AUTOMOTIVE ELECTRONICS DIVISION

BOSCH
Invented for life

Automotive Electronics
Organization within Bosch

Bosch Group

Central Functions
G1 – Denner, G11 – Bolle, G13 – Kübel, G14 – Tyroller, G2 – Asenkerschbaumer,

Mobility Solutions
G4 – Hartung, **G41 – Kröger**, G42 – Heyn

Industrial Technology
G3 – Najork

Energy and Building Technology
G6 – Fischer

Consumer Goods
G5 – Raschke

PS CC ED CM AA AS **AE**

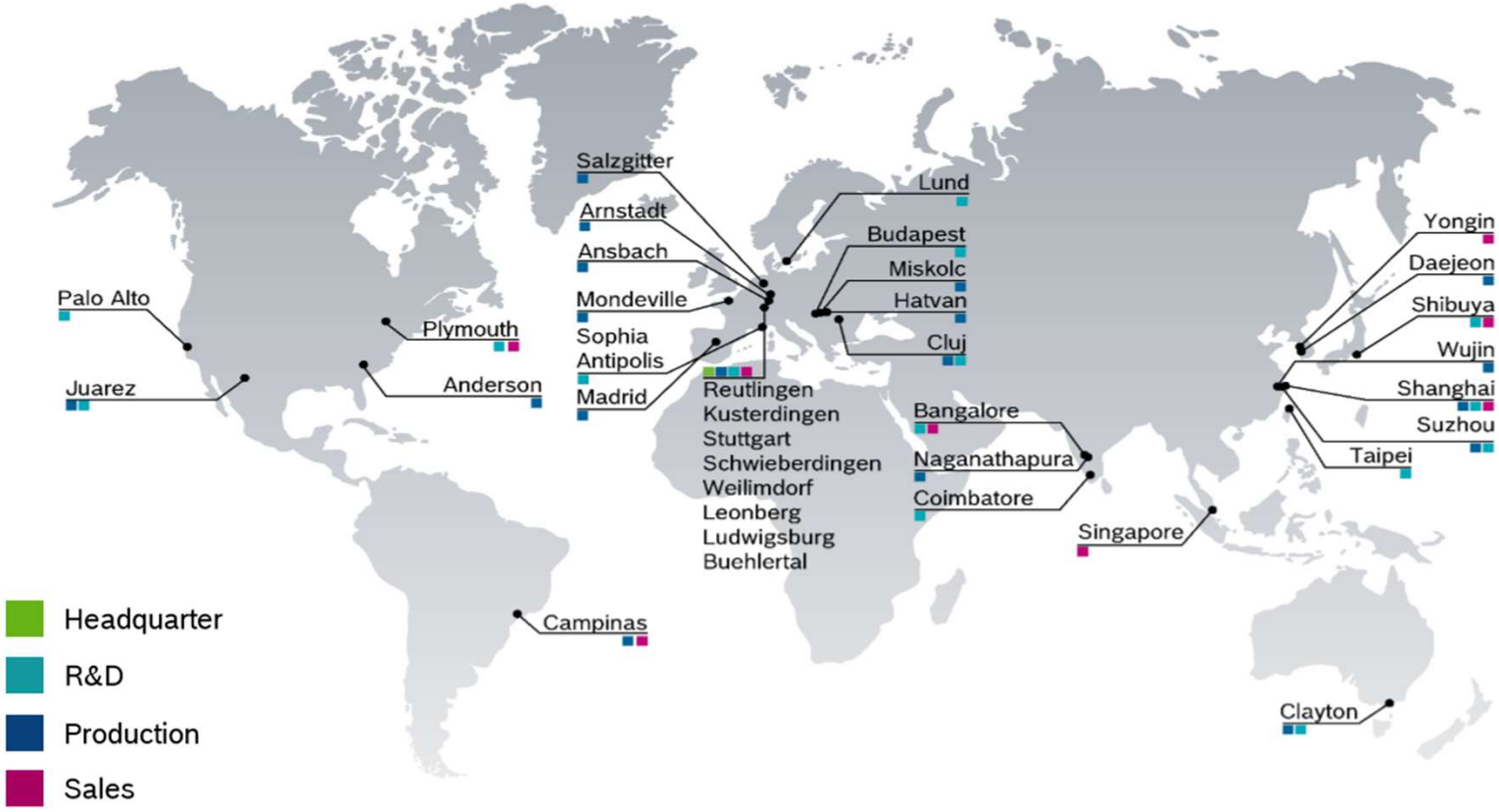
Automotive Electronics

Jens Fabrowsky	AE/EB-SC Semiconductor Components
Andreas Fischer	AE/EC Result and Risk Management
Klaus Mäder	AE/P President & Systems and Solutions
Sven Ost	AE/EB-CT Electronic Control Units Technical
Rainer Lust	AE/EB-CE Electronic Control Units Engineering

(from left to right)

BOSCH

Automotive Electronics
Global Activities



AM: 5,400 associates

EU: 23,300 associates

APA: 6,600 associates

We design, manufacture and sell our products in over 15 countries at 38 locations worldwide.

BOSCH

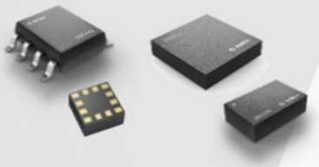
Automotive Electronics

We have the products behind the products

Semiconductor components

Electronic Components

MEMS Sensors



› Acceleration / angular rate sensors
For airbag systems, driver information, vehicle dynamics systems, active suspension systems, consumer devices

› Optical microsystems
For consumer devices, IoT applications, home appliances, head-up displays

› Pressure Sensors
For airbag systems, engine management systems, transmission control systems, consumer devices, IoT solutions

Semiconductors

› SoCs, system ASICs and sensor ASICs
For specific automotive applications

› Power semiconductors and modules
Low voltage power semiconductors for various automotive applications and robust high voltage power modules for electric powertrain inverters

› IP modules for µC integration
Individual functions, developed in Reutlingen for licensing

BOSCH

Automotive Electronics

We have the products behind the products

ECU and sensor devices

Development & manufacturing of ECUs, mechatronics, systems & solutions

