How Innovation Leads to a Better, Safer, more Secure and Sustainable World ?

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Director Strategic Partnerships

NXP Semiconductors


SUSTAINABILITY
IS IN OUR HANDS

Innovation Priority #1

Together with our valued customers, we're not just advancing technology, we're advancing society.

AUTOMOTIVE

Enabling carmakers to develop smarter solutions for complex autonomy, connectivity, and electrification challenges

Accelerating the shift to greater mobility

INDUSTRIAL

Reducing wasted time, money, and effort by helping business run more efficiently.

Enabling more efficient data processing

MOBILE

Giving wearable and mobile devices easier access to the services that make modern life more convenient without compromising security and safety.

Transforming how people and devices connect

SMART HOME

Solutions that listen, learn, and adapt into the places we call home for more comfort, affordability, safety, and convenience.

Powering the intelligence behind the technologies

SMART CITY

Simplifying how people access and interact with local services to achieve new standards of sustainability, efficiency, mobility, and economic growth.

Anticipating the demands of tomorrow

COMMUNICATION INFRASTRUCTURE

Powering insights and inspiring performance with hardware solutions for handling 5G connectivity across the emerging communications spectrum.

Delivering real-time responsiveness at the speed of 5G

60 years of combined experience and expertise

Operations in more than **30 countries** worldwide

Approximately **31,000 employees**

Headquarters in The Netherlands – **Eindhoven**

NXP's Values

Customer-Focused Passion to Win

Main Drivers of Innovation

AUTONOMIZATION ROBOTS
ARTIFICIAL INTELLIGENCE

GROWING DEMAND
FOR SAFETY
& SECURITY

LIFESTYLE
DESIRE FOR
INDIVIDUALIZATION

ALWAYS
CONNECTED /
INFORMED

DEMOGRAPHIC
CHANGE

CLIMATE CHANGE

SHORTENING OF
NATURAL RESOURCES

NEW VALUE CHAINS

MEGACITIES
SMART CITIES


ENERGY ZAPPERS
ONE YEAR OF VAMPIRE POWER ACROSS THE US
POWERS NYC FOR
3 YEARS
ENERGY FLEX ARCHITECTURE
CAN ELIMINATE
>90% OF ENERGY WASTE

Contributing to a Greener World

NXP products using Watts to save kWatts in customer application

Power adapters

- GreenChip Solutions for compliance to the highest energy-efficiency standards

Electric / hybrid vehicles

- Improved battery management can extend the range of e-vehicles by 28%[1]

Traffic management systems

- NXP demonstrated platooning technology for trucks, which can save up to 8% fuel[2]

Edge processing

- Our solutions “at the edge” avoid energy hungry data transfer and could computing

Building heating, cooling & lighting

- Buildings use 55% of global electricity[3]. Smart homes can make the difference

Mobile networks

- Our power amplifiers for 5G and beamforming antennas are highly power efficient

[1] https://cecas.clemson.edu/~avahidi/wp-content/uploads/2016/10/chen.pdf
[2] https://www.researchgate.net/publication/224190659_An_experimental_study_on_the_fuel_reduction_potential_of_heavy_duty_vehicle_platooning
[3] https://www.iea.org/reports/digitalisation-and-energy

