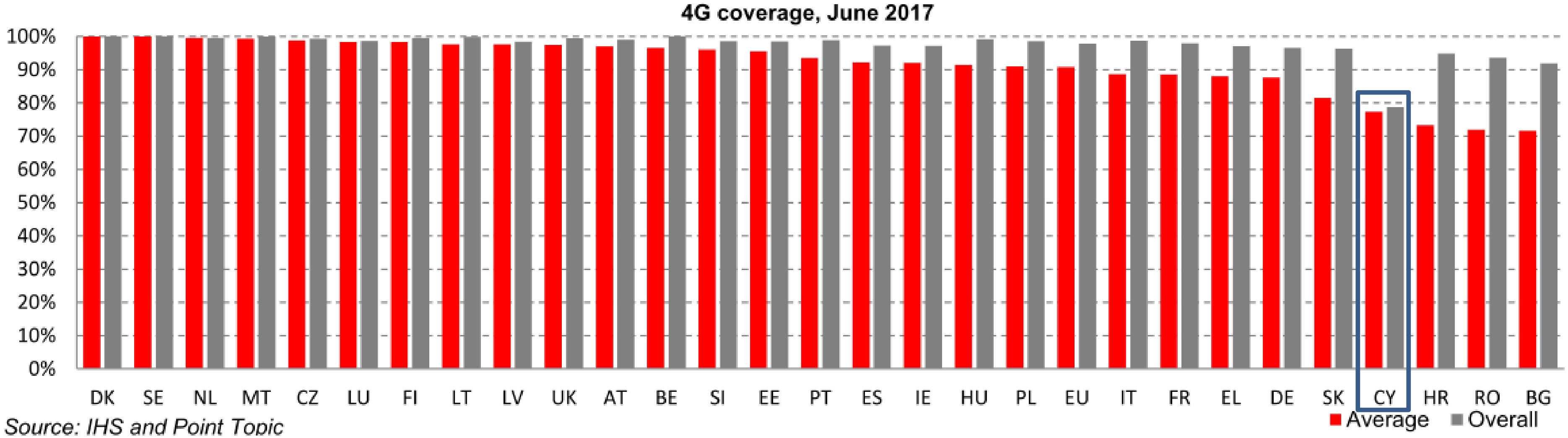
- **Duopolistic market**, with the two largest operators (Cyta & MTN) having a combined market share of above 90% (compared to just under 64% in the EU).
- 4G coverage, increased to 77% of households
  - +13% from a year ago
  - ahead of spectrum licensing coverage targets by two years

  …but Cyprus has the lowest coverage in EU (EU average above 90% of households)

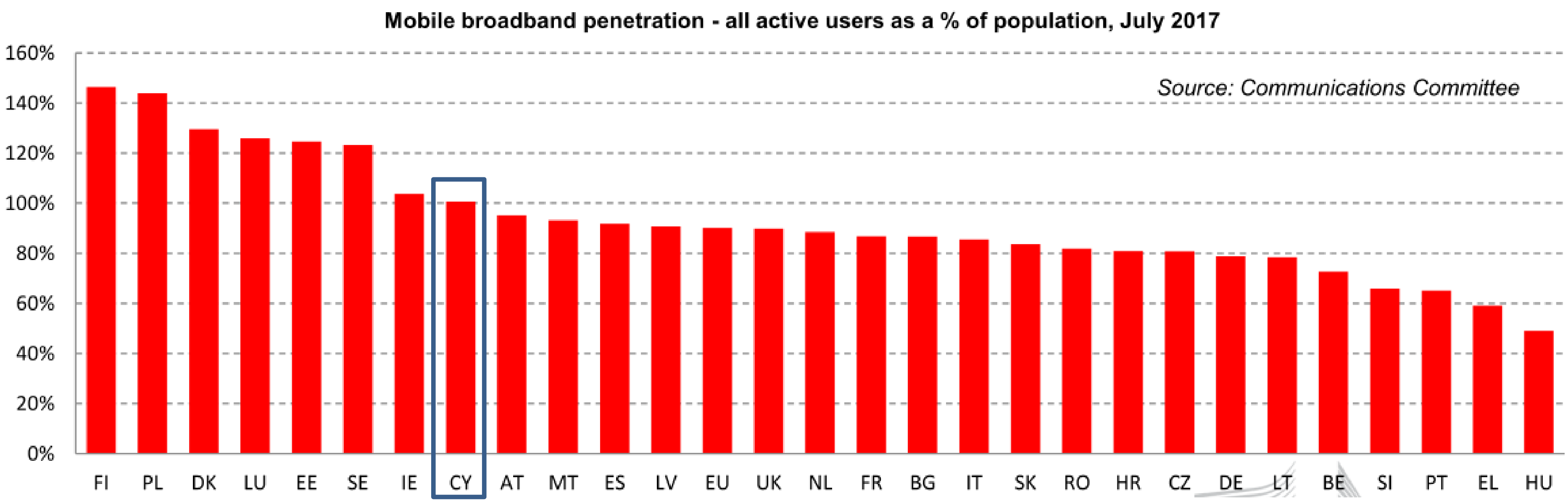
Mobile market	CY-2016	CY-2017	EU-2017
Market share of market leader	58.5%	54.4%	35.4%
Market share of second largest operator	34.1%	36.0%	28.5%
Number of MNOs	3	3	-
Number of MVNOs	2	1	-
Market share of MVNO (SIM cards)	0.8%	0.9%	-

