



Bosch Research – an epicenter of innovation

Prof. Dr. Thomas Kropf, President Corporate Research

Who we are

Our business sectors



Mobility



Industrial Technology



Energy and Building Technology



Consumer Goods

Who we are

Our company in figures

In 2023*



91.6

billion euros
sales revenue



4.6

billion euros EBIT
from operations



427,600

Bosch associates
worldwide at year-end
(approx.)



470

subsidiaries and regional
companies (approx.) in more
than **60** countries

* preliminary figures

Prof Dr. Thomas Kropf | 08.04.2024
Open Innovation Kongress BW 2024

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Who we are

Our guiding principle: Invented for life

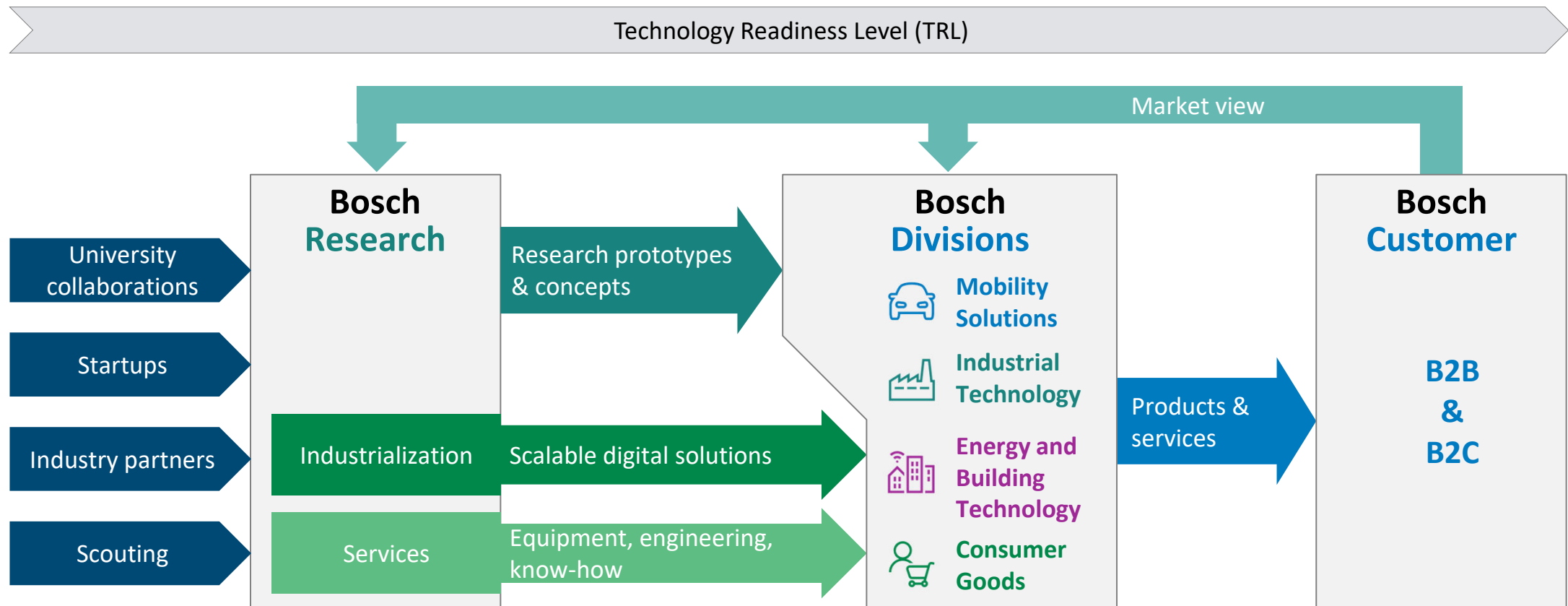


“Improvements in the world of
technology and business should
Innovation
always also be beneficial for
mankind.”

