



Suppliers and the Industry Transformation

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DENSO International America, Inc.



DENSO
Crafting the Core

Global Supplier of Advanced Automotive Technology, Systems and Components with **\$40.4 Billion in Sales**



Powertrain Control System

Engine management system, Gasoline direct injection, Starter, Alternator, etc.

Electrification Systems

Hybrid and electric vehicle components, inverter, DC/DC converter, motor generator, relays, etc.

Thermal Systems

Heating Ventilation Air Conditioning (HVAC), Compressor, Heat exchangers, Battery thermal management, etc.

Information & Communications Systems

Instrument cluster, Head-up display, Human machine interface technologies, Horn, Keyless entry, Wireless phone charger, etc.

Driving Control & Safety Systems

Passive safety technologies, Airbag sensing system, Active safety technologies, Traction control system, Antilock braking system, etc.

DENSO in North America

32 companies and affiliates

28 manufacturing locations

24,000 employees

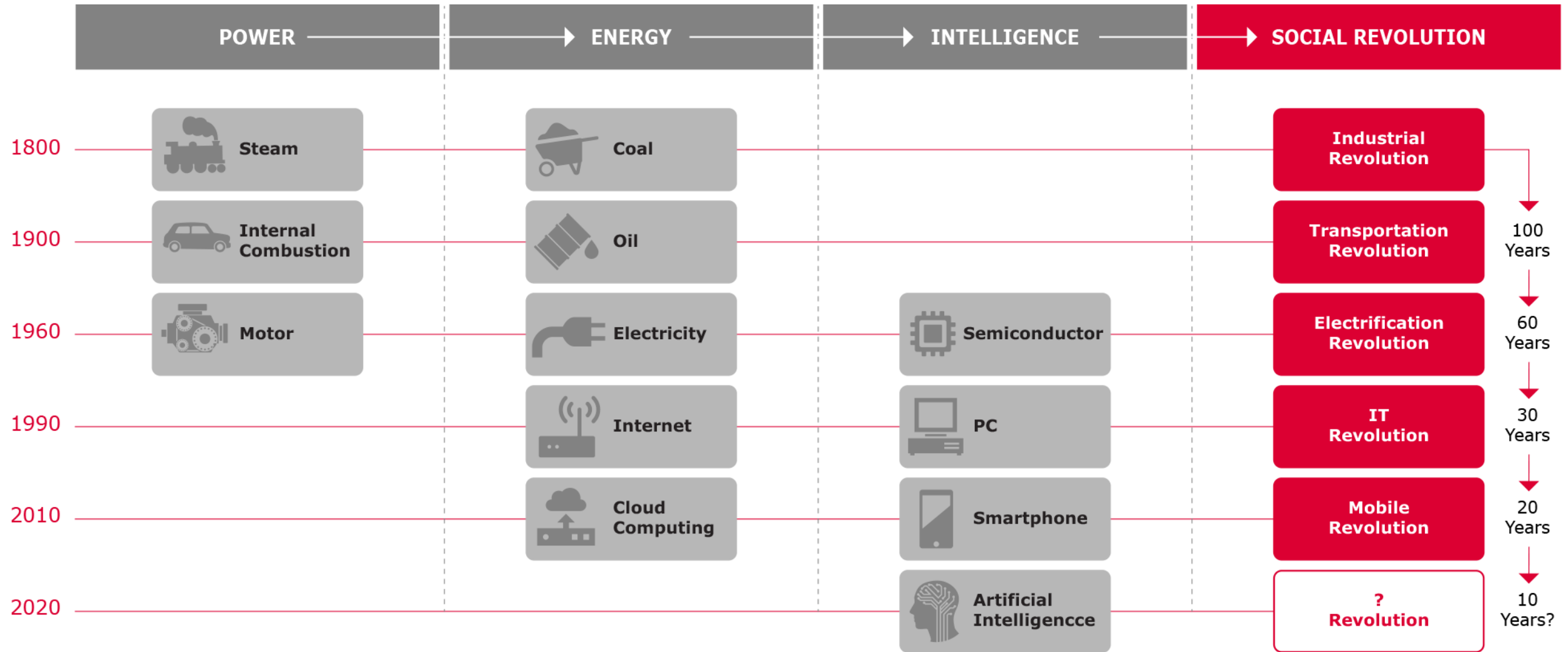
DENSO Globally

More than **200** subsidiaries and affiliates

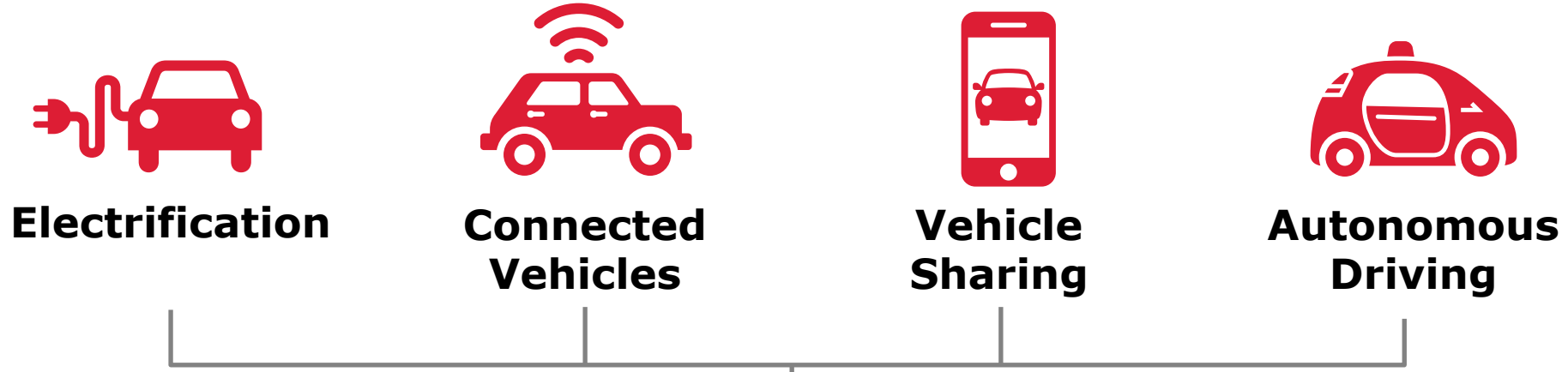
36 countries and regions

Employing more than
154,000 people
worldwide

History of Disruptive Changes Due to Innovation



Revolution: Once-in-a-Century Shift



Paradigm Shift

Facing drastic structural changes:

