



# Capital markets day 2021

ADVA Optical Networking SE

March 23, 2021

# Agenda

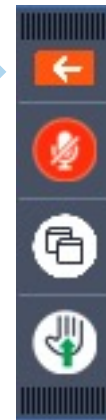
## Tuesday, March 23

03:00	<b>Welcome</b> Steven Williams, director, treasury and investor relations
03:05	<b>Strategy execution and the next chapter</b> Brian Protiva, CEO and Stephan Rettenberger, SVP, marketing and investor relations
03:20	<b>Innovation for a digital future</b> Christoph Glingener, CTO
03:45	<b>Global manufacturing strategy</b> Paulus Bucher, COO
04:00	Coffee break
04:15	<b>New markets and opportunities</b> Scott St. John, CMSO
04:35	<b>Financial roadmap</b> Ulrich Dopfer, CFO
04:50	<b>Q&amp;A</b>

# Housekeeping

- We'll have a Q&A session at the end of the presentations
- We'll enable your mics and kindly ask you to raise your hand

Click on the arrow to expand/collapse the control panel



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This presentation contains forward-looking statements with words such as “believes”, “anticipates” and “expects” to describe expected revenues and earnings, anticipated demand for networking solutions, internal estimates and liquidity. These forward-looking statements involve a number of unknown risks, uncertainties and other factors that could cause actual results to differ materially. Unknown risks, uncertainties and other factors are discussed in the ‘risk and opportunity report’ section of ADVA Optical Networking’s annual report 2020.

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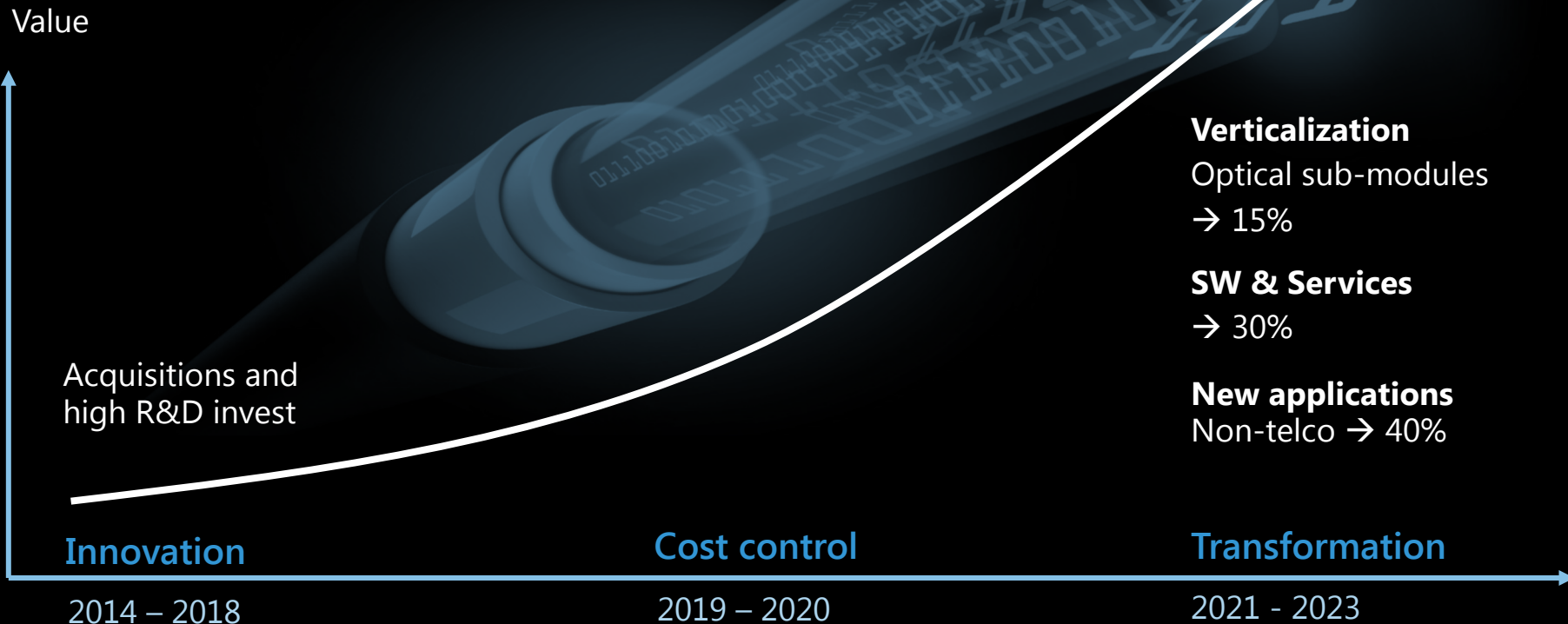


# Capital markets day 2021

Brian Protiva, CEO

March 23, 2021

# Business transformation



Leveraging our investments of the last years to a higher margin model



# The art of innovation

Christoph Glingener, CTO

Capital markets day, March 2021

# The world is changing

## Digitalization

- Smart ...
  - enterprise
  - cities
  - manufacturing
  - utilities
  - government
  - home



## Deglobalization

- Be 'local'
- Multi-source
- Trust is key!

## Decarbonization

- Green by ICT
- Green ICT



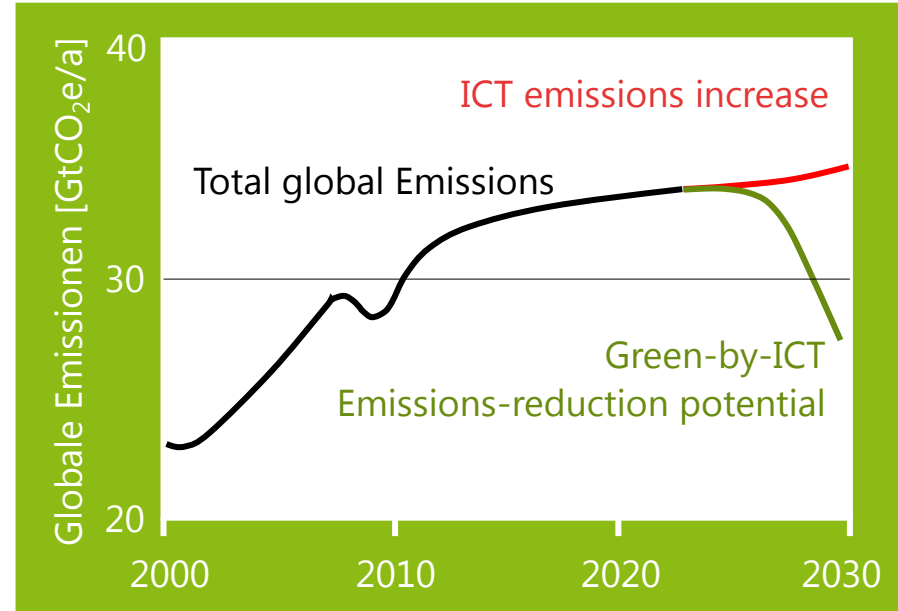
Technology



# Decarbonization will influence buying decisions

Strong commitment and industry leadership

- Science based targets (SBTi 1.5°C)
- Product ecodesign
- Optimization of operations & logistics