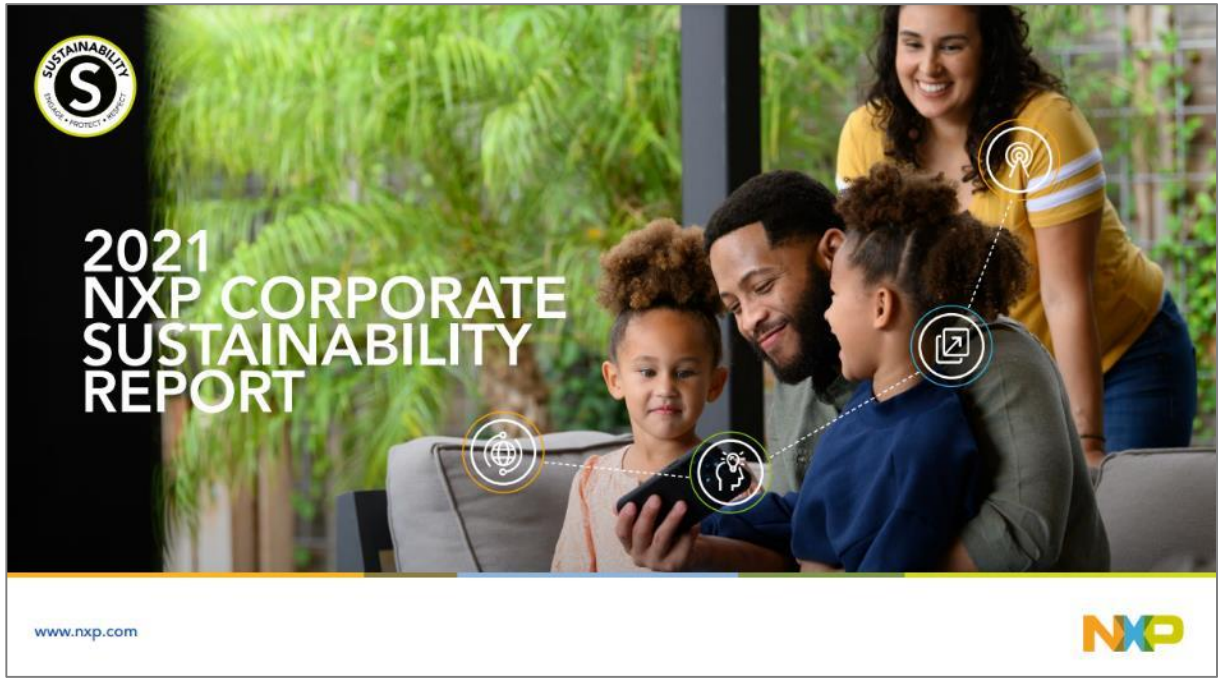
Sustainability @ NXP

Corporate Sustainability Report

- An integrated online overview of the economic, environmental and social aspects of NXP's business activities and products.

Sustainability Stories

- A bi-annual publication spotlighting NXP technology, design and solutions that drive innovation to advance global sustainability.



