

Digital Infrastructure Plenary Session

IDATE Insight:

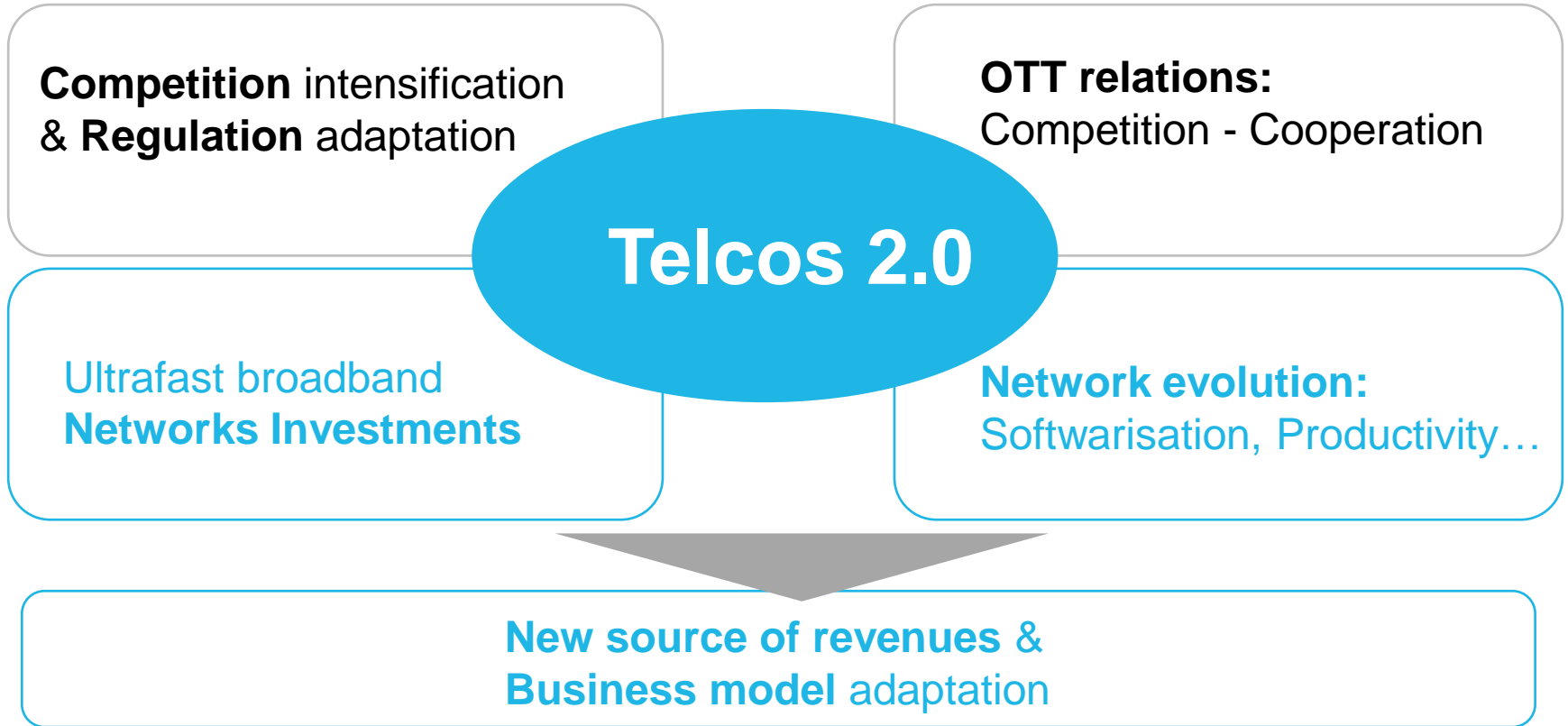
From telcos to IT: the forces of change

18 November 2015

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Digital transformation of Telcos



