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Building an intelligent Supply Chain of the future

Solutions that help to digitalize and automate your logistic operations

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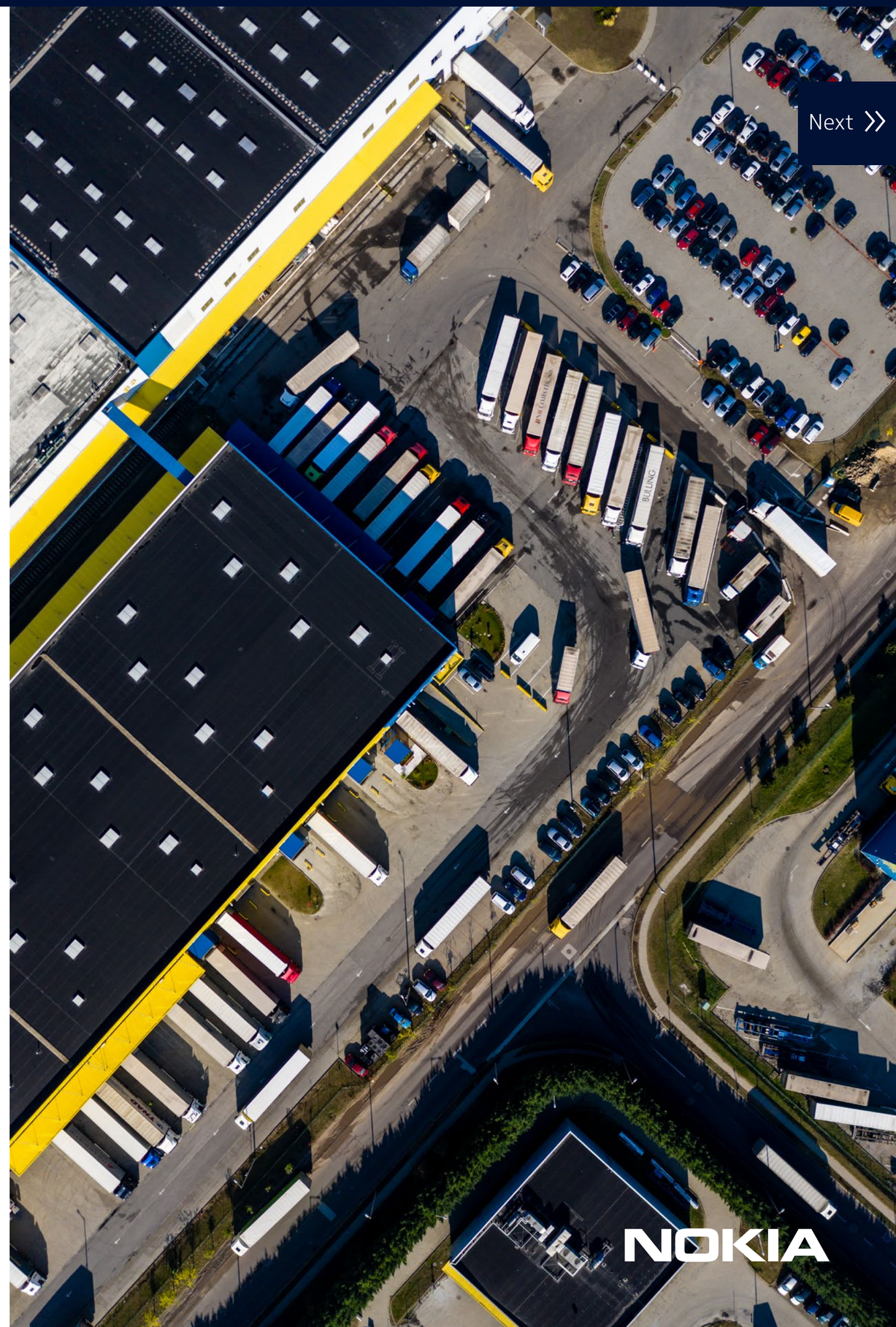
Beating industry challenges to deliver what's next

Complex global logistics and the booming e-commerce revolution are fundamentally disrupting how supply chains operate. The race is on to create Supply Chain 4.0: a high performance, flexible, resilient and secure end-to-end supply chain solution that can:

- Eliminate supply chain resource waste to transform cost efficiency
- Accelerate cycle times by operating with greater efficiency
- Achieve vital real-time supply chain transparency
- Flex and adapt to changing supply/demand patterns
- Drive a customized and personalized order delivery experience for end customers

The key to it all is a resilient and pervasive underlining network infrastructure, and that's where Nokia has an unrivaled solution set to offer. But first, what are some of the innovative building blocks for Supply Chain 4.0?



