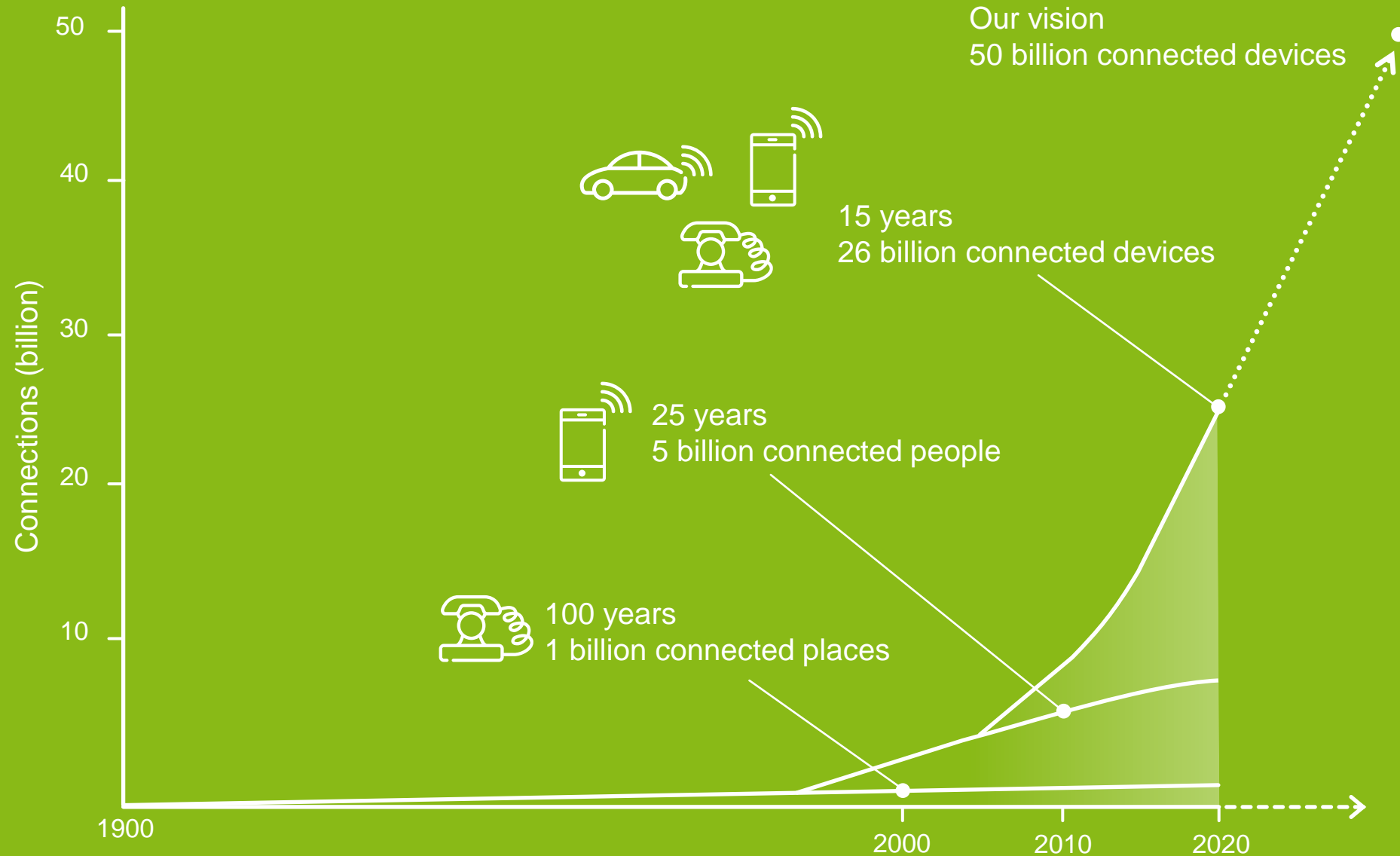




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NETWORKED SOCIETY 2015

MORE CONNECTIONS



IN 2020...



