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In addition to figures prepared in accordance with IFRS, Deutsche Telekom also presents non-GAAP financial performance measures, including, among others, EBITDA, EBITDA margin, adjusted EBITDA, adjusted EBITDA margin, adjusted EBIT, adjusted net income, free cash flow, gross debt and net debt. These non-GAAP measures should be considered in addition to, but not as a substitute for, the information prepared in accordance with IFRS. Non-GAAP financial performance measures are not subject to IFRS or any other generally accepted accounting principles. Other companies may define these terms in different ways.
DT SUPERIOR PRODUCTION MODEL

Claudia Nemat, Board member for Europe and Technology
Bruno Jacobfeuerborn, CTO
OUR STRATEGY

LEADING EUROPEAN TELCO

TECHNOLOGY LEADERSHIP

INTEGRATED IP NETWORKS

BEST CUSTOMER EXPERIENCE

WIN WITH PARTNERS

LEAD IN BUSINESS

TRANSFORM PORTFOLIO

EVOLVE FINANCIAL TARGETS & EFFICIENCY

ENCourage LEADERSHIP & PERFORMANCE DEVELOPMENT
SUPERIOR PRODUCTION MODEL WITH FOUR PROGRAMS BASED ON TECHNOLOGY LEADERSHIP

DIGITAL TRANSFORMATION OF CUSTOMER FACING PROCESSES

COST EFFICIENCY & SIMPLICITY

ALL-IP TRANSFORMATION

PSTN migration in all NatCos

PLUG & PLAY

PSTN migration in all NatCos

PAN-EUROPEAN NETWORK

Centralized, virtualized architecture and production platforms

TIME TO MARKET

INTEGRATED NETWORK STRATEGY

LTE roll-out

BEST CONNECTIVITY

Annual run rate adj. Opex savings:

≈ €-1.2 bn\(^1\)

(steady state in early 2020ies)

\(^1\) Gross Opex savings D/EU before any counter effects (e.g. personnel cost increases)
ALL IP TRANSFORMATION: THE CREATION OF A SIMPLIFIED AND STANDARDIZED NETWORK

FROM THE “OLD PSTN WORLD”...

...TO THE “NEW IP ERA”

Virtualized Service Platforms
Infrastructure Cloud
NG IP Network (BNG/TeraStream)
Mobile Access Hybrid Fixed Access
SIM CPE

Mobile Consumer
Fixed Consumer
Carrier

Mobile Consumer
Fixed Consumer
Carrier
# ALL-IP TRANSFORMATION ON TRACK

## ALL-IP TRANSFORMATION BY COUNTRY

<table>
<thead>
<tr>
<th>Country</th>
<th>Total fixed access lines YE 2014</th>
<th>IP access lines YE2014</th>
<th>Remaining fixed access lines and expected completion dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Macedonia</td>
<td>237</td>
<td>237 (100%)</td>
<td>Jan 15th, 2014</td>
</tr>
<tr>
<td>Slovakia</td>
<td>894</td>
<td>894 (100%)</td>
<td>EoY 2014</td>
</tr>
<tr>
<td>Croatia</td>
<td>1,076</td>
<td>843 (78%)</td>
<td></td>
</tr>
<tr>
<td>Montenegro</td>
<td>149</td>
<td>87 (58%)</td>
<td></td>
</tr>
<tr>
<td>Hungary</td>
<td>1,645</td>
<td>968 (59%)</td>
<td></td>
</tr>
<tr>
<td>Romania</td>
<td>2,239</td>
<td>301 (13%)</td>
<td></td>
</tr>
<tr>
<td>Greece</td>
<td>2,624</td>
<td>15 (1%)</td>
<td></td>
</tr>
<tr>
<td>Europe¹</td>
<td>9,033</td>
<td>3,486 (39%)</td>
<td></td>
</tr>
<tr>
<td>Germany²</td>
<td>23,427</td>
<td>5,805 (25%)</td>
<td></td>
</tr>
</tbody>
</table>

1 Incl. Czech Republic (131thd. fixed lines, 98% IP), and GTS (37thd. fixed lines, 32% IP)  
2 Incl. retail, Call&Surf via Funk, wholesale bundled and unbundled
PANNET TARGET PICTURE 2020+: FROM NATCO-CENTRIC TO INTEGRATED PAN EUROPEAN SERVICE PRODUCTION

**TODAY**

- Complex service production with distributed vendor-specific network elements
- Different, historically grown production in each NatCo
- Each NatCo with own product development logic

**FUTURE**

- Highly simplified, virtualized, IP-based production architecture
- Integrated production, delivered to all NatCos
- One common product development logic for all countries
DIFFERENTIATION: HOLISTIC AND RADICALLY LEAN APPROACH AT DT

**INFRASTRUCTURE CLOUD**
- Tight integration of data centers and IP network = Infrastructure Cloud, foundation for NFV
- Fully automated – Cloudification of network functions
- Minimized latency
- High bandwidth apps