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Building blocks of Supply Chain 4.0

1. **Warehouse Automation:** Cost pressures, tougher SLAs, booming eCommerce markets and global events such as COVID-19 have pushed warehouses to use more robots and automated systems which massively increase productivity and reduce costs.
2. **Internet of Things:** Situational awareness is vital inside a warehouse. This is done with a host of connected sensors measuring and monitoring temperature, energy consumption, worker and machine health and more!
3. **Digital Twin and Advanced Analytics:** Leveraging information collected from data sources inside the warehouse and across the extended supply chain helps companies make a digital twin of operations. Advanced analytics drive better operational decision-making and enhance productivity.
4. **Global Asset Tracking and Condition Monitoring:** This is vital to understanding the ETA of assets to warehouses, diagnosing unhealthy supply chains and offering additional services to customers such as visibility across the supply chain. Precise indoor positioning inside warehouses unleashes a plethora of asset and personnel track and trace use cases.

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Inside the warehouse of the future

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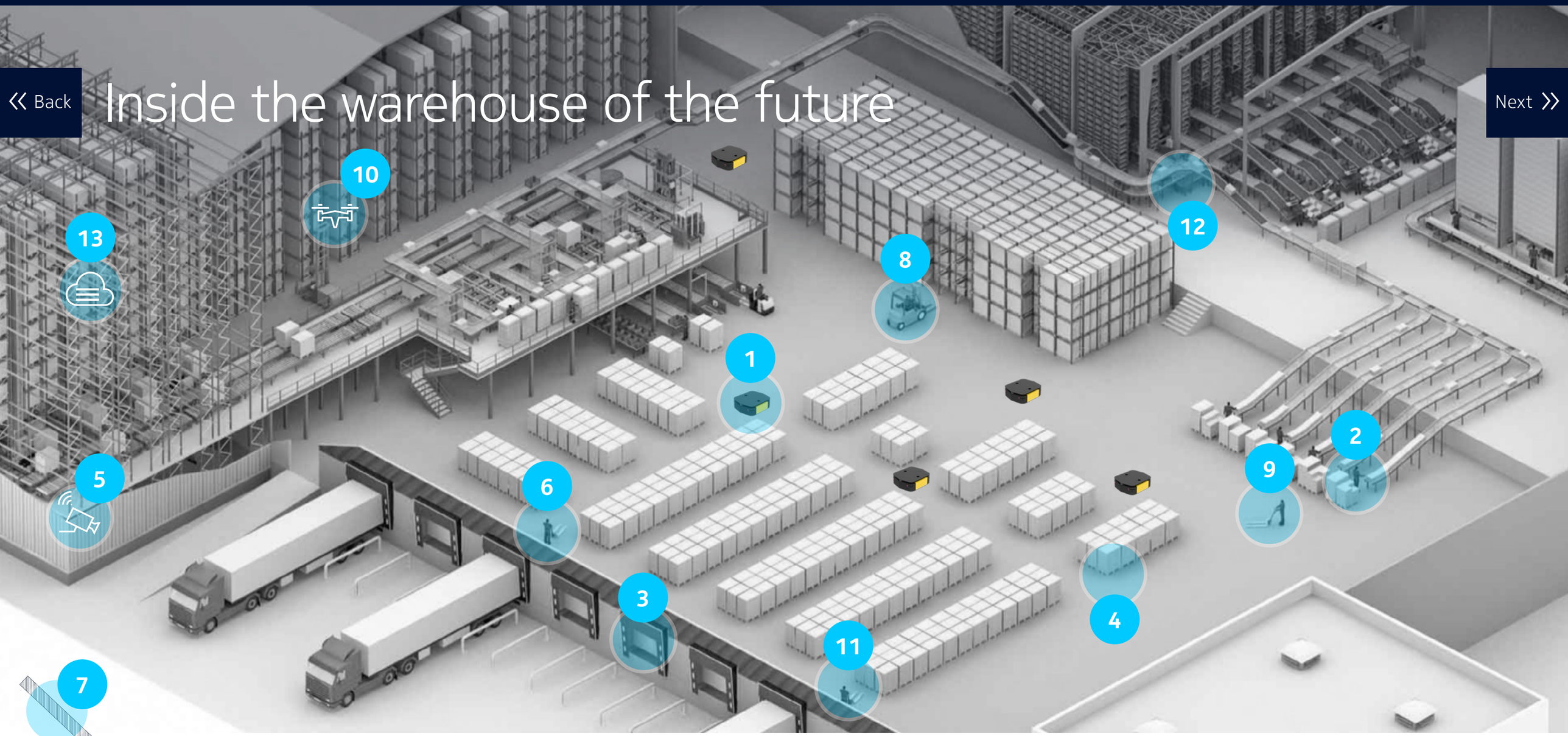

