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Future Requirements on Networks through the Internet of Things

Salzburg Congress

3. und 4. November 2016

WKO Telekom·Rundfunk

The “Internet of Things” is considered as a key enabler for global “Mega Trends”

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Globalization

- “Virtualization” of production & management
- Availability of products and services without borders (e.g. via Internet)
- “Borderless” society and transportation

“IoT”

- Technology convergence between “conventional” physical products and information technology
- Emerging eco-systems, enabled through connected systems, provide new business opportunities
- IT & SW as a differentiator
- New (types of) competitors

Green Technology

- Energy and natural resource efficient products and systems
- eMobility / Smart Cities
- Renewable energy markets
- Decentralized energy production & consumption
- Avoiding energy loss

Information society

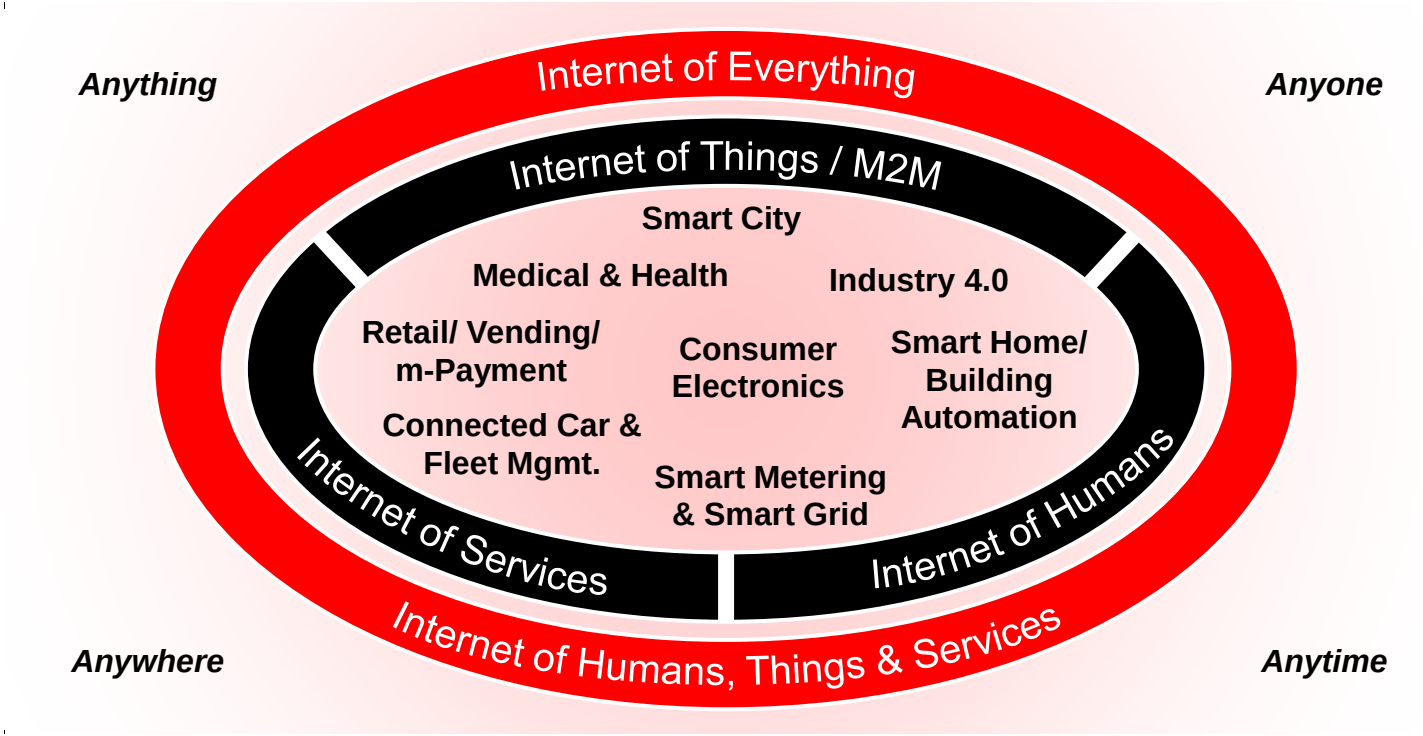
- Customer want to be informed in an easy and relevant way
- Mass-application of the Web as key source for Information

