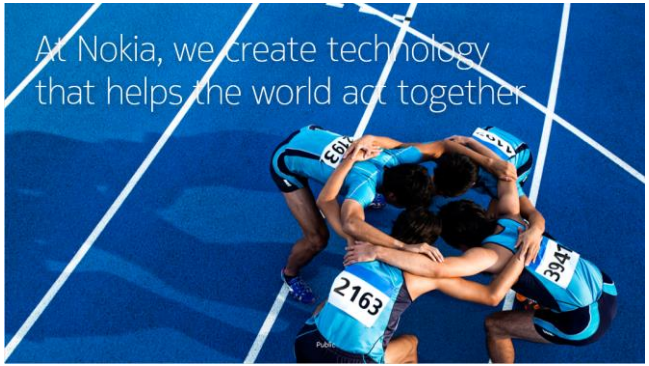
Virtuelle Exkursion des IfN 2021

NOKIA

Agenda 16. Juni 2021:

- Kurze Vorstellung von Nokia
- Ingenieure aus 3 Bereichen beschreiben ihre Erfahrung mit Nokia
  - Stefan (Bell Labs, Stuttgart)
  - Robert und Jan (Optical Networks, Stuttgart)
  - Philipp (Mobile Networks, Ulm)
- Fragen/Diskussion
- Der Weg zu Nokia



Technology leadership in each of our businesses

- Unrivalled track record of innovation
- Mobile Networks
- Optical Networks

Nokia at a Glance

Mobile Networks	Network Infrastructure
Cloud and Network Services	Nokia Technologies
Strategy and Technology: Bell Labs and Nokia Standardisation	

Purpose

Our purpose is to create technology that helps the world act together

Commitment

We deliver critical networks through technology leadership and trusted partnerships

Essentials

Open Fearless Empowered

Nokia operates in 130 countries globally.

Large German sites are Stuttgart, Ulm and Munich.

Check out for more info @ Life at Nokia.

Deine Ansprechpartner bei Nokia

Bell Labs

Stefan Wesemann

stefan.wesemann@nokia-bell-labs.com

Mobile Networks

Robert Meier

robert.meier@nokia.com

Optical Networks

Marc Drewniok

marc.drewniok@nokia.com

Bewerbung bei Nokia – Standorte in Deutschland

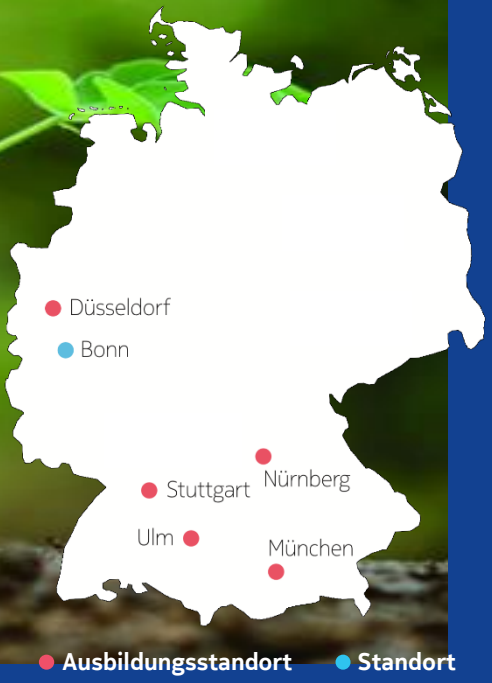
Haben wir Dein Interesse geweckt?

Bewirb Dich für einen unserer Standorte in Deutschland

- für einen Job über:
www.nokia.com/about-us/careers/our-opportunities

- für ein Praktikum über:
www.nomiko.com

And stay connected with us on



At Nokia, we create technology that helps the world act together

Nokia at a glance

€21.9bn
Net sales 2020

€129bn
in R&D investment (past two decades)

#1
in 5G standard essential patents[1]

World's record
in 5G speed

#1
in telco software[2]

#2
in global telecom infrastructure[3]

[1] Independent study by IPLytics, April 2021

[2] Analysys Mason September 2020 report (2019 market share)

