

Efficient Mobility –

Create the Future with Drive-by-Wire Autonomy





Arnold NextG

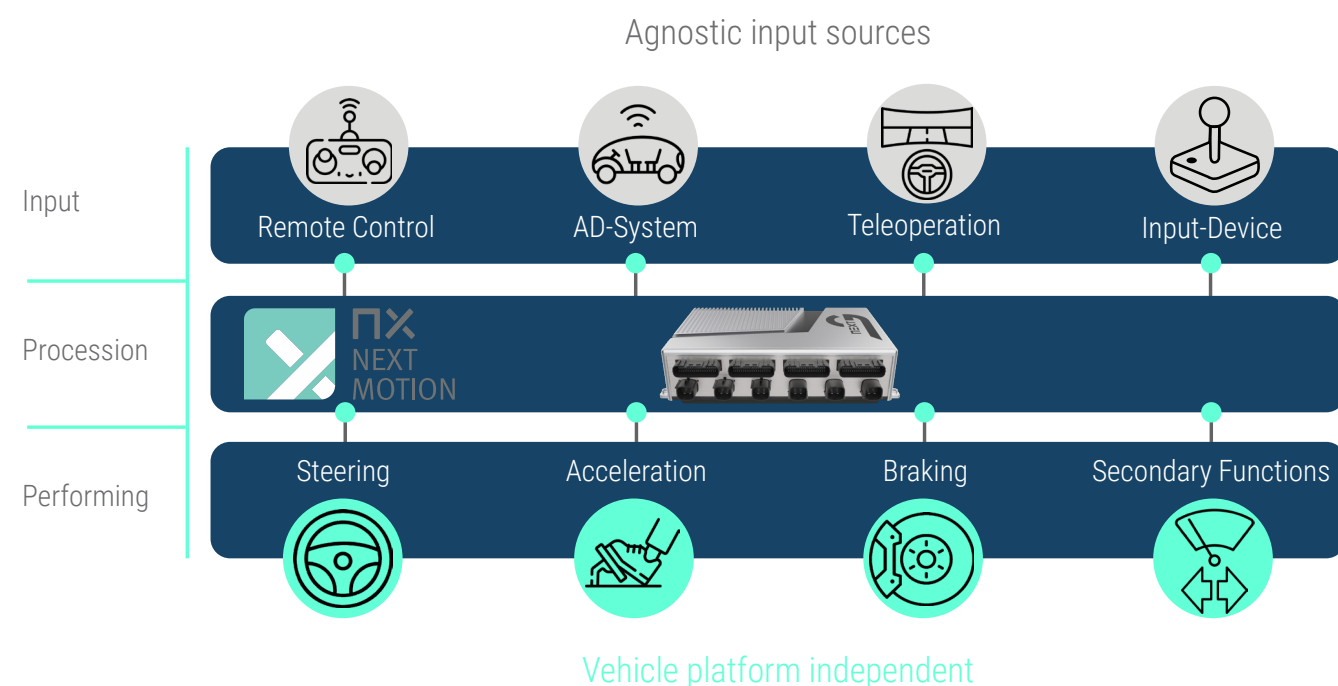
Technology for the mobility of tomorrow

Experience the future of vehicle control with Arnold NextG's drive-by-wire technology. For more than 20 years, we have been developing solutions that replace mechanical connections with electronic controls - for maximum precision and safety.

Our system meets the most stringent safety standards and is already being used successfully in industries such as agriculture, construction, logistics and public transportation. It is platform-independent and covers applications ranging from remote-controlled to autonomous vehicles and machines.

Intuitive interfaces and adaptive systems ensure an optimized user experience, outstanding safety and security and increase productivity.

Together with Arnold NextG, you can optimize your mobility with innovative, sustainable and efficient solutions that increase productivity and drive your business forward with confidence.



Innovation meets experience

Upgrade your fleet with our drive-by-wire technology



Kevin Arnold
Founder & CEO



"Retrofitting is a key measure for our company to further promote the idea of sustainability."