Source: Communications Committee. Data as of October 2016 and October 2017.

Mobile broadband: poor coverage, good uptake

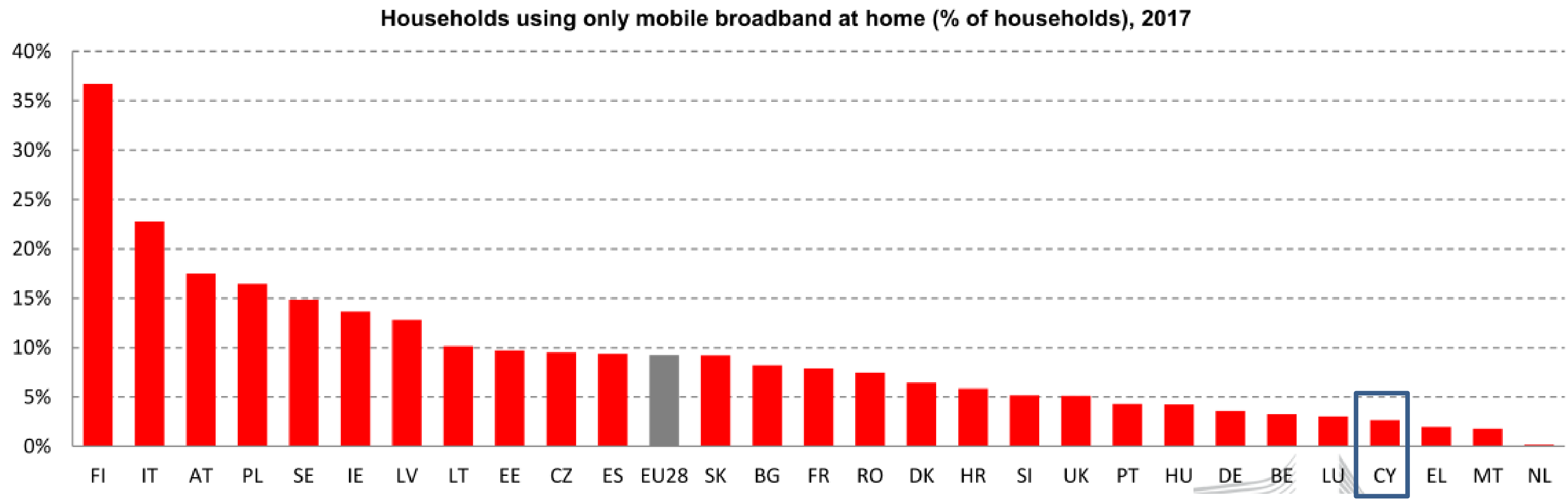


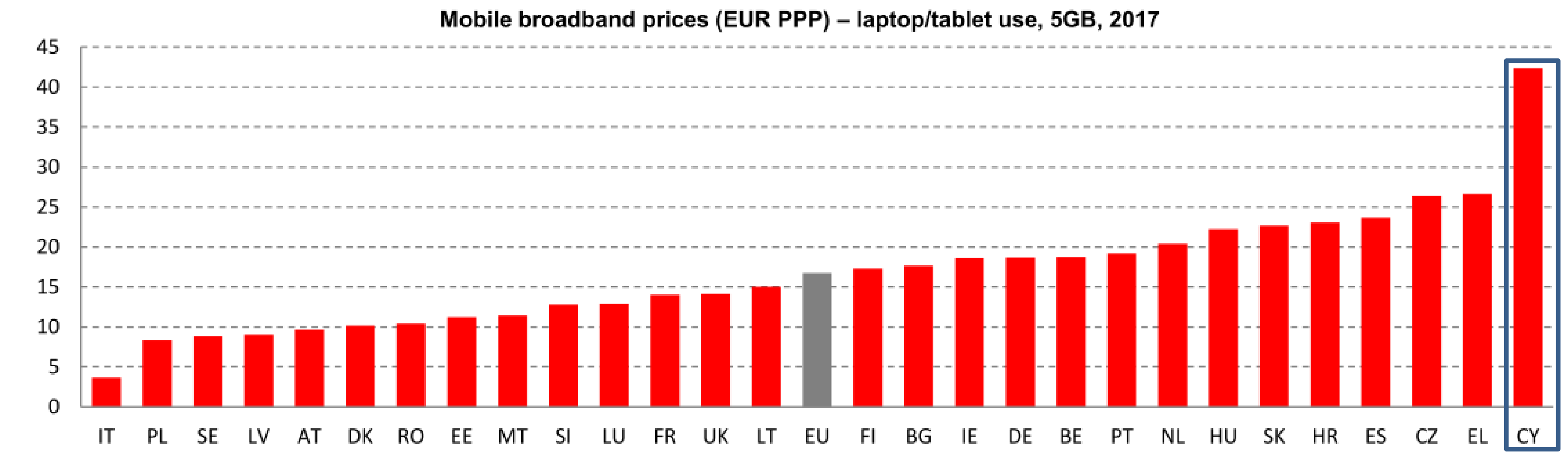
Source: IHS and Point Topic



Source: Communications Committee

Mobile broadband: low substitution and high prices





Source: Empirica, Mobile Broadband Prices study, February 2017

Mobile Broadband: Very high prices for high usage baskets (particularly data only)

	Data - 256MB	Data - 512MB	Data - 1GB	Data - 2GB	Data - 5GB	Data - 10GB	Data - 20GB	Handset - 100MB, 30 calls, 100 SMS	Handset - 512MB, 100 calls, 140 SMS	Handset - 1GB, 300 calls, 225 SMS	Handset - 2GB, 900 calls, 350 SMS	Handset - 2GB, 100 calls, 140 SMS	Handset - 5GB, 100 Calls, 140 SMS
PL	1	1	1	1	1	1	1	2	2	1	1	1	1