Need sustainable network technology to win the global warming fight

# New requirements lead to increasing opportunities



## Disaggregation, open standards

- Open and interoperable
- Wholesale friendly
- No single vendor lock-in

## Digitalization

- Enterprises driving decisions
- Increasing spend
- Structural market changes



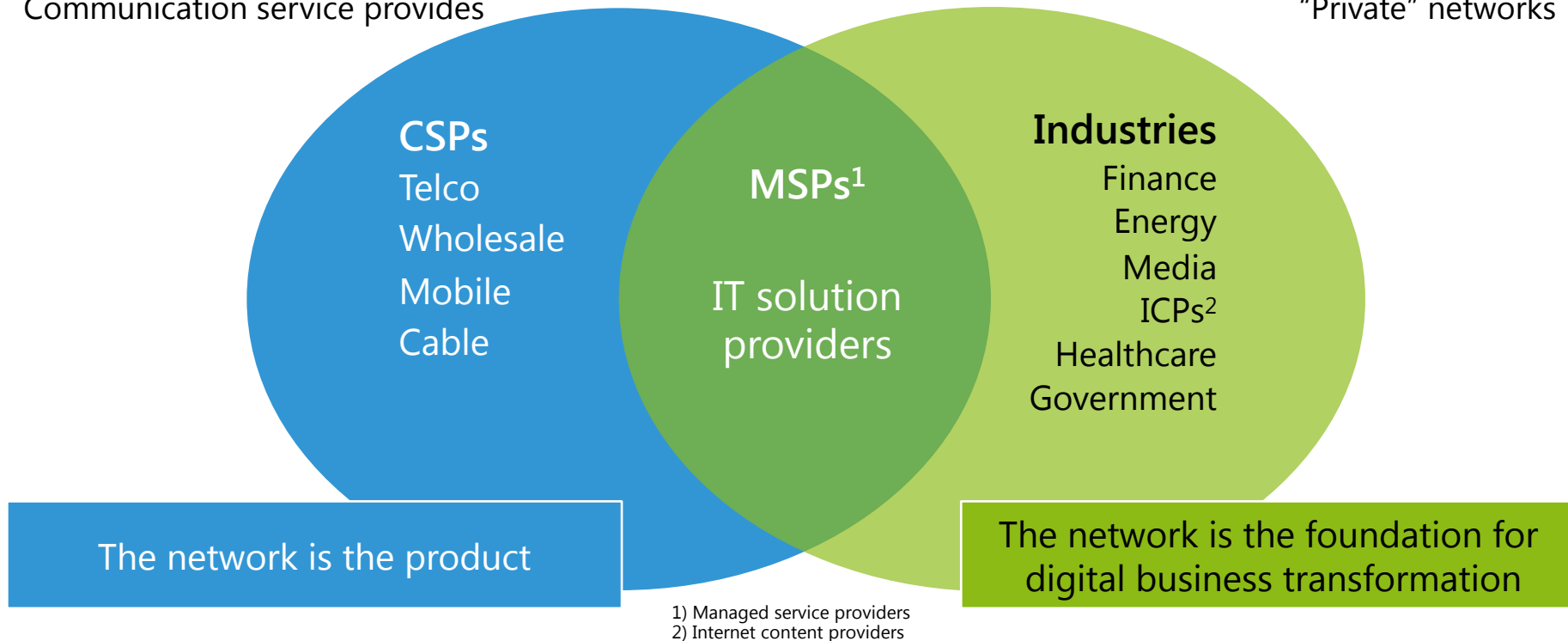
## Integration and homologation

- Engineer overall solutions
- Test and certify

# Digitalization opens the door to new markets

Communication service providers

"Private" networks





# Our transformation – increasing value creation



## Software and virtualization

- Network function virtualization
- Network operating systems
- AI and automation



## New markets

- Differentiated technology
- Extended addressable market
- Service and support

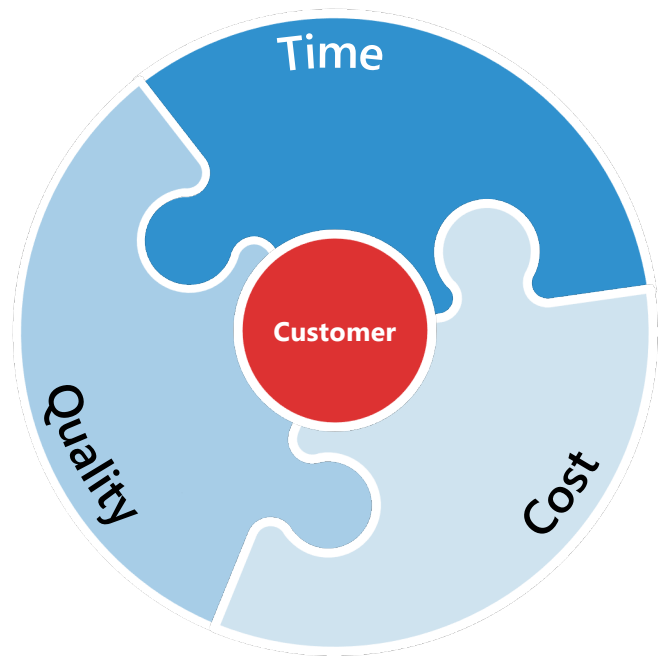


## Verticalization

- Optical and electrical components
- Subsystems and pluggable modules
- Cost optimization



# The ADVA DevOps model



## Customer experience

- Unique ADVA identity, zero touch solutions
- Close customer alignment, joint DevOps

## Differentiation

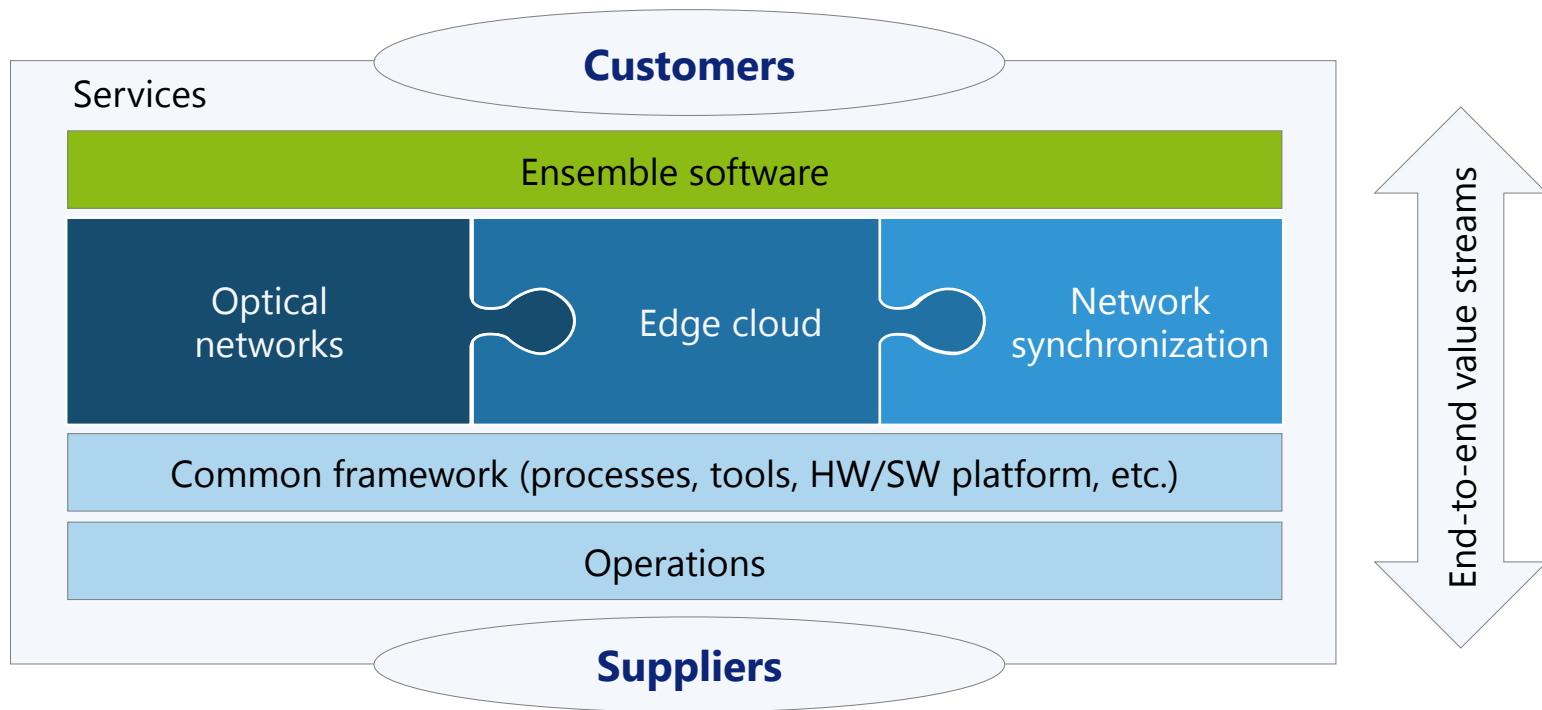
- Leading technical performance
- Unique solutions addressing real challenges

