Gigabit Society – Political and regulatory aspects

Connect Berlin – Press & Analyst Event

Dr Iris Henseler-Unger

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wik CONSULT

Motivation

- The rollout of gigabit networks is at the forefront of public discussion, a gigabit society shall be realised until 2025.
- Gigabit networks are the precondition for economic competitiveness.
- Currently the extent and the speed of the rollout stay behind public expectations, especially in rural areas.
- Concepts for an accelerated rollout have been proposed and need to be thoroughly discussed.
- Goal: Development of a framework design for the rollout of gigabit networks.

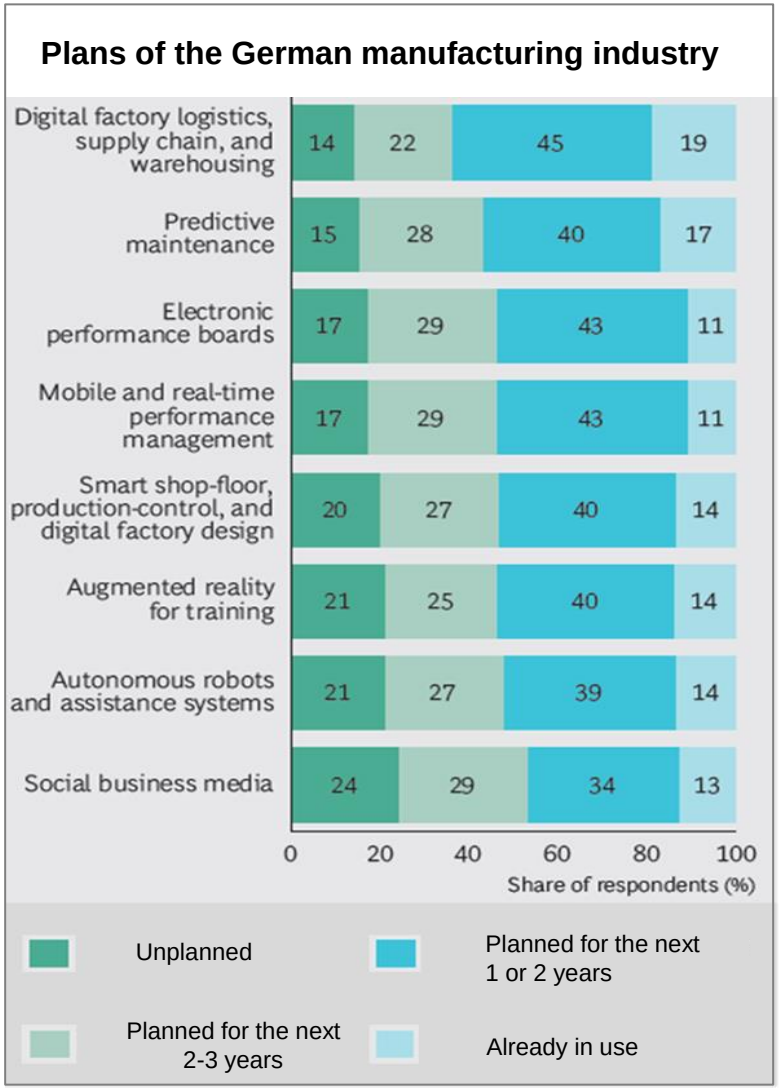
Internet of Things

Internet of Things

Drivers

- Economical reasons
  - Competitive pressure
  - Cost reduction
  - Development of future proofed business cases
- Regulatory obligations (e.g. eCall, smart meter)