Drive electronics

› Brushed DC motor
Body domain controller for door control units, wiper electronics, sun roof, etc.

› BLDC motor control
- Low EC for engine cooling
- Mid EC for electrical power steering
- High EC for boost reception machines

› Alternator electronics
Regulators, diodes, and synchronous active rectifier (SAR)

ECUs, mechatronics

› Electronic control units
For vehicle/ engine control, sensor, safety systems, pump and dosing control
transmission controls units for all types of automatic transmissions

› Sensor devices
Battery energy management, exhaust gas sensors control unit, ultra sonic sensors

› Driver Assistance
Radar systems, video, cameras, park pilot, camera ECUs

› Power Electronics
e.g. 400V DCDC converter, power converter, power electronics for hybrid drives

BOSCH

Automotive Electronics

We have the products behind the products

Light eMobility | **Automotive**

Systems and components for mobility solutions

eBike systems

› Supplying optimized eBike systems out of one hand
Drive unit, board computer, battery, charger

Body Electronics

› Body computer
Controls and monitors body electronic functions e.g. climate & access-authorization, heating or parking aid

› Electronic battery sensor
Measures charge state of the battery

› Gateway solutions
Automotive real-time communication networks (CAN, LIN, Flexray, Ethernet) incl. connected service & cyber security solutions

BOSCH

Automotive Electronics

We have the products behind the products

Internet of Things

Customized IoT sensors and solutions

TEP

› Smart Driving Behavior Determination
The Telematics eCall Plug is a smart sensor device designed for crash detection and analysis of driving behavior of passenger cars.

TDL

› The Transport Data Logger makes delivery processes of goods visible and traceable
For manufacturers, logistics, and supply chain

XDK

› Start your Sensor X–perience
With the universal programmable sensor device & prototyping platform for any IoT use case you can imagine.