AT	1	1	1	2	1	1	2	2	2	1	1	1	1
IT	1	1	1	1	1	1	1	2	2	1	3	1	2
LT	2	2	1	1	2	2	1	2	2	1	1	2	1
LV	3	3	2	2	1	1	1	1	1	1	1	2	2
LU	1	2	2	2	2	2	1	1	1	2	2	1	1
SI	2	2	2	3	2	1	1	1	1	1	1	2	2
EE	3	3	2	2	2	1	1	1	1	1	1	2	2
FR	3	3	2	2	2	2	1	1	1	1	1	2	1
SE	3	3	2	2	1	2	1	1	2	1	1	2	2
UK	2	2	2	2	2	2	1	1	2	2	1	2	2
DK	3	3	3	2	1	1	1	3	3	1	1	2	1
RO	3	3	3	2	1	2	2	3	3	2	2	2	1
HR	2	1	2	3	3	3	2	1	3	3	2	2	3
ES	2	2	1	3	3	3	3	2	2	2	3	2	3
BG	2	2	1	3	3	2	1	3	4	4	3	3	3
DE	2	3	2	3	3	3	3	1	1	2	2	3	3
BE	3	3	2	2	3	4	4	1	2	2	2	3	3
MT	3	3	3	3	2	1	2	3	4	3	3	3	3
FI	4	4	4	3	3	2	1	2	3	2	2	2	1
NL	3	3	3	4	3	3	2	3	3	2	2	3	2
PT	2	2	3	4	3	3	2	3	3	3	3	3	3
SK	2	2	1	4	3	4	3	4	4	4	3	4	4
IE	4	4	4	4	3	3	1	3	3	2	2	3	3
HU	3	3	3	4	3	3	3	4	4	4	4	4	4
CY	3	4	4	4	4	4	3	2	3	3	3	3	4
CZ	2	3	3	4	4	4	3	4	4	4	3	4	4
EL	4	4	4	4	4	4	3	4	4	4	4	4	4