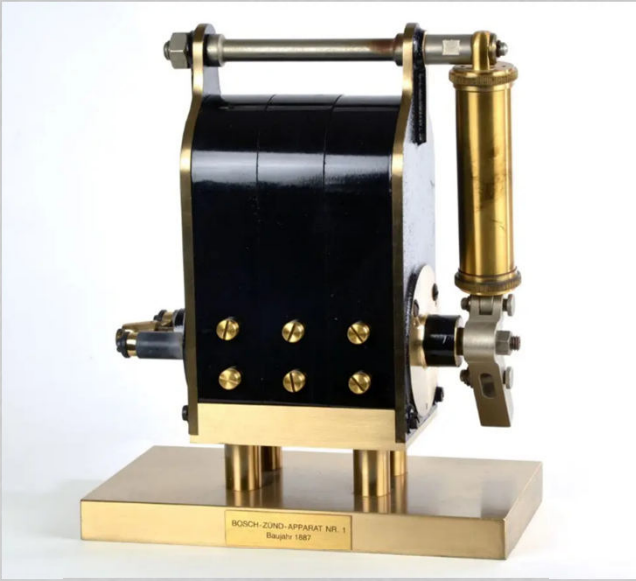
ROBERT BOSCH

Innovation @ Bosch

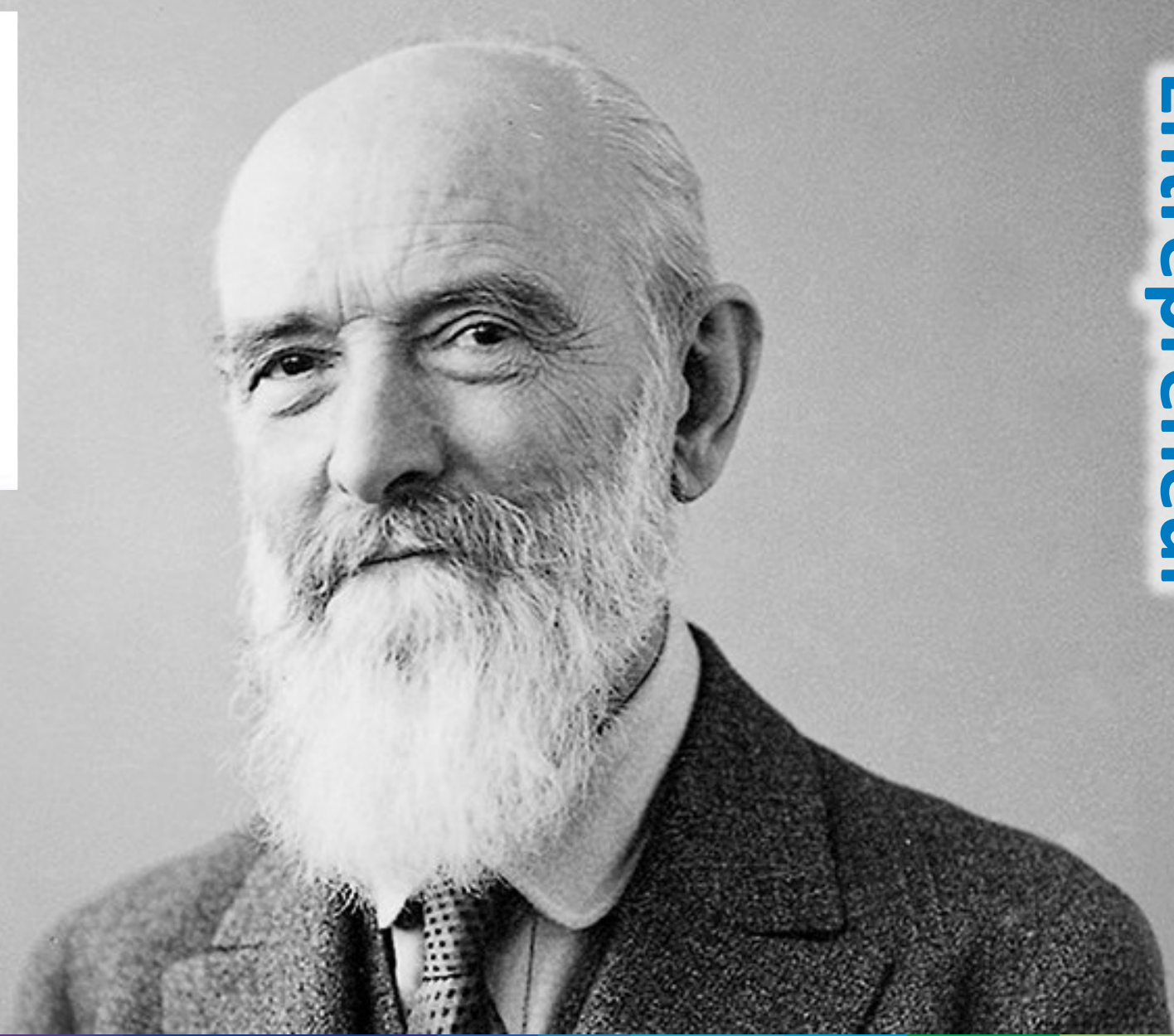
Role of Bosch Research in the innovation landscape