CISS

› Connected Industrial Sensor Solution is a compact multi-sensor device for harsh environments
Includes several sensors and visualizes data over an app and cloud.

BOSCH

Automotive Electronics

Our contribution to better living and society

Automotive Components
MEMS sensors and system ICs enable life-saving systems and make powertrain systems more efficient.

Automotive ECUs
Robust and reliable control units support safe, efficient and comfortable driving.

Bosch Sensortec
Health monitoring and well-being are made possible by almost invisible MEMS sensors.

Bosch Connected Devices and Solutions
The Telematics eCall Plug smart sensor device detects the severity of a collision and ensures quick help.

eBike ABS
The first Antilock Breaking System for Pedelecs in the market.

Perfectly Keyless
A comfortable keyless vehicle access system. Both vehicle access and start are controlled by a digital key on a mobile phone.

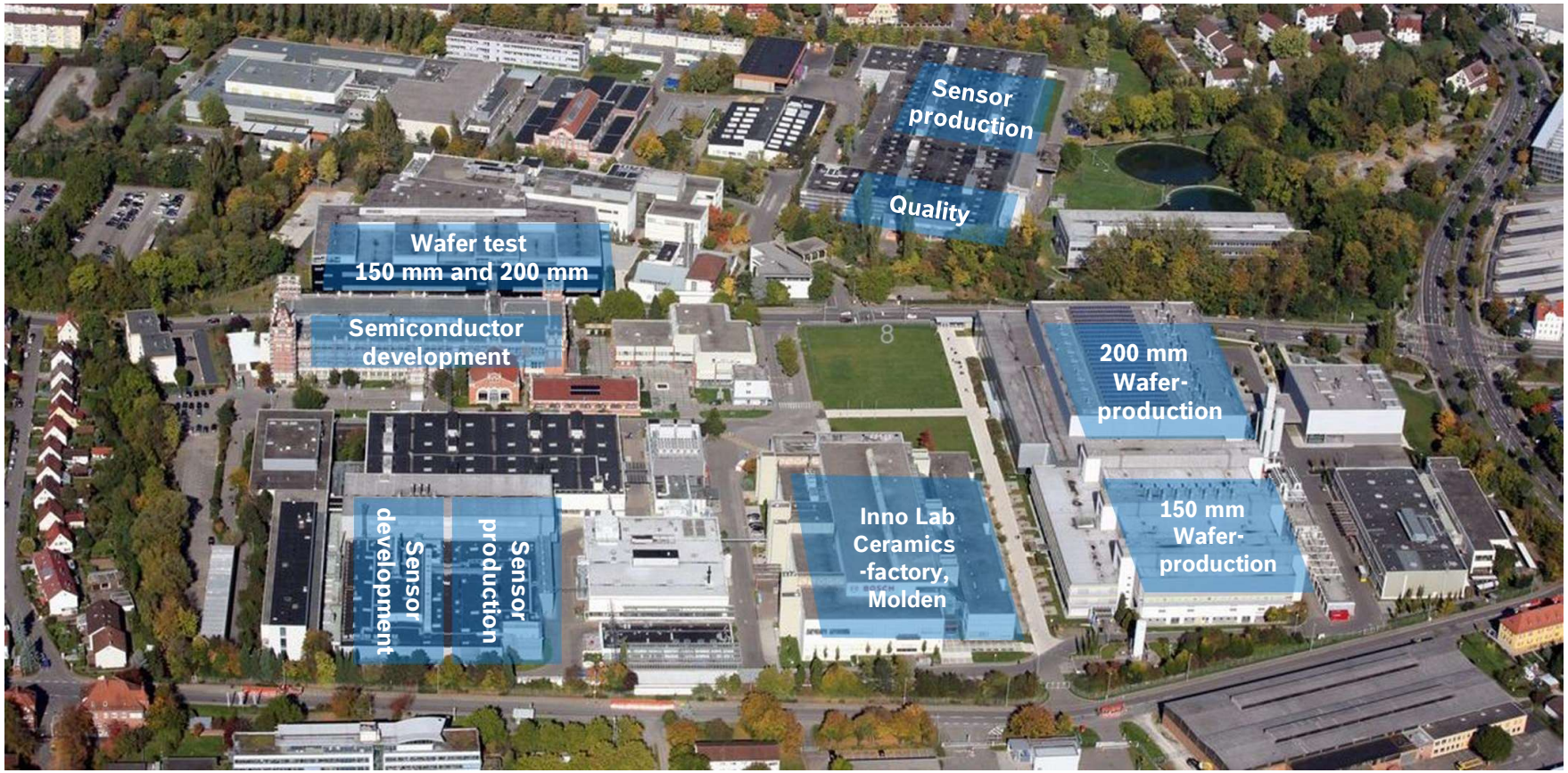
Innovation
We develop new and adjacent business by providing a start-up platform and an innovation laboratory.