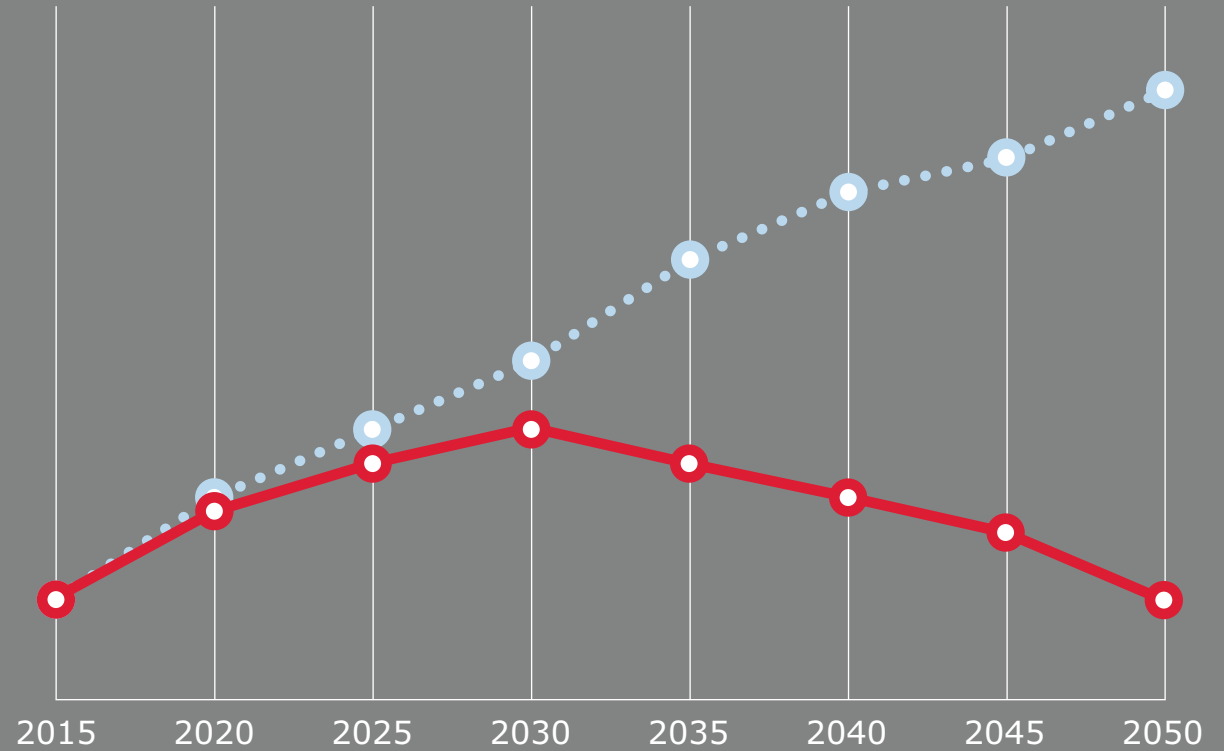
Competition with non-traditional competitors
in non-traditional fields

DENSO's Future Forecast

● ● ● ● Traditional assumptions

● — New assumptions

New Vehicle Sales



DENSO's Transformation



As a traditional company, we are facing a crisis and we know we must change

- **Proposing new Value add solutions**
- **Shifting our focus from hardware-based to software-based products and services in order to strengthen our competitiveness**
- **Leveraging our capabilities through partnerships**

DENSO People Core to Change



Technology: Embracing New Product



Customer needs shift more rapidly than ever.
We will ***anticipate change*** and take initiative
to craft ***bold new products and innovations***
beyond what we have done before.

Expanding R&D to Lead Future of Mobility

Accelerated technology development, released new products, built partnerships and invested in startups

2016

ICT Field

- Took a stake in NTT DATA MSE (a software developer)
- Started collaboration with NEC in automated driving and manufacturing

Advanced Safety/ADAS Field

- Agreed with NTT DOCOMO to cooperate in R&D on 5G
- Held a business seminar in the ADAS field
- Agreed with Toshiba to jointly develop AI technologies for image recognition systems
- Improved the performance of in-vehicle vision sensors
- Organized a press tour of the Nukata Test Center for vehicles
- Developed a small stereo vision sensor for Daihatsu

2017

ICT Field

- Developed an integrated HMI platform with BlackBerry and Intel
- Developed an HUD for Suzuki
- Started a demonstration test with Toyota Tsusho using a quantum computer
- Took a stake in Freer Logic to detect brainwaves

M-IoT Field

- Took a stake in Global Mobility Service
- Took a stake in MaaS Global
- Took a stake in Ridecell
- Took a stake in ActiveScaler
- Started collaboration with AWS to build a platform in the M-IoT field