Arnold NextG is revolutionizing fieldwork

Autonomous fieldwork begins with a new steering technology

The demands on modern agricultural machinery are increasing: the shortage of skilled workers is worsening, operating hours are getting longer, and expectations for precision and efficiency are rising. At the same time, there is growing pressure to work resource-efficiently and sustainably – even under challenging conditions such as heat, dust, or rough terrain. This is exactly where Arnold NextG comes in with its drive-by-wire platform NX NextMotion.

New options for existing and new machine fleets

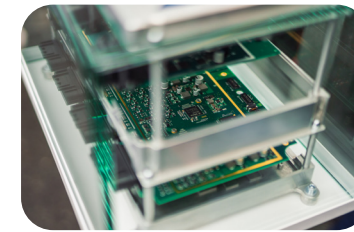
The fully electronic control system replaces mechanical linkages with digital precision – for steering, throttle, and brake, as well as for secondary functions. This opens up entirely new possibilities: tractors can operate semi-autonomously or fully autonomously, can be legally driven on roads using a joystick – or teleoperated remotely, for example from an office or even from a helicopter. The technology is not limited to new vehicles: as a certified retrofit solution, NX NextMotion can also be integrated into existing machinery fleets – quickly, efficiently, and with fail-operational safety.

Digital steering system with next-generation safety architecture

At the heart of the system lies the patented Virtual Shaft Technology, which replaces the traditional steering mechanism with a virtual steering column: the wheel angle at the axle always follows the steering wheel movement precisely – including automatic return to the 12 o'clock position. Combined with integrated force-feedback functionality, the driver receives realistic feedback on ground conditions, side forces, and axle load. The result is an intuitive and precise driving experience – like in a modern car, but optimized for field operations. The speed-dependent steering characteristics with variable ratio further enhance comfort and control – especially during long working days. And since the system operates without a physical steering column, the cab design is reimagined: rotating seats, freely positionable control units, ergonomically optimized joystick operation – the cabin becomes a command center.

NX NextMotion is safeguarded by multiple redundancies – from the control unit to the actuator. The system remains fully operational even in the event of a fault. All safety-critical components are developed, tested, and certified according to the highest standards (ASIL D, ISO 26262, ISO 21434). The result is a future-proof platform that meets all the requirements of autonomous mobility in agriculture – flexible, modular, and manufacturer-independent.

Increase efficiency, enhance safety, relieve personnel – with NX NextMotion, the tractor becomes a digital workforce.



Drive-by-Wire

Electronic precision for every industry

Our drive-by-wire system acts as a digital driver and replaces mechanical connections with electronic controls, ensuring precise navigation, seamless integration with all kind of AD-systems and more efficient data processing - ideal for autonomous vehicles.

Teleoperated vehicles benefit from safe remote control in hazardous environments such as ports and logistic yards. Electric vehicles gain efficiency and design freedom.

Our drive by wire solutions transform how businesses in any industry move people and goods, cutting costs and overcoming the biggest challenges in the mobility industries.

Advantages

A drive-by-wire system that drives productivity, safety, and sustainability

Overcome driver shortages

Improve safety

*Multiple Driving
modes available*

*Increase efficiency and
lower costs*

*- Manual
- Teleoperated
- Remote controlled
- Autonomous*

*100% customized on customer
needs and requirements*

Optimized steering performance

Easy integration and scalability

New interior concepts

*Precise diagnostics and
fault detection*

Adaptive driving

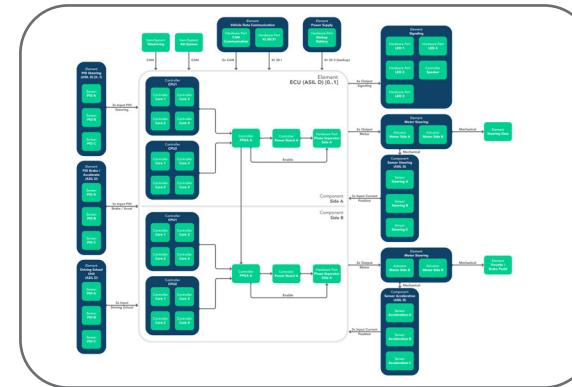
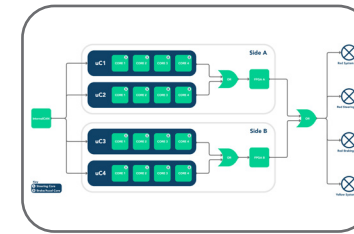
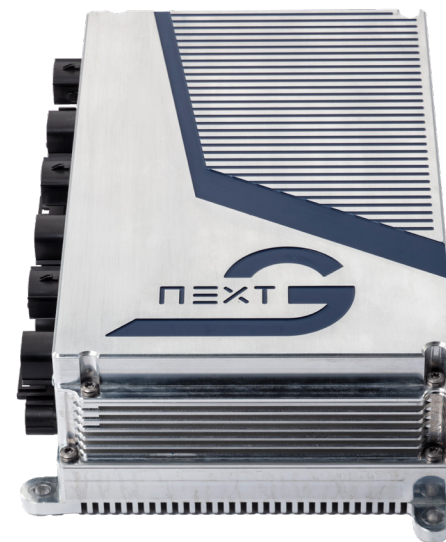
Over-the-air updates