New Business Models

- Solution vs. product business
- …incl. service business growth
- Repositioning on the industry value chain – build up of new competencies

Source: Arthur D. Little

The “Internet of Things” is going horizontal - including customer, Things and services



Source: Arthur D. Little

The IoT value chain requires a wide area of services

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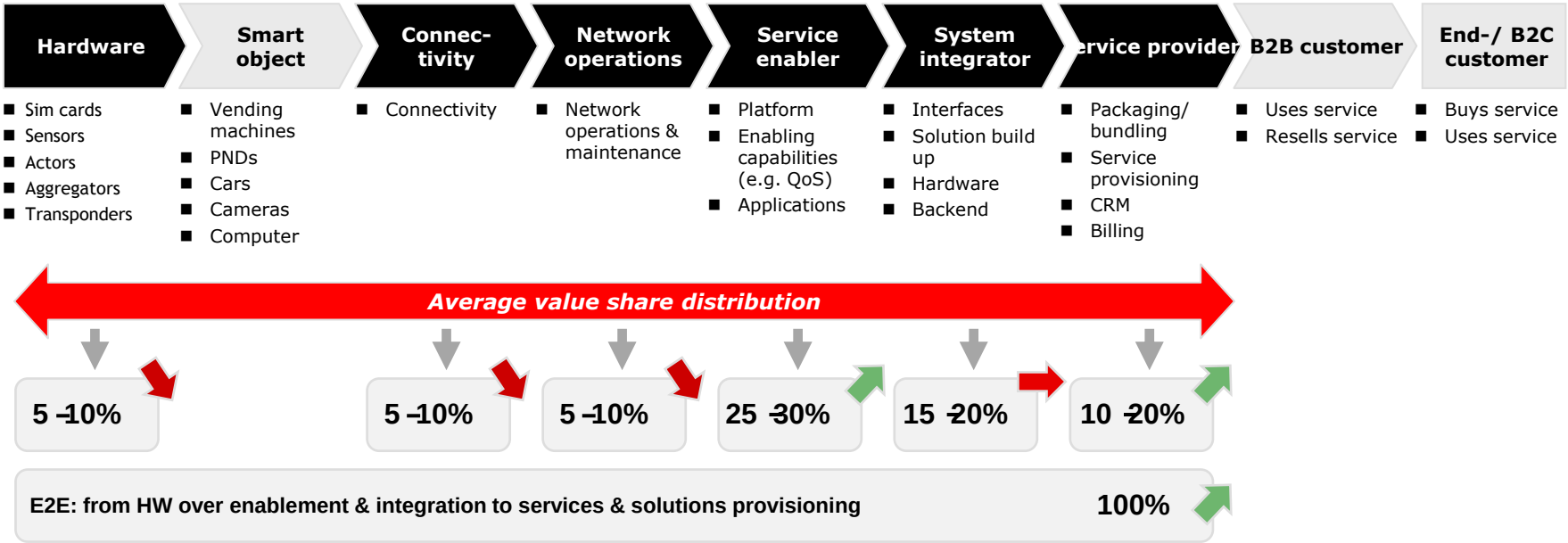
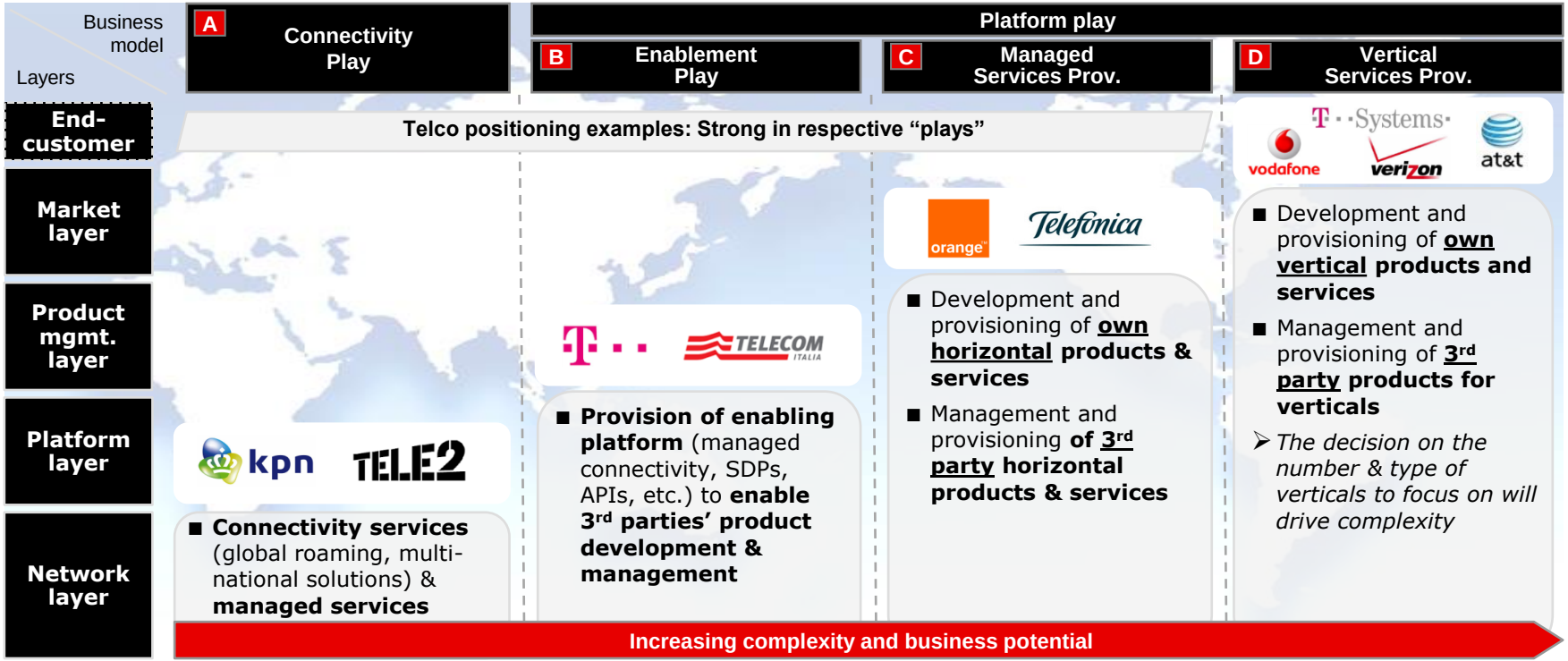


