STAGES OF TECHNOLOGY DEVELOPMENT
BROADBAND – CLOUD – M2M

VILMOS BESKID
HEAD OF ERICSSON R&D, HUNGARY

ERICSSON

WHERE ARE WE?

TECHNOLOGY DEVELOPMENT

1771
The Industrial Revolution
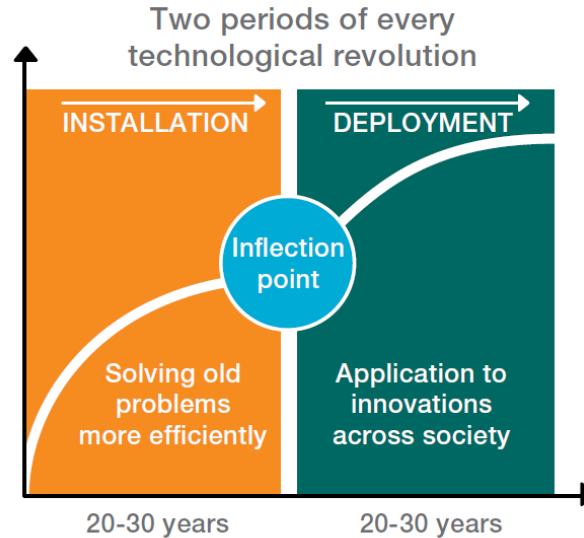
1829
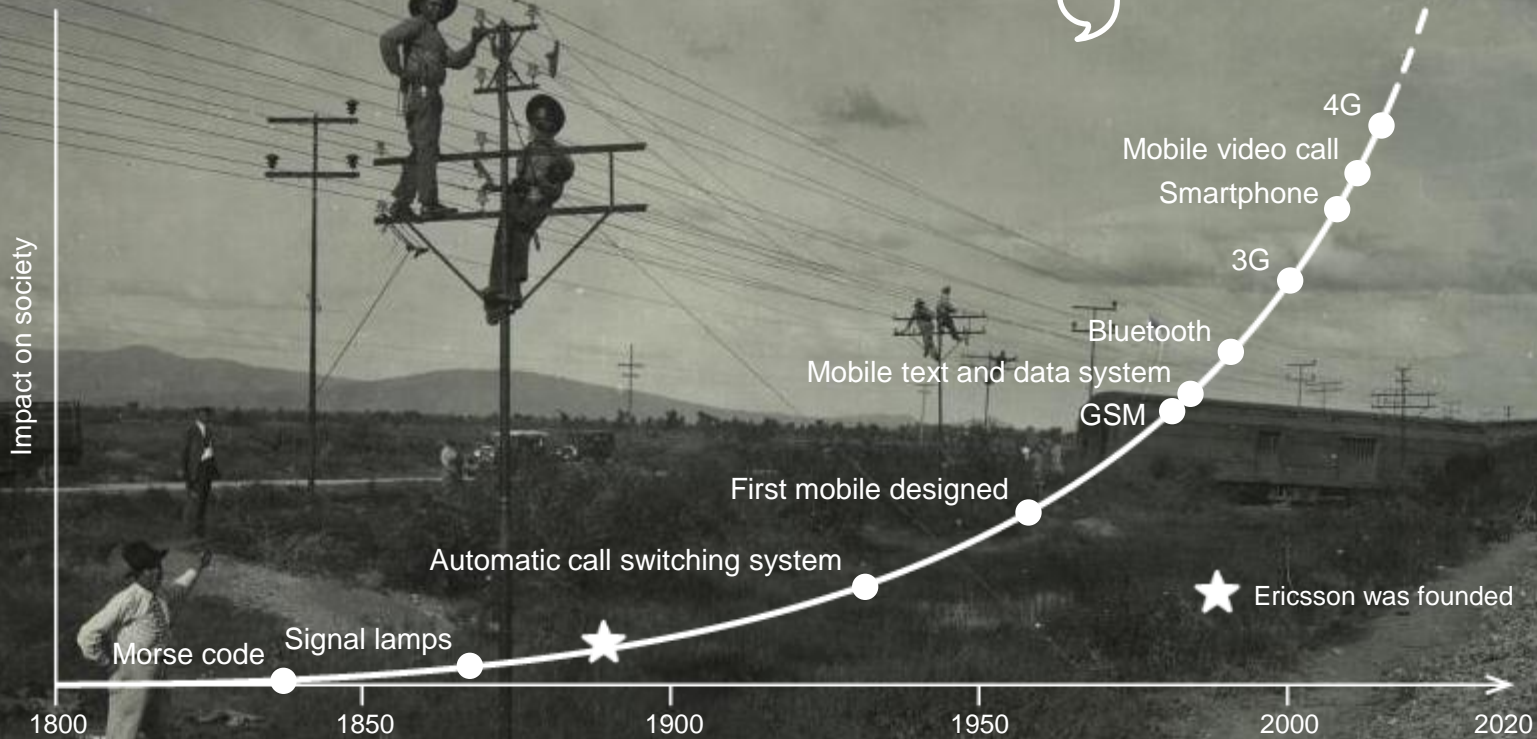Steam, coal, iron and railways