Internet of Things

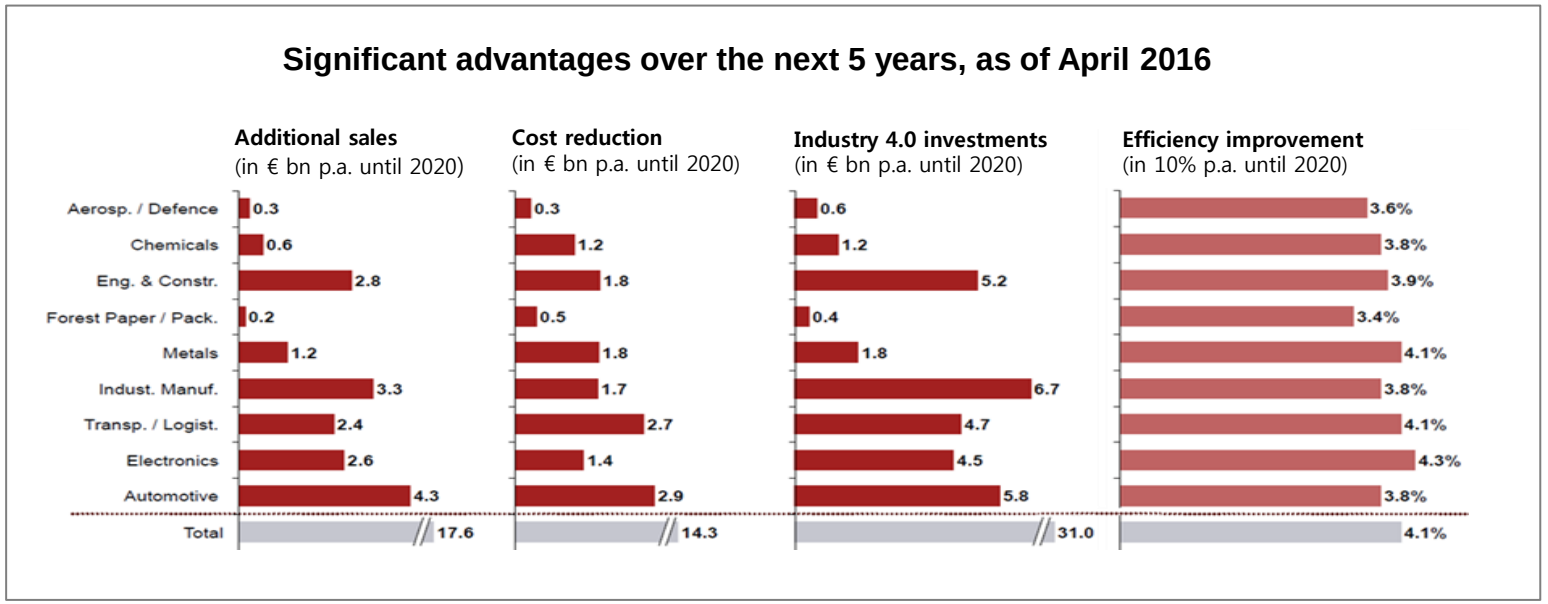


Source: In accordance with BCG (2016).

Internet of Things

Economic implications

- Roland Berger: Until 2025 additional annually value added of 250 bn € in Europe
- Cisco: Additional annually German growth of 2% in the next 10 years
- PwC: Investment plans of annually 31 bn € for the next 5 years



Source: In accordance with PwC (2016).