Values highly unevenly distributed across the value chain – fuelling the need to extend own service offerings towards service enablement & provisioning as well as E2E capabilities

Source: Arthur D. Little

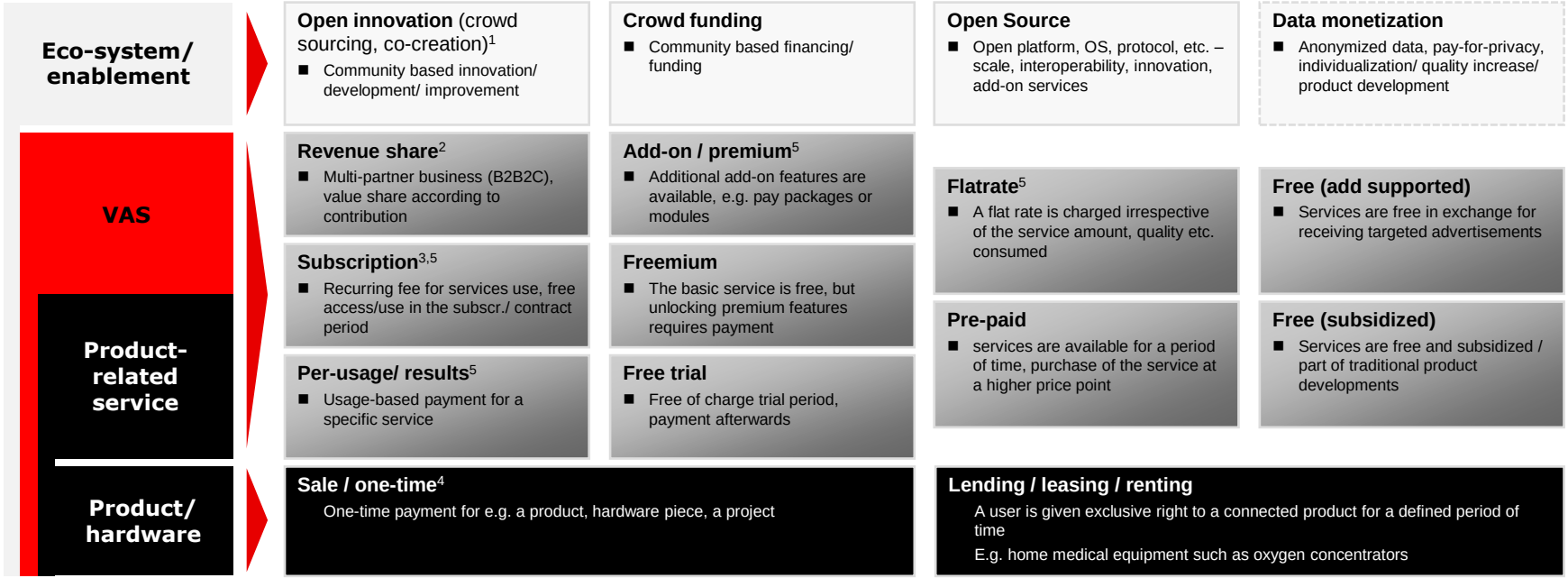
Positive development ↑ → ↓ Negative development