1875
Steel and heavy engineering

1908
Oil, automobiles and mass production

1971
IT and telecommunication

Two periods of every technological revolution

INSTALLATION

DEPLOYMENT

Inflection point

Solving old problems more efficiently

Application to innovations across society

20-30 years

20-30 years

Source: Professor Carlota Perez
University of Cambridge

COMMUNICATION IS A BASIC HUMAN NEED

Impact on society

4G
Mobile video call
Smartphone
3G
Bluetooth
Mobile text and data system
GSM
First mobile designed
Automatic call switching system
Ericsson was founded
Signal lamps
Morse code

1800   1850   1900   1950   2000   2020

WHAT IS HAPPENING?

Qmee

293K Facebook statuses

Over 5 million videos viewed on YouTube

540 Vines

2.66 million Google searches

14 songs added to Spotify

70 domains registered

88K Skype calls

15K songs downloaded from iTunes

1.1K photos uploaded on flickr

1.8K WordPress posts

433K tweets on Twitter

in 60 seconds

571 new websites

277K snaps on Snapchat

16.6K transactions on Walmart

25K items purchased on Amazon

120 new users on LinkedIn

3.4K pins on Pinterest

67K photos uploaded to Instagram

138.8 million e-mails (including spam)

4.7 million tumblr posts

THE NETWORKED SOCIETY
WE ARE AT THE ICT INFLECTION POINT

INSTALLATION

DEPLOYMENT
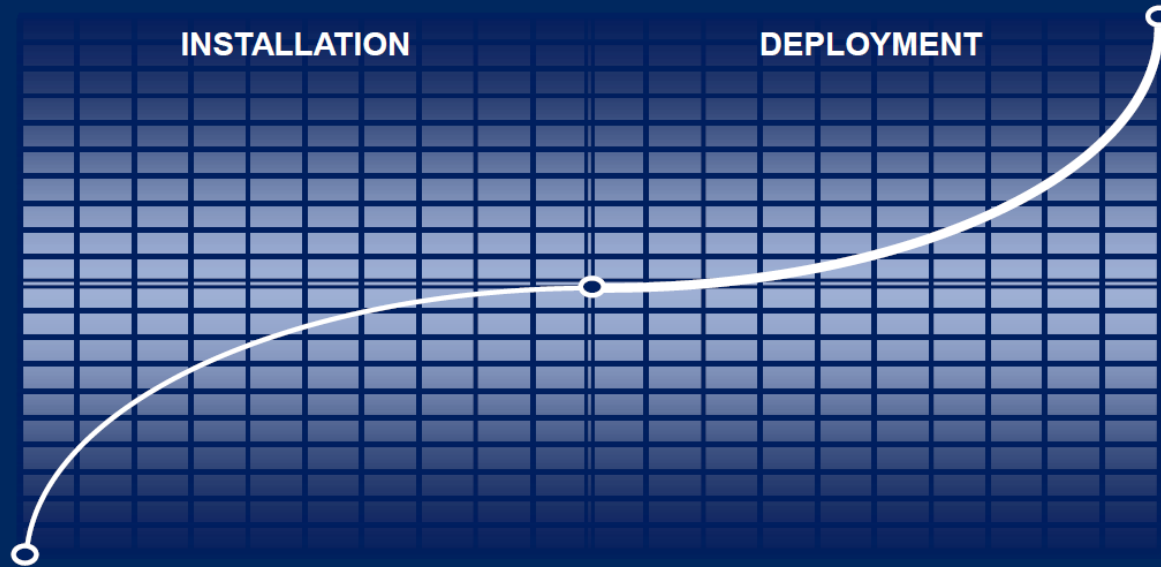
MOBILITY   -   BROADBAND   -   CLOUD