## Agility

- Tailoring to customer needs
- Fastest feature/problem-solving turn around

1000 engineers (60% SW) – world-class research – common framework

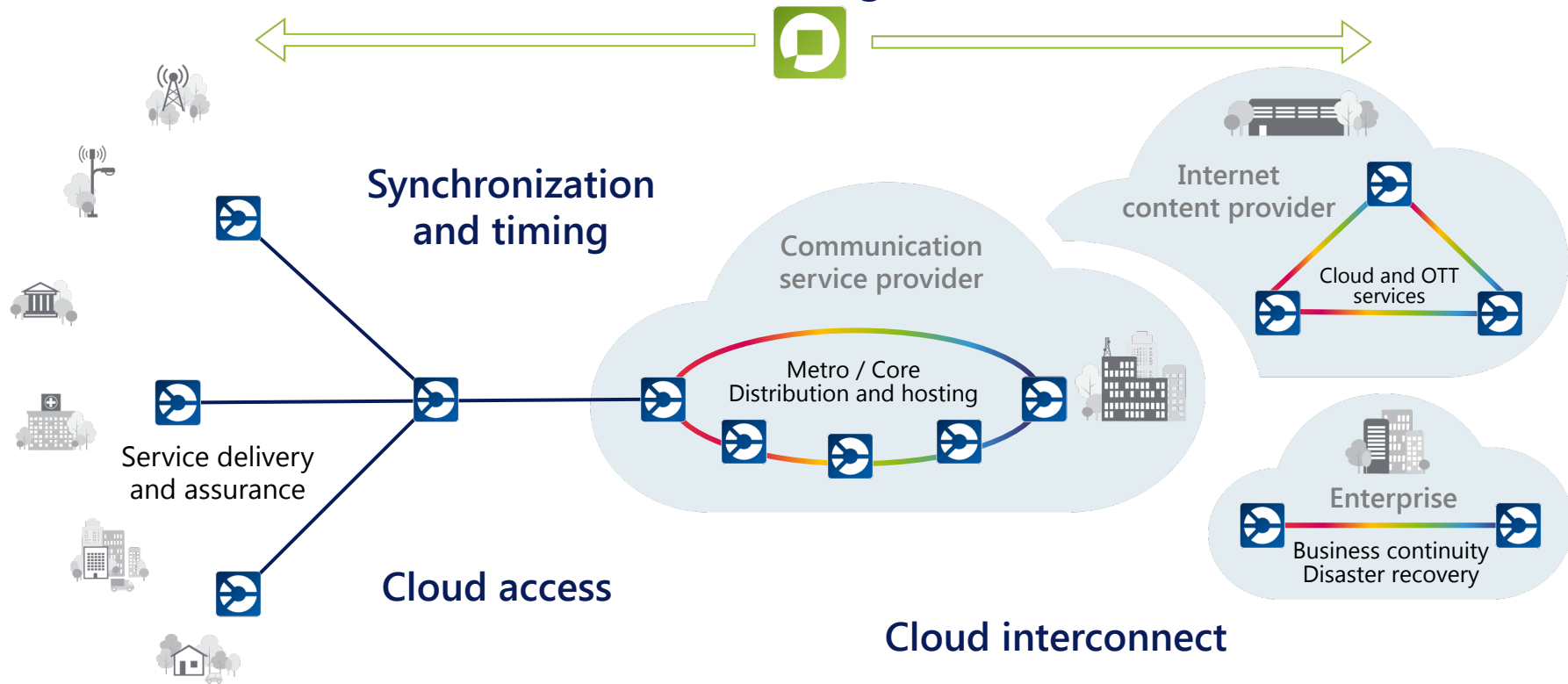
# Our innovation engine



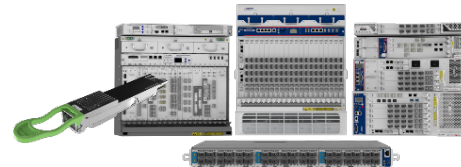
Decision making close to customer and technology

# Transforming the network

## Ensemble network management and control



# Optical networks dynamics



## Our foundation

- Market leadership in enterprise DCI<sup>1</sup>
- Large installed base of OLS<sup>2</sup> in hyperscale DCI
- Proven track record with global tier 1 and 2 customer base

1) > 30% global, > 50% in EMEA; Source: Omdia, market share 3Q20 (rolling four quarters) optical networks global and data center interconnect, publ. November 2020

2) open line system

3) silicon photonics

4) application-specific integrated circuit

## Transformation

- **Disaggregated** portfolio
- **Verticalization:** SiP<sup>3</sup>, ASICs<sup>4</sup>, and more
- **Software & Automation** focus incl. licensing
- Certification / security push

## Growth & Profitability

- New wins via **disaggregation**
- New markets and lower costs
- Increased margins and **integration** opportunities
- Enterprise technology lead

Delivering scalable bandwidth for a digital future

# Edge cloud dynamics



## Our foundation

- Market leadership in Carrier Ethernet (CE) access<sup>1</sup>
- Differentiated portfolio for 100G aggregation
- Technology leadership in NFV<sup>2</sup>



## Transformation

- **Disaggregation:** O-RAN<sup>3</sup> and white box adoption
- **Software:** NOS<sup>4</sup>'s and extending to Layer3+
- **Virtualization:** From HW appliances to NFV SW solutions



## Growth & Profitability

- Mobile (5G, O-RAN) expands our TAM dramatically
- Growing from switching to routing increases our TAM
- New customers by NOS-leadership
- Growth by enterprise and integration opportunities

1) >22% global, >47% in EMEA; Omdia, market share 2Q20 SP access switching & Ethernet demarcation, publ. August 2020

2) network function virtualization; Harmony ecosystem with >50 VNFs and a wide range of hardware choices

3) Open radio access network

4) network operating system

Programmable edge cloud solutions for mobile networks, business access and IoT

# Network synchronization dynamics

## Our foundation

- Technology leadership in network-based timing
- Consistently high win rates leading to impressive list of MNO<sup>1</sup> customers
- Three-year CAGR >25%

1) Mobile network operators

## Transformation

- Most accurate sync portfolio incl. service assurance
- **Verticalization** by subsystems
- **Software:** precise virtual sync
- Solutions for enterprise verticals

## Growth & Profitability

- Accelerating 5G rollouts incl. automation and assurance
- New OEM/ODM opportunities
- Increasing SW value creation
- New market verticals utilities, finance, media, ...

The world needs better timing – network-based and assured



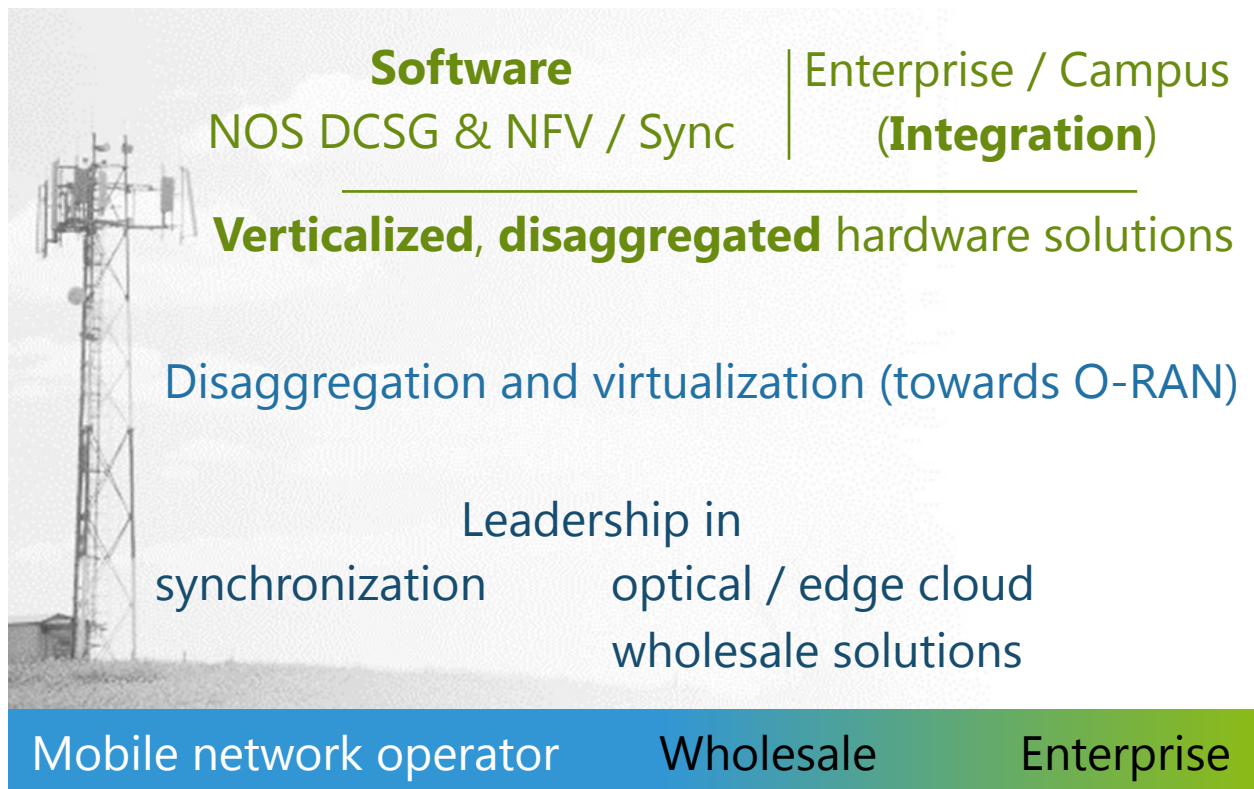
# The mobile opportunity

Transformation by innovation

Growth & Profitability

Transformation

Our foundation





# Thank you

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# Global manufacturing strategy

