

# 5G for digitalisation of utilities

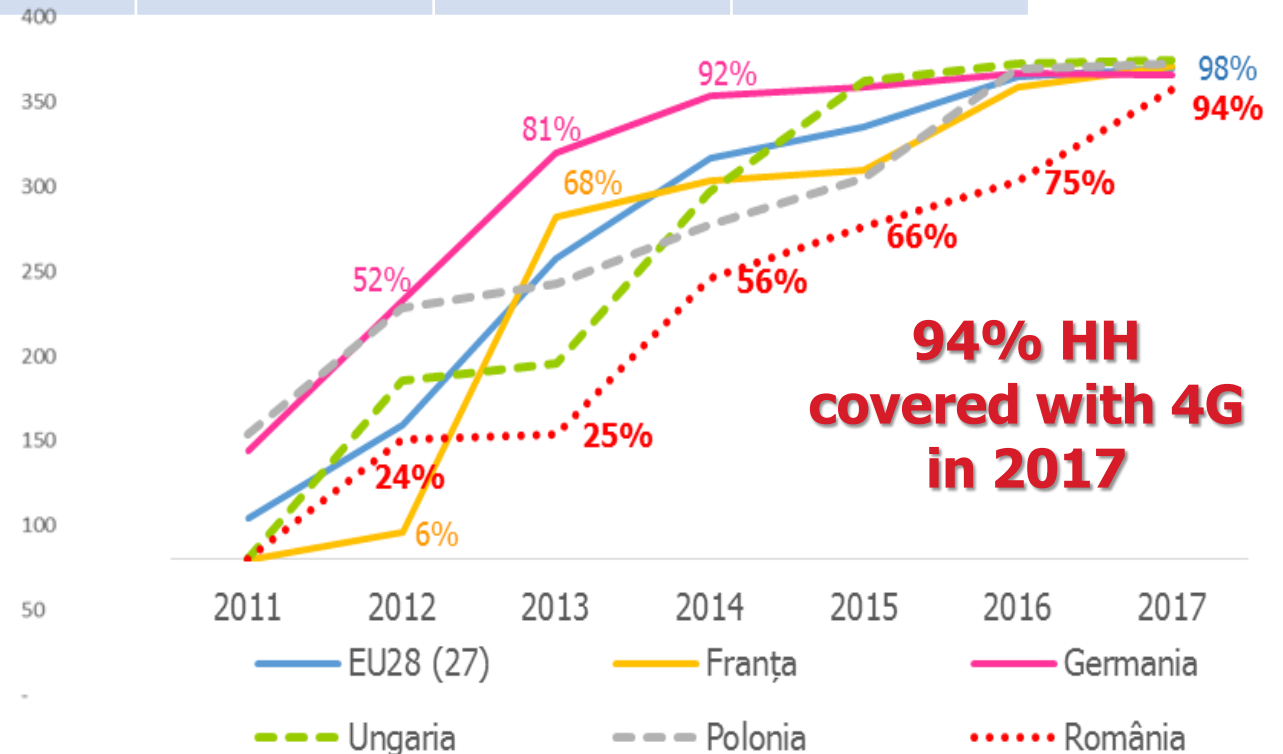
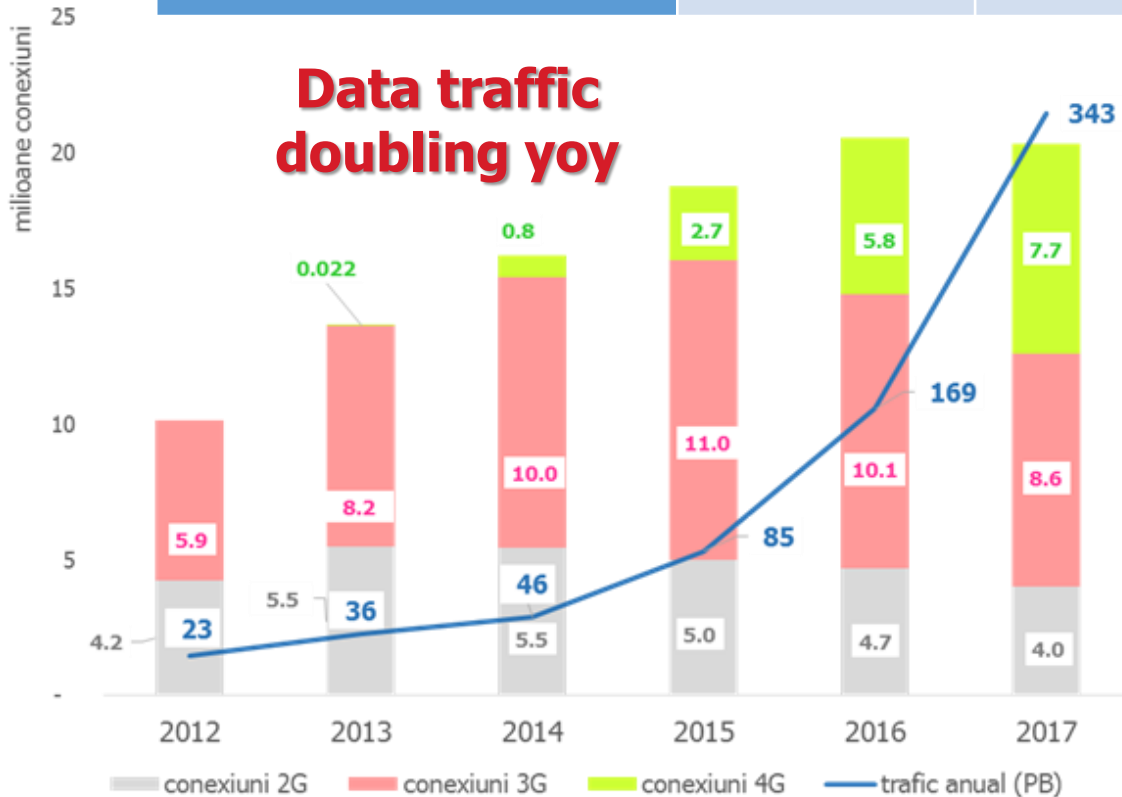
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Bucharest, 20 june 2019