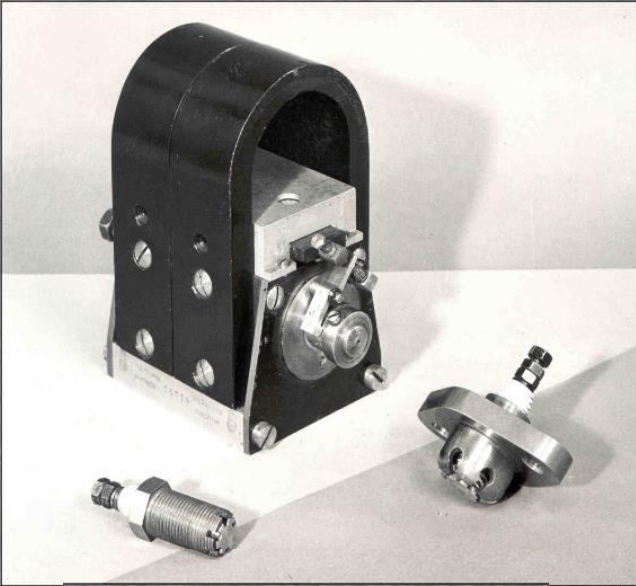


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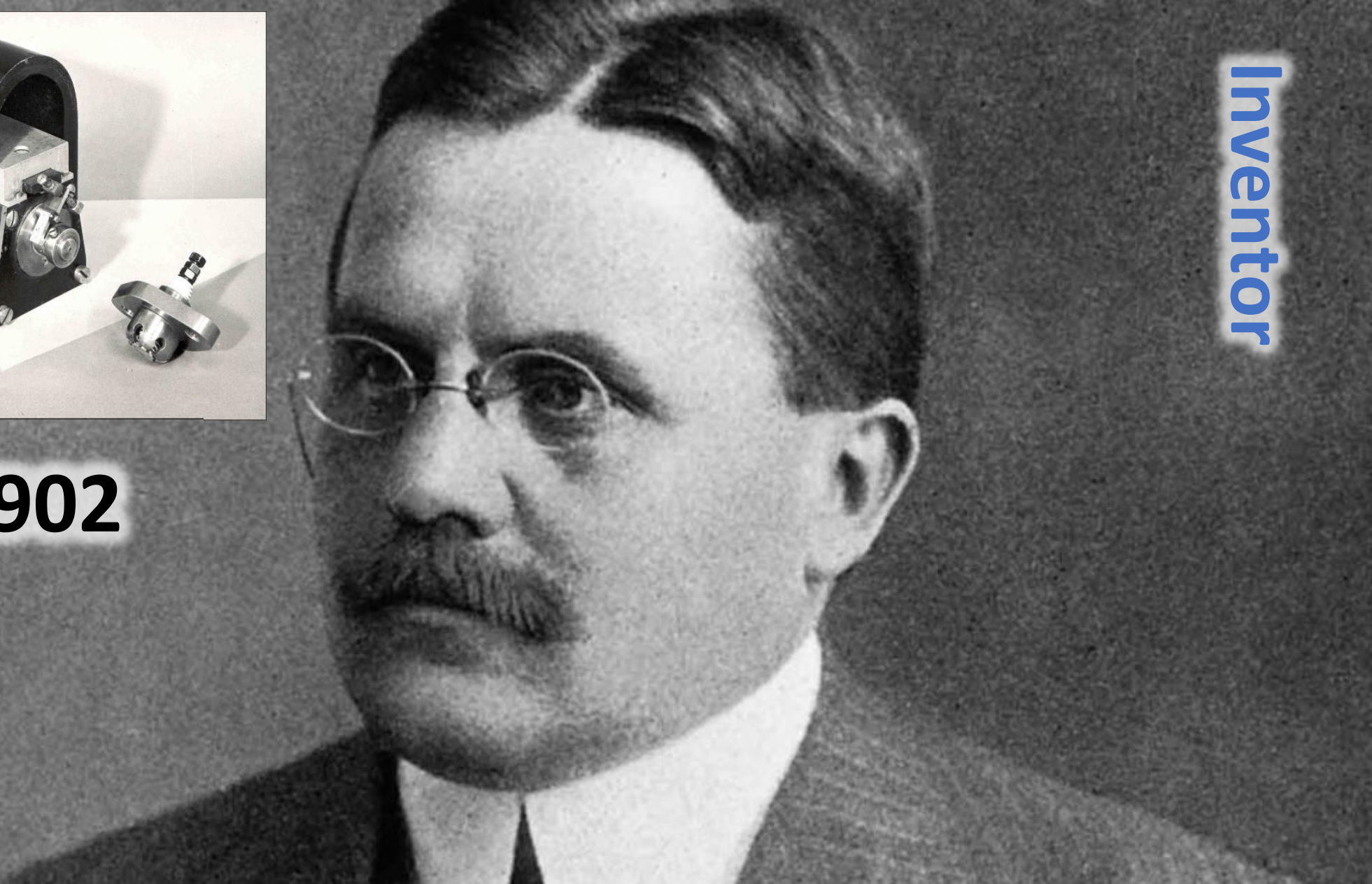