Cluster Centres [EUR]

1	3.81	4.42	5.77	5.58	8.57	10.13	17.11	7.78	8.88	12.05	15.61	11.2	15.44
2	6.33	6.75	8.75	9.08	13.04	16.26	30.44	11.44	12.08	19.76	25.51	16.5	20.8
3	9.36	9.68	10.86	12.67	20.16	25.85	53.55	17.11	17.41	29.76	44.15	27.72	33.96
4	15.56	15.55	16.17	19.76	31.79	41.93	130.05	29.3	33.98	48.35	81.66	51.3	69.88

CYPRUS IN THE EU

With prices above the EU28 average in all baskets with 1GB or more data, Cyprus is in the cluster of expensive countries in respect of mobile broadband and telephony. In the low-usage baskets, however, Cyprus has competitive offers.

USAGE BASKET	PROVIDER AND OFFER	EUR/ PPP	EU AVERAGE
100 MB, 30 CALLS, 100 SMS	MTN - 4G SMART SMALL	11.30	14.11
500 MB, 100 CALLS, 140 SMS	MTN - 4G SMART MEDIUM	16.58	17.61
1 GB, 300 CALLS, 225 SMS	MTN - 4G SMART LARGE	26.38	23.62
2 GB, 900 CALLS, 350 SMS	MTN - 4G SMART UNLIMITED	43.25	31.39
2 GB, 30 CALLS, 100 SMS	MTN - 4G SMART UNLIMITED	35.80	23.92
5 GB, 100 CALLS, 140 SMS	MTN - 4G SMART UNLIMITED PLUS	53.51	31.80
5 GB (DATA ONLY)	MTN - Internet Everywhere 3	42.38	16.73
10 GB (DATA ONLY)	MTN - Internet Everywhere 4	59.16	21.77
20 GB (DATA ONLY)	MTN - Internet Everywhere 4	59.16	33.12

Mobile prices is a barrier to a wider uptake of mobile broadband. Despite rapid reduction in prices for bundles (mobile voice & data) by more than 25% compared to 2016, prices for data only packages (for tablet and laptop) remain excessively high, more than 2.5 times the EU average. This reflects a possible lack of interest from the part of operators to promote mobile broadband only products and **could be related also to the overall tendency in favor of bundles**.

2 Human Capital

2 Human Capital	Cyprus rank	Cyprus score	Cluster score	EU score
DESI 2018	**24**	**43,0**	**42,2**	**56,5**
DESI 2017	25	37,5	40,6	54,6

	Cyprus DESI 2018 value	Cyprus DESI 2018 rank	Cyprus DESI 2017 value	Cyprus DESI 2017 rank	EU DESI 2018 value
2a1 Internet Users % individuals	**79%** ↑ 2017	**14**	**74%** 2016	**19**	**81%** 2017
2a2 At Least Basic Digital Skills % individuals	**50%** ↑ 2017	**19**	**43%** 2016	**26**	**57%** 2017
2b1 ICT Specialists % individuals	**2,2%** → 2016	**25**	**2,2%** 2015	**24**	**3,7%** 2016
2b2 STEM Graduates[6] Per 1000 individuals (aged 20-29)	**9,8** ↑ 2016	**28**	**7,5** 2014	**28**	**19,1** 2015