Source:
Carlota Perez

NETWORKED SOCIETY

A connected world is just the beginning

Status update

Share

Location

THE RIPPLE EFFECT

ICT progress builds positive change for society, business and people

SOCIETY

BUSINESS

PEOPLE
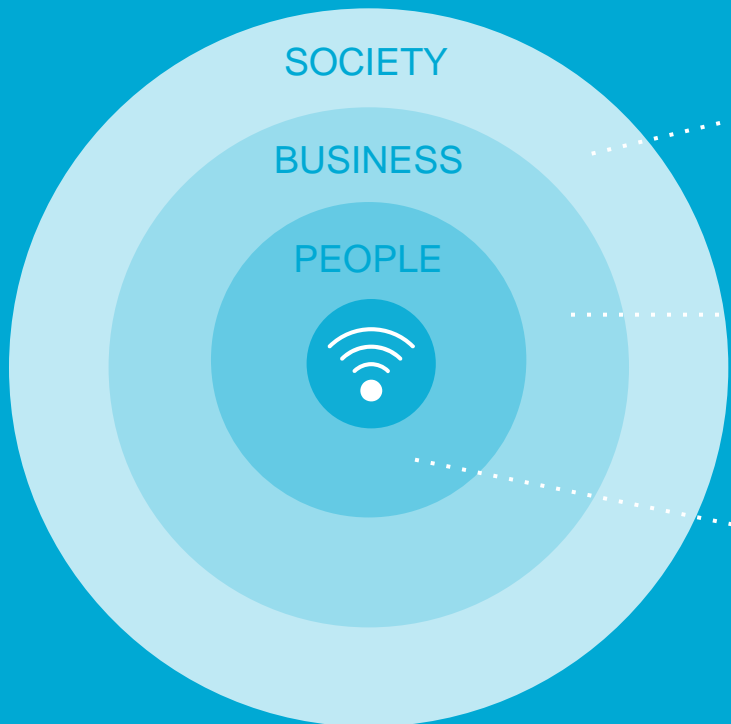
80 JOBS

are created for every 1000 broadband connections

Source: Ericsson, AD Little

20 MILLION

Spotify users in 4 years, accessing 20 million songs creating 1 billion playlists