Telecommunication 4.0
Investment in gigabit networks

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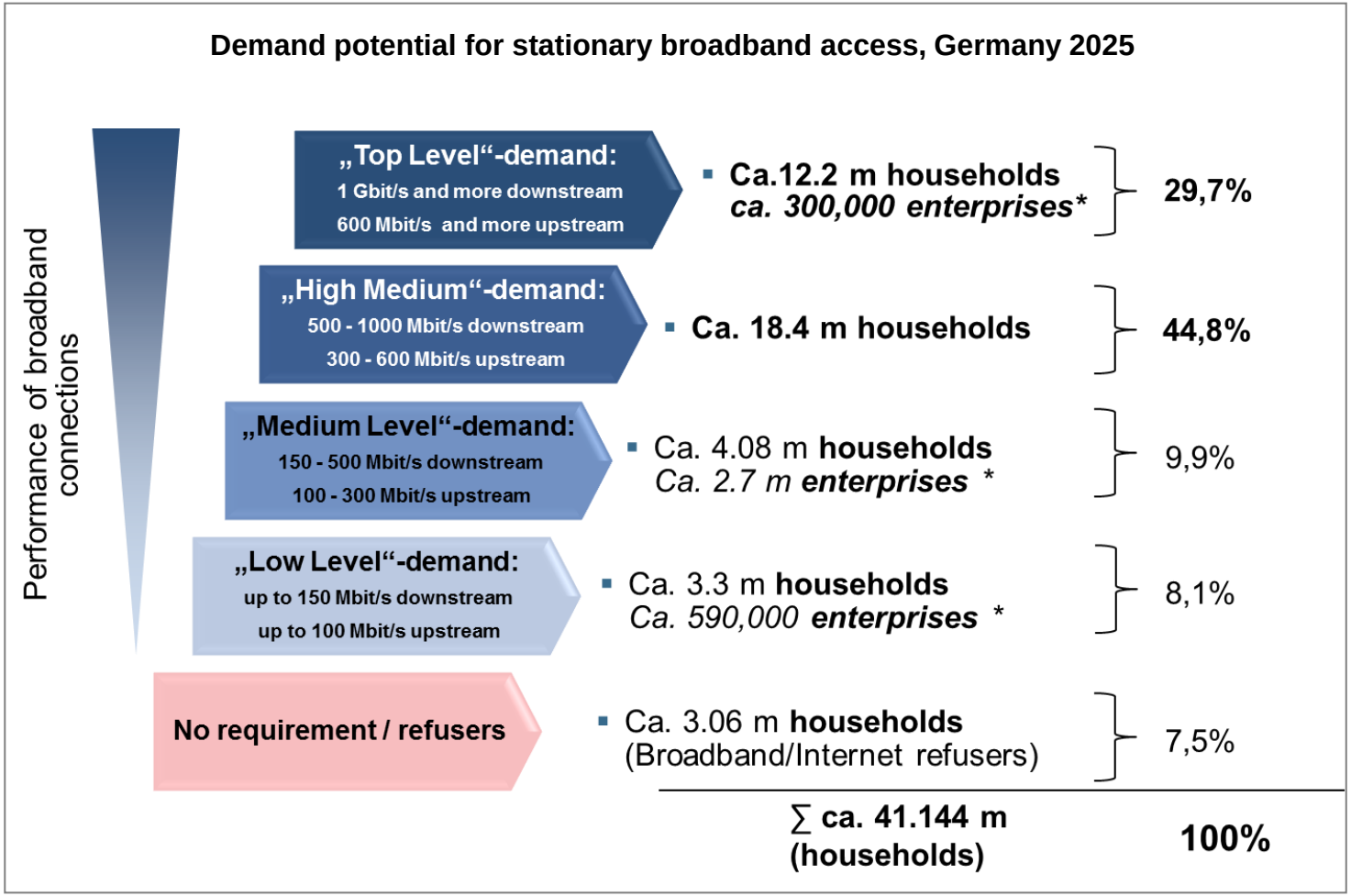

Source: WIK-Market Potential Model
* Demand estimates for business have not been updated, but have been integrated into the results of household updates without new calculations.

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Investment in gigabit networks

*"Very high-capacity network" means an **electronic communications network** which*

- *either consists **wholly of optical fibre elements** at least up to the distribution point at the serving location or*
- *which is capable of delivering under usual peak-time conditions similar network performance in terms of*
  - *available **down- and uplink bandwidth**,*
  - ***resilience**,*
  - ***error-related parameters**, and*
  - ***latency** and **its variation.***

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Investment in gigabit networks

	Downstream (Mbit/s)	Upstream (Mbit/s)	Packet loss	Latency
Basic Internet	≈20	≈16	o	o
Homeoffice/VPN	≈250	≈250	+	+
Cloud Computing	≈250	≈250	+	++
Conventional TV (4K/Ultra-HD)	≈90	≈20	++	+
Progressive TV (8K/…)	≈300	≈60	++	+
Communication	≈8	≈8	++	+
Videocommunication (HD)	≈25	≈25	++	++
Gaming	≈300	≈150	++	++
E-Health	≈50	≈50	++	+
E-Home/E-Facility	≈50	≈50	o	o
Mobile-Offloading	≈15	≈12	o	o

O = Low importance/significance
+ = High importance/significance
++ = Very high importance/significance

Source: WIK.