NXP ESG Highlights 2022

Product Innovation for Sustainability

Making Vision Zero a Reality

AUTONOMY

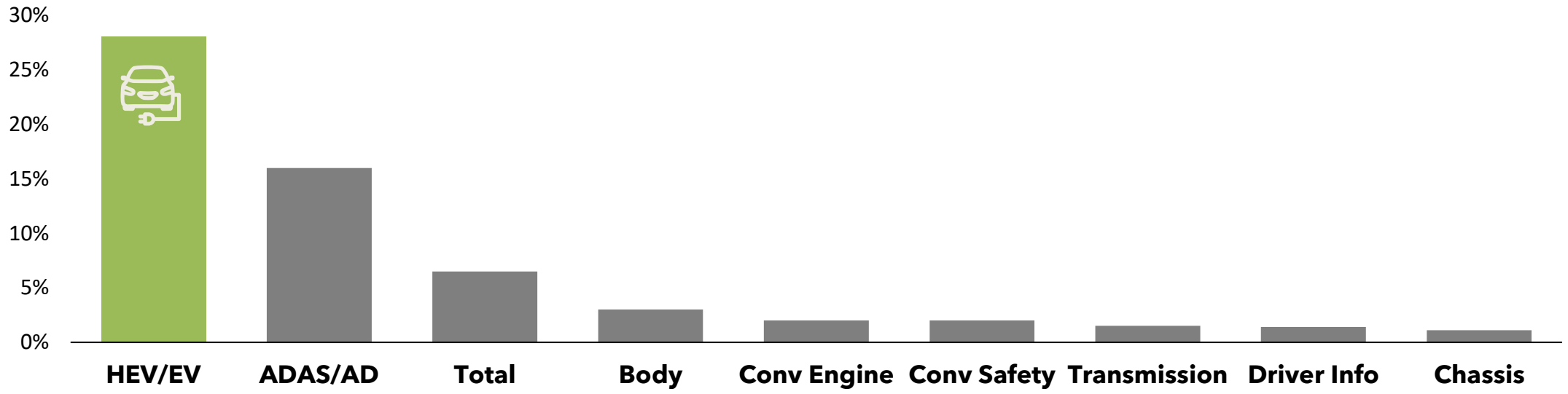
ELECTRIFICATION

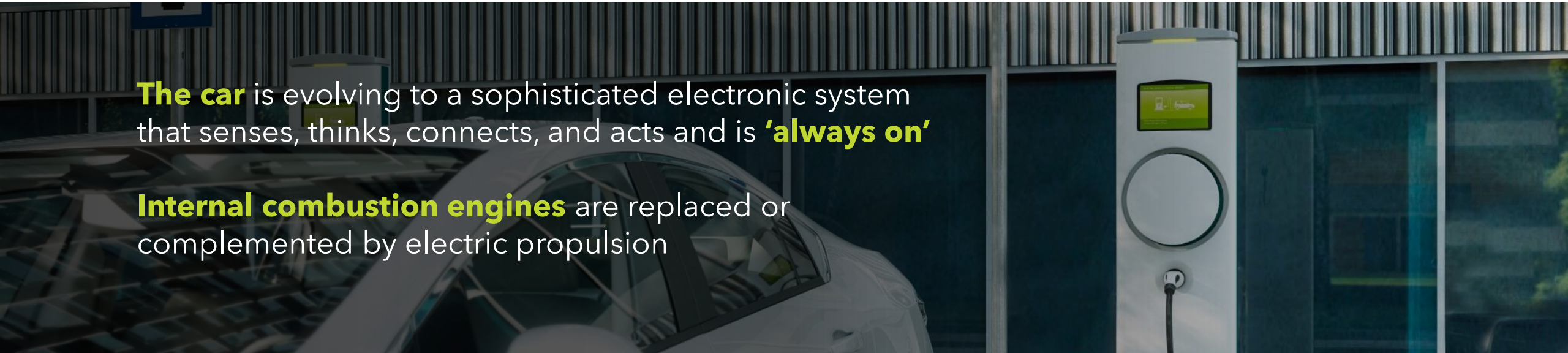
CONNECTIVITY

Zero Emissions

Increasing global regulations

Key Growth Areas of Automotive ECS

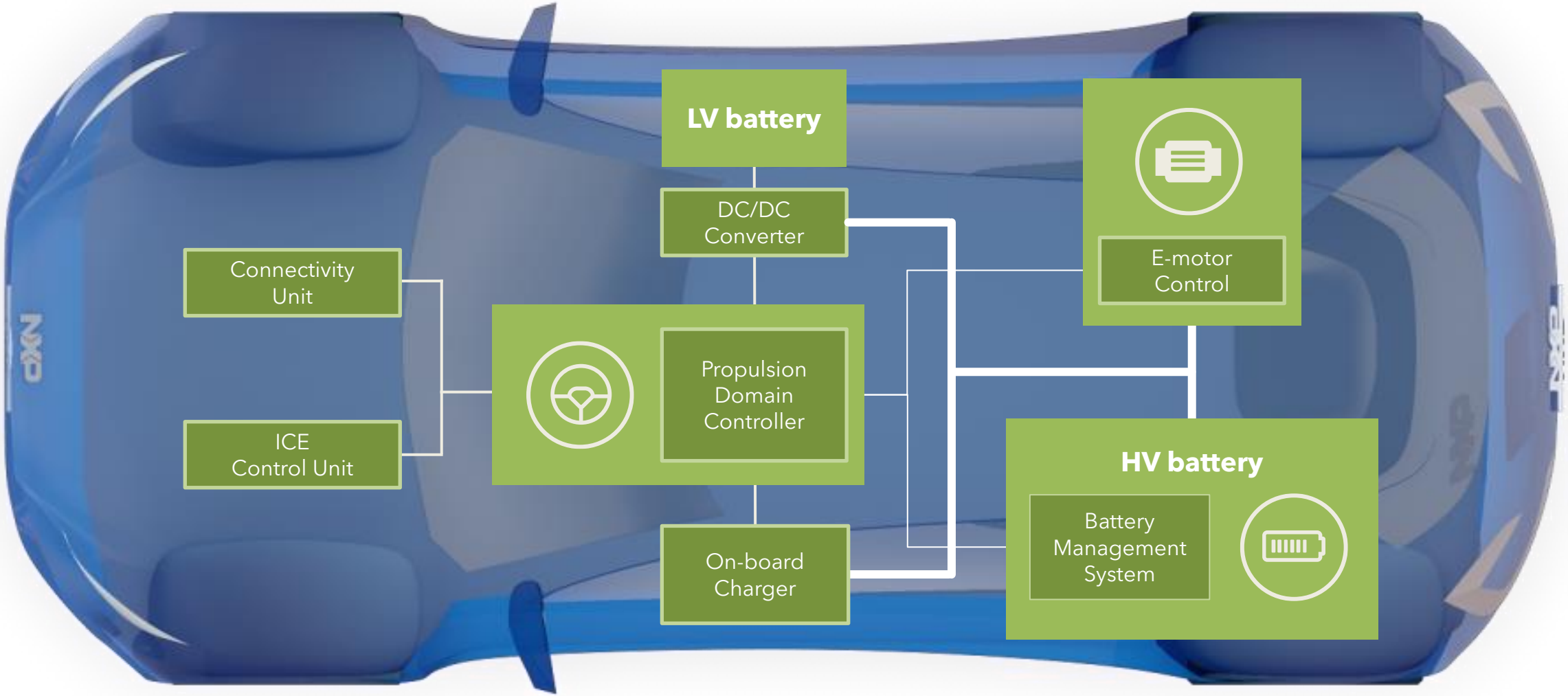




The car is evolving to a sophisticated electronic system that senses, thinks, connects, and acts and is **'always on'**

