Industries in Transformation

1. Mobile Infrastructure
2. OSS&BSS
3. Services
4. Media Delivery & IPTV

- Telecom
- Utilities
- Transport
- Public Safety

Net Sales: $35 b.
In R&D: $5 b.
Employees: 118,000
Services professionals: 65,000
The Networked Society Utilities Transformation

Multi-dimensional changes across Business-IT-Networks

- **Power Grid**
- **Operations**
- **Networks**
- **IT Processes**

- **Cloud**
  Access everything from the cloud

- **IoT platform**
  Functions and Analytics

- **4G / 5G wireless**
  Broadband & Narrowband

- **100 years**
  1 billion connected places

- **25 years**
  5 billion connected people

- **15 years**
  50 billion connected devices

- **100 years**
  1 billion connected places

- **25 years**
  5 billion connected people
Utilities Transformation Path

Innovating operations and consumer service enhancements
- Smart Metering (mainly electricity)
- Smart Grid Communications
- Smart Metering evolutions (increased capabilities and functionality – extended to gas and water)
- Smart Grid evolutions (control and DA)
- Initial Integration of analytics and Customer Management
- Asset Management & Protection
- Grid Control

New business and operational models
- IT/OT convergence
- Distributed Intelligence
- Decentralization and micro grids
- Dynamic and automated operations

Utilities future state
- Customer service oriented
- Efficient and sustainable
- Flexible - adaptable to new market and regulatory developments
- Critical partners in emerging integrated smart societies

• Service platforms that enable Utility industry adaptation through flexible ICT innovation and implementation.
• Reduced dependency on internal capabilities and large scale ICT investments
• Expanded application of scale and scope economies to utilities operations
• Interconnected society – smart grids, cities, countries

Transformation need recognized by utilities
- Consumer expectations
- Changing network utilisation

Utility outlook
Technology & market focus

Ambition

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Utility outlook
Technology & market focus
Utilities Top Strategy Drivers

- Customer Experience: 86%
- Customer Operations: 77%
- Workforce Management: 72%
- Asset Utilisation: 70%

Utilities Top Use Cases

- BEMS
- Customer Engagement
- Demand Management
- EV
- HEMS
- Revenue Protection
- DERM
- SM
- Fleet Management
- Remote WFM
- Sensor-Based Staff Id
- DA
- Leakage Reduction
- Quality Control
- Remote Asset Surv.
- Asset Diagn. & Maintan.
- Substation Automation
- Weather Sensors

Source: IDC 2015, Mobile Communication Powers Utilities’ Adoption of the Internet of Things
FIRST CONNECTIVITY SOLUTIONS DEDICATED TO IOT

- 90% MODULE COST REDUCTION
- 10+ YEARS BATTERY LIFE
- 7X BETTER COVERAGE
- 1M+ DEVICE CONNECTIONS

NB-IoT devices support
Extended life (LTE-M & NB-IoT)
Extended Coverage (NB-IoT)
Support massive number of connections per cell site
CELLULAR LOW POWER WIDE AREA SERVES MUCH MORE

MODULE COST/PERFORMANCE

LTE-M CAT1
- INDUSTRIAL PROCESS MONITORING & CONTROL
- VOICE SERVICES CONNECTED ELEVATORS

EC-GSM
- SMART GRID
- WEARABLES, KIDS / PET TRACKING
- VEHICLE TRACKING

NB-IOT
- SMART CITY, SMART BUILDING
- SMART METERING
- ASSET TRACKING
- SMART AGRICULTURE, ENVIRONMENT

Unlicensed LPWA

<100 bps
100 bps
<10 Mbps
10 Mbps
<1 Mbps
1 Mbps
<10+ years
10+ years
10 km
10 km

USE CASE DIVERSITY

COVERAGE / BATTERY
IMPACT OF ANALYTICS
SAMPLE USE CASES (PROJECT ESTONIA)
GLOBAL UTILITY FOOTPRINT AND RELEVANT IOT REFERENCES

>50 MILLION METERS

- 20% TCO

FOCUS ON COMMUNICATIONS NETWORKS OPTIMISATION

WORLD’S LARGEST GRID EDGE NODE DEPLOYMENT

Smart Meter aaS
Smart Meter and Grid analytics
Grid edge massive deployment
Demonstrator IoT for grid control
First LTE network for grid control
FULL RANGE OF SOLUTIONS AVAILABLE
Addressing diversity of use cases in the short/medium term

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<thead>
<tr>
<th>EC-GSM</th>
<th>Global cellular IoT for all GSM markets</th>
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<td>2016</td>
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<th>LTE-M</th>
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IN 2030…?

- Millions of people have a life expectancy of 150 years or more
- Food is grown in skyscrapers
- 3D printing and drone delivery provides close to real time supply
- New buildings generate more energy than they consume
- Learning a second language is no longer necessary
- You don’t need to drive your car unless you want to
- Actors are out of work, replaced by animated artists
- Cash is digital and virtual currencies capture a large share of GDP
CHANGE WILL NEVER BE AS SLOW AS TODAY!

Mr. Hans Vestberg, CEO of Ericsson since 2010
KEY TAKE AWAYS

- Utilities going through disruptive change
- Connectivity everywhere
- Data driven transformation
- IOT / Smart grid is industry transformation
- Horizontal and agile platforms
- New business models