Employer
We create new jobs in Germany by building a chip factory for 300 millimeter semiconductors in Dresden.

BOSCH

Automotive Electronics

Reutlingen Plant – Our Headquarter



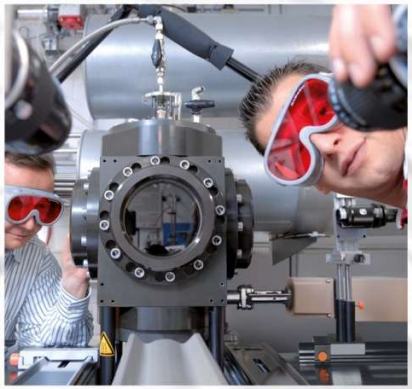
Investment for the Future – the Robert Bosch Center for Micro and Power Electronics

In close collaboration with the state government of Baden-Württemberg, Bosch actively supports young talents with the Robert Bosch Center for Micro and Power Electronics. Within the region:

- We support the Reutlingen University with 15 million EUR for infrastructure, endowed professors, and research funds
- We provide 5 million EUR to the University of Stuttgart within the Bosch Intercampus Program

rbz Robert Bosch Zentrum für Leistungselektronik
Hochschule Reutlingen . Universität Stuttgart . Robert Bosch GmbH

BOSCH



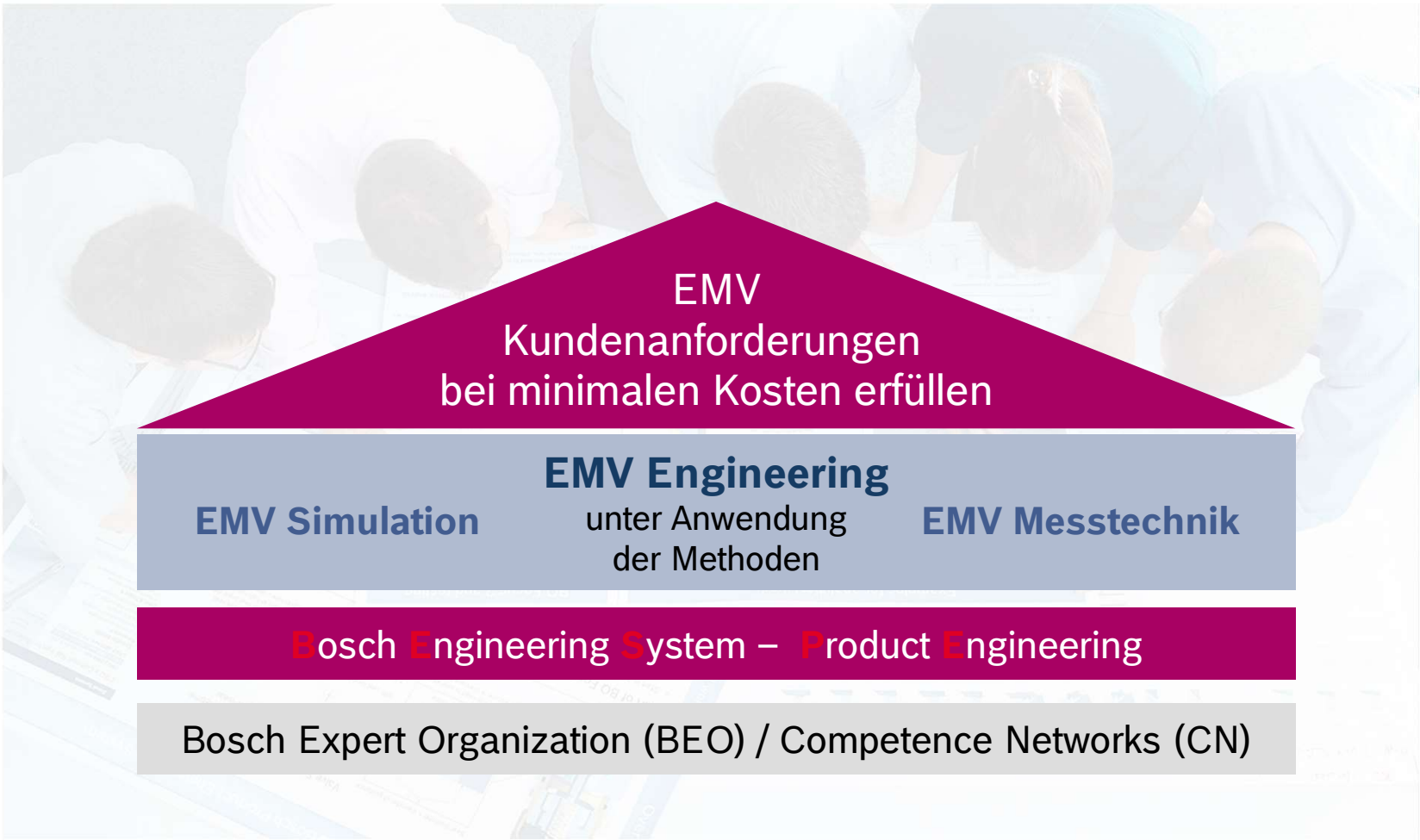

AE/EMC
Engineering Elektromagnetische Verträglichkeit

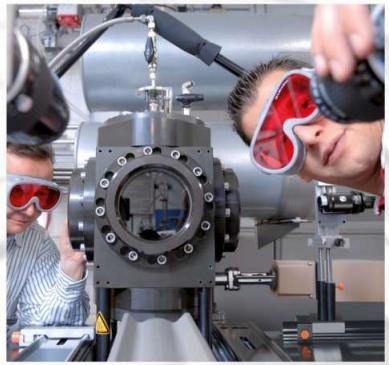
Auftraggeber

- **RB Center of Competence (CoC) für EMV:**