Internal combustion engines are replaced or complemented by electric propulsion

Key Systems in XEV Powertrain



NXP XEV Solutions Menu

BATTERY MANAGEMENT

PMIC **FS26** | IVN | S32 **S32K34/5/8** | Analog Front End **BCC**

SoC / SoH monitoring

Battery Pressure Sensor

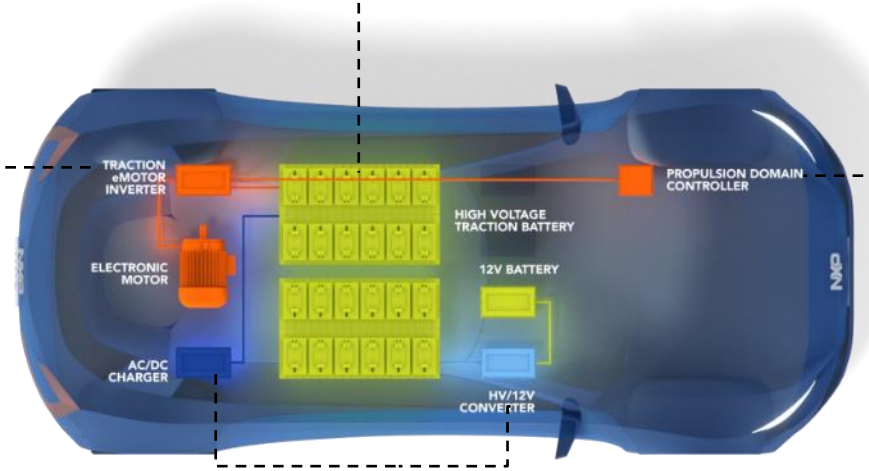
Thermal management

Battery Cell controller

NXP Solutions

INVERTER / DCDC

PMIC **FS26** | IVN | S32 **S32K3x** | IGBT / SIC Gate Driver **GD316x**



PROPULSION DOMAIN CONTROL

S32 **S32xx**

PDC/VCU | ICE Control | Chassis/ Braking

TORQ Vector | TCU Control | OTA Manager

PMIC **FS6x** | IVN

Highest performing real time solution on the market

Up to 16K DMIPS / Multi-application hosting

Isolation & Virtualization

Up to 64M Flash

Motor 1

Resolver 1

Motor 2

Resolver 2

Up to 2x Inverter @ 100KHz control loop

Control and protection of SiC power switch > 20 KHz

ASIL-D SW Resolver solution

- Dual SWG to support resolver's excitation

Complete Solution: HW +production ready SW

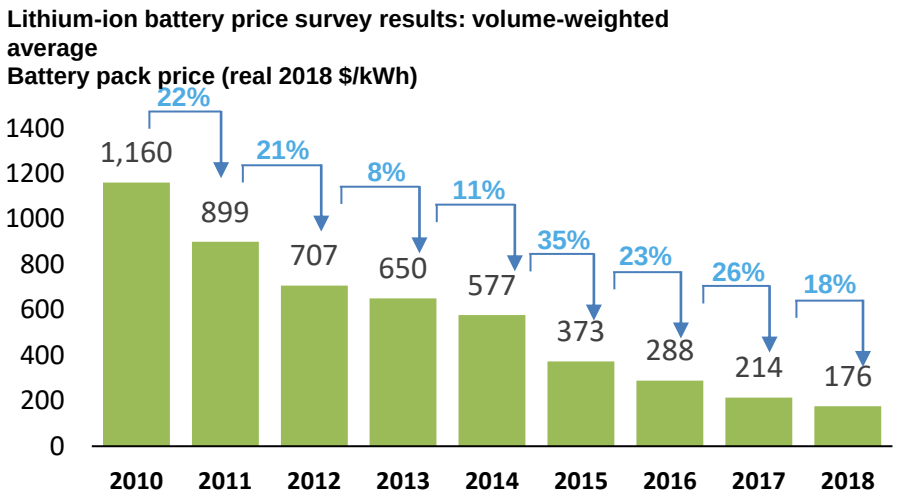
OBC / DCDC

PMIC **FS26** | IVN | S32 **S32K32/4**

Digital control for OBC / DCDC

#1 Energy Optimization-Extending Driving Range

BEVs		kWh	Range
Fiat 500e	F500e	24	84
Honda Clarity EV	HCEV	25.5	89
Hyundai Ioniq EV	HyIEV	28	124
Ford Focus Electric	FFE	33.5	115
Volkswagen e-Golf	VoEG	35.8	125
Nissan LEAF II	NL2	40	151
BWM i3	Bi3	42	153
Tesla Model 3 SR	T3SR	50	220
Chevrolet Bolt EV	CBEV	60	238
Tesla Model 3 MR	T3MR	62	264
Hyundai Kona EV	HyKEV	64	258
Kia Niro Electric	**KNEV**	**64**	**236**
Tesla Model 3 LR	T3LR	78	310
Tesla Model SD	TSD75	75	259