Advanced Safety/ADAS Field

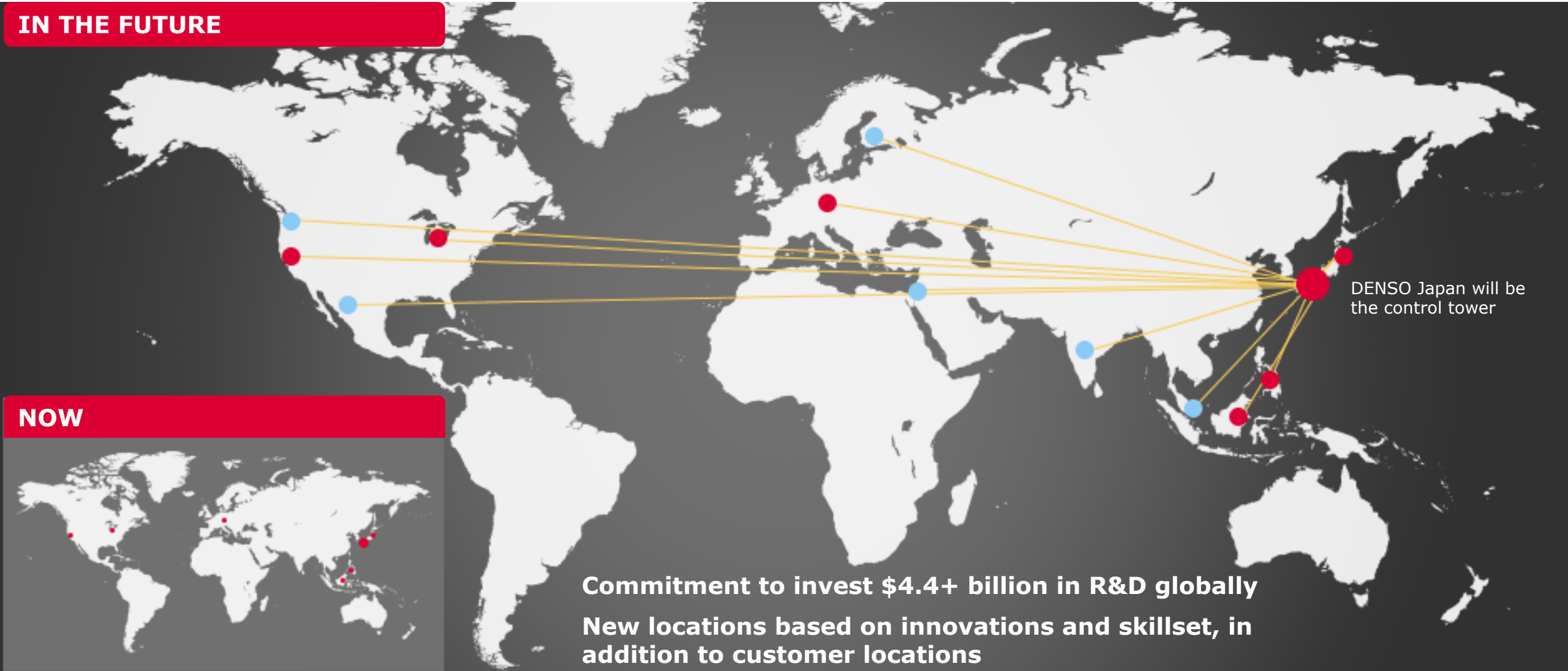
- Announced collaboration with Toshiba in advanced driver assistance, automated driving, etc.
- Established a new company to commercialize the high-precision satellite positioning service
- Developed a safety product for the new Lexus LS
- Developed a 24-GHz band submillimeter-wave radar sensor for the Camry
- Started collaboration with Mitsui Fudosan Realty in automated parking assistance

Other

- Jointly developed an IoT-based energy management system (Chubu Electric Power)
- Announced the establishment of a research lab with Symbio (a Finnish company)
- Took a stake in Canatu (a startup in the thermal field)