1. Automated Vehicles
2. Digitalized Warehouse Operations
3. Smart Facility Management
4. Precise Indoor and Outdoor Positioning solutions
5. Operational and Surveillance Video Cameras with Video Analytics capabilities
6. Voice Communications
7. Gate Automation
8. Predictive Maintenance of Material Handling Systems
9. IoT powered Smart Workers
10. Indoor and Outdoor Drones
11. VR/AR enabled training and picking
12. Simplified and future-proof back-haul networking infrastructure
13. Cloud-native IT systems and Seamless Multi-hub Interconnectivity

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Nokia solutions for an intelligent, digitized and automated supply chain

Nokia is helping 1st, 2nd, and 3rd party logistics businesses to accelerate their Industry 4.0 transformation by deploying an industrial-grade private wireless network. It's the perfect way to enable the massive IoT adoption and operational flexibility and resilience needed to secure a competitive advantage in today's fast-changing global supply chain and logistics markets.

Nokia has a proven track-record in industrial grade Private Wireless Networking delivering what you need to ensure your future success.

- **Warehouse automation requires reliable, pervasive and low latency connectivity:** Our flagship Industrial-grade private wireless solutions delivers the massive IoT connectivity, operational flexibility and resiliency that's needed to secure a competitive advantage in today's fast-changing global markets.
- **Digital warehouses need to connect 100s of devices from handhelds and tablets to VMCs, sensors, video cameras and more:** Our Private Wireless Networks are your perfect ally.
- **Warehouse owners don't want the stress of managing multiple technologies such as WiFi, PMR and LoRA/SigFox:** Our Private Wireless Networks allow you to converge your Data, Voice, Video, IoT and Positioning Services over a common infrastructure.
- **A lower TCO and future-proofed IT Infrastructure are critical to success:** Private Wireless Networks are ready to support future ultra-high bandwidth use cases such as AR/VR and ultra-low latency use cases to support Lights-Off Warehouses.
- **Global Track and Trace is an emerging critical supply chain application:** Our signature Nokia Worldwide IoT Network Grid (WING) solution utilizes our relationship with service providers to provide global connectivity.
- **High accuracy indoor positioning is needed to enable wide range of use cases:** Our BLE based solution provides indoor precision of up to 50 cms. The solution is seamlessly integrated to Private Wireless Network architecture.
- **Frequent IT rollouts and application upgrades demand a harmonized IT approach:** Nokia's Wide Area Networking solutions interconnect global warehouse networks to deliver the centralized IT visibility and control required.