Telcos have to decide on the right business model in IoT



Source: Arthur D. Little

Business models in IoT will be combinations of known products & services



Source: Arthur D. Little Note: Value sources are not included that are a) non-monetary in nature (e.g. customer loyalty, quality increase), b) based on cost savings. Target customer based pricing, services bundling, etc. is not included. All business models can be applied across all steps in the IoT value chain as well as to B2B, B2B2C and B2C models 1) can e.g. also be auction based 2) incl. affiliation etc. 3) also incl. specialized / horizontal services contracts, licensing, etc. 4) incl. various forms, e.g. physical sale, e-commerce; white labelling, ingredient branding; etc. 5) can also be performance-/ contextual data-based

Telcos aim at 5 – 10% of total revenues through M2M, cloud, big data & security products

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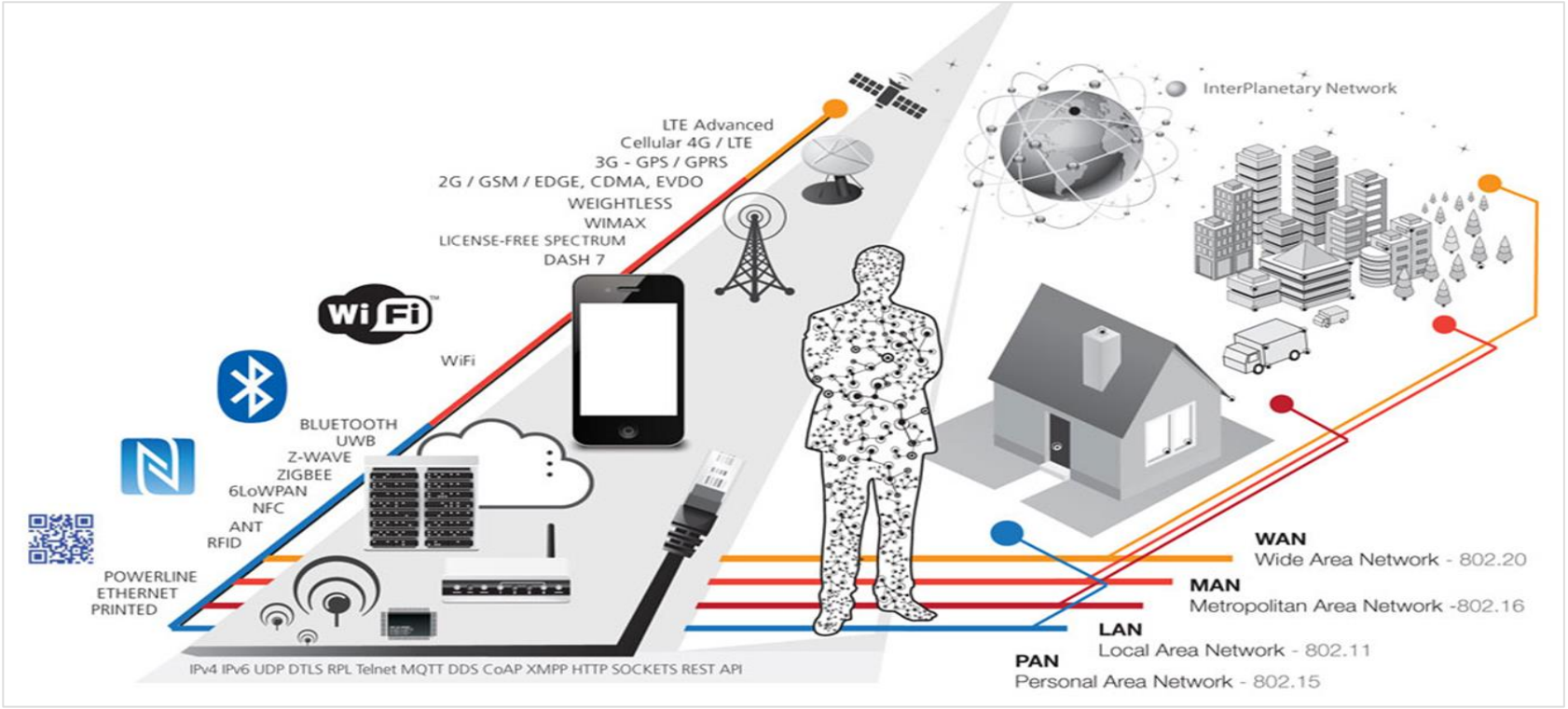
M2M, cloud, big data & security targets of operators