Entrepreneur

Inventor



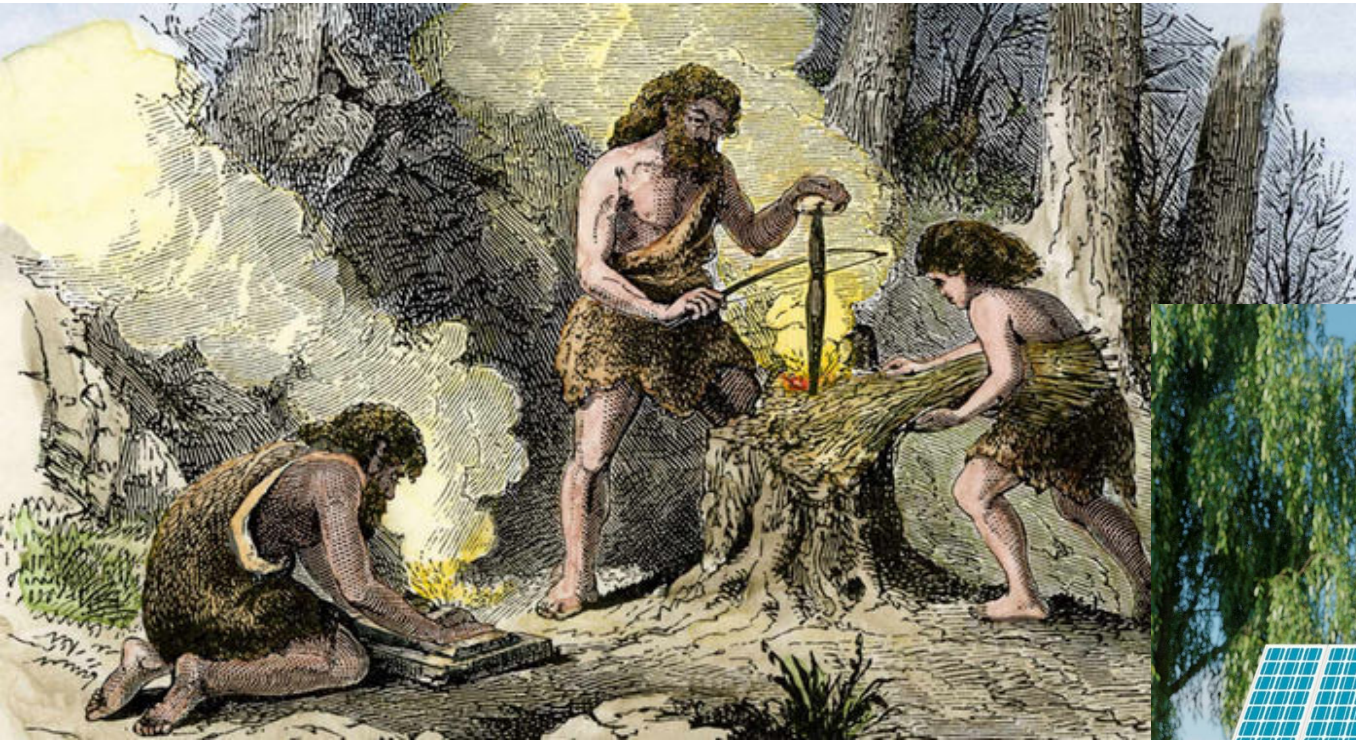
1902



Easter morning 1900: 5th Ave, New York City. Spot the automobile.



Source: US National Archives



From the Age of Fire towards the Age of Electrification...