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Investment in gigabit networks

Transmission technology	FTT...	Bandwidth	Length limitation	individual/ shared	symmetr./ asymmetr.	Standard	Maturity	ODF unbund.	VULA (L2)
Copper pair		[Gbit/s]	[m]						
ADSL2+	FTTC	0,01	2.600	i	a	y	y	n	y
VDSL2	FTTC	0,05	400	i	a	y	y	n	y
VDSL2 Vectoring	FTTC	0,09	400	i	a	y	y	n	y
VDSL2 Supervect.	FTTC	0,25	300	i	a	y	y	n	y
G.fast	FTTS/dp	2 x 0,5	250	i	a	y	y	n	y
XG.fast	FTTB	2 x 5	50	i	a	n	+ 2 Y	n	y
Coax									
Docsis 3.0	fibre node	1,2	160.000	s	a	y	y	n	n
Docsis 3.1	fibre node	10	160.000	s	a	y	y	n	n
Docsis 3.1 FD/XG-Ca.	deep fibre	10	160.000	s	s	y	+ 4 Y	n	?
Fibre									
GPON (PMP)	FTTB/H	2,5	20.000	s	a	y	y	n	y
XG.PON	FTTB/H	10	40.000	s	a/s	y	y	n	y
XGS.PON	FTTB/H	10	40.000	s	s	y	y	n	y
TWDM GPON	FTTB/H	4 - 8 x 10	40.000	s	a/s	y	y	4 - 8 Ops	y
DWDM GPON	FTTB/H	1000 x 1	100.000	i	s	n	+ 4 Y	y	y
Ethernet P2P	FTTH	n x 100	80.000	i	s	y	y	y	y

Source: WIK.

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Investment in gigabit networks

Future proofed scenario

- More fibre coverage urgently needed – nationwide
- Copper, coax and wireless only in use for short/very short distances

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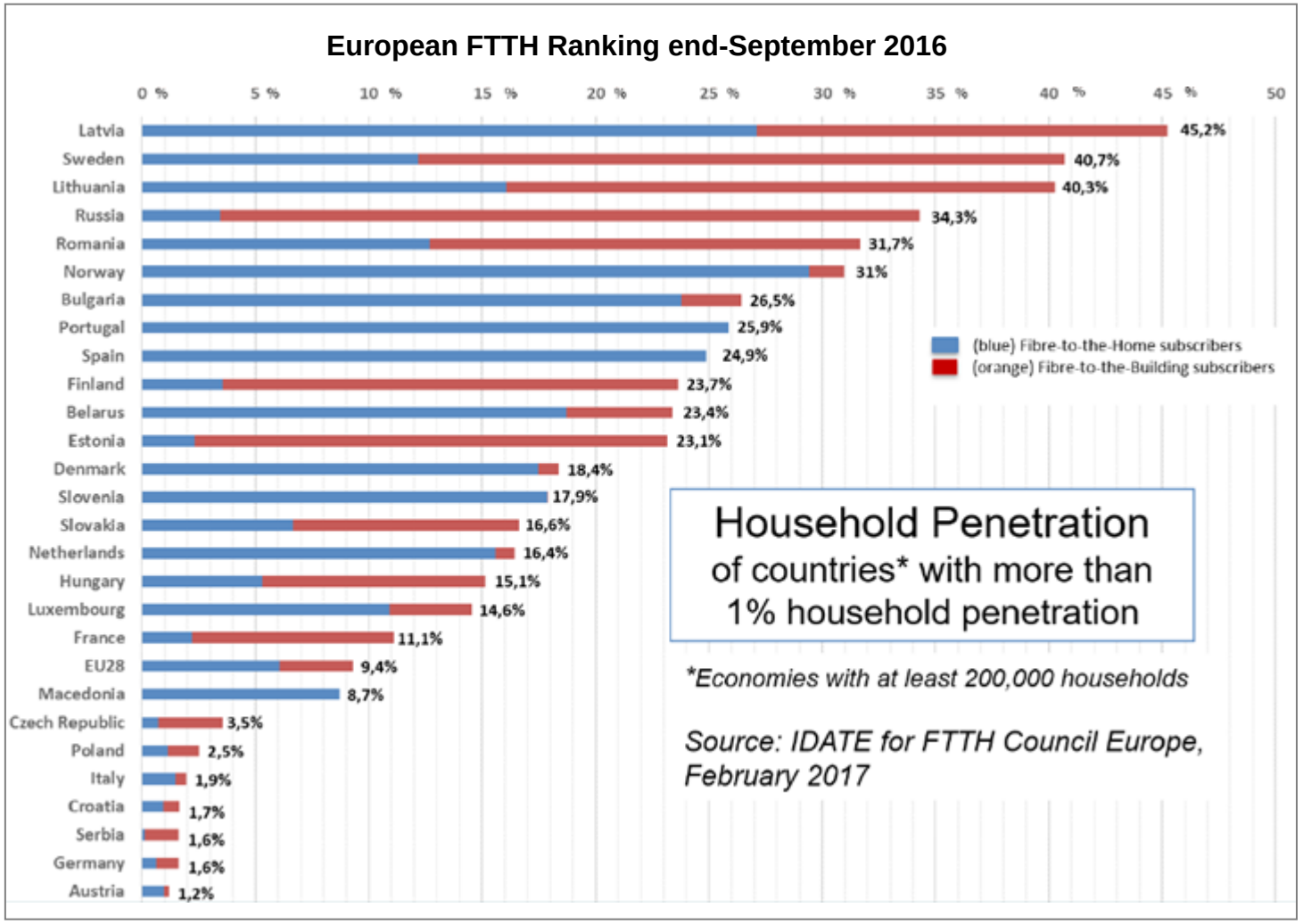
Investment in gigabit networks