[3] Dell'Oro Group 1H2020 article

Mobile Networks Commercial Success

160 commercial 5G deals

220+ commercial 5G agreements

63 live 5G operator networks

Figures as of 29 April 2021

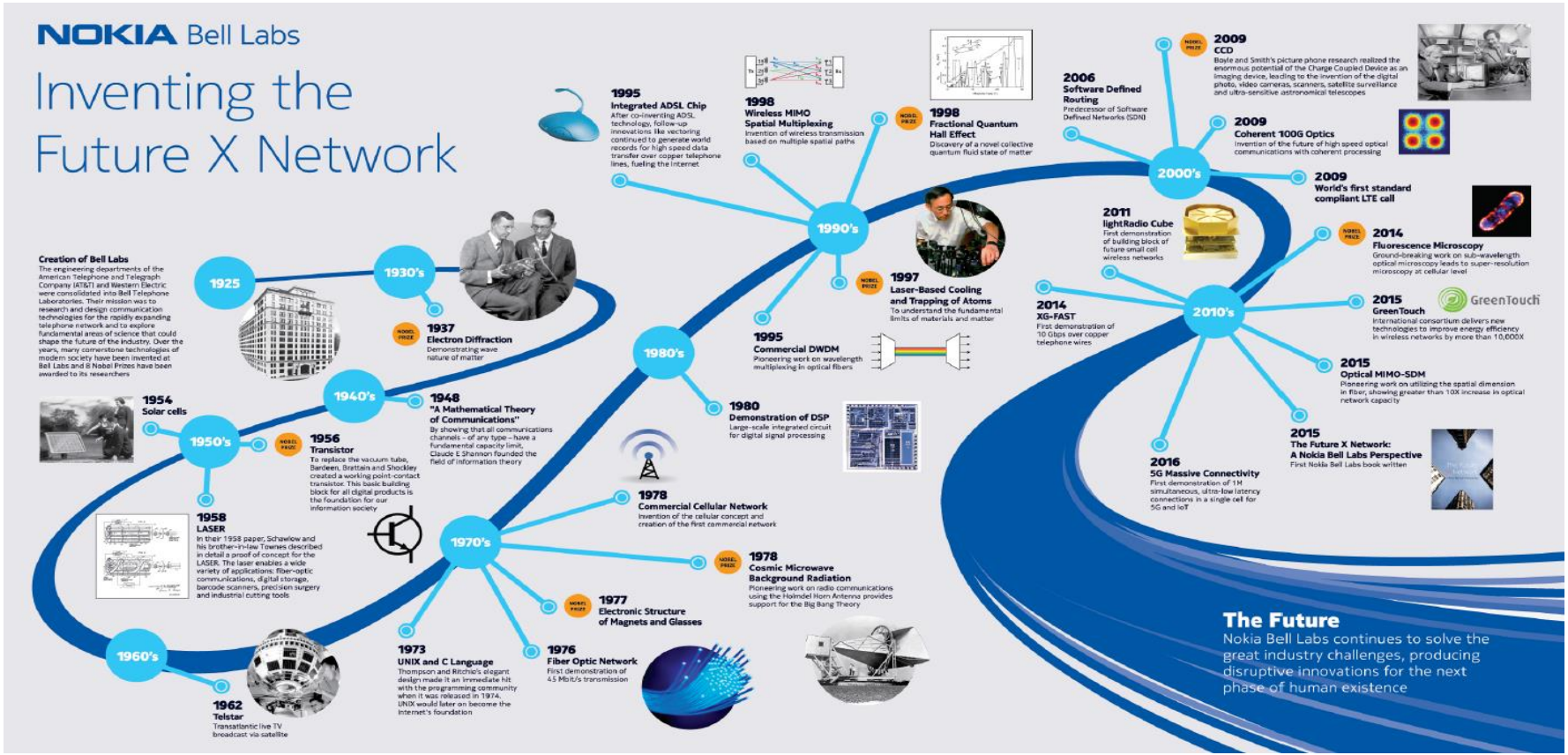
Logos reflect public operator and enterprise customers

Leading Customers of the Optical Transport Network Product Family

NOKIA

Bell Labs: A rich history of breakthrough innovation

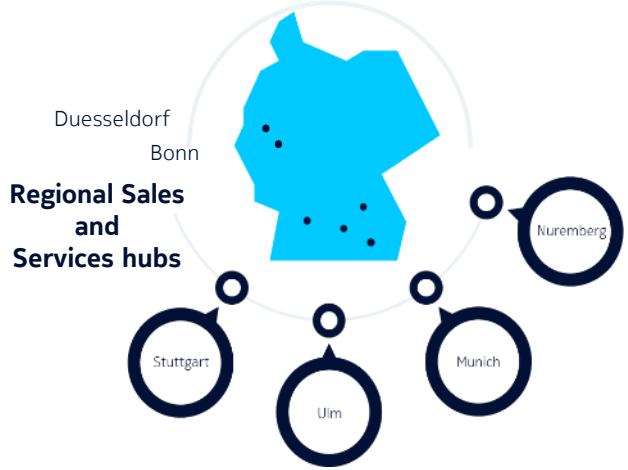
9 Nobel Prizes | 4 Turing Prizes | 3 Emmys | 2 Grammys | 1 Oscar



Nokia in Germany

- Global Player with ~3.000 employees across Germany
- Thereof 1.300 in Research & Development
- Expertise in areas of fiber, mobile infrastructure and IoT connectivity
- Partner for telecom operators, governments and industry
- Partnerships with regional and local eco-systems

Technology cluster Germany



Optics
The technical expertise in high speed optics and large switching systems.