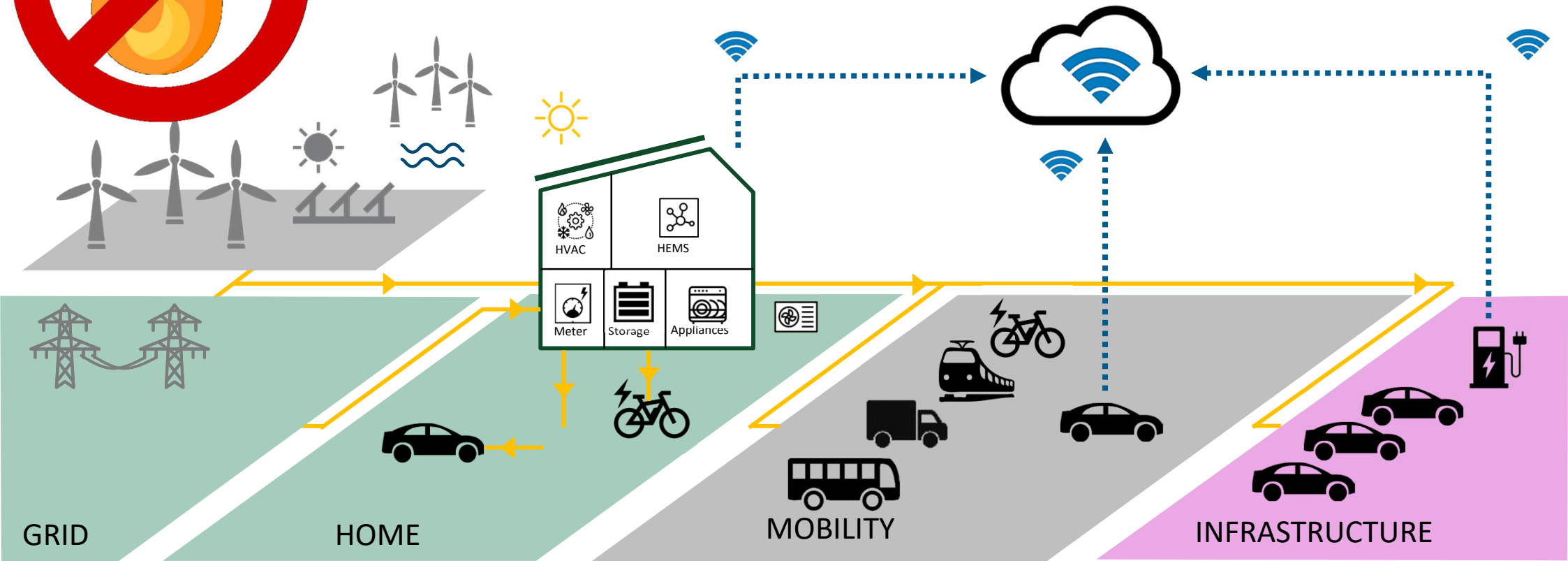
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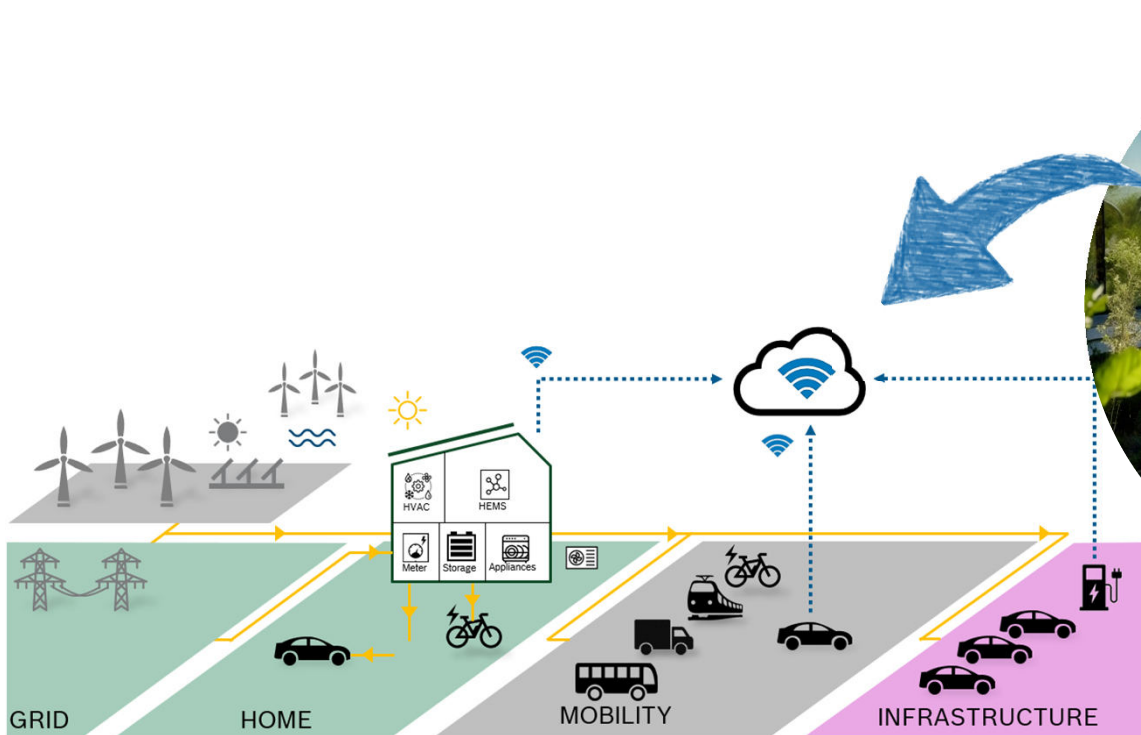
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...by 2040