Paulus Bucher, COO

Capital markets day, March 23, 2021

# Operations – business drivers



## Planning

### Differentiators:

- Order lead time
- On time delivery
- Inventory turns
- Flexibility
- Supply continuity



## Sourcing

### Differentiators:

- Product reliability
- Cost and cost reduction
- Multi-vendor sourcing
- Compliance management



## Manufacturing and engineering

### Differentiators:

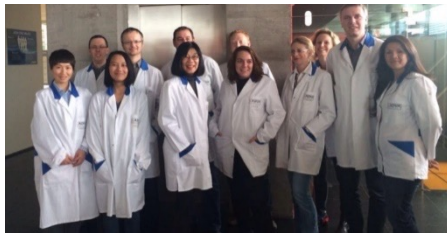
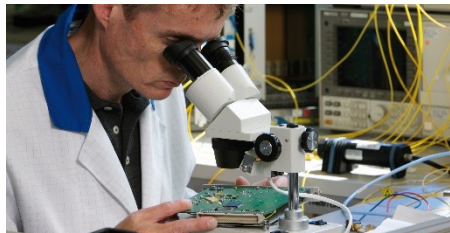
- Quality
- Time to market and cost
- Cost / Yield / Absorption
- Automated test solutions
- configurability



## Delivery

### Differentiators:

- Quality
- Delivery performance
- Flexibility
- Freight cost
- Automation & robotics



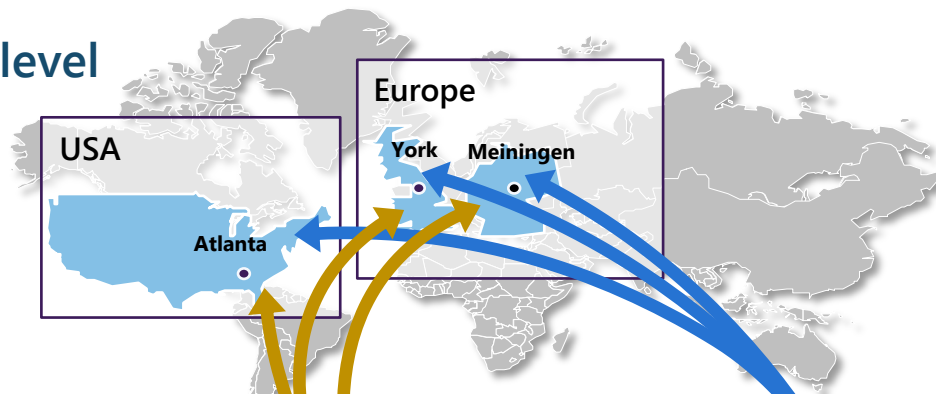
Team of 350 employees focused on customer, quality, cost and timely execution



# ADVA's scalable manufacturing model

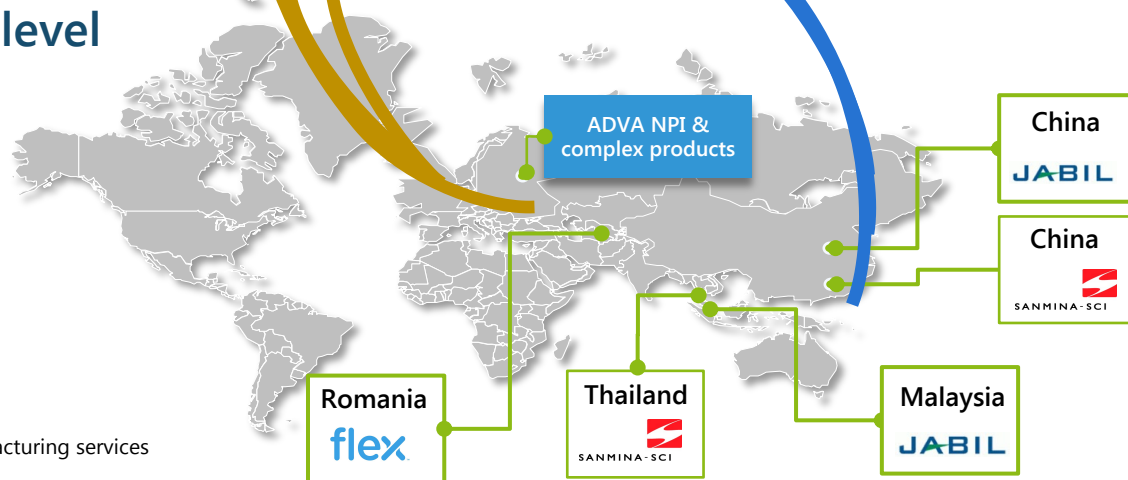


## System level



## Module level

Exclusively using three of the top 5 EMS\*



\*electronic manufacturing services

# Transforming the model

# Change drivers

## Geopolitics



- Deglobalization
- Customer requesting CoO\* in TAA / EU / made in specific country (bottom line: less dependent on China)
- US-China tariff mitigation
- ADVA's new Europe-centric manufacturing model

## Supply continuity



- Covid-19
- Brexit
- Semiconductor shortage

## Software-defined products



- Efficient configuration engine (project CPQ-C)

## Supply chain complexity



- Growing product and customer base requiring advanced planning tools (project SAP-Hana)

## Go vertical



- Develop capability into optoelectronics

\*CoO: country of origin

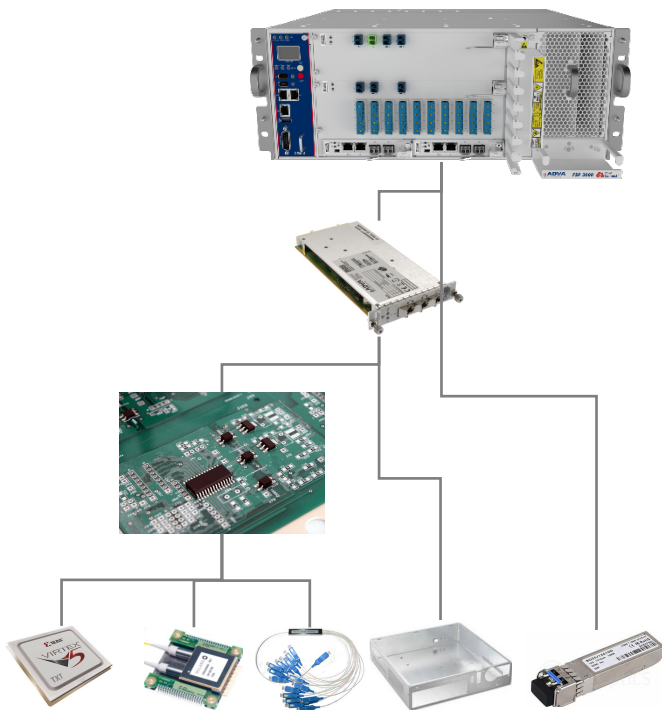
# Trusted product, secure supply

Systems

Modules

Board assembly

Components

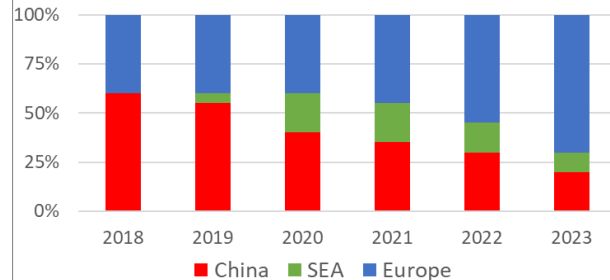


Defines  
CoO\*



**ADVA™** Distribution centers D/UK/US

CoO Evolution



Optics&Plugs: **ADVA™** going vertical  
Premium CoO non-China

Components: Next design cycle

\*CoO: country of origin

Model is Europe-centric and has a secure supply chain – a unique differentiator

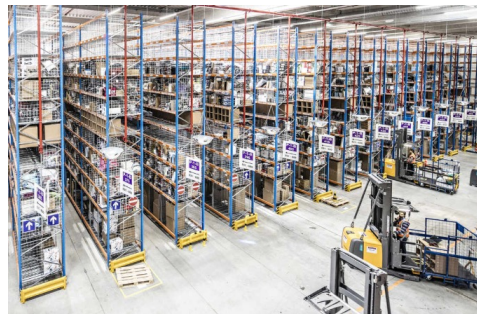
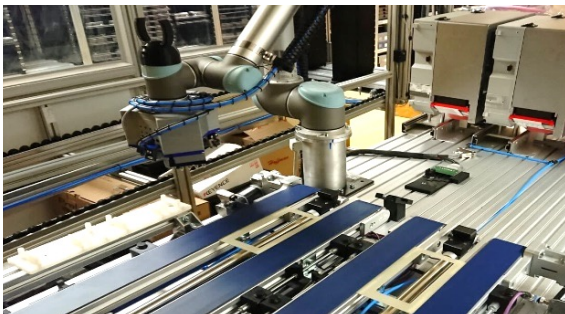