Industry 4.0
Surrounded by automotive and manufacturing companies to develop new industrial solutions.

5G
City of science with many technology labs profits by close cooperation between science and economy. Driving all mobile network topics, in particular 5G.

Digitalization & Technology
Located close to important high tech partners and IoT hot spots, including our Digital Creativity Lab led by Nokia Bell Labs. Focusing on Mobility, IoT and Security and Standardization.

Nokia in Ulm is THE algorithm powerhouse

And a strong contributor to Mobile Networks

Ulm Innovation Region

- Science Park Campus (600.000m^2) with University of Ulm
- Home of Automotive IT Industry in Germany

Nokia Innovation Center Ulm

2,1% Students
(PhD, MSc, BSc, Dual...)

Strong contribution to 5G19, 5G19A, 5G19B Milestones.
Key roles on Program and Product Management

38 nationalities

Nokia in Stuttgart

Creating future communication technology in a leading eco-system

Driving the Digital (R)Evolution

Automotive and Manufacturing

Leading export metropolitan region in Germany

Daimler, Porsche, Bosch, Trumpf, Stihl, Kärcher...

HQ of Daimler, Bosch, Lapp Group, ...

Technology

8800+ IT companies in the region

German headquarter of IBM and HP

Highest number of employees in IT in Europe

Development Centre of IBM and Red Hat

Connected via a Datex-M high-speed network with national and European economic centers

Creative Industries and Media

About 400 publishing houses:

Klett AG, Georg von Holtzbrinck

Varied media landscape provides an attractive environment for a large number of service providers in the communications industry

Strong in the fields of design, animation, publishing, communication in space, advertising and PR

Startups

Startup Autobahn: innovation platform connects startups with industry-leading partners

Technology-Transfer-Initiative GmbH: transferring scientifically results into economical value

Almost all Nokia functions and innovation power through Bell Labs and Optics R&D.
Bell Labs in Stuttgart comprises 100+ experts and researchers.

Nokia Bell Labs in Munich

Home of Bell Labs Standards Research and Nokia Standardization

- Complementary Research, Standardization and CTO expertise in 5G/6G, security, network automation and analytics
- Co-located with Nokia Tech and IPR management for efficient IPR generation

Global innovation status 1H 20

Germany among TOP 5 innovate countries

Munich in TOP 4 for SEP/patent generation

- Digital Creativity Lab: a place for innovation and collaboration with ecosystem
- World-class collaboration partners e.g.:

TECHNISCHE UNIVERSITÄT DRESDEN

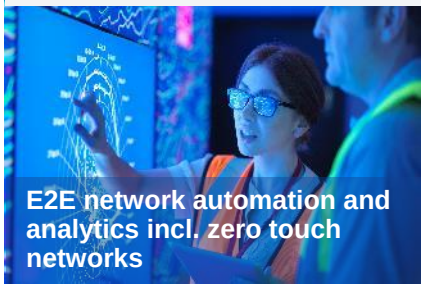
de:hub digital ecosystems

5G Lab GERMANY

Technical University of Munich

Key research topics and technology showcases

E2E 5G



E2E network automation and analytics incl. zero touch networks

E2E security

5G security and security certification

Digital Mobility

V2X applications and network slices for future mobility solutions

Industrial Automation

5G powered Industry 4.0:
- **Factory in a Box**
- **Plug and produce (TSN)**

NOKIA

Nokia Optics in Nuremberg

Worldwide recognized competence center for Hi-Speed Photonics, OTN

2018 LIGHTWAVE INNOVATION REVIEWS WINNER

Major high-profile R&D hub for Optics with

- System Engineering & Architecture
- High Speed Photonics (Subsystems)
- Hardware, ASIC/FPGA
- Software
- Validation
- Product Line Management

~380 employees

~300 Optics R&D/PLM engineers

Key competencies

- Optical Switching Systems (HW and SW for high-speed optics)
- Photonic Technologies (WDM)
- Optimization of optical transport networks

Additional value points:

- Close collaboration with R&D teams in Stuttgart for GMPLS Control Plane, MRN, SDN and with Bell-Labs
- Cooperations with Europe's 2nd most innovative University FAU (located next door in Erlangen)
- Common education program with Ohm University

NOKIA