Political and regulatory aspects

Political and regulatory aspects

Examples for political initiatives:

- National
  - White Paper Digital Platforms, Federal Ministry of Economic Affairs and Energy
  - Consultation on price regulation, Federal Network Agency
  - Subsidies in rural areas
- European
  - Proposal for a Directive of the European Parliament and of the Council establishing the European Electronic Communications Code (Recast)

Political and regulatory aspects

Examples

- Vouchers
- Subsidies
- Regulation

Political and regulatory aspects

„Gigabit vouchers“

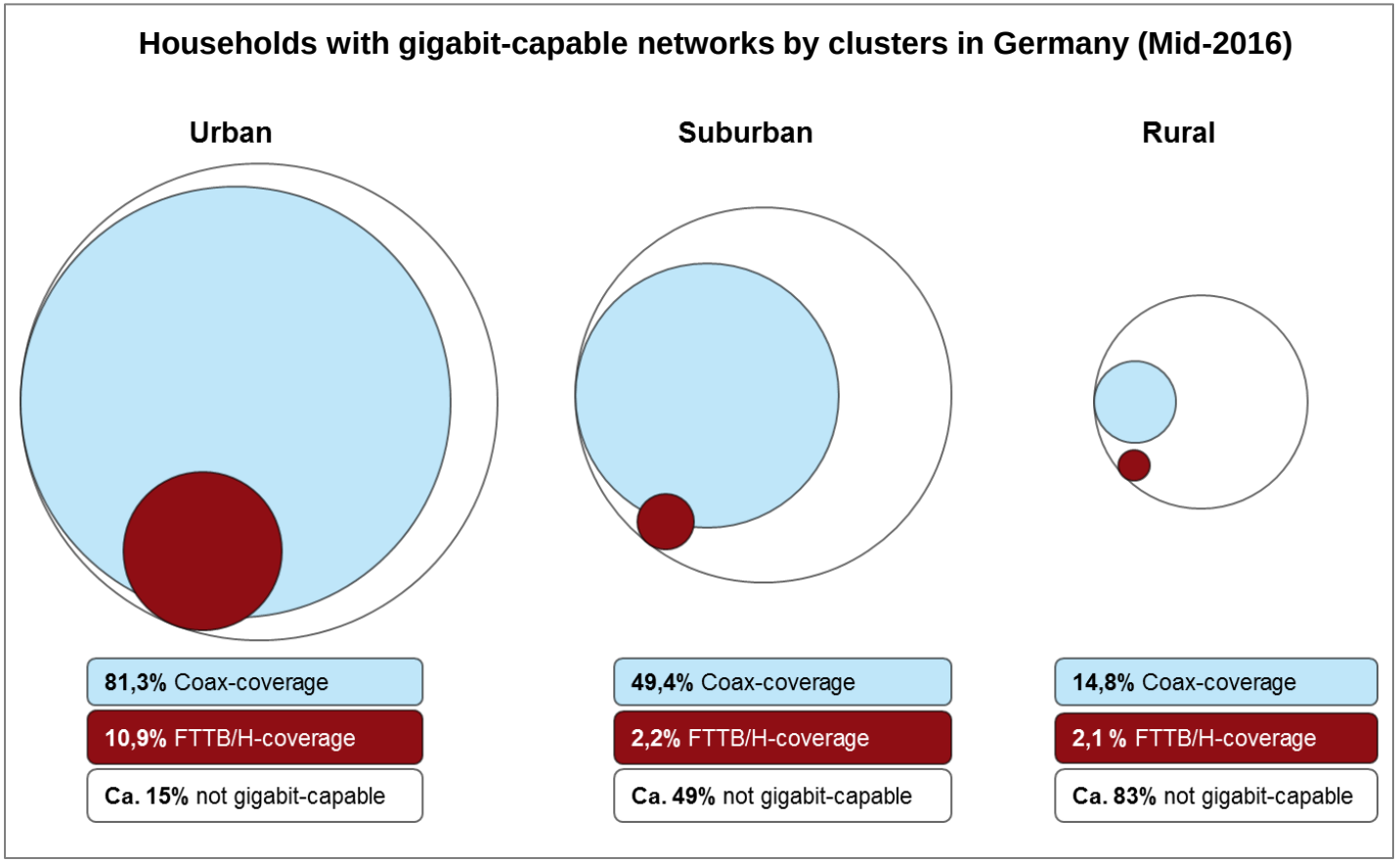
- Assessment
  - Demand stimulation, addresses hen-egg-problem
  - Positive effects, especially for SMEs
  - Example UK