# Manufacturing and cost control

## The optical amplifier challenge: Cost... 10hrs of manual assembly per unit

- Automating splicing and fiber routing (EDFA\*)
- Optical switch fabric (factory provisioning of services)
- Project Marvin: zero touch NIT programming
- Automated processing of configurations (CPQ-C)
- Semi-automated warehousing and logistics

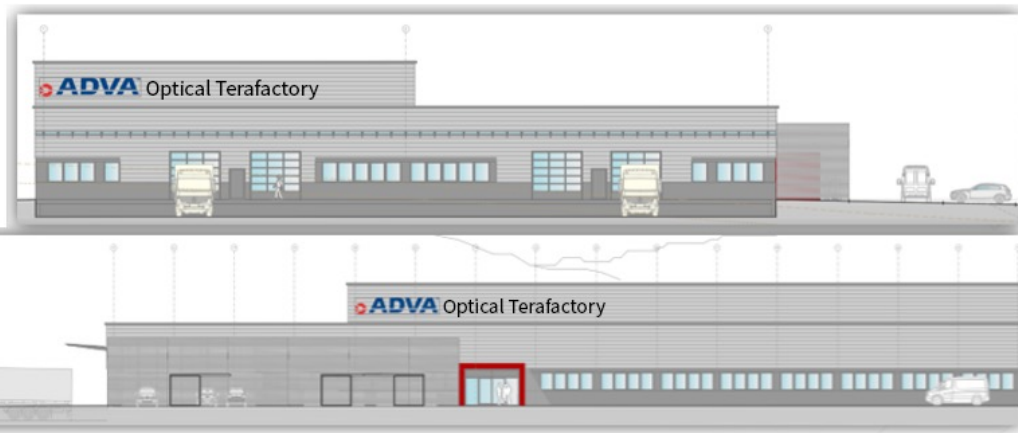
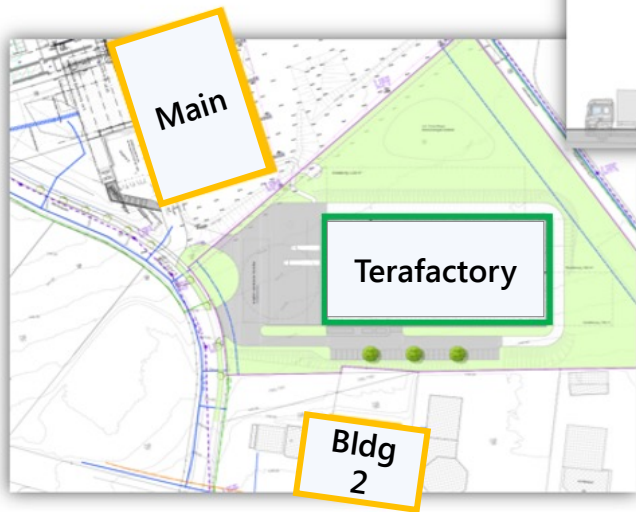
\*Erbium-doper fiber amplifier



Highly-automated factory in Germany in close collaboration with Eastern Europe

# The ADVA Optical Terafactory (Germany)

4000m<sup>2</sup> building  
in Thuringia, Germany



- Highly automated factory for optical amplifiers
- EUR 10m invest, partly government-funded
- Solar-powered with high energy efficiency
- Construction start in summer 2021



# Thank you

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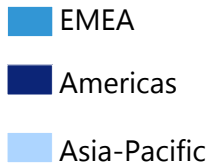
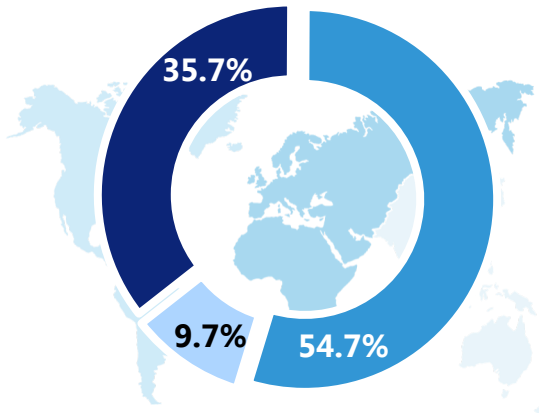
# New markets and opportunities

Scott St. John, Chief Marketing & Sales Officer

Capital markets day, March 23, 2021

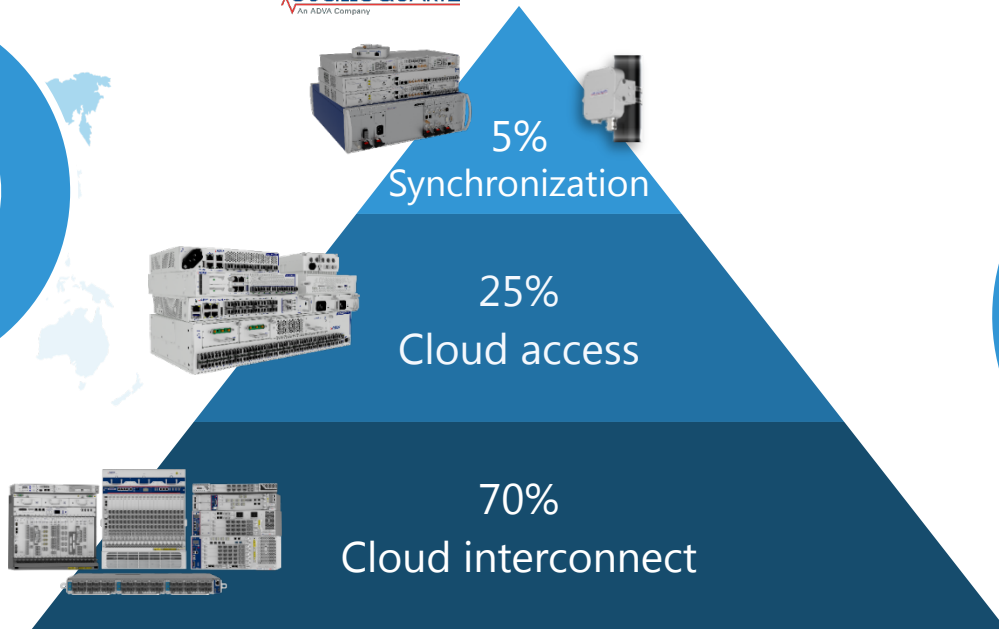
# 2020 revenue splits

## Region

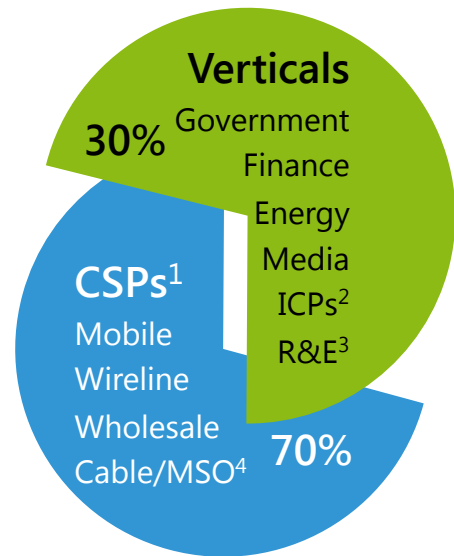


## Technology

OSCILLOQUARTZ  
An ADVA Company



## Customers



- 1) Communication service providers
- 2) Internet content providers
- 3) Research and education
- 4) Multi-service operators

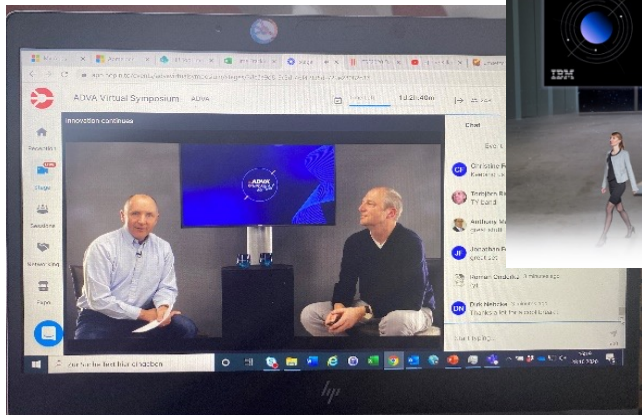
Growing profitably, but weighted towards lower profitability segments