3 Use of Internet

3 Use of Internet	Cyprus rank	Cyprus score	Cluster score	EU Score
DESI 2018	**17**	**51,1**	**41,0**	**50,5**
DESI 2017	13	50,9	38,7	47,5

	Cyprus DESI 2018 value	Cyprus DESI 2018 rank	Cyprus DESI 2017 Value	Cyprus DESI 2017 rank	EU DESI 2018 value
3a1 News % individuals who used Internet in the last 3 months	**80%** ↑ 2017	**14**	**73%** 2016	**19**	**72%** 2017
3a2 Music, Videos and Games % individuals who used Internet in the last 3 months	**86%** 2016	**7**	**86%** 2016	**7**	**78%** 2016
3a3 Video on Demand % individuals who used Internet in the last 3 months	**12%** 2016	**20**	**12%** 2016	**20**	**21%** 2016
3b1 Video Calls % individuals who used Internet in the last 3 months	**70%** ↓ 2017	**3**	**72%** 2016	**2**	**46%** 2017
3b2 Social Networks % individuals who used Internet in the last 3 months	**78%** ↓ 2017	**6**	**79%** 2016	**4**	**65%** 2017
3c1 Banking % individuals who used Internet in the last 3 months	**34%** ↓ 2017	**26**	**37%** 2016	**25**	**61%** 2017
3c2 Shopping % internet users (last year)	**39%** ↑ 2017	**26**	**38%** 2016	**26**	**68%** 2017

4 Integration of Digital Technology

4 Integration of Digital Technology	Cyprus rank	Cyprus score	Cluster score	EU score
DESI 2018	**17**	**37,7**	**29,2**	**40,1**
DESI 2017	18	34,2	26,7	36,7

	Cyprus DESI 2018 value	Cyprus DESI 2018 rank	Cyprus DESI 2017 value	Cyprus DESI 2017 rank	EU DESI 2018 value
4a1 Electronic Information Sharing % enterprises	**35%** ↓ 2017	**14**	**43%** 2015	**6**	**34%** 2017
4a2 RFID % enterprises	**6,1%** ↑ 2017	**5**	**3,1%** 2014	**18**	**4,2%** 2017
4a3 Social Media % enterprises	**37%** ↑ 2017	**3**	**35%** 2016	**4**	**21%** 2017
4a4 eInvoices % enterprises	**8,8%** ↑ 2017	**25**	**6,0%** 2016	**26**	**NA** 2017
4a5 Cloud % enterprises	**12,3%** ↑ 2017	**20**	**8,7%** 2016	**22**	**NA** 2017
4b1 SMEs Selling Online % SMEs	**11,4%** ↓ 2017	**21**	**12,4%** 2016	**19**	**17,2%** 2017
4b2 E-commerce Turnover % SME turnover	**6,3%** ↑ 2017	**23**	**4,7%** 2016	**25**	**10,3%** 2017
4b3 Selling Online Cross-border % SMEs	**8,8%** ↑ 2017	**13**	**8,3%** 2015	**14**	**8,4%** 2017