**IP network BNG/TeraStream**

**DRASTICALLY SIMPLIFIED IP NETWORK (BNG/TERASTREAM)**
- Executed in radically lean way
- IP+ Optical Integration to lower Capex & Opex
- Scalable up to the highest bandwidth

**REAL-TIME NETWORK AND SERVICE MANAGEMENT**
- Based on SDN concept
- Software flexibility of previously HW dominated operator
- Standardized open interfaces
- Accelerated product introduction
**PANNET: SIMPLIFIED, CENTRALIZED AND VIRTUALIZED**

**LEGACY, HETEROGENEOUS, DISTRIBUTED WORLD...**

- Fragmented, specific HW/SW boxes per functionality and service

**...TOWARDS A LEAN AND CLOUDIFIED APPROACH**

<table>
<thead>
<tr>
<th>Virtualized Network Functions &amp; Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virtual Computing</td>
</tr>
<tr>
<td>HW Computing</td>
</tr>
</tbody>
</table>

**Network & Services**

- Core & Edge Routers

**Centralized**

- Real-time Network & Service Management
- OSS / Network and Service Management

**Centralized**

- Customer Processes
- BSS decoupling

**Access Network**

**Customer Equipment**
With PANNET we leverage the benefits of our portfolio.

DT EU PORTFOLIO: BROAD & ADJACENT FOOTPRINT IN EUROPE

- Illustrative, locations and number of backend data and network operations centers not decided yet

PANNET characteristics:
- 3 backend data centers
- 2 geo redundant network operations centers
- In each country minimum 2 data centers with routers at the edge of the network
- 1 distribution network, fast and highly capable
# Local Product Configuration: Central Production Catalogue

<table>
<thead>
<tr>
<th>Countries</th>
<th>Central Production Catalogue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country A</td>
<td>![Diagram of Country A's products]</td>
</tr>
<tr>
<td>Country B</td>
<td>![Diagram of Country B's products]</td>
</tr>
<tr>
<td>Country C</td>
<td>![Diagram of Country C's products]</td>
</tr>
</tbody>
</table>

### TV
- OTT services
- Standard Def.
- High Definition

### Broadband
- ADSL 16 Mbps
- Vectoring 100 Mbps
- Fiber 1 Gbps

### Voice
- One standard line
- HD voice
- Multiple lines

Illustrative
MWC 2015: CLOUD TV & GAMING

- First time B2C products introduced at the same time in three countries
- TV, gaming and applications on all screens

- Cross-country recommendation engine
- Your personalized guide through media world

- Cloud gaming with premium catalog of casual and bestseller games
- Hundreds of games just out of cloud with no console
MWC 2015: NEXT GENERATION VPN

- First B2B product introduced at the same time in three countries
- Next generation DATA Virtual Private Network (VPN) for secure national and international communication

Welcome to DT Cloud VPN Service!

Thanks for selecting Deutsche Telekom for you cloud services. Let's start getting you set up with a new Cloud VPN

DELIVERING A VPN SOLUTION FROM THE PAN-EUROPEAN CLOUD developed in less than 6 months

AUTOMATIC PROVISIONING of system components in a few clicks

SIMPLICITY AND SELF MANAGEMENT of all aspects of the network (speed, security, no of branches, traffic...)

CARRIER GRADE SECURITY for all your branches and remote users by the same strong security mechanisms
INTEGRATED NETWORK STRATEGY

RECAP CMD 2012

1. LTE rollout
2. Fiber rollout
3. Vectoring
4. Hybrid access

OUR ENHANCED AMBITION 2015–2018

INS OUR ROLE MODEL
INS rolled out across DT EU and DE

COVERAGE EXPANSION 2015–2018

Mobile LTE:
- DE: from 80% to 95% pop-coverage
  (with up to 300 Mbps)
- EU: from 30%–79% to 75%–95% pop-coverage
  (with up to 300 Mbps)

Fixed:
- DE: ≈ 80% of households ≥ 50 Mbps depending on regulatory adjustments
  (introduction of Supervectoring with more than 250 Mbps in cable footprint)
- EU: ≈ 50% of households ≥ 100 Mbps
  (≈ 12% of households with up to 500 Mbps)

Hybrid:
- DE: Download speed of up to 550 Mbps in cable footprint

TECHNOLOGY EVOLUTION

Mobile: Evolution via LTE-Advanced towards 5G
Fixed: Vectoring live, Supervectoring + G.fast next

1 Outdoor coverage 2 In integrated footprint 3 FTTH, FTTB, FTTC, cable/ED3 (cable, esp. in Hungary with Euro-DOCSIS)
MOBILE EVOLUTION CONTINUES