# Customer engagement during Covid-19

## Marketing and selling go virtual

- Virtual events and customer meetings
- Shift of marketing investment to digital
- Lab as a service

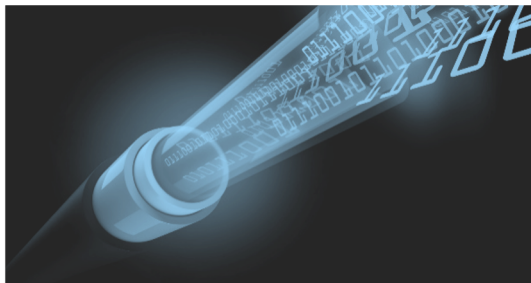


## Field services evolve

- Health and safety protocols prioritized
- Broader mix of local contractors

Achieved 50+ new end customers and record field services revenue despite pandemic

# Transformation has started



2020

## Early achievements already visible in 2020

- 44 target accounts and applications → 50% won, many in pipeline
- Momentum in government and energy
- Expanding partners for enterprise solutions

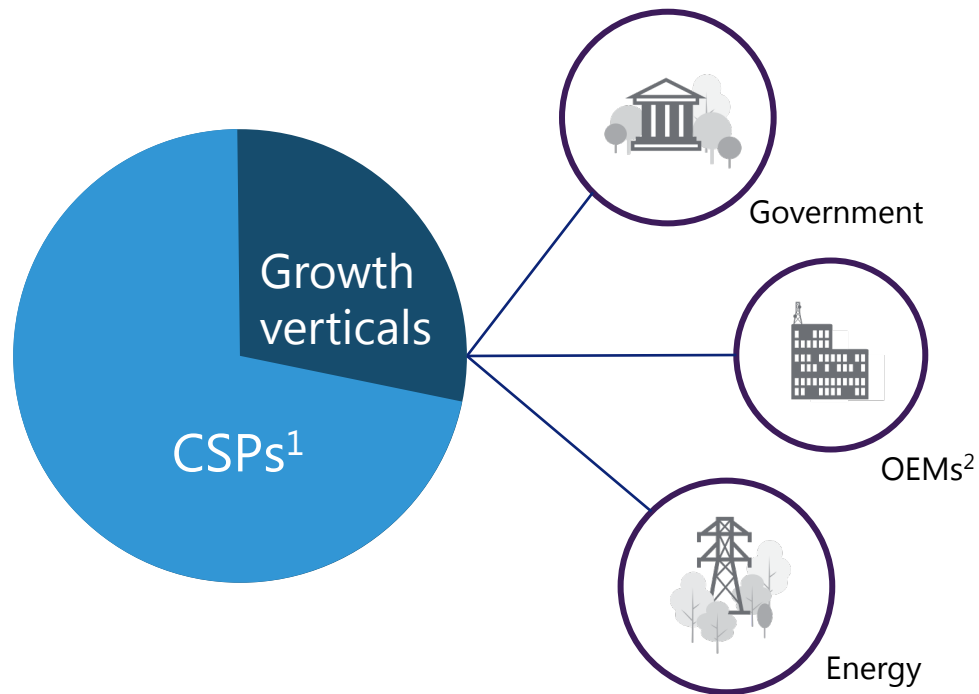
2021

## Accelerating growth and profitability

- New applications and growth in new verticals
- Software and services expansion
- Verticalization opportunities



# Accelerating traction in growth verticals



1) Communication service providers  
2) Original equipment manufacturers

## Revenue growth

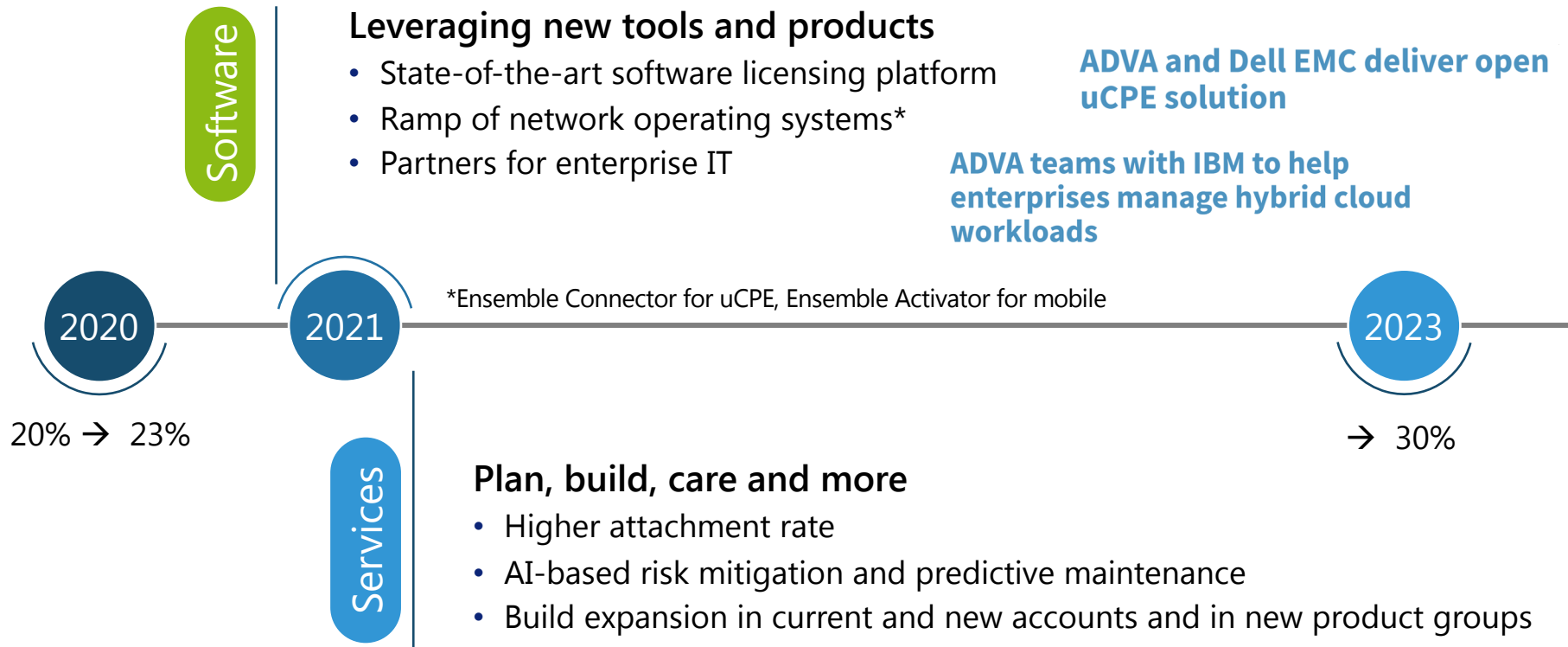
- **CSPs continue to grow**
  - Mobile, wholesale
- **Partner expansion**
  - Dell, IBM, NEC
- **Expanding and upskilling sales force in growth areas**