Operator	Targets	Quantification
T	■ **~50% of TSI revenue** (€ 9.5 bn in 2013, 10.7% of total revenues) **through standardized IT products (from 2017)** ■ Incl. standardized IT products & digital innovation areas: Cloud, security, big data, M2M, etc.	Rev. p.a. from 2017: **€ 4.75 bn (~5-6% of total revenues[1])**
vodafone	■ Projected **enterprise rev. growth**: from £ 77 bn in 2013 (27% of total group service revenues) to **£ 93 bn in 2018** ■ **CAGR 2013-18** (selected segments): **Hosting, cloud & safety: 12% / Unified communications: 11% / M2M: 20%** ■ 2015: Market leader in **M2M (25% market share)**	Revenues 2018 (approx.): **Hosting, cloud, safety: £ 20.6 bn (22.1% of total revenues[1]) M2M: £ 2.6 bn (2.8% of total[1])**
TeliaSonera	■ TeliaSonera expects sales of its M2M data communications to **grow by at least 20 – 30% annually** to reach **one billion Swedish crowns ($ 151 million) sometime after 2015** ■ TeliaSonera's M2M business has grown by 20 – 30% p.a. in the last 5 years	Annual M2M revenues after 2015: **$151 million (9.8% of total revenues[1])**
verizon	■ Sales of strategic services such as **security, cloud and telematics increased by 4.6%** in 2013 and account for **57% of total enterprise revenues (i.e. $11 bn)**	Annual revenues 2013: **Security, cloud and telematics: $11 bn (9.1% of total revenues)**