WHAT?



Is that all we need?

HOW?

How?

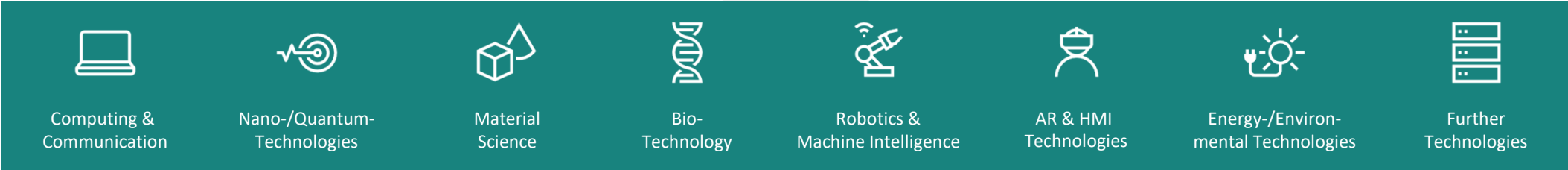
From megatrends & technologies to strategic focal points

Market Pull



Strategic Portfolios

Technology Push




Strategic research portfolios & business vertical


Automated Intelligent Driving (AID)
Sensing, perception, prediction, planning, systems & infrastructure for L2-L4




Artificial Intelligence Methods (AIM)
Computer vision, language processing (NLP), AI data loop, AI enabling




Chemical Energy Conversion (CEC)
Fuel cells (stationary & mobile), electrolysis, hydrogen storage



Electrified Mobility and Systems (EMY)
eDrives, power electronics, x-by-wire, energy mgmt., EV thermal systems



Healthcare Solutions (HCS)
Point-of-care lab diagnostics, liquid biopsy, next-gen sequencing



Information and Communication Technology (ICT)
SW engineering, distributed systems, security, safety & privacy, HMI