→ 40% revenue contribution by 2023

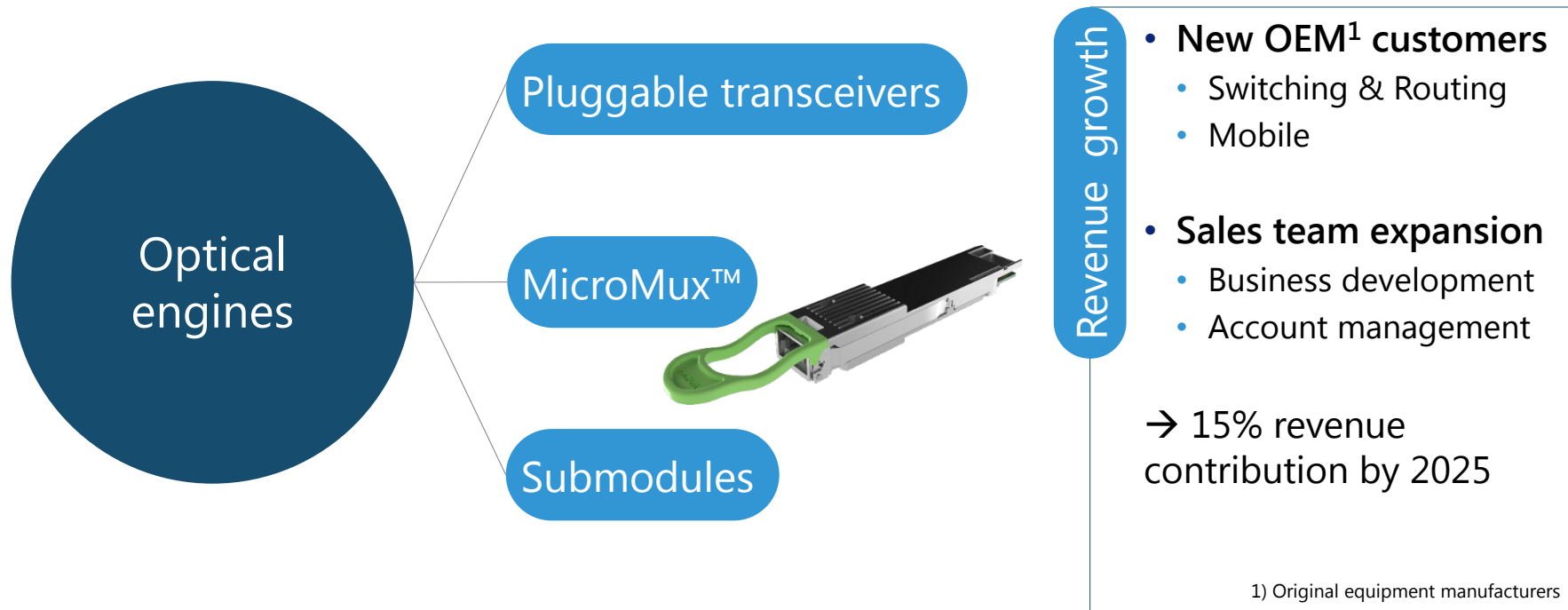
Leveraging our innovation leadership in synchronization, security and NOS\*

\*network operating systems

# Expanding software and services



# New revenue streams through verticalization

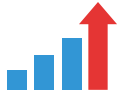


Targeted at OEMs and as a pull through differentiator for our own systems

# Trusted partner for creating a digital future



## Business transformation



**Accelerating  
traction in  
growth verticals**

First-class  
customers and  
partners



**Software &  
Services**

Excellent team  
and corporate  
culture



**Verticalization**  
with innovative  
products



# Thank you

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# Financial roadmap

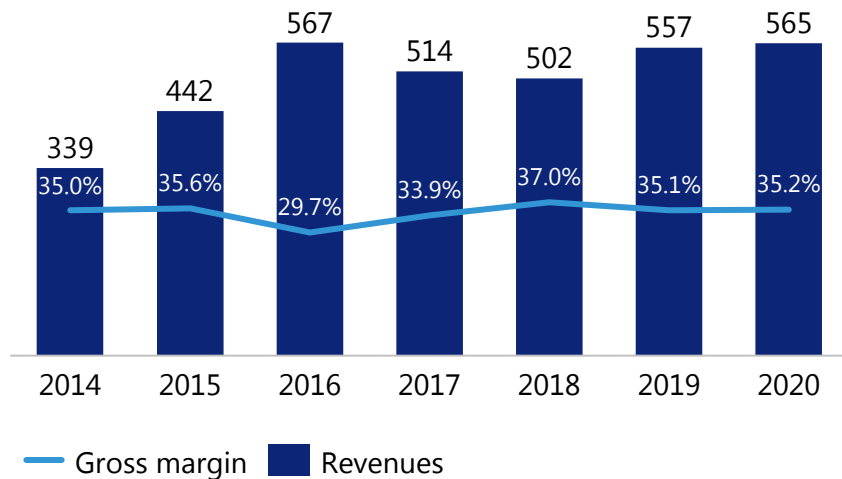
Uli Dopfer, CFO

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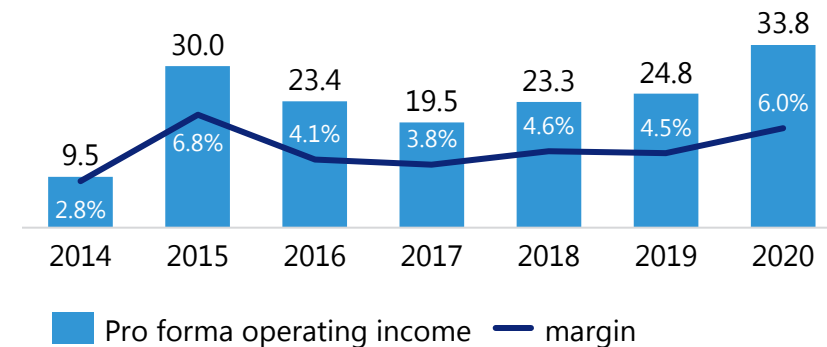
# What is different now?

Innovative product launches secure profitable growth

Revenue development 2014 – 2020 (m€, %)



Pro forma operating income 2014 – 2020 (m€, %)



Transformation already started in 2020

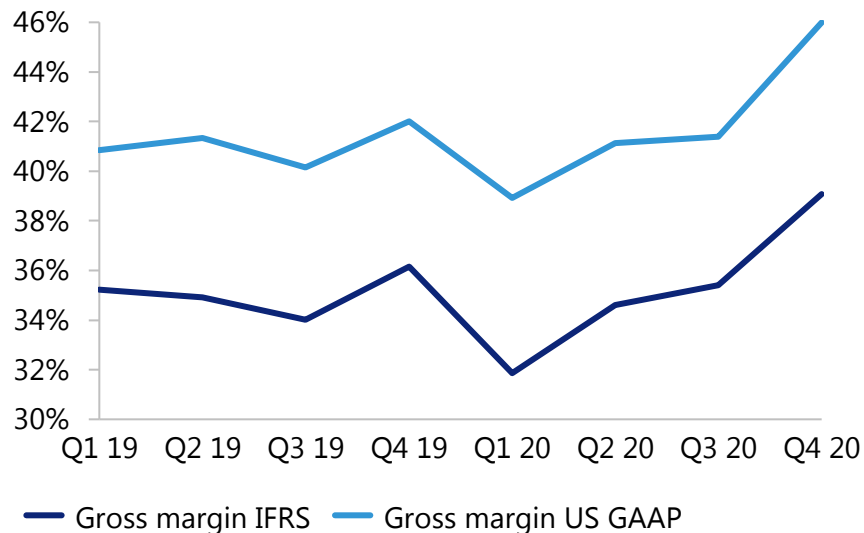


# Clarification IFRS vs. US GAAP pro forma

R&D capitalization vs. P&L expense are the main effects

In EURm

Gross margin Q1 19 – Q4 20 (%)\*



Note: US GAAP numbers to be seen as pro forma. Numbers not audited.