Source: Spotify

6.3 MILLION
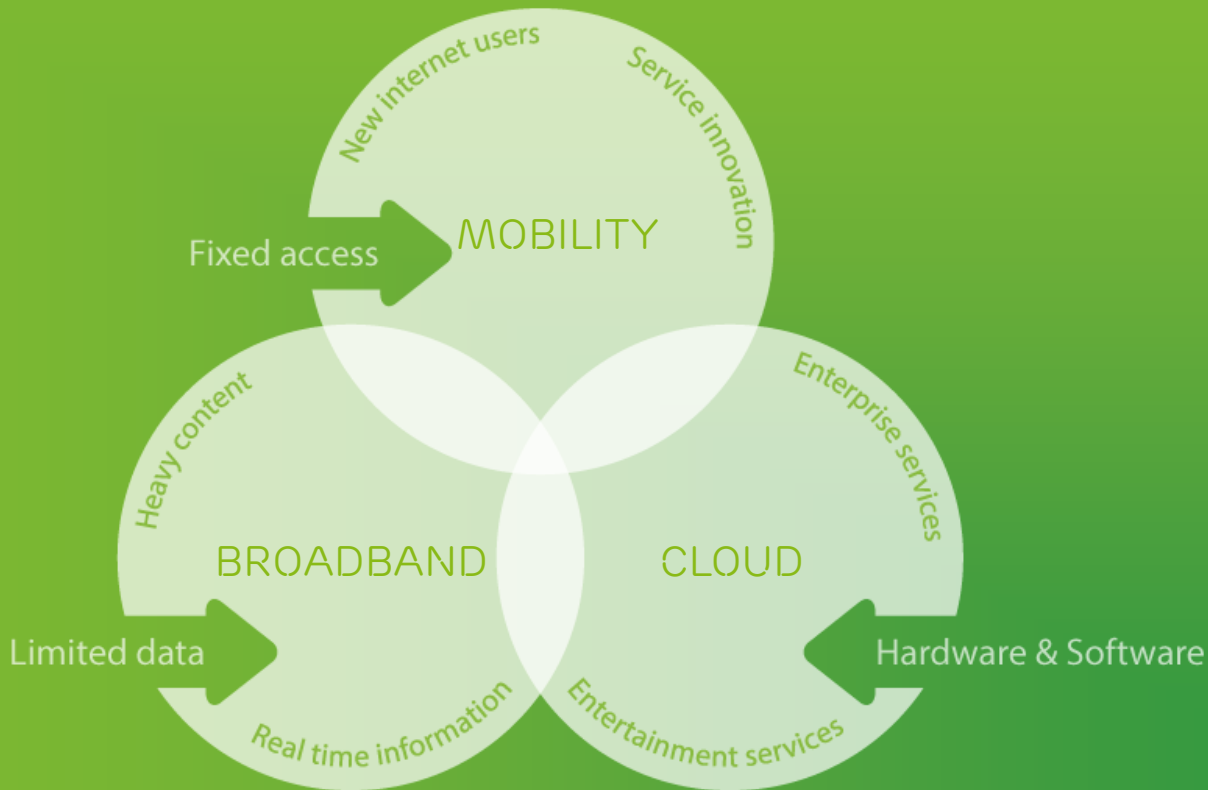
concurrent players on the Steam online gaming platform

Source: Valve

PROGRESS

Connections (billion)

50

40

30

20

10

15 years
50 billion connected devices

25 years
5 billion connected people

100 years
1 billion connected places

1875   1975   2000   2020

THREE KEY SHIFTS

MOBILITY

New internet users

Service innovation

Fixed access

BROADBAND

Heavy content

Limited data

Real time information

CLOUD

Enterprise services

Hardware & Software

Entertainment services

MOBILE TRAFFIC GROWTH

10x

Growth in mobile data traffic between 2013 and 2019 (ExaBytes)

■ Data: mobile PCs, tablets and mobile routers

■ Data: mobile phones

■ Voice

20
18
16
14
12
10
8
6
4
2
0

2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
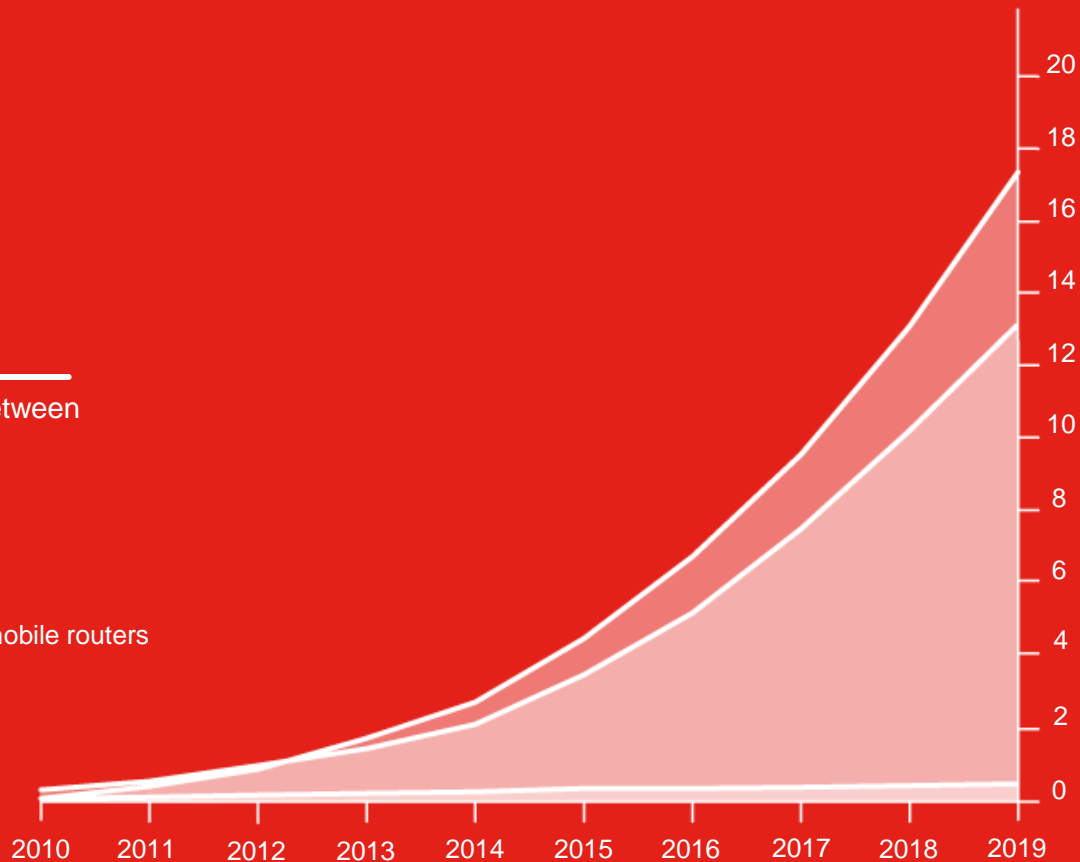
CATCHING THE NEWS