NX NextMotion

The benchmark of drive-by-wire-systems

- System development (hardware and software) according to ISO 26262:2018 (ASIL-D)
- Functional safety according to ISO 61508 (SIL-Level3)
- Meets ECE R10:2017, ECE R13:2016, ECE R79:2018, ECE R89:2007, ECE R116:2012, ECE R131:2014
- Fulfills General Safety Regulation (GSR2)
- Road vehicles – Cybersecurity engineering according to ISO/SAE 21434 and SAE J 3061:2016
- Testing (hardware and software) following ISO/IEC/IEEE 29119
- System capable of homologation
- System development according to ASPICE Level 2 and VDA 6 (accompanied by TÜV-SGS)
- AUTOSAR compatibility
- 12 CAN/CAN-FD/CAN-SIC/CAN-XL Interfaces
- 6 CAN-FD Busse (2x Safe_CAN A & B) 4x ext. CAN-FD
- Operating voltages: 12V and 24V
- Open-AD-Interfaces
- Fail-operational
- Failure in time < 10 FIT
(Complete System from Input Device to Actuator)
- System monitoring at hardware and software level
- Secure and TÜV-certified error management
- Interfaces for various input devices (joystick, steering wheel, driving school unit, remote control)
- Control of secondary functions

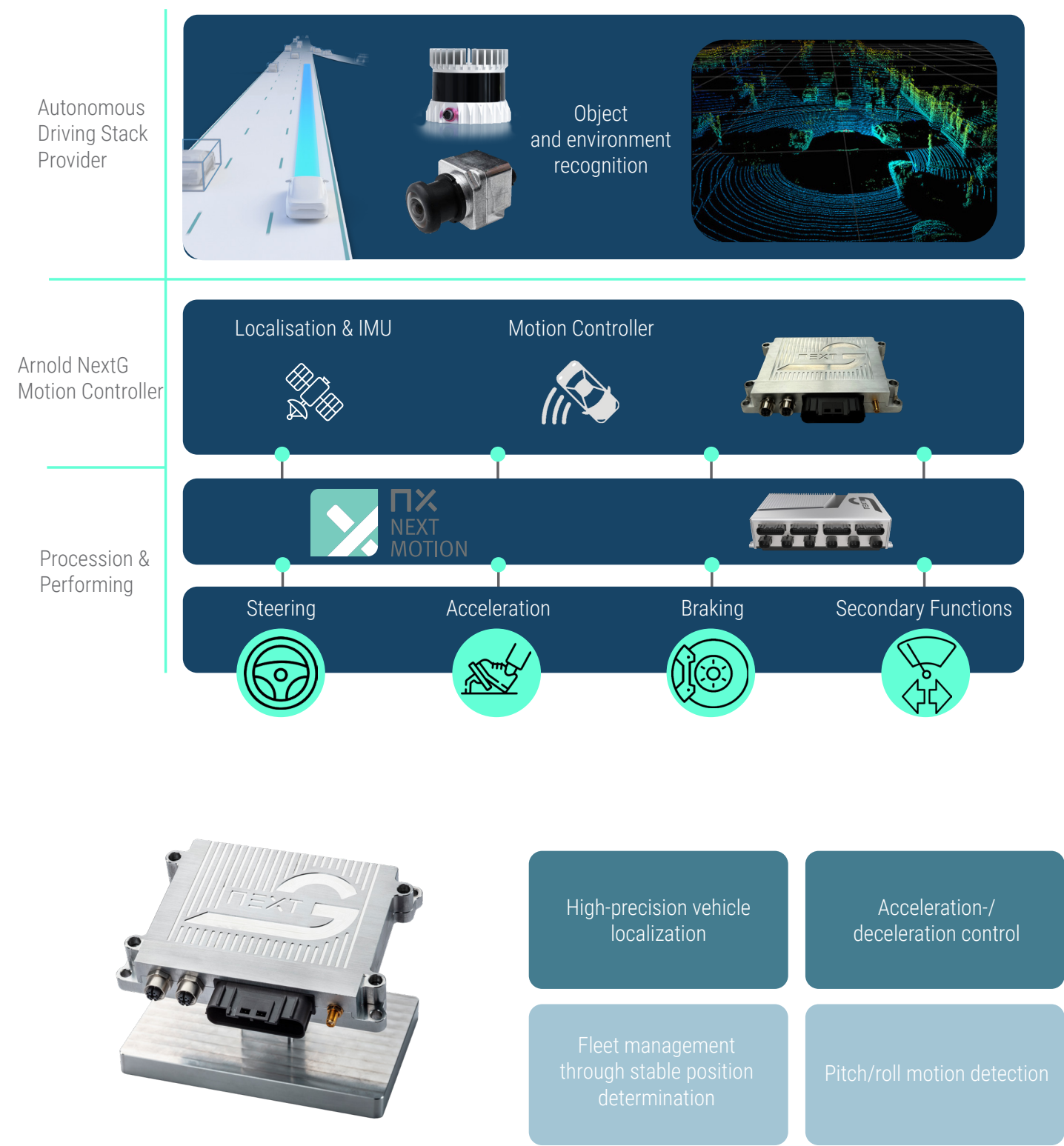


Safety Concept

Unstoppable Protection, Powered by Safety-by-Wire®

1. Redundancy and Fault Detection Mechanisms
2. Comprehensive Self-Test During Startup
3. Redundant Fault Logging and Diagnosis
4. Power Supply and Management
5. Signaling and User Interaction
6. Safety Measures in Critical Systems
7. Monitoring of System Status and Health
8. Fault Management and Degradation Strategy
9. Dual ASIL D and Dual-Lane Concept
10. Safety Logic: The Dual Safety Net for Maximum Reliability

NX Motion Controller



AD Communication





Supports all vehicle platforms

Perfect solution for retrofit and new vehicles