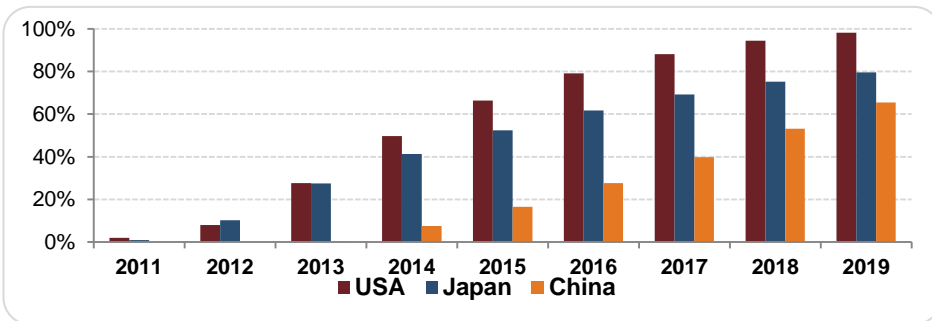
Superfast access networks

Telcos face many challenges to adapt/evolve their networks

- The first one is to meet customer demand in terms of bandwidth as Data traffic is expected to more than double between now and 2019
- The priority for telecom operators is to deploy superfast broadband in fixed networks and Mobile broadband

Mobile networks

Share of LTE subscriptions in three lead countries, 2011-2018

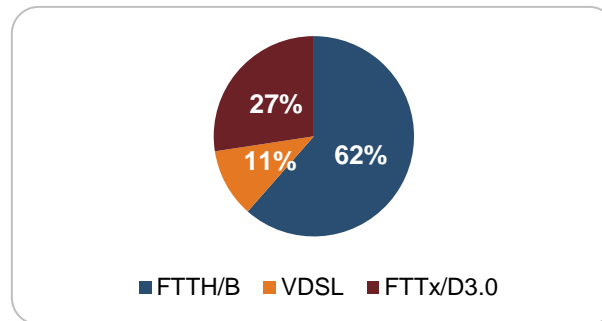


Source: IDATE, in *State of LTE & MBB spectrum worldwide*, July 2015

> 5G deployments announced for 2018...but standard available later

Fixed networks

Breakdown of superfast broadband technologies, at end-2014



Source: IDATE, *World FTTx market*, July 2015

> FTTH/B is still the leading superfast broadband solution, far ahead of FTTx/D3.0, followed by VDSL

Network evolution – how far could telcos go?

SDN/NFV

Network Functions Virtualisation:

- Leverages standard IT virtualisation technology to consolidate many network equipment types
- onto industry standard high volume servers, switches and storage.

Deutsche Telekom key priorities

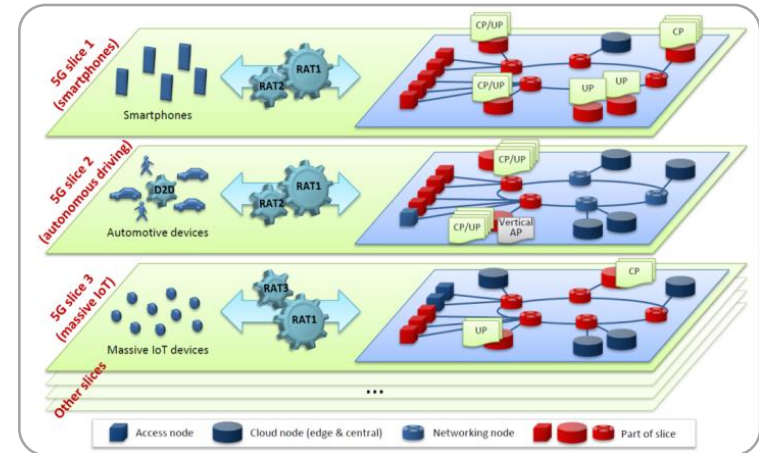
SOFTWAREZATION	VIRTUALIZATION	CONVERGENCE	DATA ANALYTICS
<p>Software defined networks</p> <p>Service Programming Control & Automation</p> <p>Common IP Layer</p> <p>Replacing consumer hardware</p> <p>eSIM virtual set-top box</p>	<p>Network function virtualization</p> <p>Service A Service B Control & Automation</p> <p>Cloud Infrastructure</p> <p>Commodity Hardware</p> <ul style="list-style-type: none"> • Faster Time-to-Market • Higher elasticity • Higher redundancy • Independence from hardware 	<p>Hybrid</p> <p>Fixed net for base load and stability + mobile net for additional bandwidth</p> <p>D2D LTE</p> <p>Heterogeneous networks</p> <p>micro cell macro cell pico cell</p>	<p>SAP HANA Instant Results</p> <ul style="list-style-type: none"> • Modern in-memory platform • Transact & analyze data in real-time <p>HADOOP Infinite Storage</p> <ul style="list-style-type: none"> • Low-cost open source platform • Batch process/archive infinite amounts of data <p>Real time business results from big data</p>