Iosif POPA, Head of Strategy and Statistics Department

# Vibrant dynamics: 4 generations in less than 2 decades

Generation	1G	2G	3G	4G	5G
Typical technology	NMT	GSM	IMT 2000 UMTS	LTE	IMT 2020
Services & typical speed	voice 14,4 kbps	voice 64 kbps	Voice & Data 2 Mbps	Data < 1 Gbps	Data & much more < 20 Gbps
Romania launch	Aprilie 1993	Aprilie 1997	Aprilie 2005	Octombrie 2012	2020



Sources –statistics from ANCOM and the EC

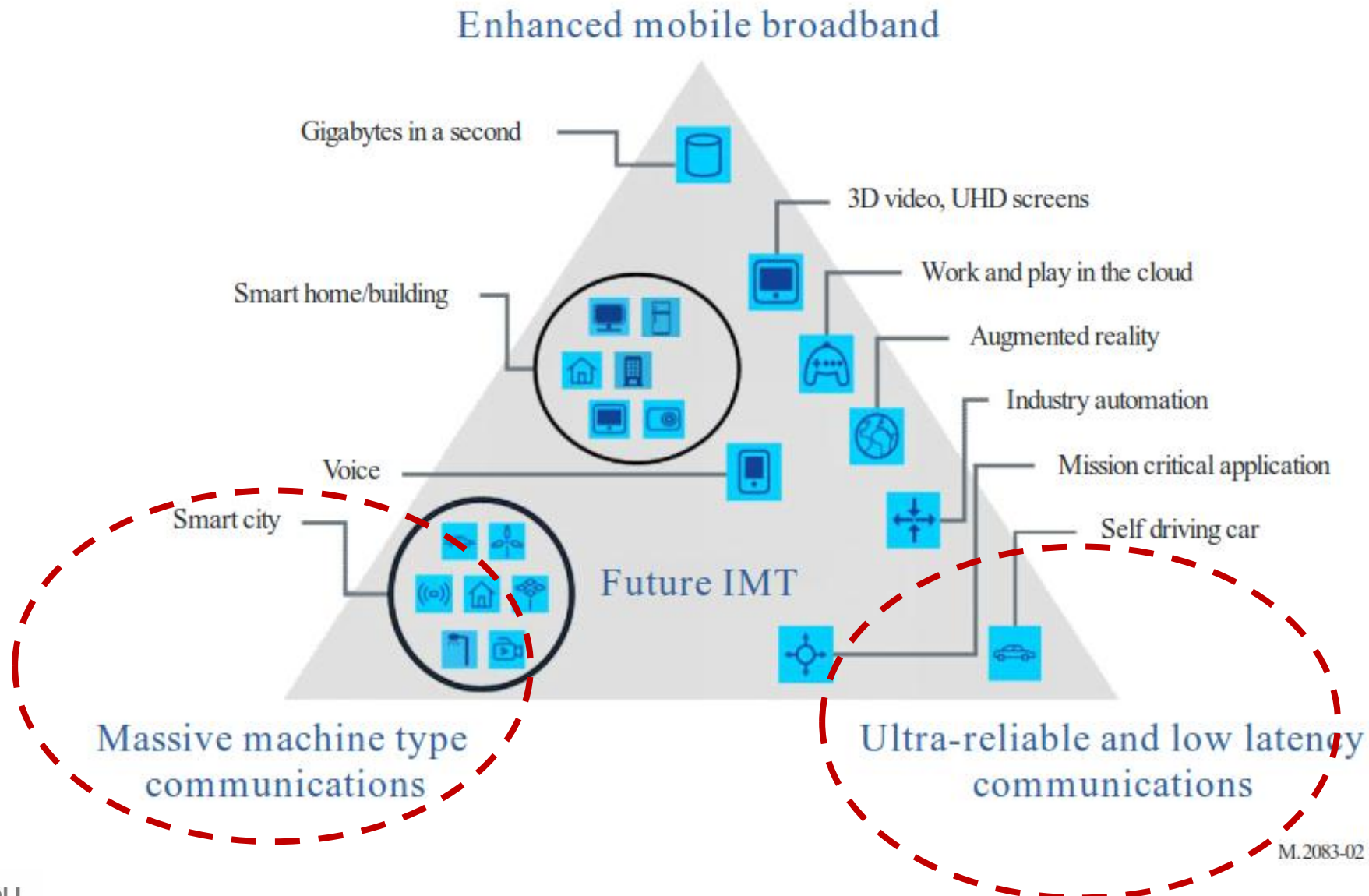
# Data is the new oil



David Parkins

Sursa imaginii: [economist.com](http://economist.com)

# 5G = the first generation designed for industrial needs



# Performances in 5G versus 4G

Indicator	Semnificație	4G	5G
Viteza maximă (Gbit/s) peak data rate	Traficul total pentru un singur dispozitiv într-o celulă	1	20
Viteza experimentată de utilizator (Mbit/s) user experienced data rate	Traficul total perceput de utilizator în mod constant	10	100
Eficiența spectrală (bit/s/Hz/site) spectral efficiency	Rata de transmisie a informației	10	15-30
Viteza mobilității (km/h)	Viteza maximă la care pot fi menținuți anumiți parametri de calitate	350	500
Latență (ms)	Durata de timp în care pachetul de date parcurge rețeaua	10	1
Densitatea de conexiuni (per kmp)	Număr de conexiuni într-o arie geografică, pentru care pot fi menținuți anumiți parametri de calitate	100.000	1.000.000
Eficiența energetică a rețelei	Capacitatea interfeței radio de a minimiza consumul de energie	1x	100x
Densitatea volumului de trafic (Mbit/s/mp) Area traffic capacity	Traficul total vehiculat într-o arie geografică	0,1	10

# Creating shared value with a help from 5G

Extracts from the *5G strategy for Romania* (draft [here](#), soon in MOF)

Sector	challenges	Needs	5G contribution