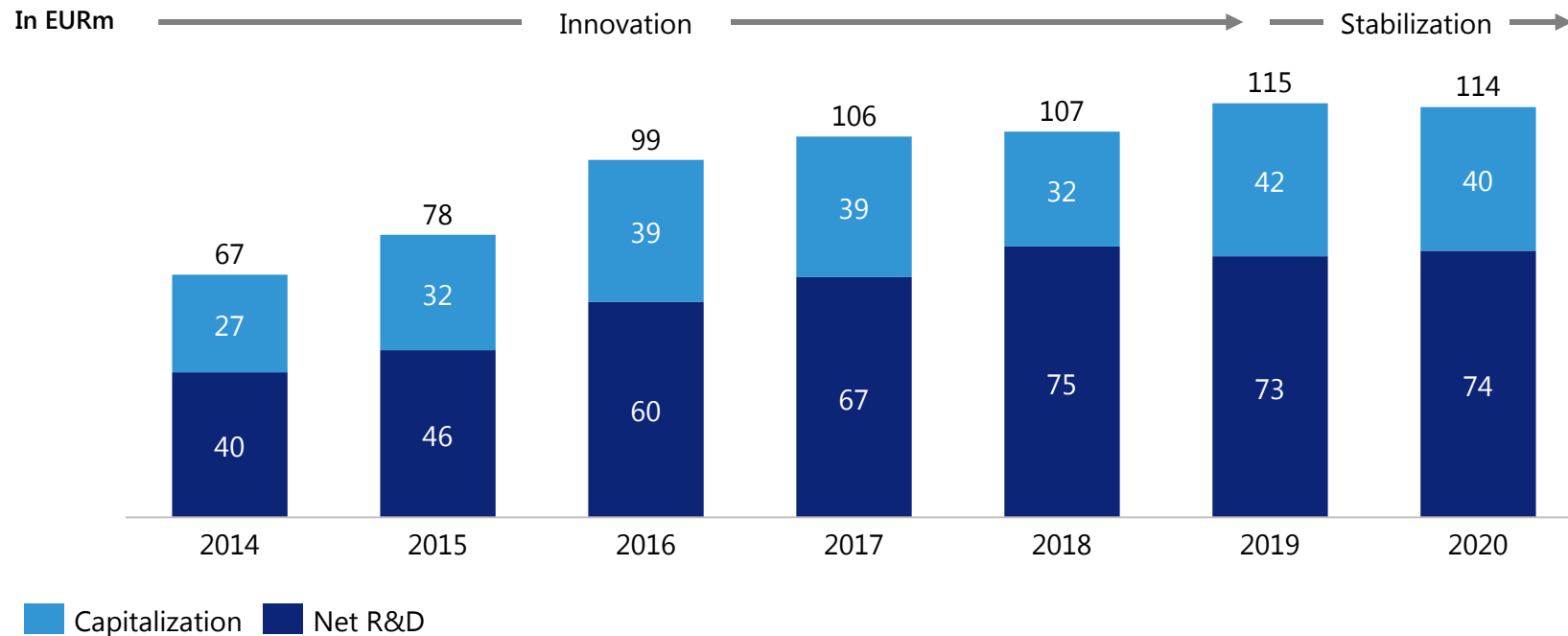
P&L comparison FY 2020 (m€, %)\*

Line item	IFRS	US GAAP	Delta
Revenues	565.0	565.0	0
Gross profit	199.1	236.8	18.8%
Gross margin	35.2%	41.9%	6.7PP
OPEX	(165.2)	(205.2)	24.2%

US GAAP gross margin would have been at 46% in Q4 2020

# What is different now?

## Stabilization of R&D spend



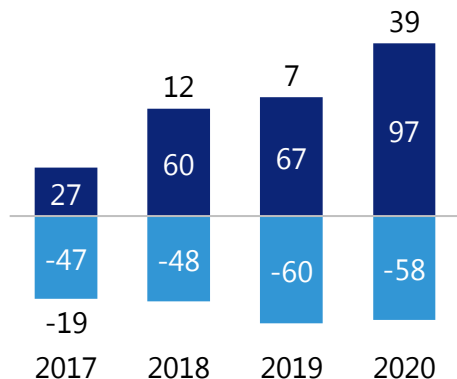
Focus on innovation in the recent years brings us in the position to reap the rewards

# What is different now?

Higher margin levels converted into cash flow generation

In m€

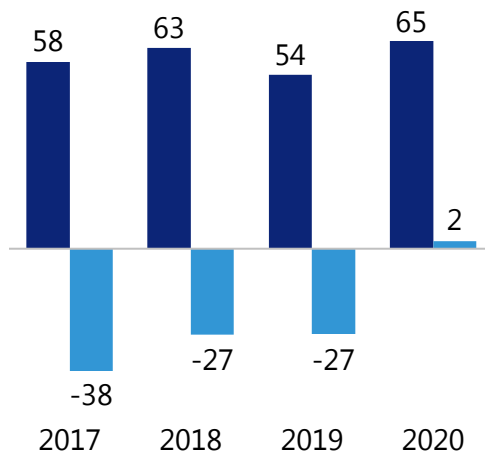
Free cash flow



Note: 2017 M&A adjusted

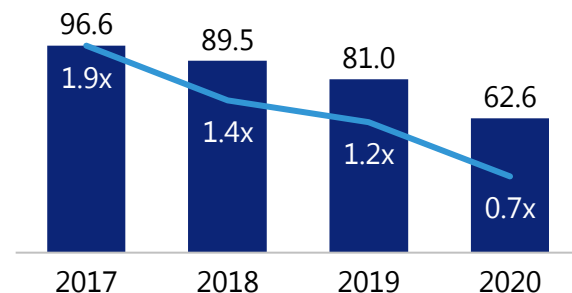
Operating Cash Flow  
Investment Cash Flow

Cash and net debt (excl. IFRS 16)



Cash  
Net Debt (-) / Net Cash (+)

Capital structure



Debt  
Leverage (Debt / EBITDA)

Cash generation and capital structure enabling next chapter for value creation

# Peer valuation

## Industry peers

Peer	Country	Shareprice	FX	Enterprise Value (m)	EV/Revenue	EV/EBITDA
Adtran	US	15,9	EUR	692	1,6x	61,6x
Calix	US	38,67	EUR	2.365	5,1x	48,9x
Ciena	US	43,22	EUR	6.135	2,1x	11,5x
Cisco	US	40,51	EUR	158.750	3,9x	12,4x
Ekinops	FRA	6,33	EUR	156	1,7x	20,0x
Ericsson	SWE	10,98	EUR	34.582	1,5x	9,8x
Infinera	US	7,65	EUR	1824	1,6x	n.m.
Juniper	US	20,8	EUR	7.277	2,0x	13,3x
Nokia	FIN	3,36	EUR	17.715	0,8x	6,7x
Padtec	BRL	0,92	EUR	76	3,0x	24,0x
Ribbon	US	7,25	EUR	1357	1,9x	14,1x
Tejas	IND	2,11	EUR	150	3,9x	n.m.

<b>Min</b>	<b>0,8x</b>	<b>6,7x</b>
<b>Max</b>	<b>5,1x</b>	<b>61,6x</b>
<b>Average</b>	<b>2,4x</b>	<b>22,2x</b>

Source: Bloomberg as of 19.03.2021



Innovation leadership and growth opportunities tend to be rated significantly higher in foreign stock markets



Today's innovation leadership required high R&D invest and we needed to accept a comparatively low margin in the past



We increased our profitability by 36.4% y-o-y and we will leverage our margins to consistent higher levels

We understand: Cash generation and consistency will lead to a higher valuation

# Margin expansion drivers

Business transformation will set the path for new profitability levels

## 1 Demand

- Growth drivers intact with new opportunities
- Deglobalisation leading to more western supplier market share

## 2 Covid-19 recovery

- Recovery of cloud access business
- Freight costs
- Semiconductor supply shortage

## 3 Transformation

- Verticalization
- Software / Service revenue
- Expansion beyond telecommunications market

## 4 OPEX

- R&D investments in relation to sales decrease
- S&M to benefit from less travel and physical events – even post-Covid-19
- G&A focus on driving efficiencies and optimize footprint

GM expansion and stable OPEX will open the door for double digit profitability

# Mid-term targets

Leveraging our investments of the last years to a higher margin model

	Q1 2021	FY 2021	FY 2022 – 2023
Revenues	143 – 148	580 – 610	Mid to high single digit growth
Pro forma operating Income	7% – 9%	6% – 9%	Target: 10%*

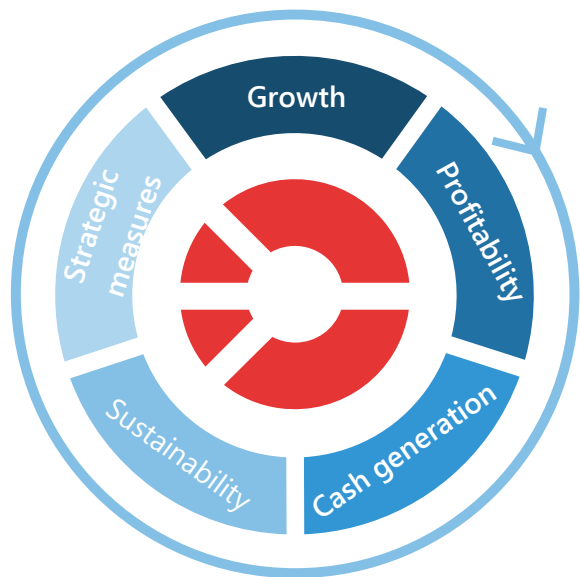
## Underlying assumptions:

\*by 2023

Verticalization: 10% of revenues	Software & Service: 30% of revenues	Growth verticals: 40% of revenues
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# Value creation

Business transformation will change our value creation fundamentally



## Growth

- Accelerating growth in new verticals and applications
- Partnering for enterprise solutions

## Profitability

- Margin expansion drivers
- Reduce dependence on USD

## Cash generation

- Optimize balance sheet
- Commit to investment-grade capital structure

## Sustainability

- Optimization of operations, packaging and logistics
- Process-based product ecodesign and lifecycle assessments

## Strategic options

- Selective external growth opportunities
- Annual review share buy-back vs. dividends





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# Q & A

Please raise your hand

Capital markets day, March 23, 2021