NX NextMotion is suitable as an add-on system for both retrofitting and upgrading existing fleets as well as integrating into new vehicles. It serves as the central, vehicle-platform-independent interface for semi-autonomous, fully autonomous, and remote applications. This comprehensive process automation maximizes efficiency and availability, addresses personnel shortages, and significantly improves safety and cost efficiency in industry processes.

Enhancing efficiency in all mobility industries

- Easy integration and scalability
 - Semi and fully autonomous applications
 - Remote/teleoperated applications
 - Efficiency improvement and cost reduction
 - Safety enhancement
- Optimized personnel deployment
 - Seamless process automation
 - Vehicle agnostic retrofitting solution (all brands and types)
 - Needed solution for tomorrows sustainability



Basis for all automation requirements

Secondary functions	Vehicle status
Ignition	Ignition
Start engine	Start engine
Gear position (P, R, N, D)	Indicator R, Indicator L
Parkbrake open/close	Gear position (P, R, N, D)
Low beam	PB open/close
High beam	Low beam
Flashlight	High beam
Wiper water front & rear	Flashlight
Wiper front/rear	Fuel level (0-100%)
Horn	AdBlue level (0-100%)
Magnetic clutch	System air pressure
Low brake	Tire pressure
Emergency brake	Magnetic clutch
Rotating beacon	Critical vehicle faults
Front axle suspension up/down	Low brake
Rear/front linkage raise/lower	Emergency brake
Start PTO (power take-off)	Front axle suspension (0-100%)
Start guidance	Rear/front linkage position (0-100% lift height each)
Operation of hydraulic control valves	Guidance activated
Control of ISOBUS implements	Hydraulic system activation status
Tire pressure	ISOBUS implement status

NX Next Remote Control

- Control of primary and secondary functions





WE CONTROL WHAT MOVES.