<b>Smart cities</b>	<ul style="list-style-type: none"> <li>sustainable development</li> <li>quality in public services (public lightning, cleaning, safety)</li> <li>congestion peaks</li> <li>diseconomies of scale (heating, selective collection)</li> <li>pressures on costs</li> </ul>	<ul style="list-style-type: none"> <li>increased performances</li> <li>adoption of new technologies</li> <li>agility in response to events</li> <li>better info for city managers</li> </ul>	<ul style="list-style-type: none"> <li>real time monitoring favours predictions (e.g. disasters, treatment of congestions)</li> <li>superior granularity in data mining</li> <li>advanced data analytics</li> </ul>
<b>Smart home</b>	<ul style="list-style-type: none"> <li>energy efficiency</li> <li>reduced consumption (water, heating)</li> <li>environment responsibility</li> </ul>	<ul style="list-style-type: none"> <li>more efficient consumption</li> <li>reduce pollution</li> <li>adapt to climate change</li> <li>time savings (efficiency of domestic activities)</li> </ul>	<ul style="list-style-type: none"> <li>scalable solutions based on IoT sensors and cloud applications</li> <li>cost savings</li> </ul>
<b>Energy and utilities</b>	<ul style="list-style-type: none"> <li>decentralised generations of electricity</li> <li>consumption pressures</li> <li>renewables</li> <li>penalties for power outages</li> <li></li> </ul>	<ul style="list-style-type: none"> <li>dynamic smart grids, that can be controlled and monitored remotely</li> </ul>	<ul style="list-style-type: none"> <li>real-time control of transport and distribution networks</li> <li>cost savings</li> </ul>

Thank you!

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