8B
people on
the planet

90% of the
world will be
covered by
MBB

mobile traffic
will grow
9X

MEDIA
value chain
will evolve

collaboration
will be
KEY

850M
fixed
broadband
subscriptions

7.7B
mobile
broadband
subscriptions

26B
connected
devices

15B
connected
video devices

High
performing
networks
ESSENTIAL

NEW INFRASTRUCTURE



Sustainable



5X

Lower Latency

1000X
Mobile Data Volumes



10Y

Battery Life

Secure



5G Requirements
Extreme & Diverse

10-100X

End-user Data Rates

10-100X

Connected Devices

Common Network
Dynamic & Secure

Critical Communications

<5ms E2E delay
99.999% transmission reliability
500 Kmph relative velocity



Massive Communications

>10 years battery lifetime
>80% cost reduction
20dB better coverage



WE ARE AT THE BEGINNING OF SOMETHING BIG



\$1.9 TRILLION

Predicted value-add of IoT across sectors in 2020

CONNECTIVITY

NEW ASSETS



1. Digitalization – exponential and ubiquitous
2. Data – own, shared and open
3. Things – connected and intelligent
4. Users – participating and active
5. Platforms – economics and scale
6. Capabilities – available and on-demand



INDUSTRY TRANSFORMATION



OUTSIDE DRIVERS

PATH OF EVOLUTION

PATH OF DISRUPTION

INSIDE CONTROL



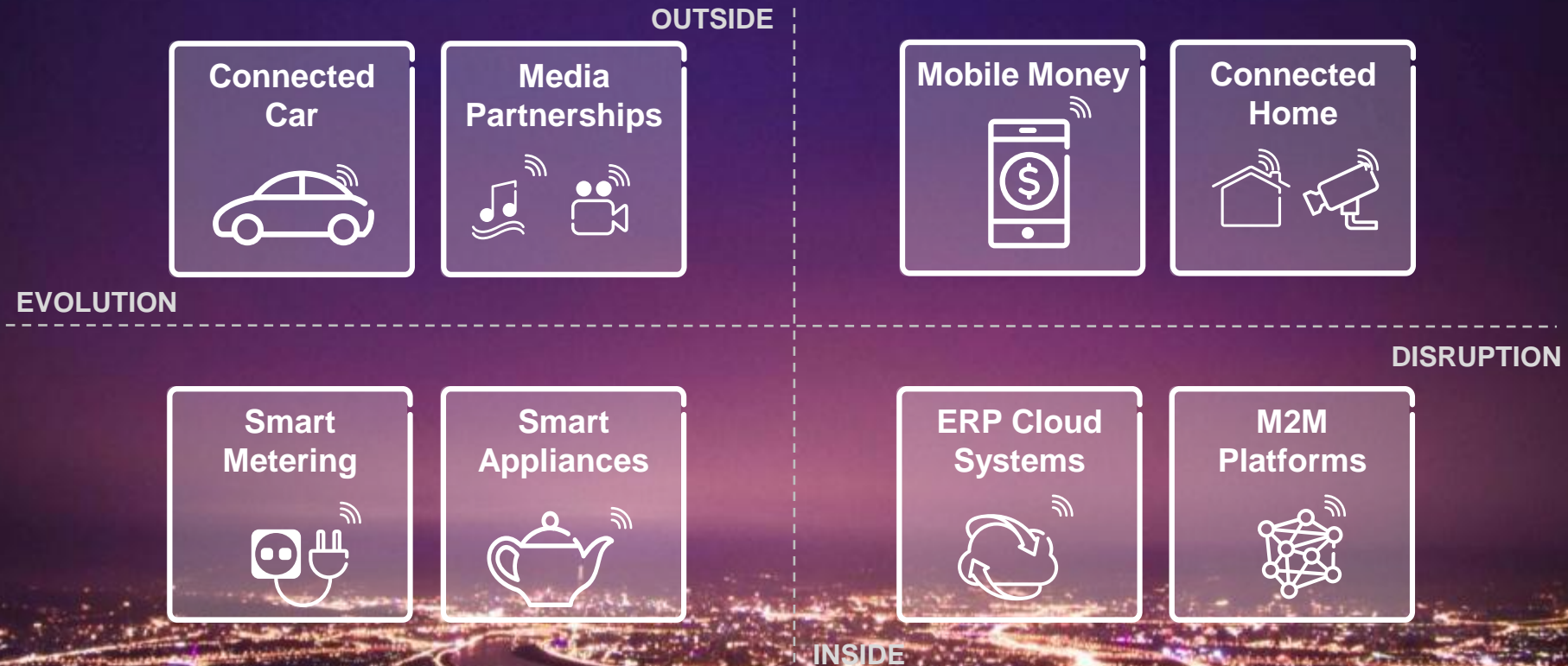
ICT-LED TRANSFORMATION



INDUSTRIES IN TRANSFORMATION



OPERATOR OPPORTUNITIES



NEW PRACTICES NEEDED



1. Digitalize business resources
2. Make sense from data
3. Establish networked practices
4. Encourage user co-creation
5. Develop new platforms
6. Innovate in the service business

4 INDUSTRIES

IOT SHOWS GROWTH ACROSS INDUSTRIES

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TRANSPORT



83% year over year growth

HEALTHCARE



12% revenue growth due to IoT until 2018 (global)

OFFICE



200% growth by 2020

UTILITIES



49% annual growth in number of IoT connections

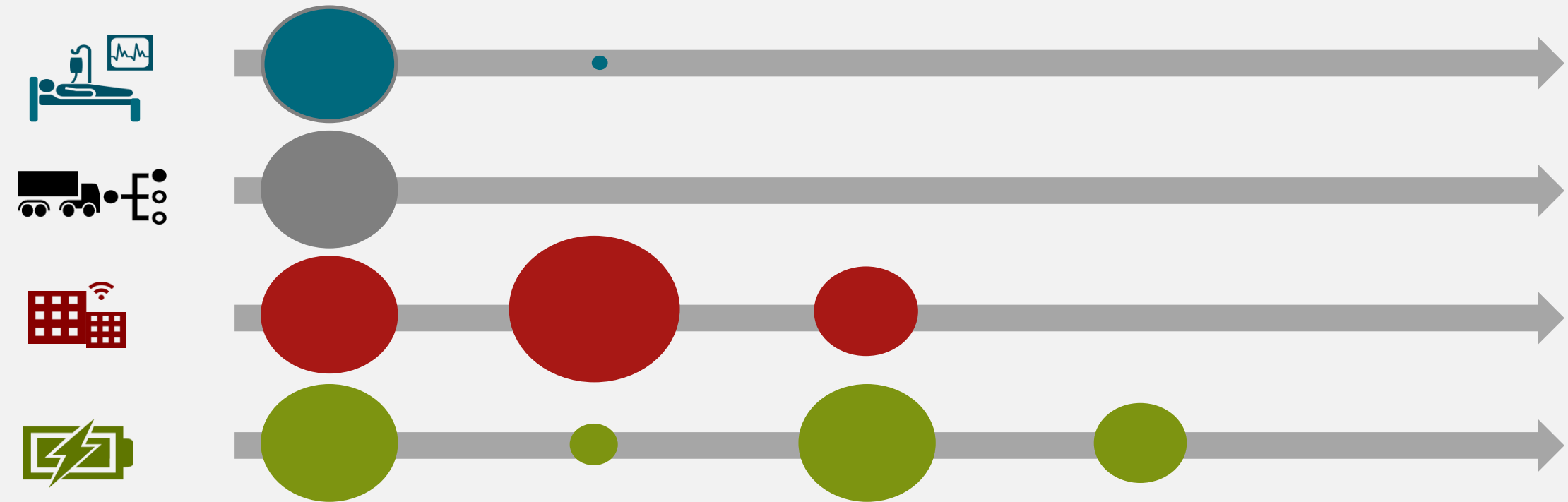
Right now, there are 9-14 billion Internet of Things units installed.

By 2020, this number will have reached 26 billion.