Arnold NextG

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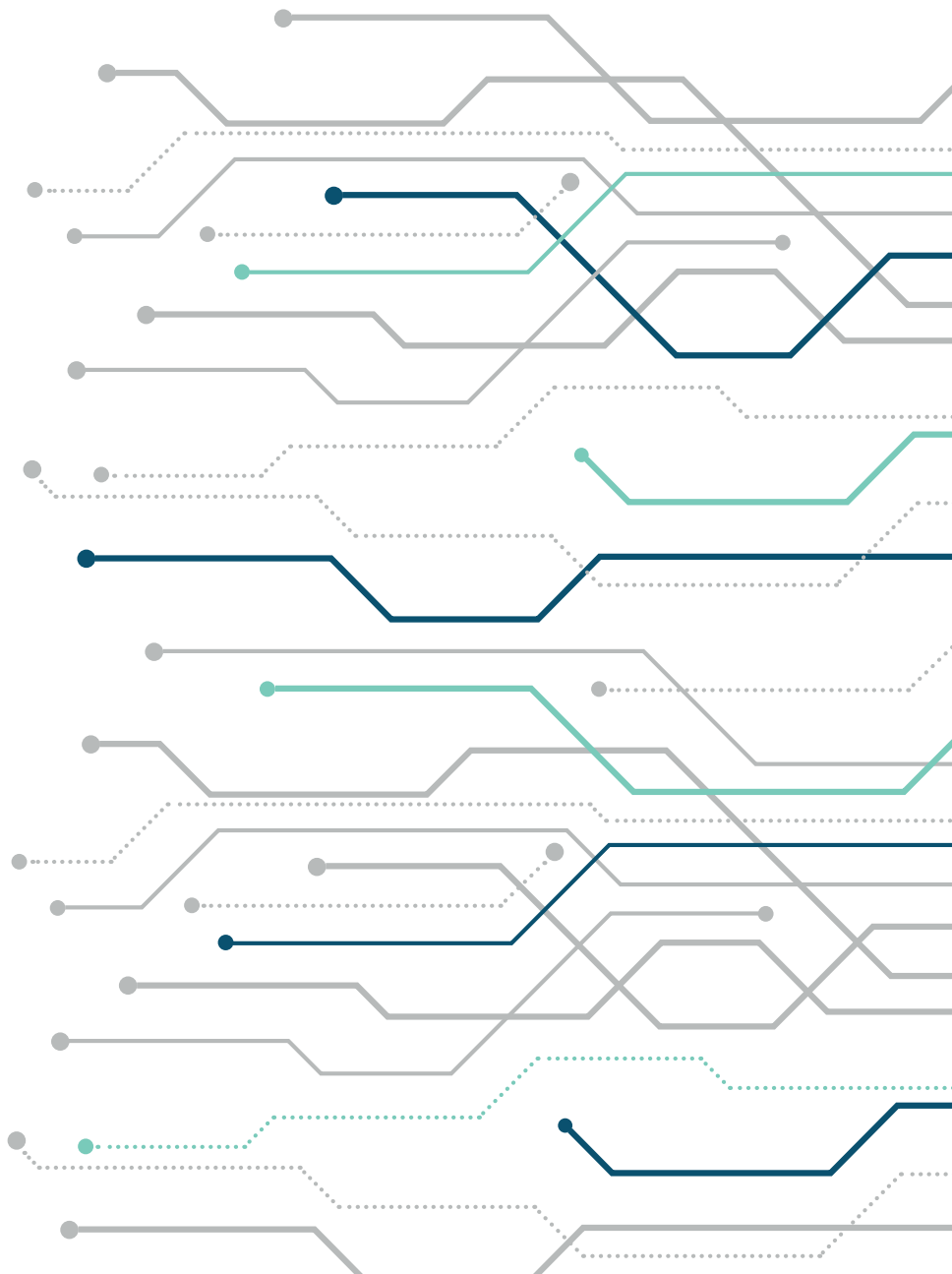
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Version 2