Satellite R&D

IN THE FUTURE

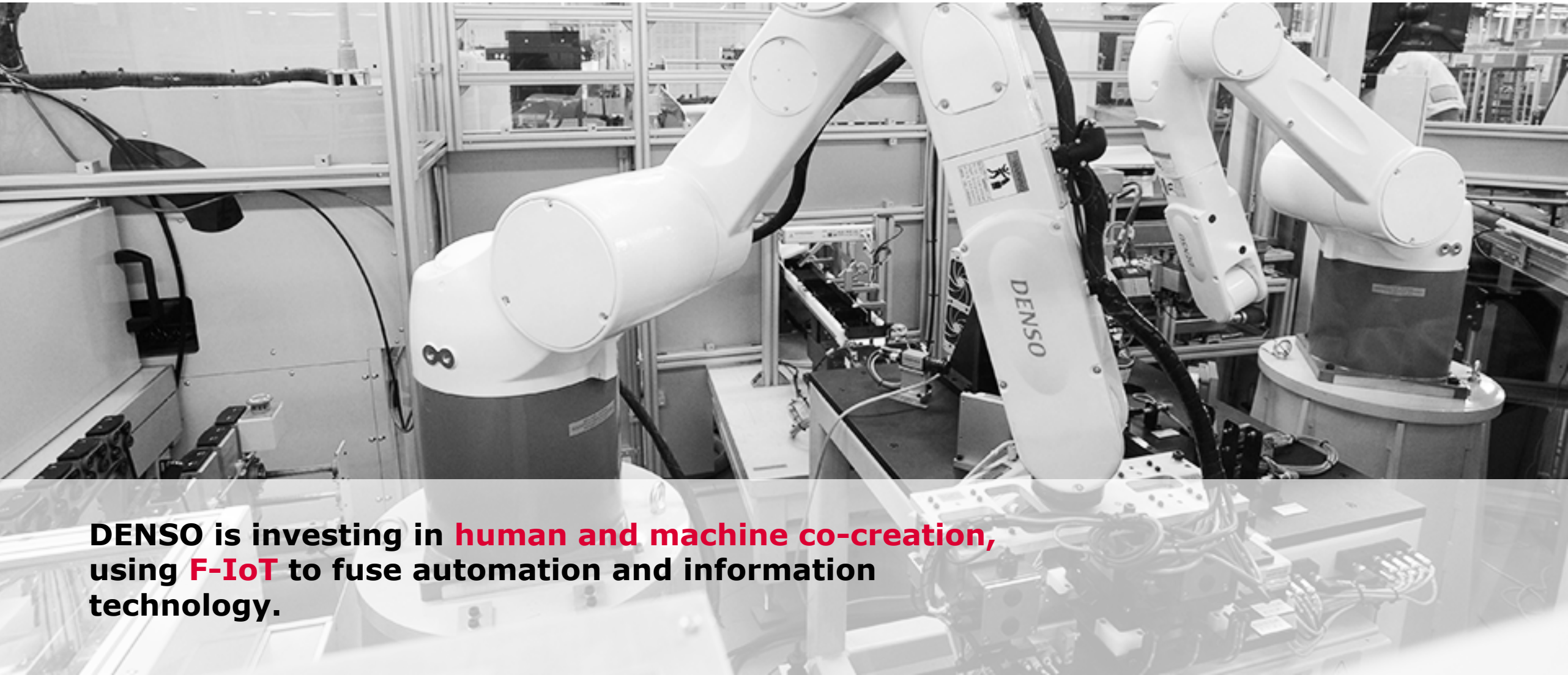


DENSO Japan will be the control tower

NOW

Commitment to invest \$4.4+ billion in R&D globally
New locations based on innovations and skillset, in addition to customer locations

Revolutionizing Our Manufacturing Facilities



DENSO is investing in **human and machine co-creation**, using **F-IoT** to fuse automation and information technology.

Crafting the Core of Future Mobility

DENSO is rapidly innovating intelligent technologies with society's future in mind.

Our people, places, technology and partners will play a role in protecting lives and preserving the planet for future generations.

DENSO

Crafting the Core