WE SEE IOT-CAPABILITIES IN 5 STEPS OF MATURITY

THE JOURNEY HAS BEGUN – BUT STILL MILES TO TRAVEL

Industry adoption based on current product portfolios



Monitoring

Control

Optimization

Autonomy

System autonomy

Examples

Streetline

Medtronic artificial pancreas

Nest thermostat

Envision Energy

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RESTRAINING FORCES FOR DANISH COMPANIES

PRELIMINARY

WHAT WE HEARD



	What	Implication	Statement
Paralyzation	<ul style="list-style-type: none">Action is paralyzed by the impact of disruption (undermine current business)	<ul style="list-style-type: none">Risk of being change victims instead of change drivers	<ul style="list-style-type: none"><i>“A main impediment for IoT investment is its disruptive power to our industry and the insecurities that brings”</i>
Executive knowledge gap	<ul style="list-style-type: none">IoT potential is understood by CIOs, not top management	<ul style="list-style-type: none">IoT initiatives are under-funded / under-prioritised	<ul style="list-style-type: none"><i>“Executives and Directors have a poor understanding of IoT... We talk about IoT in Computerworld instead of Børsen”</i>
Hesitation	<ul style="list-style-type: none">Action is pending competitor moves, customer pull, or regulatory requirements	<ul style="list-style-type: none">Risk of corporate transition being slower than customer/competitor change	<ul style="list-style-type: none"><i>“If we were to invest in IoT in the coming 5 years, that would be a result of regulatory requirements”</i>
Clash	<ul style="list-style-type: none">Traditional governance structures do not embrace front-edge innovation	<ul style="list-style-type: none">Innovation is discouraged	<ul style="list-style-type: none"><i>“We have a zealous governance structure... that does not easily embrace an unconventional business case like IoT”</i>
Recognition	<ul style="list-style-type: none">Understanding of the inevitability of IoT. Limited IoT initiatives among most	<ul style="list-style-type: none">Foundation for acceleration of IoT initiatives	<ul style="list-style-type: none"><i>“In the future, data is king”</i>

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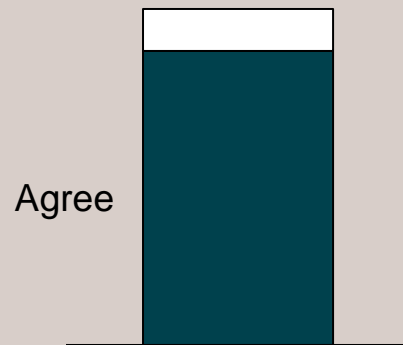
ADOPTION AMONG DANISH COMPANIES

WHAT WE SAW

PRELIMINARY

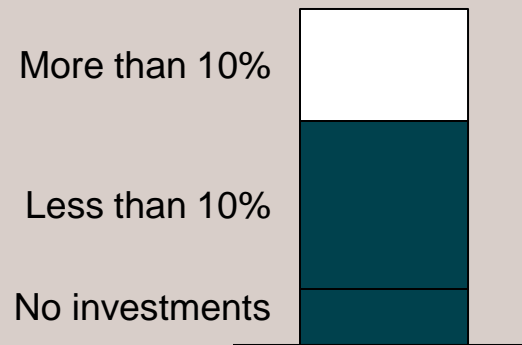


Danish companies see significant potential in IoT



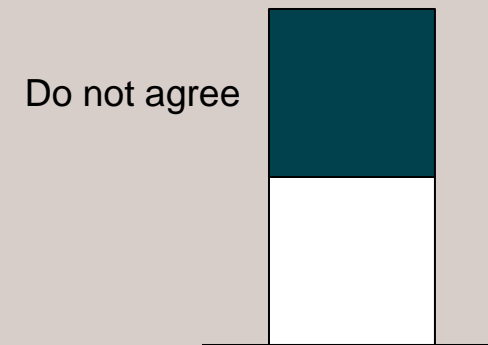
"I expect the Internet of Things to significantly impact our business, or will enable significant opportunities for cost or revenue gains, within the coming 3 years"

But most companies are not ramping IoT investments significantly up



"Our investments in Internet of Things are annually increasing by..."