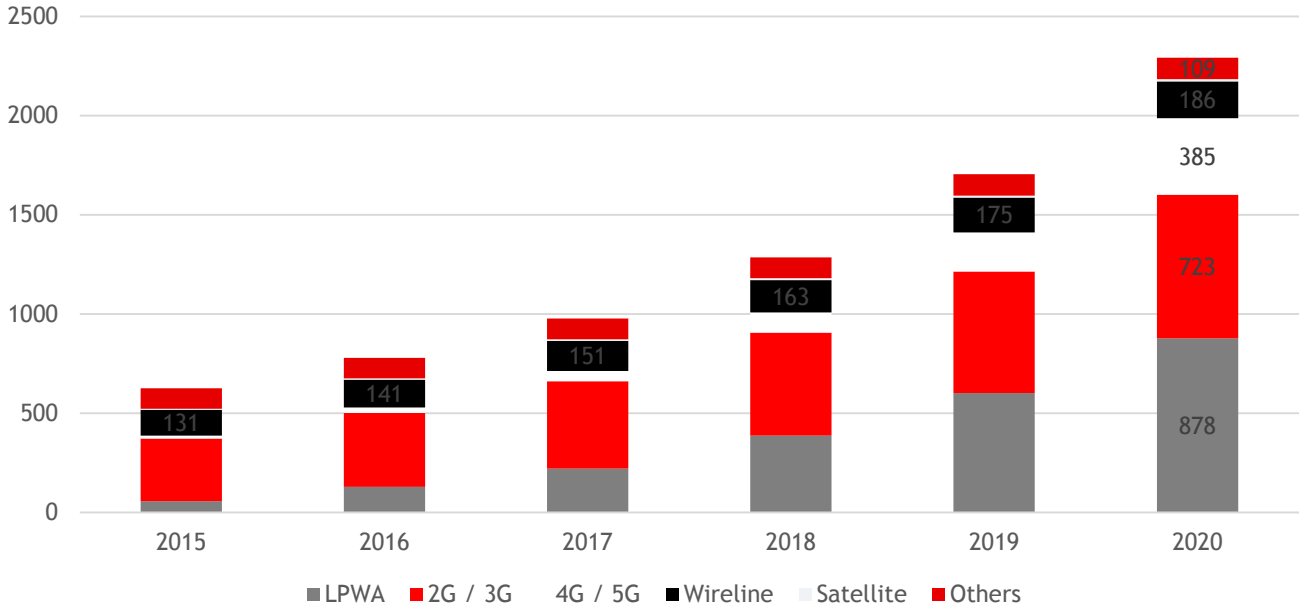
Source: Company information, Arthur D. Little calculation of quantitative targets 1) Assumption / calc. based on current (enterprise, group, etc.) revenues

There will not be ONE IoT standard - Services have to work with the most suited networks



Source: Arthur D. Little

By 2020, 40 percent of all IoT connections will be via Low Power Wide Area networks



*Others include WiMAX, Powerline Communication and a range of nice standards

IoT connection CAGR
(2015 - 2020)