Source BloombergNEF

Energy optimization is the key factor

Kia Niro Electric example

64 kWh battery => 380 KM => 64x176$=> 11,250$ battery cost

Extending the 64 kWh xEV range by 30% means:

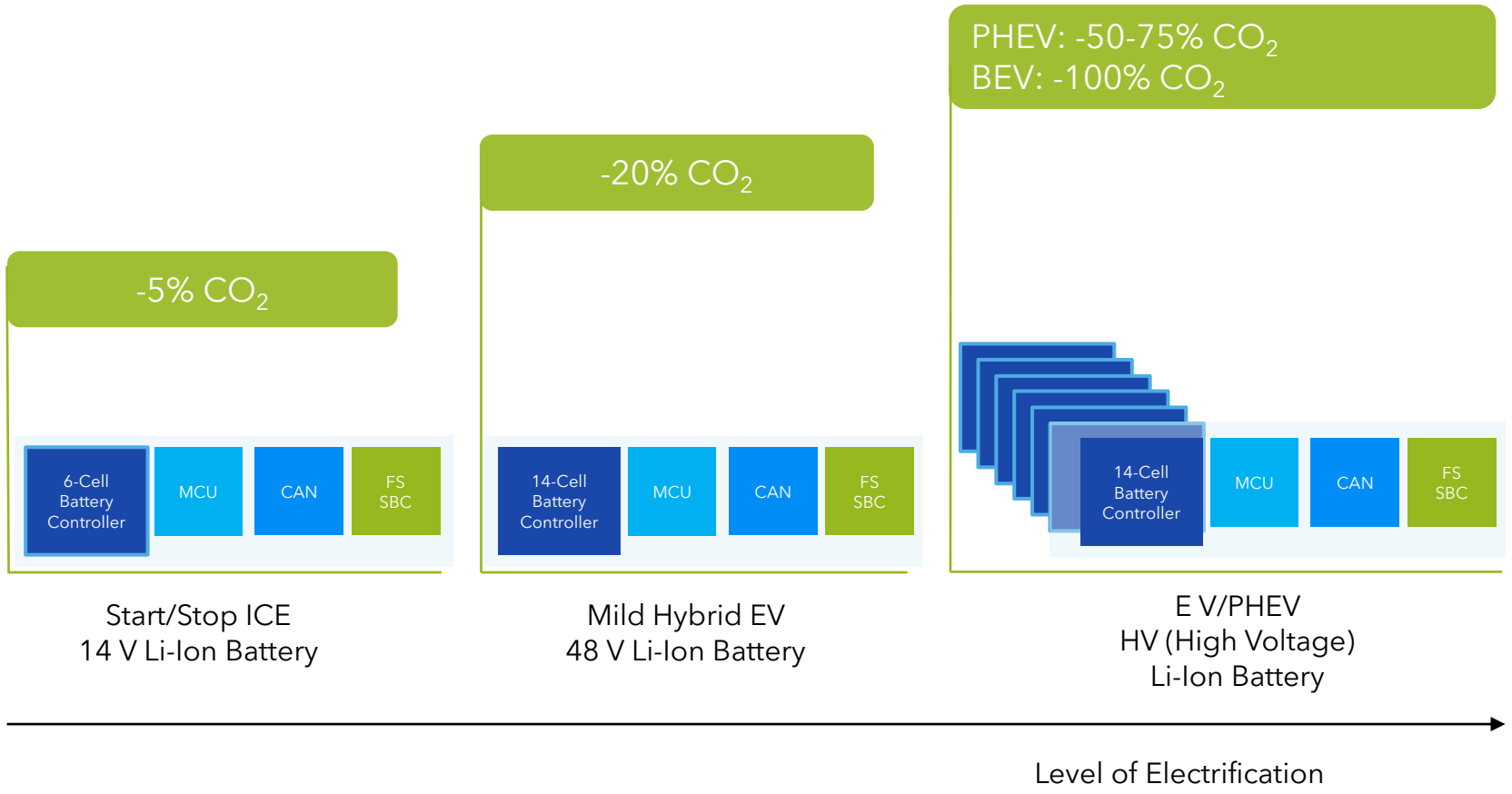
Better performances @ same price

- 460 KM instead of 380 KM @ same price

Sell the car 2,450$ cheaper @ same performance

Use a 50 kWh battery instead of 64 kWh (50x176$=8800$)

Scalability of Battery Management



- Leading accuracy
- Fast and robust communication
- Highest BOM integration
- Hardware/software scalable
- ASIL-D functional safety

Note: CO2 reductions relative to pure combustion-engine based vehicle, produced by/at vehicle