5 Digital Public Services

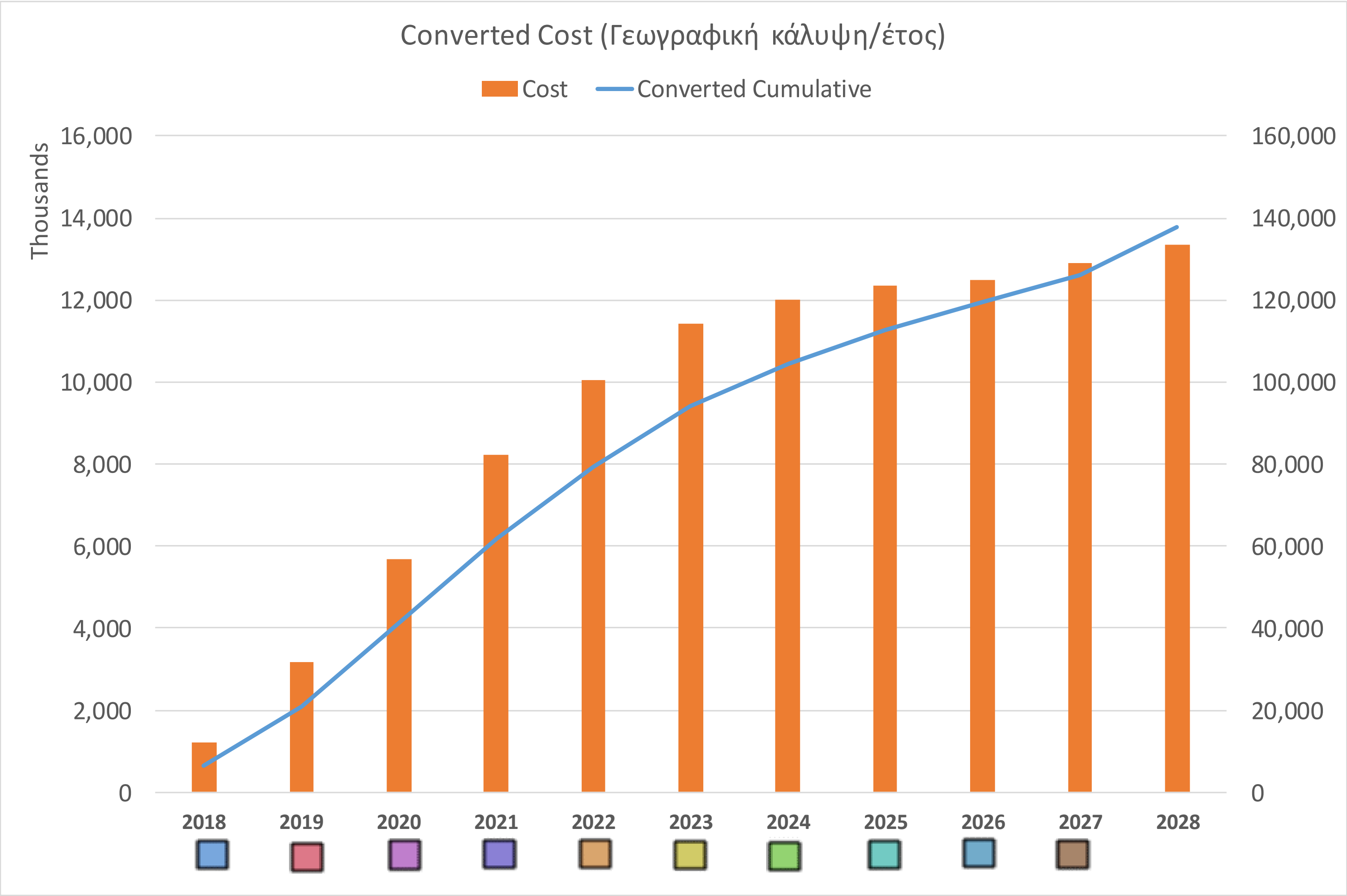
5 Digital Public Services	Cyprus rank	Cyprus score	Cluster score	EU score
DESI 2018	**18**	**54,8**	**48,0**	**57,5**
DESI 2017	17	50,0	44,2	53,7

	Cyprus DESI 2018 value	Cyprus DESI 2018 rank	Cyprus DESI 2017 value	Cyprus DESI 2017 rank	EU DESI 2018 value
5a1 eGovernment Users[10] % internet users needing to submit forms	**49%** ↑ 2017	**21**	**48%** 2016	**20**	**58%** 2017
5a2 Pre-filled Forms Score (0 to 100)	**58** ↑ 2017	**13**	**52** 2016	**14**	**53** 2017
5a3 Online Service Completion Score (0 to 100)	**76** ↑ 2017	**23**	**73** 2016	**22**	**84** 2017
5a4 Digital Public Services for Businesses Score (0 to 100) - including domestic and cross-border	**91** → 2017	**10**	**91** 2016	**8**	**83** 2017
5a5 Open Data % of maximum score	**75%** ↑ 2017	**15**	**57%** 2016	**14**	**73%** 2017
5b1 eHealth Services % individuals	**9%** 2017	**25**	**NA**		**18%**