Political and regulatory aspects

State aid on a high level

- Assessment
  - Reasonable in regions without a market-driven rollout
  - Efficient design of state aid
  - Time consuming bureaucratic approach
  - Problems to manage rollout in the battlefield of private investment, competition of technologies and business models
  - Interaction with regulation

Political and regulatory aspects



Source: WIK.

Political and regulatory aspects

EU Recast

Exempt from access regulation for **cooperation models** with participation of SMP operators

- Assessment
  - Cooperation models contribute to cost reductions and risk sharing.
  - Cooperation models increase the degree of capacity utilisation.
  - Cooperation models promote and accelerate the commercial rollout.
  - Cooperation models facilitate the inclusion of investors from outside the industry
  - But:

    Competition analysis by regulatory / competition agencies generally necessary

    if SMP companies participate in cooperation models
    → danger of collusive oligopols

Political and regulatory aspects

EU Recast

- Exempt from access regulation for **wholesale-only networks** with participation of SMP operators
- Assessment
  - Wholesale-only networks separate of network and service level.
  - Wholesale-only networks prevent discrimination.
  - Wholesale-only networks provide relatively high planning reliability.
  - Wholesale-only networks attract long-term orientated investors.
  - Wholesale-only networks provide benefits especially for rural and undersupplied areas.
  - But:

  Regulatory agencies should analyse the role of SMP network operators.

Conclusions

Conclusions

- A whole bunch of ideas to foster FTTH-deployment – not every initiative for itself convincing
- More important growing governmental and societal commitment
- Governments should implement a clear and binding strategy 2025 for gigabit networks.
- The rollout of gigabit networks is an expensive and ambitious task that will last several years. Therefore the preconditions must be set today if Europe intends to achieve a gigabit society until 2025.
- A modification of the regulations framework must ensure planning reliability for the investors and a reliable regulatory regime. However, the framework must be able to react flexibly to market developments.
- The goal of a gigabit society can not be achieved without competition. A regulatory relaxation must not have counterproductive effects e.g. competitive restraints and a reduction of investment incentives.
- Private and business demand benefit alike from the heterogeneity of the market and its business models.

WIK-Consult GmbH
Postfach 2000
53588 Bad Honnef
Deutschland
Tel.:+49 2224-9225-0
Fax: +49 2224-9225-68
eMail: info@wik-consult.com
www.wik-consult.com