Key challenges

› Heavy data
› Moving fast
› Crowds of people
› Below ground level

Compress & distribute

Store content close to users

Right stream to right device

Coverage everywhere

Fast response in application

Top video quality

SHARING THE GOAL

Key challenges

› Thousands of people
› Share live experience
› Photo, audio, video
› All at the same time

Record & Share experience

Great device performance

Local boost of coverage

Self-optimizing network

Coverage everywhere

Reach anyone in real time

JOINING THE CONFERENCE

Key challenges

› Indoor
› Concrete walls
› Modern/isolated windows
› Rich media

Compress & distribute

Reach anyone in real time

Right stream to right device

Coverage everywhere

Local boost of coverage

Top quality of video

KEEPING THE DISTANCE

Key challenges

› Moving fast
› Human factor
› Ultra fast response
› Cannot fail

Connected Vehicle Cloud

GPS & traffic information

Analyze & predict

Coverage Everywhere

Command if needed

Notify emergency

WHAT TO EXPECT FROM 5G

Multi-domain Performance
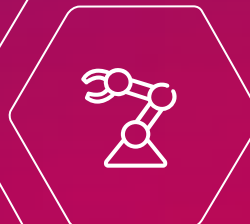
Foundation for Efficient Industries and Society

Massive Machine Type Communications

Energy Performance

Critical Machine Type Communications
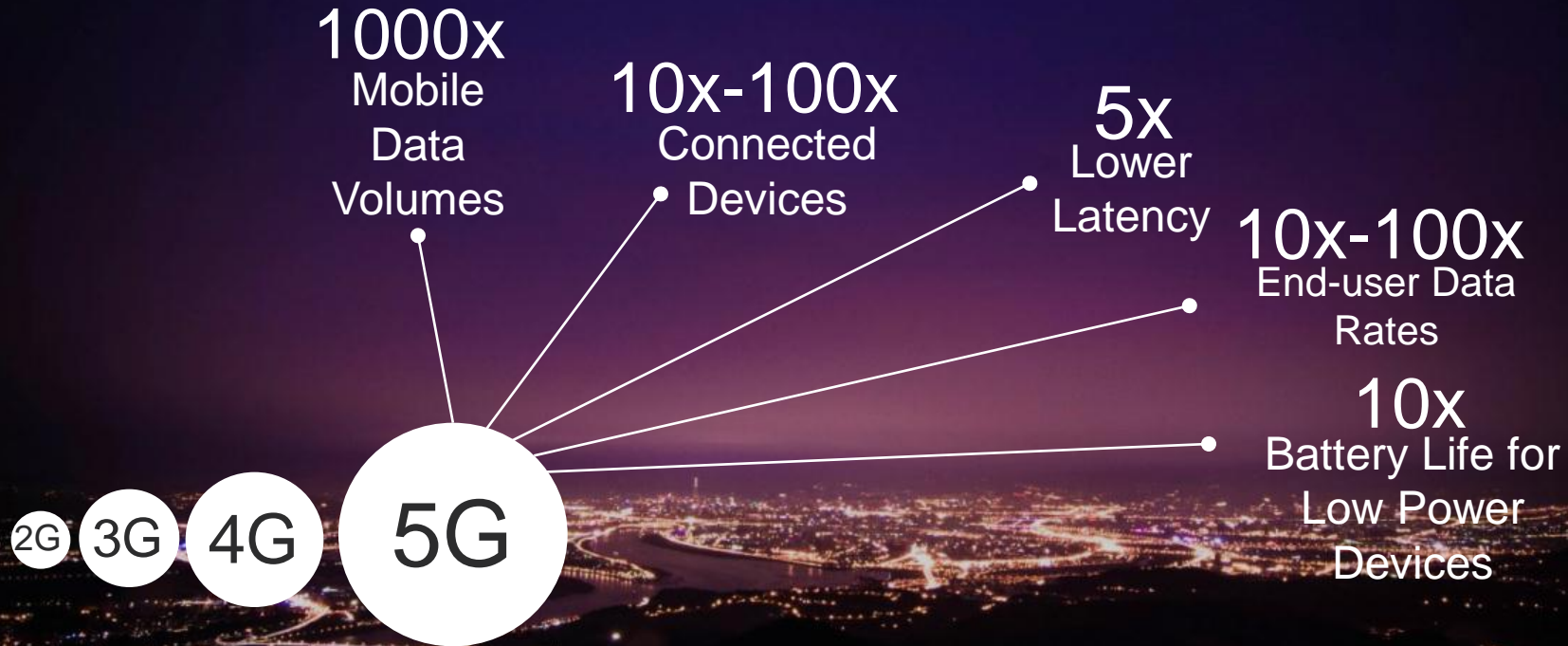
Global Standard