MOBILE NETWORK UPGRADE OPTIONS

- **5G**
  - 2020
  - ≥1Gbps

- **Antennas (4x4)**
  - 600Mbps

- **Carrier Aggregation**
  - 300Mbps

- **LTE@20MHz**
  - 150Mbps

- **Small Cells**
  - 2016
  - approx. x 25

- **LTE (20+20MHz)**
  - x 12

- **LTE (20MHz)**
  - x 5–6

- **UMTS**

**Technology Options**

- Single RAN
- Advanced Antennas
- Cell Coordination
- Self Optimizing Network

**Carrier Aggregation**

- LTE@20MHz
- 300Mbps

**UMTS**

- 16
FIBER EVOLUTION CONTINUES

**FIXED**

- **FTTH**
  - 1000+ Mbps

- **FTTdp¹/FTTB – G.fast**
  - up to 500 Mbps
  - ≥ 2018

- **FTTC – Super VDSL-Vectoring**
  - with more than 250 Mbps
  - ≥ 2017

- **FTTC – VDSL-Vectoring**
  - up to 100 Mbps

- **ADSL2+**
  - up to 16 Mbps

¹ “Distribution Point”, so far not part of the Telekom access network
SUPERIOR PRODUCTION MODEL DRIVING CUSTOMER EXPERIENCE

ULTIMATE APP
- All service and usage relevant information at glance
- Proactively offering data plans following customer usage patterns
- One-click payment for all fixed and mobile services

BROADBAND ON DEMAND
- Plug & play
- Self service solutions
- Instant provisioning of new features

CLOUD TV & GAMING
- Perceived “Zero” latency
- Products introduction in a few weeks across entire footprint

HYBRID ROUTER
- Boost bandwidth in fixed and mobile networks for even better customer experience

Examples
SIGNIFICANT INVESTMENTS INTO TRANSFORMATION YIELD SUPERIOR DIFFERENTIATION AND COST SAVINGS IN THE FUTURE

**OPEX AND CAPEX: DIGITAL TRANSFORMATION, IP TRANSFORMATION, PAN-EUROPEAN NETWORK**

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**CAPEX: INS NETWORK**

<table>
<thead>
<tr>
<th>€ bn</th>
<th>Capex</th>
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<tbody>
<tr>
<td></td>
<td>1.3</td>
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</tbody>
</table>

**FIN. BENEFITS:** ≈ €1.2 BILLION OPEX SAVINGS

- Segments
  - ≈ €0.7 bn Germany
  - ≈ €0.5 bn Europe
- Functional Areas
  - ≈ €0.4 bn Technology / Platforms
  - ≈ €0.8 bn Service

**COMMERCIAL BENEFITS**

- Enlarged fiber and LTE footprint and increased bandwidth for customers
- Faster time to market
- Easy to partner

---

1. Excl. special factors. Measure related effects incl. savings. PanNet w/o transport & access. INS Opex in German fixed network also included.
2. Gross measure-related steady state Opex savings early 2020ies GER/EU vs. 2013, after accomplished IP and process-/e-transformation as well as PanNet (w/o transport & access) before any counter effects (e.g. personnel cost increases).
MID TERM AMBITION LEVEL
## MID TERM AMBITION LEVEL

<table>
<thead>
<tr>
<th>ALL-IP TRANSFORMATION</th>
<th>YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>All integrated countries 100% IP-based</td>
<td>2018</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PAN-EUROPEAN NETWORK</th>
<th>YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Backend and frontend data center set up</td>
<td>2018</td>
</tr>
<tr>
<td>Geo-redundant Network Operations Centers established</td>
<td>2018</td>
</tr>
<tr>
<td>Services fully migrated to PanNet</td>
<td>2018</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INTEGRATED NETWORK STRATEGY</th>
<th>YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>LTE pop-coverage Germany &amp; Europe: 75%–95%</td>
<td>2018</td>
</tr>
<tr>
<td>Germany: ≈ 80% Fixed high speed internet HH coverage ≥ 50 Mbps&lt;sup&gt;1&lt;/sup&gt;</td>
<td>2018</td>
</tr>
<tr>
<td>Europe: ≈ 50% Fixed high speed internet HH coverage ≥ 100 Mbps</td>
<td>2018</td>
</tr>
</tbody>
</table>

<sup>1</sup> Depending on regulatory adjustments
1. **ALL-IP MIGRATION**
   - Factor of miniaturization: 2,600x
   - New IMS rack vs. legacy PSTN/ISDN cabinet

2. **HYBRID ROUTER**
   - Significant increase in down- and upload speed
   - Bonding of fixed and mobile connectivity

3. **UPGRADED STREET CABINET**
   - VDSL-Vectoring rollout
   - Upgraded street cabinet with new active technology (MSAN) complementing the old passive patch board

4. **BNG + INSTANT PROVISIONING**
   - Simplification of network architecture
   - Instant provisioning enhances customer experience

Presented by:
- Claudia Nemat, Board member for Europe and Technology
- Bruno Jacobfeuerborn, Group CTO
- Guido Menzel, Head of Network Engineering Germany
- Bruno Orth, Head of Network Architecture Germany