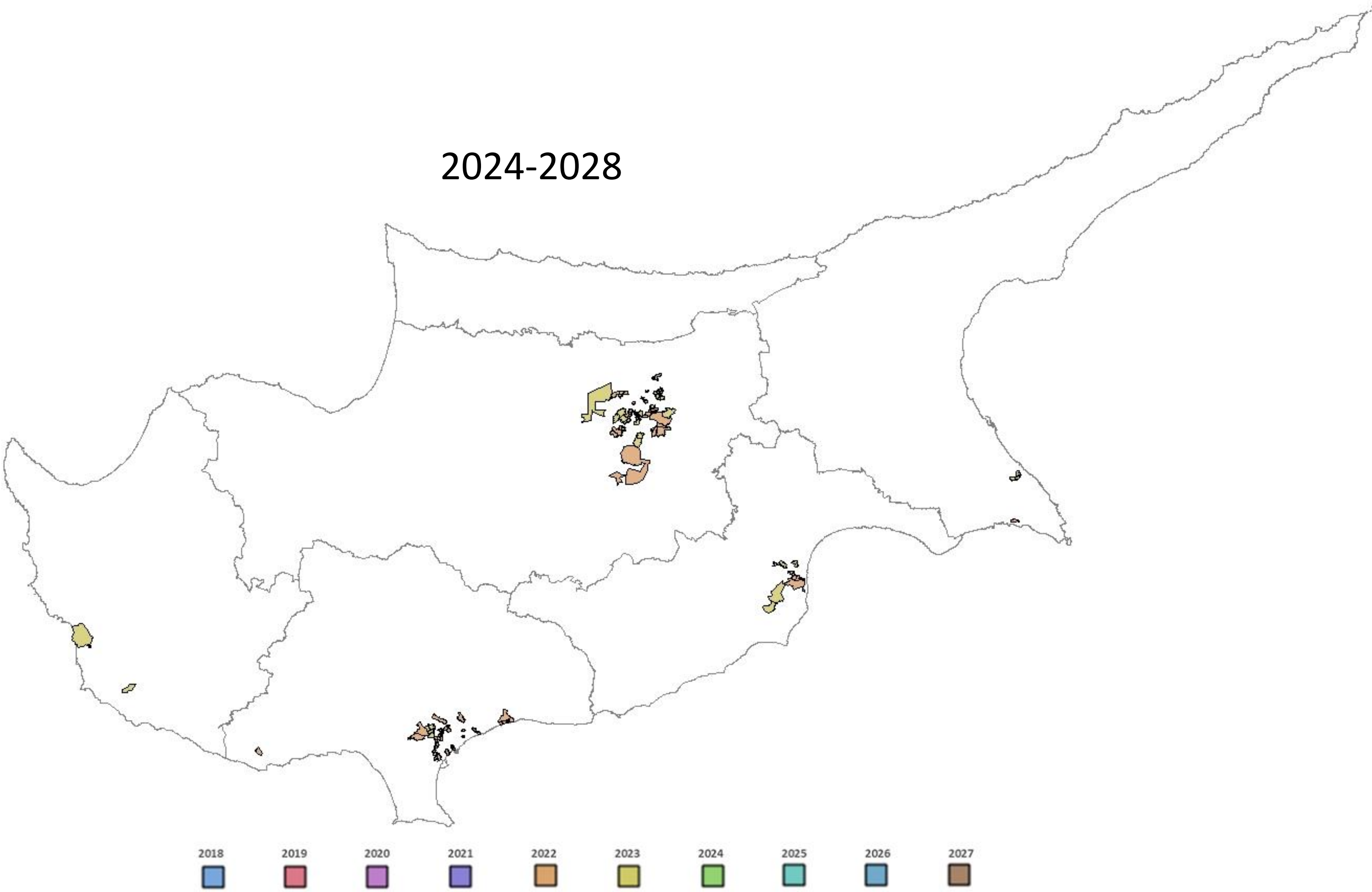
Cyta FTTH Business Plan – key points

- 180.000 homes passed in urban areas (2018-2027)
  - Inner rings urban (2018-2021)
  - Outer rings urban (2022-2023)
  - Outer rings urban long loops (2024-2028)
- **Copper switchover** within 3 years of commercial launch