Applied AI & SW Business (BIS)
Industrialization and service




Internet of Things @ Life (IOT)
Mobility and residential solutions for consumer applications



Modeling, Simulation, Optimization (MSO)
Virtual product design, virtual validation and use-phase monitoring



Production Systems (PRS)
Production technologies, AI in production, internet of production



Robotics (ROB)
Robotics for consumer, service and industry applications



Sustainability (SST)
Circular economy, climate change mitigation incl. CO₂ removal

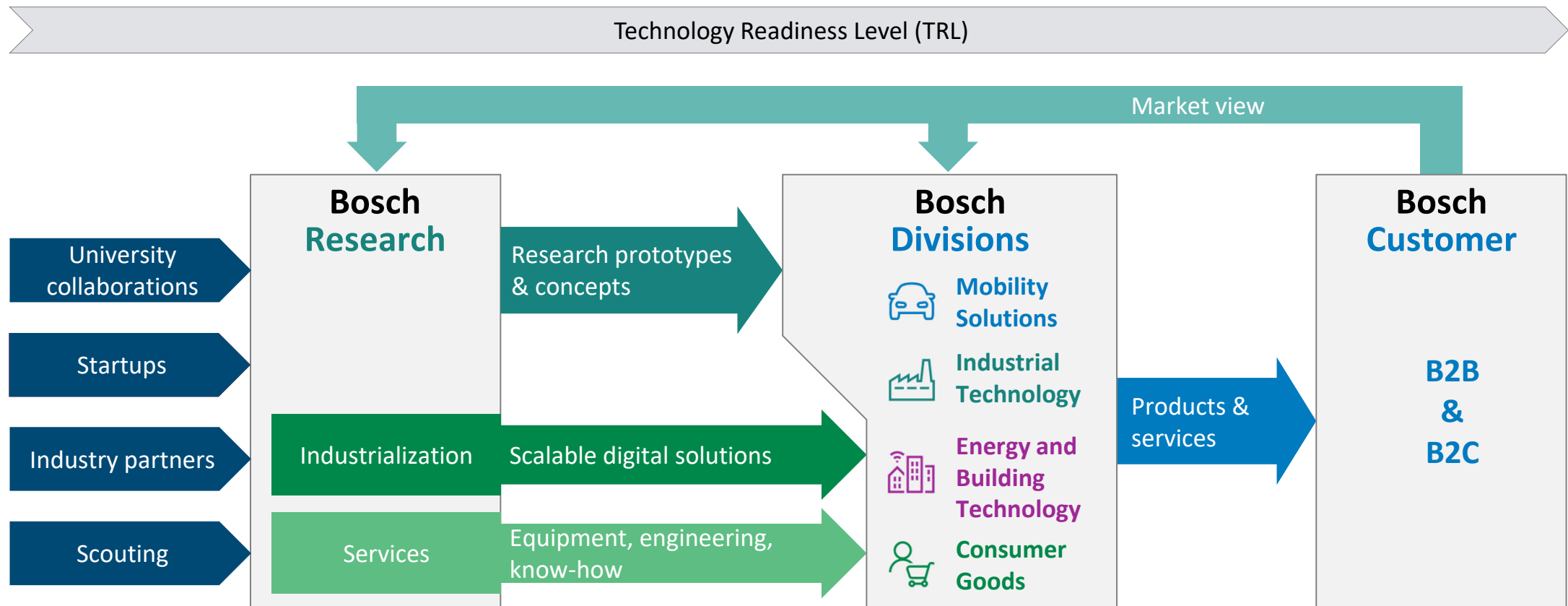


Smart Sensors and HW Systems (SSY)
SoC, embedded AI, HW-/SW-co-design, sensors (MEMS, quantum)