  - Wir bearbeiten querschnittliche Aufgaben für RB mit Richtlinienbefugnis und nehmen unsere Koordinationsfunktion für EMV bei RB aktiv wahr.
  - Wir führen innovative Lösungen für front-loaded EMV Engineering RB-weit ein.
- **EMV Dienstleister für RB:**
  - RB-weit bieten wir Dienstleistungen für EMV Erprobung und Consulting an und sind Benchmark in diesem Segment.
- **EMV Entwicklungsverantwortung für AE:**
  - Wir nehmen unsere Verantwortung für EMV Engineering und Freigabe von AE, ED, SG Produkten aktiv wahr u. tragen zum Erfolg der Entwicklungsprojekte bei.
  - Wir stärken front-loaded Engineering (z.B. durch den Einsatz der Methode EMV Simulation).

LES

AE/NE3






Ziele der Vorlesung

Ziele der Vorlesung

- Die Teilnehmer kennen die **Grundlagen der elektromagnetischen Verträglichkeit (EMV) in der Automobiltechnik**.
- Sie kennen die **Hauptelemente einer EMV-gerechten Entwicklung** aus Theorie und Praxis anhand eines Produktbeispiels.
- Die beiden **Methoden EMV Simulation** und **EMV Messtechnik** sind bekannt.
- **Lösungsansätze** zur EMV Entstörung sind exemplarisch bekannt.


BOSCH
VIELEN DANK!
BOSCH