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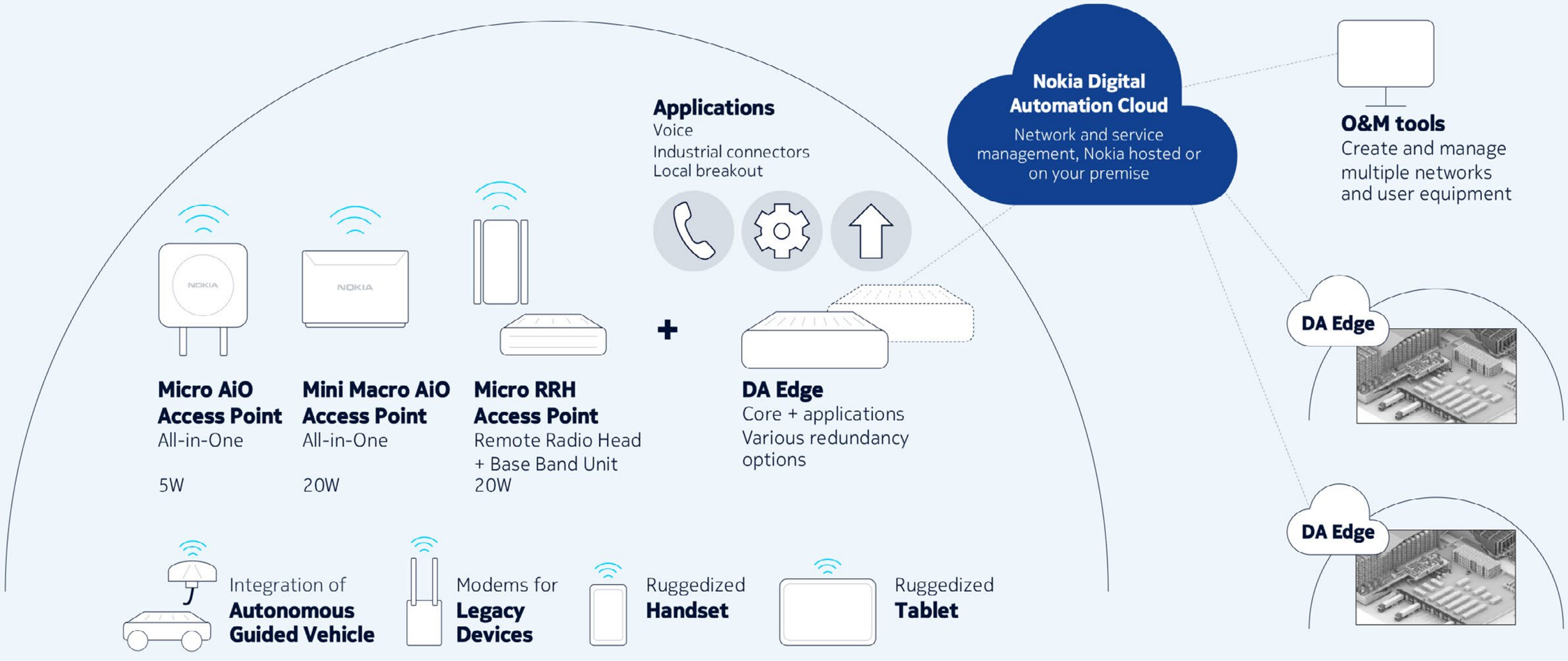
Nokia Digital Automation Cloud for warehouse sites

Plug and play, easy to deploy and replicate for Supply Chain 4.0



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What makes the Nokia approach different?

Nokia is an industry proven and deeply experienced 'one-stop-shop' for all your Supply chain connectivity needs. We have a comprehensive understanding of the challenges and performance demands of the logistics industry and a broad ecosystem network behind us. It all helps us to deliver the use cases you need to meet your goals.

We have deployed 200+ industrial grade private wireless networks over the past decade and support millions of users and customers with solutions that are:

- Field-proven in harsh environments and rugged industries such as ports, mining, oil rigs and power utilities such as **Antwerp Port Authority**, **Sandvik Mining & Rock Technology** and PK Solutions
- Higher security standards defined by 3GPP, the international Telecommunciation body.

Leading players such as Alibaba and Lufthansa Technik are already working with us to digitally transform their operations with a progressive, end-to-end Private LTE/5G network solution. Its plug and play, cloud native network design that supports a wide variety of wireless devices and on-boarding of third party applications makes it a complete solution that meets the demands of your logistics operations.

We're helping them to deliver:

- **The digitalization and automation of their network infrastructure:** Through a cutting edge, industrial-grade private wireless 5G network, based on our NDAC plug and play solution.
- **A full, end-to-end turnkey solution:** Including spectrum and end user device ecosystem consultancy to achieve the specific results and use-cases they need plus pWLS experience across devices and applications.
- **Interoperability with a wide range of leading automation solutions:** Via a strong partner ecosystem of Communication Service Providers, Cloud experts, industrial specialists, System Integrators and Consulting firms.
- **Secure and dynamic connectivity across global operation facilities:** With Nokia's Nuage networks Software-Defined Wide Area Network (SD-WAN) 2.0 solution.
- **Flexible deployment options:** Easy to install and bespoke across global rollouts.

Fast track your journey to Supply Chain 4.0

Book an appointment with our team of experts today and request a demo to see how Nokia can help you enable a digitized and automated, end-to-end supply chain.

For more information, please visit our website or contact us today

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