Mass Market Personalized TV

EVOLUTION TOWARDS 2020

1000x Mobile Data Volumes

10x-100x Connected Devices

5x Lower Latency

10x-100x End-user Data Rates

10x Battery Life for Low Power Devices

2G 3G 4G 5G

ONE NETWORK – MULTIPLE INDUSTRIES

A common network platform with dynamic and secure Network Slices

THE JOURNEY TO A NETWORKED SOCIETY

Today

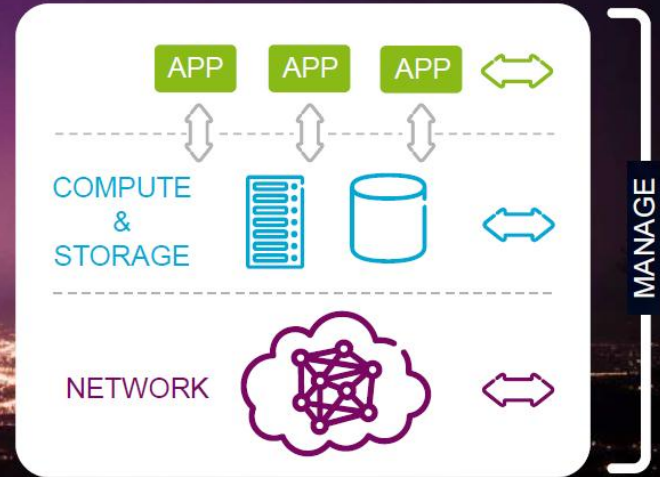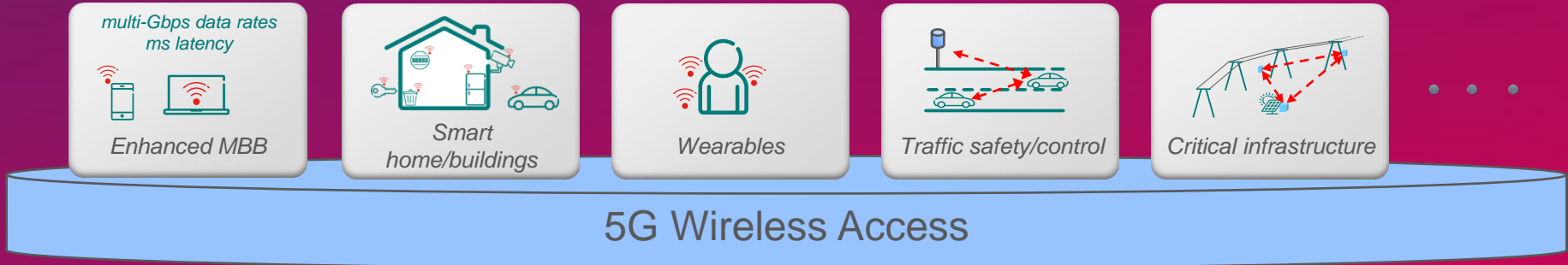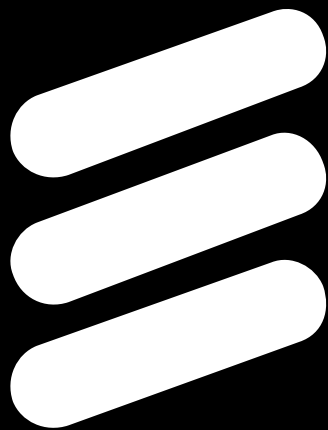Transformation journey

Tomorrow
Global cloud based networks

"Radically simplified network"

"Providing cloud services to enterprise"

"Bring products to market much quicker"

APP   APP   APP

COMPUTE & STORAGE

NETWORK

MANAGE

FUTURE WIRELESS ACCESS – THINGS & DEVICES

A platform on which any future wireless application can be implemented

multi-Gbps data rates
ms latency

Enhanced MBB

Smart home/buildings

Wearables

Traffic safety/control

Critical infrastructure

5G Wireless Access

More than just bigger and better mobile broadband