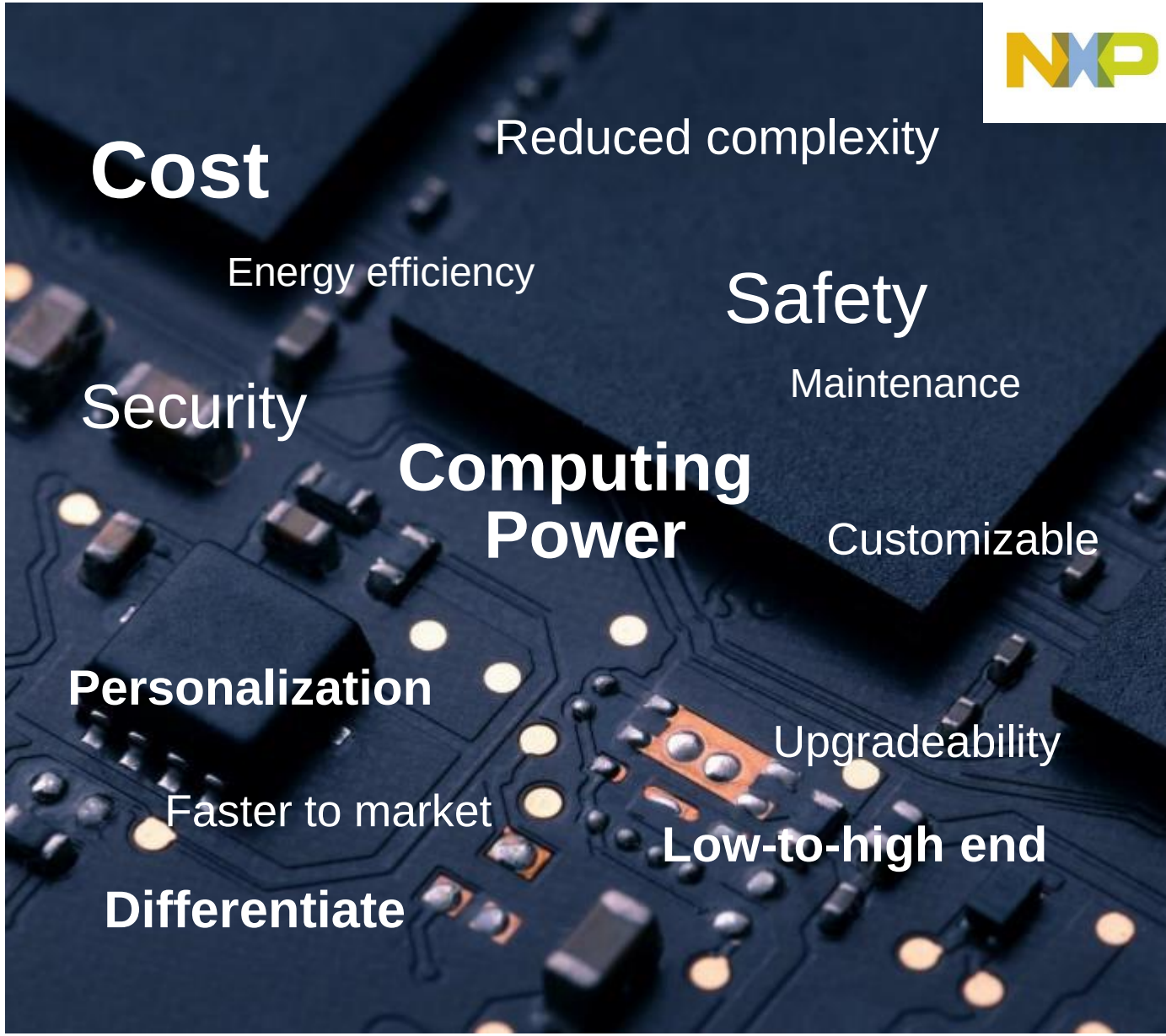
Opportunity to Create Value

System Solutions AND Functional Clusters

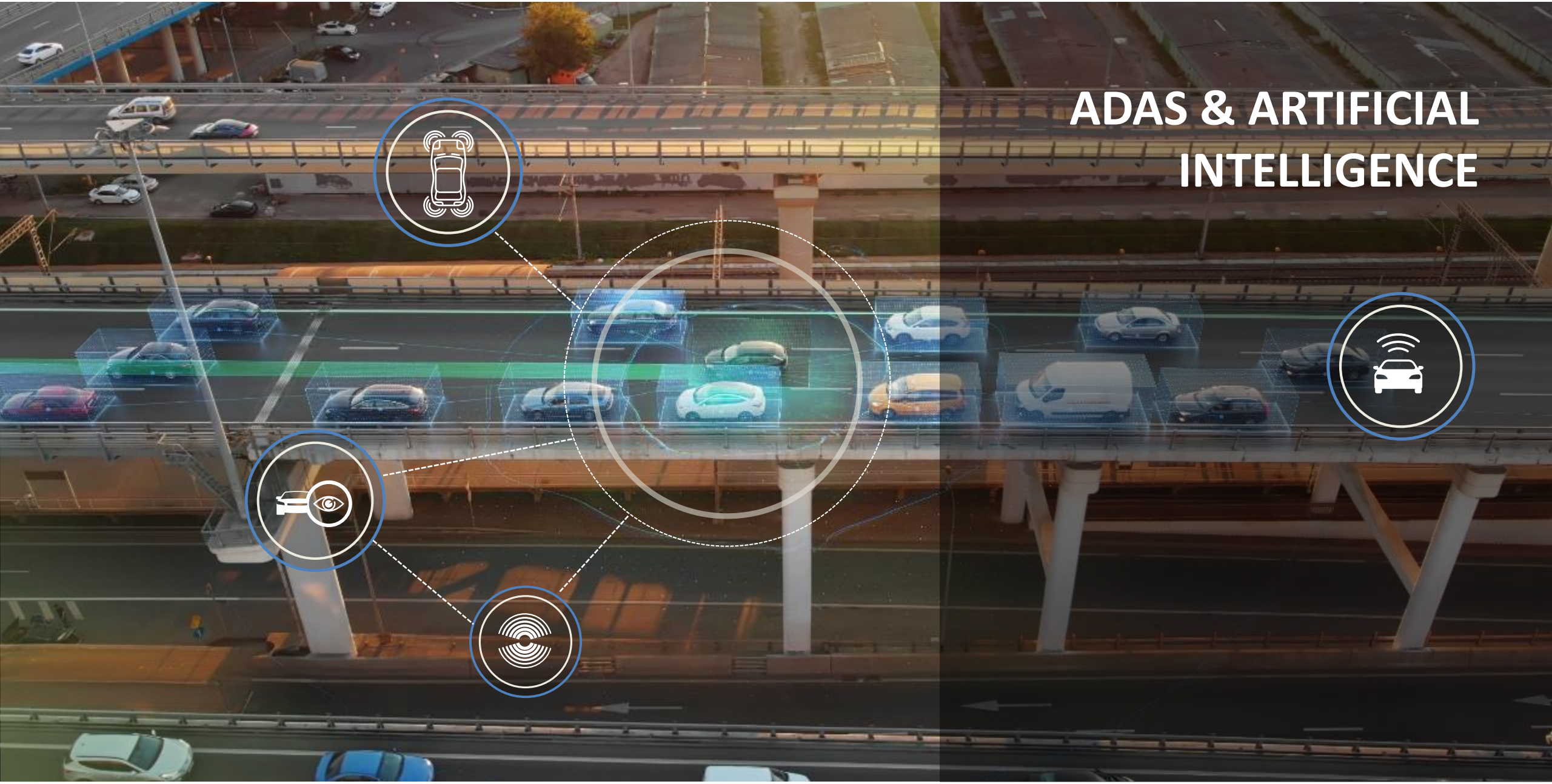
Repartition
Cluster functions

Integrate
Reduce number of Components per domain