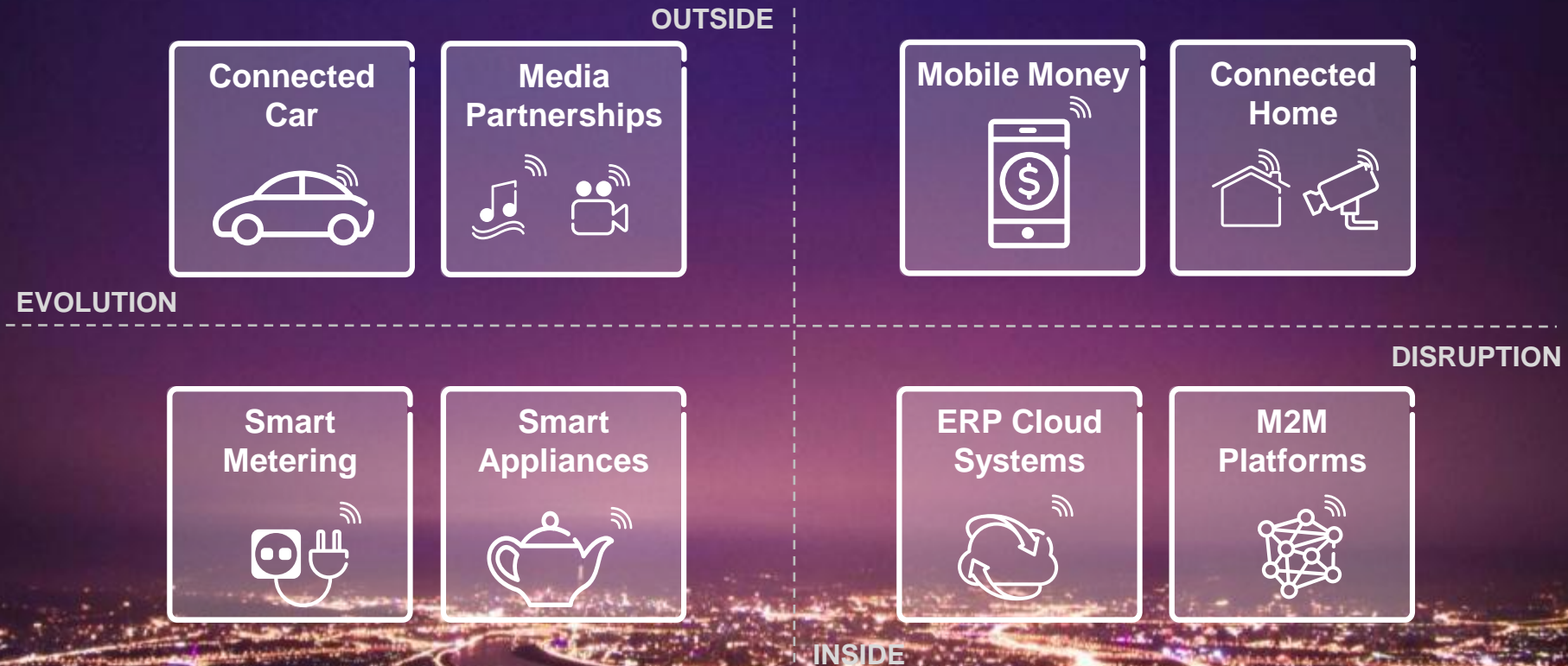
And half of companies do not feel better positioned than competitors to capture the IoT opportunity



"We are better positioned than our competitors to capture the value of internet of Things"

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OPERATOR OPPORTUNITIES



SKT's Vision to Become a Cloud-based Service Platform Company

Alex Jinsung Choi, Ph.D.

Corporate CTO & Head of R&D

Going forward: Transformation into a platform company

- **Current: The fastest Fixed/Mobile services in the world**
- **2020 Vision: Cloud-based Service Platform Company**

Big Data Platform

- Mobile network data analytics (real-time & batch processing)
- Machine data mining & analytics for operation intelligence
- Hadoop-based data warehouse



Lifestyle Platform

- Life partner from healthcare to shopping to entertainment
- Agile development and deployment
- Data-driven fine grain market segmentation



Media Platform

- Video streaming, VOD, AR & VR
- Highest customer experience with QoS guarantees
- Context-based processing & delivery