Innovation @ Bosch

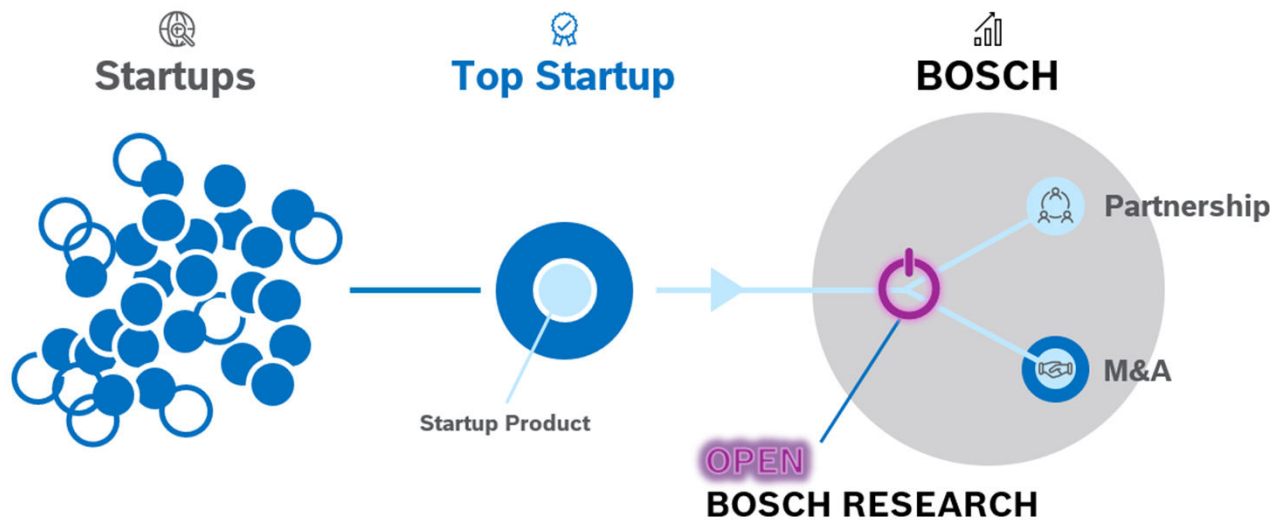
Role of Bosch Research in the innovation landscape



Open Bosch Research

Benefit measurably from top startups through partnerships

Open Bosch Research (OBR) is our dedicated center of expertise for **fast and efficient** integration of **external innovation**



Leverage external innovation power to drive innovation at **quality, speed and impact**



Provide teams with **access to ww leading tech-startups** to solve innovation challenges



Create and track impact potential of validated, adopted and transferred startup solutions

Open Bosch Research – Exemplary collaboration in BW

Kafka Security Concept with M2Trust (eCom Service IT GmbH)

Background: What is Kafka?



Kafka: Distributed event streaming platform for real-time data processing and analysis



Key features: Real-time processing **enables efficient data streaming and system monitoring**



Our use cases: Digital certificate management in heterogeneous IT environments, esp. for Production IT/OT

M2Trust



- **Empowering security concepts & processes**
- **Defining standard approach for access management** supporting automation
- **Enabling effort reduction** to manage those certificates

Open Bosch Research – Exemplary collaboration in BW

Injection molding simulation with Simutence

Background: Challenges of injection molding



Injection molding of thermoplastic parts is a **widespread forming process at Bosch**



Accuracy of current industrial methods with room for improvement



Risk of accuracy can result in negative impacts, e.g. mold retooling, assembling problems or need for material changes

Simutence



SIMUTENCE
Digital Composites Engineering

- **Anticipating risk** by accurate simulation
- **Enabling correction** within the virtual design level
- **Applicable for a wide range** of thermoplastic materials

What's next?

Learn from the past to create the future



Learn from Robert

- **Rooted in tradition, aimed at innovation:**
Embrace the spirit from Baden-Württemberg's forefathers. Let tradition fuel innovation, not hinder it.
- **Local to global:**
Harness our regional strengths for worldwide impact.
- **Quality and sustainability:**
Prioritizes them as they have long-term impact on society and the environment.

Call for Action

- **Embrace open innovation:**
Seek and foster partnerships with startups to drive growth and innovation.
- **Boost local synergies:**
Deepen ties within Baden-Württemberg's innovation ecosystem.
- **Collaborate across borders:** Work across industry boundaries and geographical borders, leveraging diverse perspectives and strengths.

Vision of the Future

- **A pioneering force:**
Baden-Württemberg, Germany and the EU stand as a global leader in innovation, pioneering sustainable technologies and digital advancements.
- **An ecosystem of opportunity:**
Our region flourishes as an inclusive, vibrant hub where innovation benefits everyone, setting new standards for economic and social growth.

Bosch Research



Website

LinkedIn