Projected cost and **penetration**



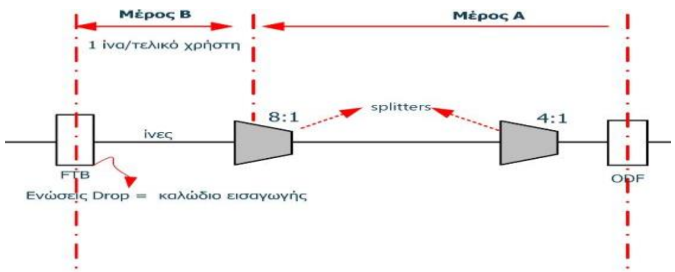
Cyta FTTH rollout 2018-2027



Some thought on Cyta FTTH plans

- Στο Προσάρτημα 2 παρουσιάζεται αναλυτικά ο υπολογισμός της μοναδιαίας χονδρικής κοστοστρεφούς τιμής της οπτικής πρόσβασης η οποία με βάση τους υπολογισμούς του ΓΕΡΗΕΤ ανέρχεται σε €9,10 + ΦΠΑ (ανώτατη χονδρική τιμή πρόσβασης). Παράλληλα, η ανώτατη τιμή χονδρικής πρόσβασης στο χάλκινο δίκτυο ανέρχεται στα €8,90 + ΦΠΑ.
- Split for drop connection
  - 80% in existing ducts
  - 15% aerial
  - 5% façade

  (including 15% new trenching)



Infrastructure-based competition potentially non-relevant

Very low deployment cost < 1000 euros per home connected!!!

	MTN	Cablenet	Primetel
Phase 1: lab testing (εγκατάσταση backhaul VLANs, ONT installation/activation, CPE installation/configuration για VULA fiber και vectoring, throughput/bandwidth test ανά υπηρεσία, access line capabilities, restoration of services/ traffic recovery after fault scenarios)	X	X	X
Phase 2: Access network testing (εργασίες καλωδίωσης έγιναν από συνεργεία του δικτύου πρόσβασης της ΑΤΗΚ στα υποστατικά των πελατών με την παρουσία τεχνικών συνεργείων των παροχέων, εγκατάσταση και ενεργοποίηση ONT με χρήση S/N authentication/activation. Ελέγχθηκαν υπηρεσίες 1:1 και N:1 με καθορισμένη ποιότητα υπηρεσίας (QoS). Ενεργοποίηση με χρήση της πληροφόρησης από OLT (Customer/Port Identification) και απομακρυσμένη διαχείριση των CPE τους	X	X	
Phase 3: Operations testing (Web Services για καταχώρηση αιτήσεων και βλαβών χονδρικών προϊόντων VULA-Fiber & VULA-Vectoring και ένα ηλεκτρονικό εργαλείο διερεύνησης της διαθεσιμότητας της τοπικής πρόσβασης)	X		

Declining participation in CYTA pilot project

Potential issues?

- Ως εκ τούτου, **η περίοδος ενός μηνός από τη δημοσίευση του ΥΠΥ** θεωρείται επαρκής για τη διαμόρφωση εμπορικής προσέγγισης εκ μέρους των εναλλακτικών παροχέων.
- Το ΓΕΡΗΕΤ αντιλαμβάνεται ότι η ΑΤΗΚ προτίθεται, με κάθε ανάπτυξη δικτύου πρόσβασης οπτικής ίνας να δέχεται αιτήσεις από τους εναλλακτικούς παροχείς που επιθυμούν να κάνουν χρήση των χονδρικών της προϊόντων εντός ενός καθορισμένου **'παραθύρου χρόνου'** ούτως ώστε να προχωρεί σε μαζικές συνδέσεις πελατών. Προς τούτο, η ΑΤΗΚ προτίθεται να δημοσιεύει ανά τρίμηνο τις περιοχές στις οποίες θα αναπτυχθεί οπτικό δίκτυο και ημερομηνίες κατά τις οποίες θα ισχύει το 'παράθυρο χρόνου' ανά περιοχή. Κάθε 'περιοχή' θα συνοδεύεται με ακριβή προσδιορισμό, δηλ. οδοί και αριθμοί υποστατικών