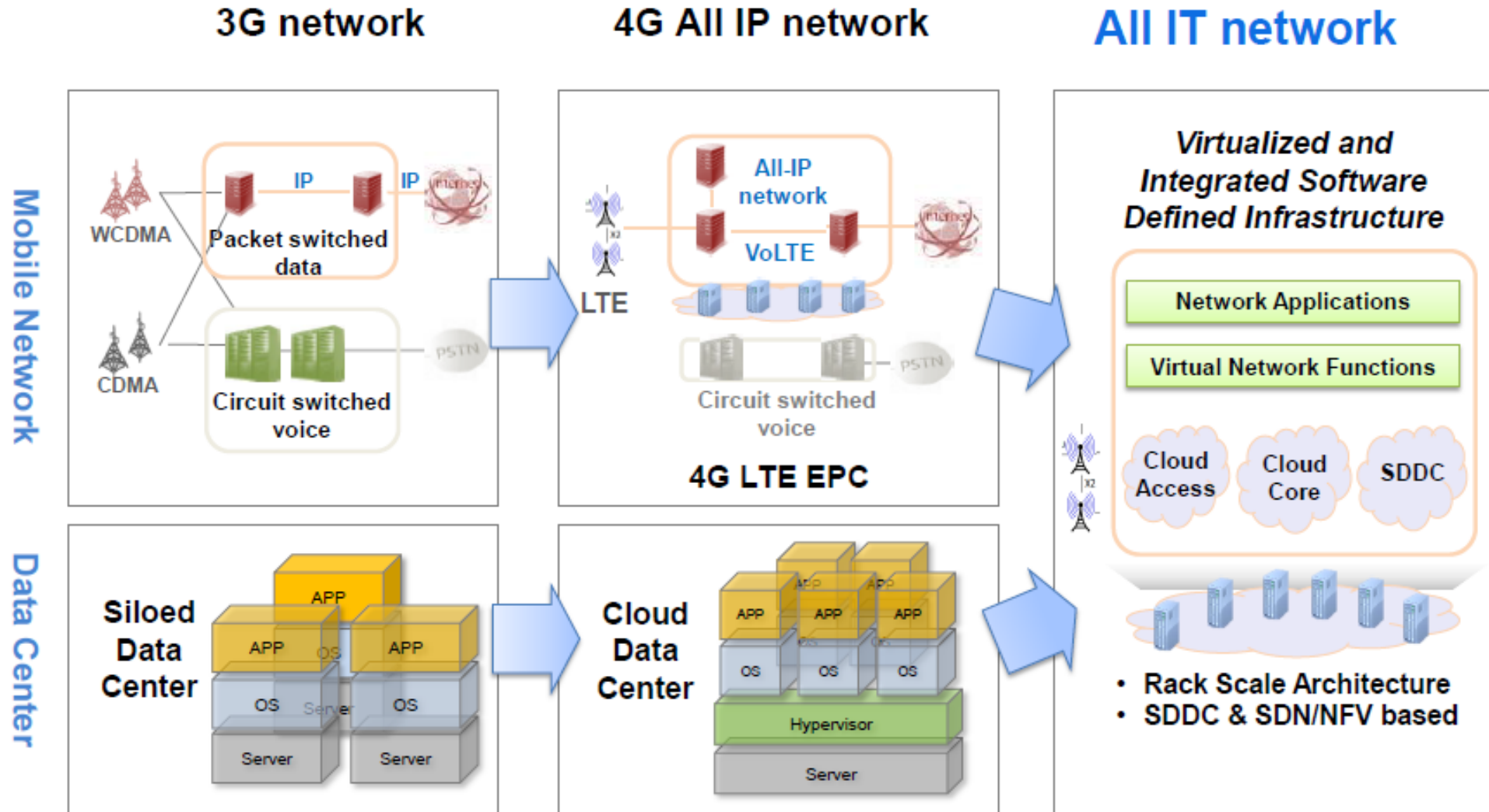


IoT Platform

- Smart home, Smart city, Industry 4.0
- Extreme QoS Guarantee (e.g. self-driving cars)
- IoT data collection & analysis