Source: Deutsche Telekom

Network Slicing for 5G

- Capability to adapt to vertical requirements with customer specific functionalities
- High economy of scale expected

Examples for 5G network slices



Source: NGMN

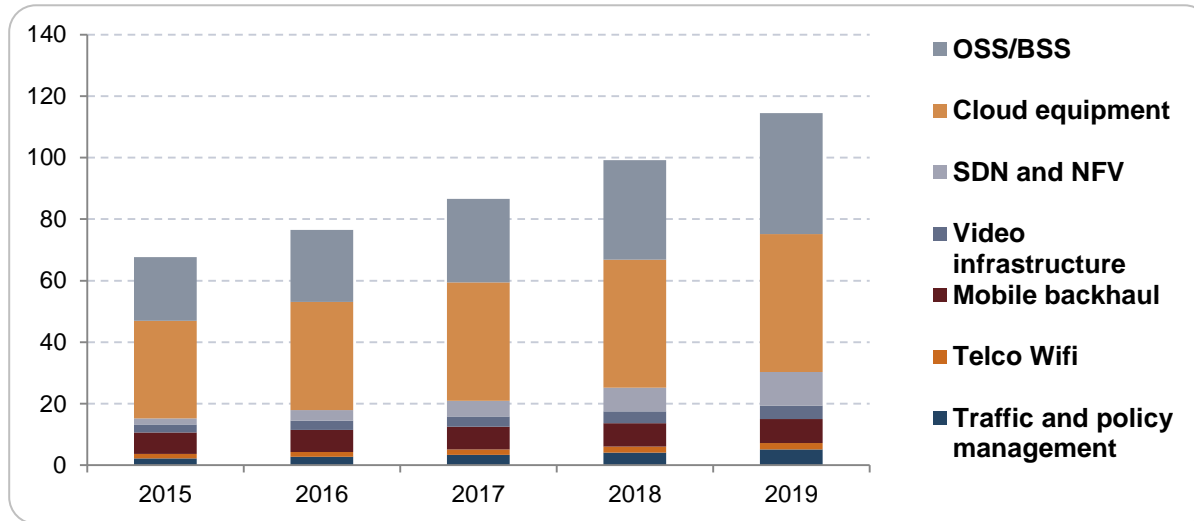
Network evolution – how far could telcos go?

Assessment of network optimisation technologies markets

(Technical-economic responses available to operators)

- Network optimisation technologies naturally driven by the ever increasing data traffic
- Clear priority for the implementation of cloud computing

Growth and breakdown of the network optimisation technologies market, 2015-2019
(billion EUR)