Optimize
Reduce design complexity & cost



ADAS & ARTIFICIAL INTELLIGENCE



NXP's Technology Showroom

JOURNEYS BY DESIRED ENGAGEMENT

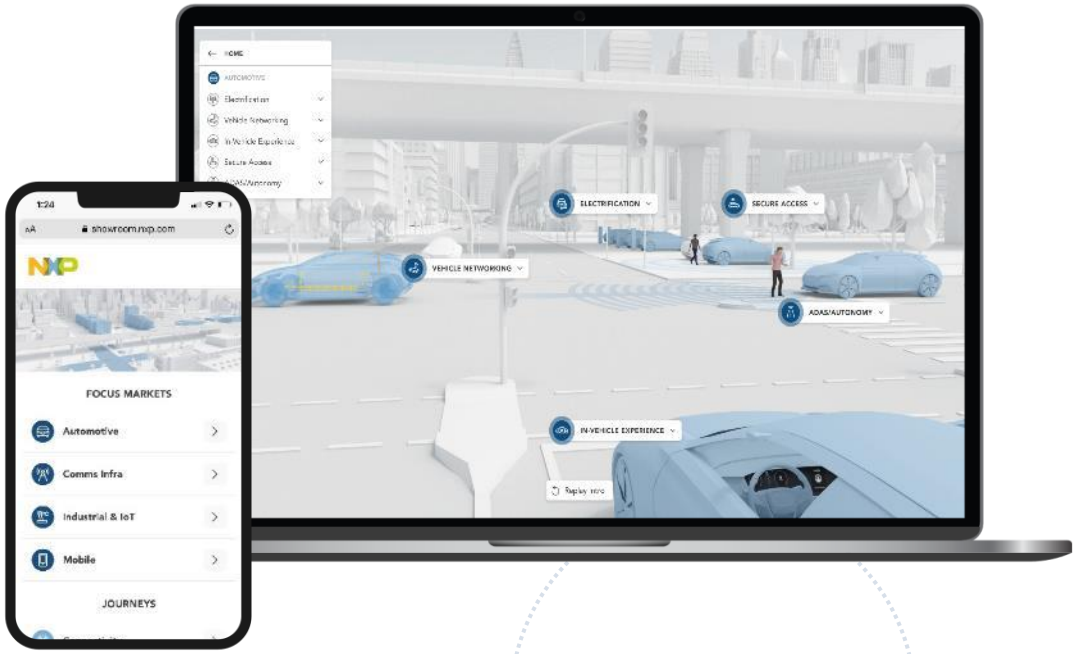
Self-guided tour
Live-streaming at set times
Guided tours