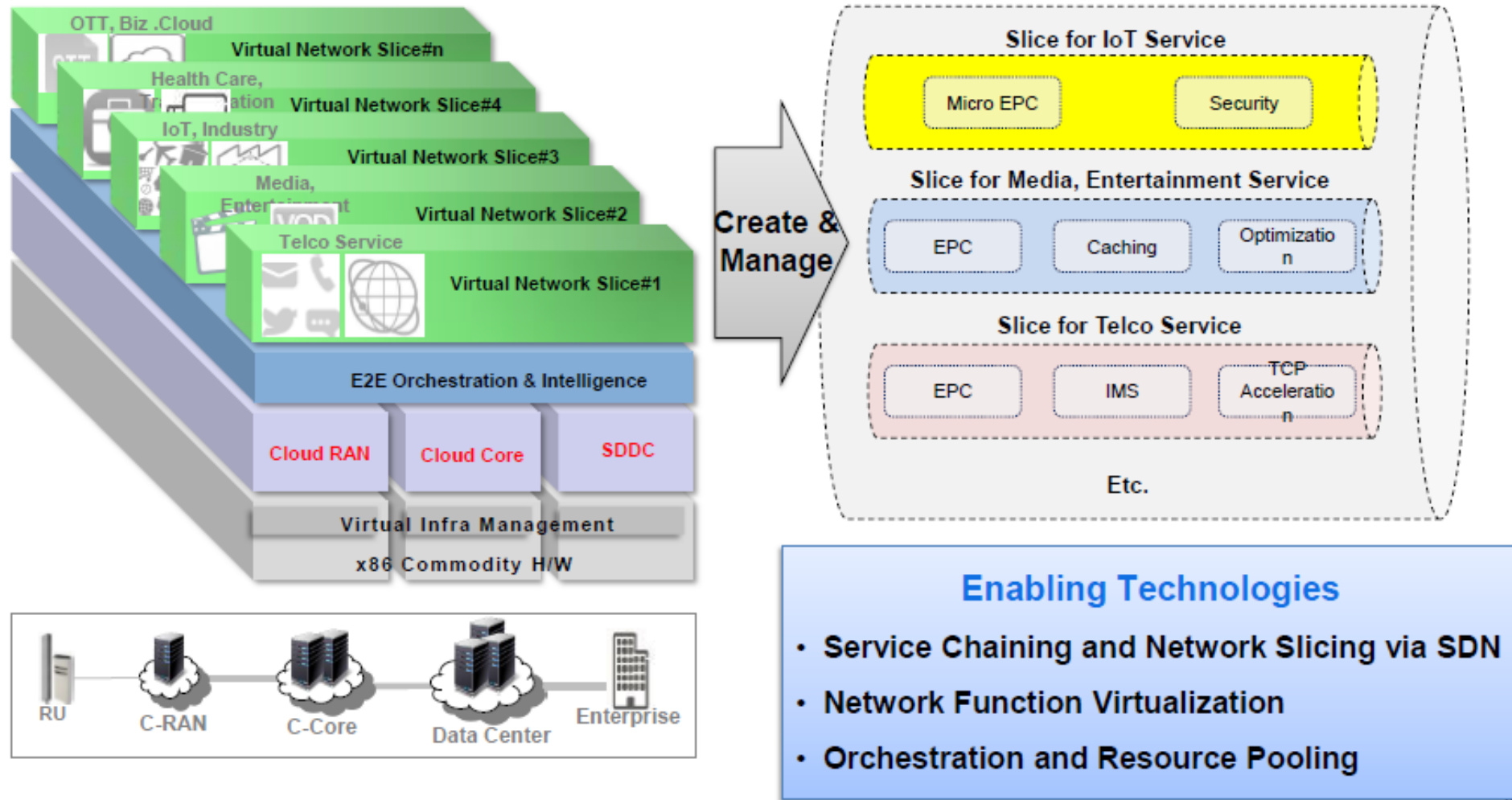


Network/IT Convergence Trend



All IT network infrastructure

Various business platforms will be created from the virtualized network



HOW TO CAPITALIZE CONNECTIVITY



- › Prepare your access network for M2M and IoT
- › Improved coverage – indoor and wide-area
 - Deploy indoor solutions (will often require new operator agnostic solutions)
 - Extend range and penetration of existing access network (GSM and LTE)
 - Embrace new access technologies (LWPA)
- › Connectivity related security
 - 3GPP TS 33.220 Generic Bootstrapping Architecture

CAPITALIZE YOUR OWN TRANSFORMATION



- › Network Function Virtualization IS happening in Telecom
 - Why not embrace IT
- › Operators need Cloud performance superior to most ICT services for own services (99,999% uptime, low latency etc.)
- › Cloud Service Offerings
 - Orchestration, deployment and **governance**
 - Security (storage, connectivity etc.)



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 all digital and virtual currencies capture a large share of GDP



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