2G & 3G Cellular
18%

LTE & 5G Cellular
95%

Satellite
19%

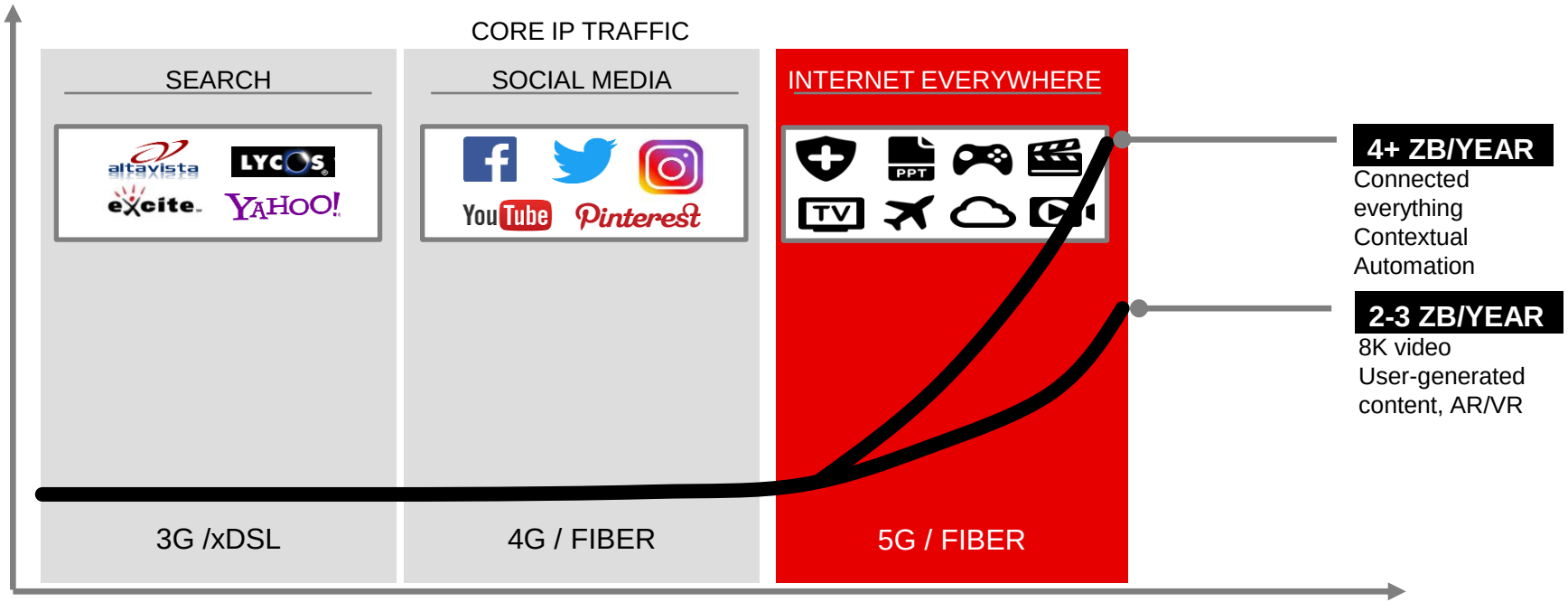
LPWA
73%

Wireline
7%

Others
1%

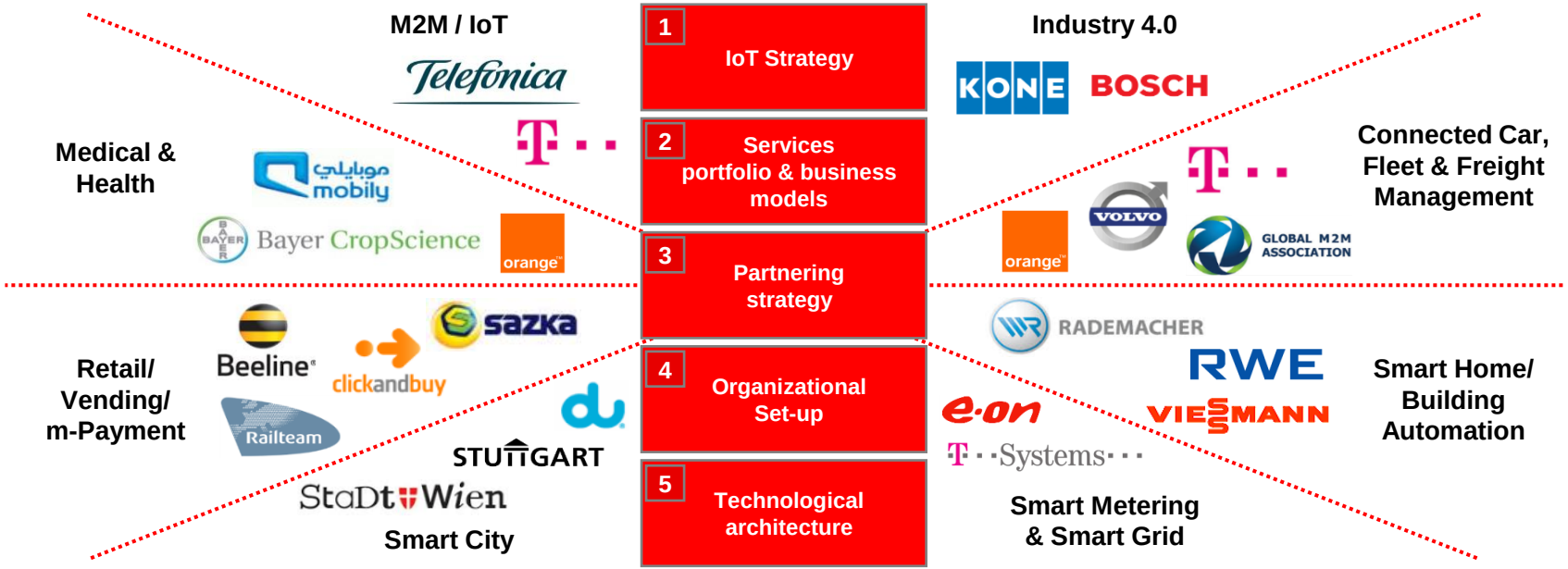
Source: SNS Research, Arthur D. Little

IoT will also significantly drive an increase in core network traffic



Source: Bell Labs, Telia

Arthur D. Little has extensive experience in assisting clients to answer key questions in IOT



To be successful among competitors, companies need to quickly define its strategic direction in IoT, identify sustainable bus. models & partners & adjust its operating model to support the new business

Source: Arthur D. Little