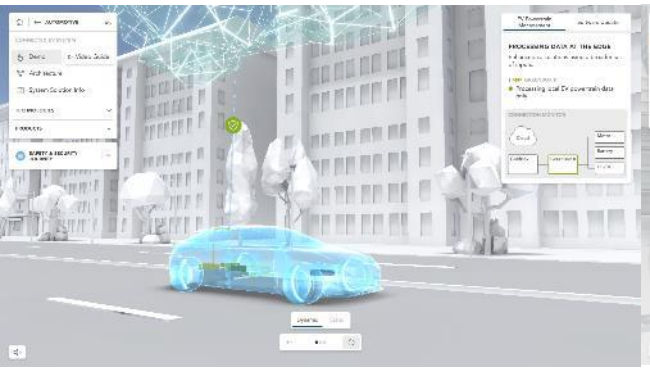
JOURNEYS BY DESIRED FOCUS

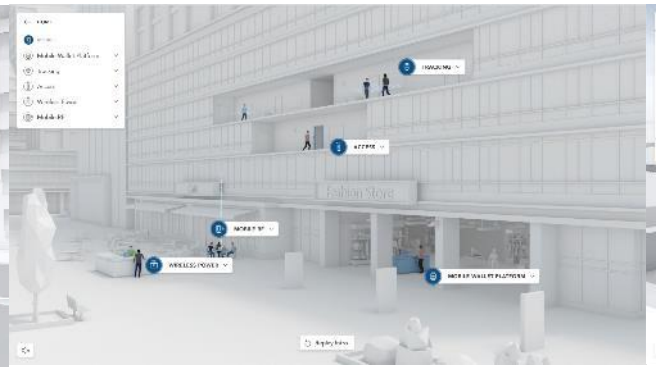
Edge & AI/ML
Safety & Security
Connectivity
Analog

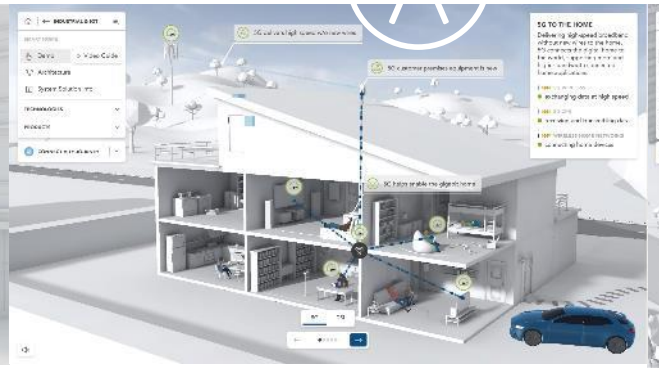
40+ VIRTUAL DEMOS

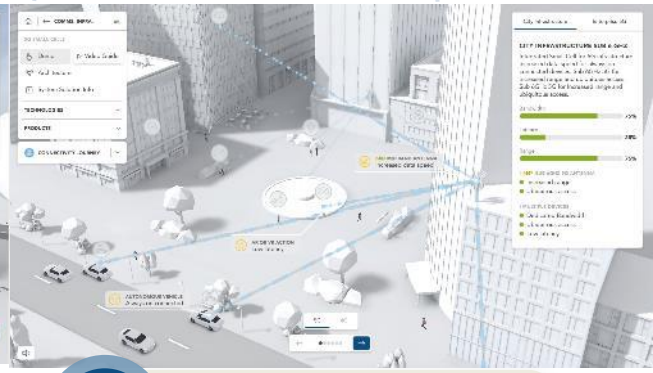
Focus on system solutions
Set up along NXP verticals











SHOWROOM.NXP.COM

THANK YOU.

TOGETHER, WE'RE NOT JUST ADVANCING
TECHNOLOGY, WE'RE ADVANCING SOCIETY.

NXP | SECURE CONNECTIONS FOR A SMARTER WORLD