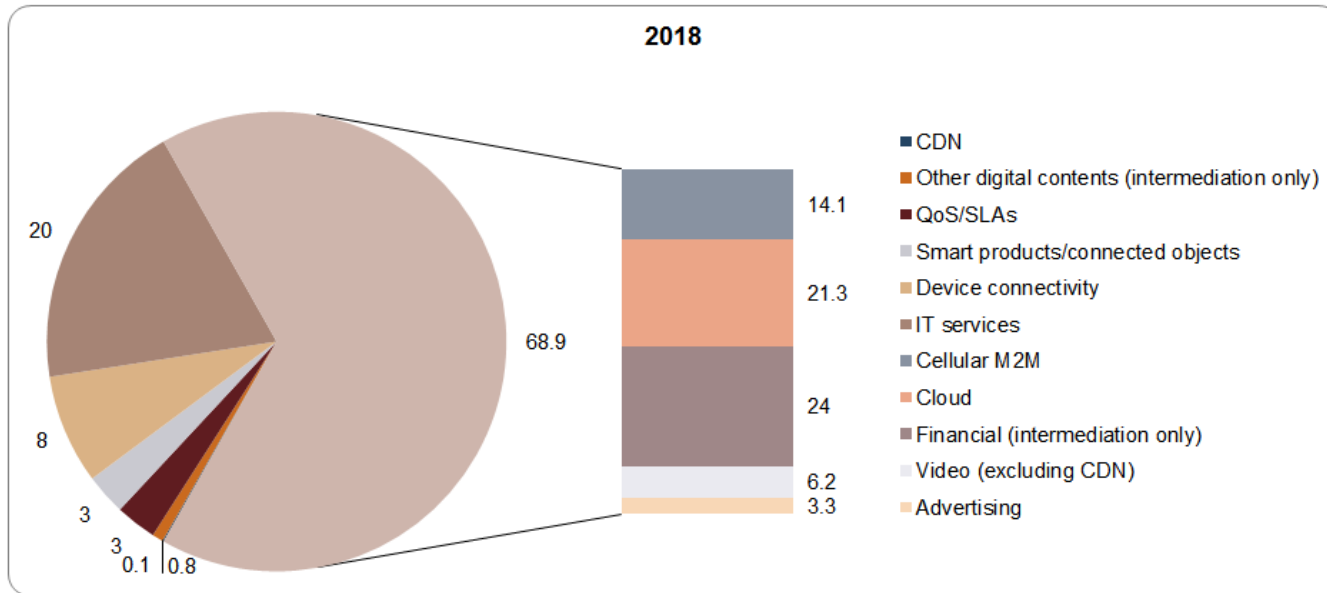


Source: IDATE, *World market for network optimisation technologies*, August 2015

Digital opportunities - Market sizing of opportunities

Total market opportunities for telcos

- Digital services revenues are expected to grow from 50 in 2014 to 104 billion EUR in 2018
- Cloud and M2M will become significant in 2018

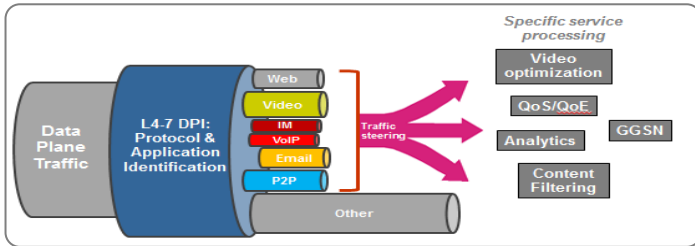


Source: IDATE, in *Telcos and Digital Services Strategies*, December 2014

Big data for telcos - Benefits can come through various applications

Internal applications benefits for telcos

- Optimisation of network equipment use
- Decision support for network equipment rollout or upgrade for each geographical area
- Traffic steering with DPI



Source: Qosmos

- Product enhancement based on customers usage habits
- Recommendations for customer care services to cross-sell or up-sell
- Fraud detection, based on cross-checking of billing data and usage data (among others)
- Churn prevention, after analysing earlier causes of churn

Potential estimated benefits of big data applications for telcos


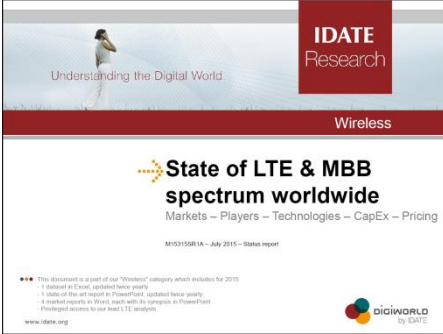



		New revenues (Million €)	Savings (Million €)
Internal purpose	Optimisation of network and DPI	-	19 032.31
	Improvement of products	7 812.40	-
	CRM and sales	-	11 748.34
	Churn prevention	-	-
	Fraud detection	-	9 260.00
External purpose	Insights / Raw data sales	Low	-
	Audience measurement	75.00	-
	Ad networks and recommendations	552.00	-
	Total	8 439.40	40 040.66

Source: IDATE

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- A set of market reports & worldwide databases

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