Supercharging Innovation in Automotive and Manufacturing

Better data management for today and tomorrow

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# Dynamic industries need dynamic data management

The automotive and manufacturing sectors are racing to adopt technology advancements for new business models, yet many struggle in four key challenge areas:

1. **Digital resiliency:** Rising IT complexity demands strong cybersecurity tools for auto and manufacturing companies to conquer challenges and gain a competitive advantage.

2. **Cost saving:** With manufacturers investing in software development, IT costs are dramatically rising. New processes such as automation are essential for cost efficiency.

3. **Time to market:** Automotive and manufacturing businesses are using digital-twin technologies to create better products faster, giving customers more reasons to buy.

4. **Sustainability:** With stricter regulations and increased environmental awareness manufacturers are re-evaluating the sustainability of product and value chains.

Effective use of data is key to overcoming these four challenges. Only those businesses with robust, efficient and strategic data management will lead innovation and find success.

69% of automotive managers believe that the pressure to innovate has never been higher.

Source: Siemens, 2022

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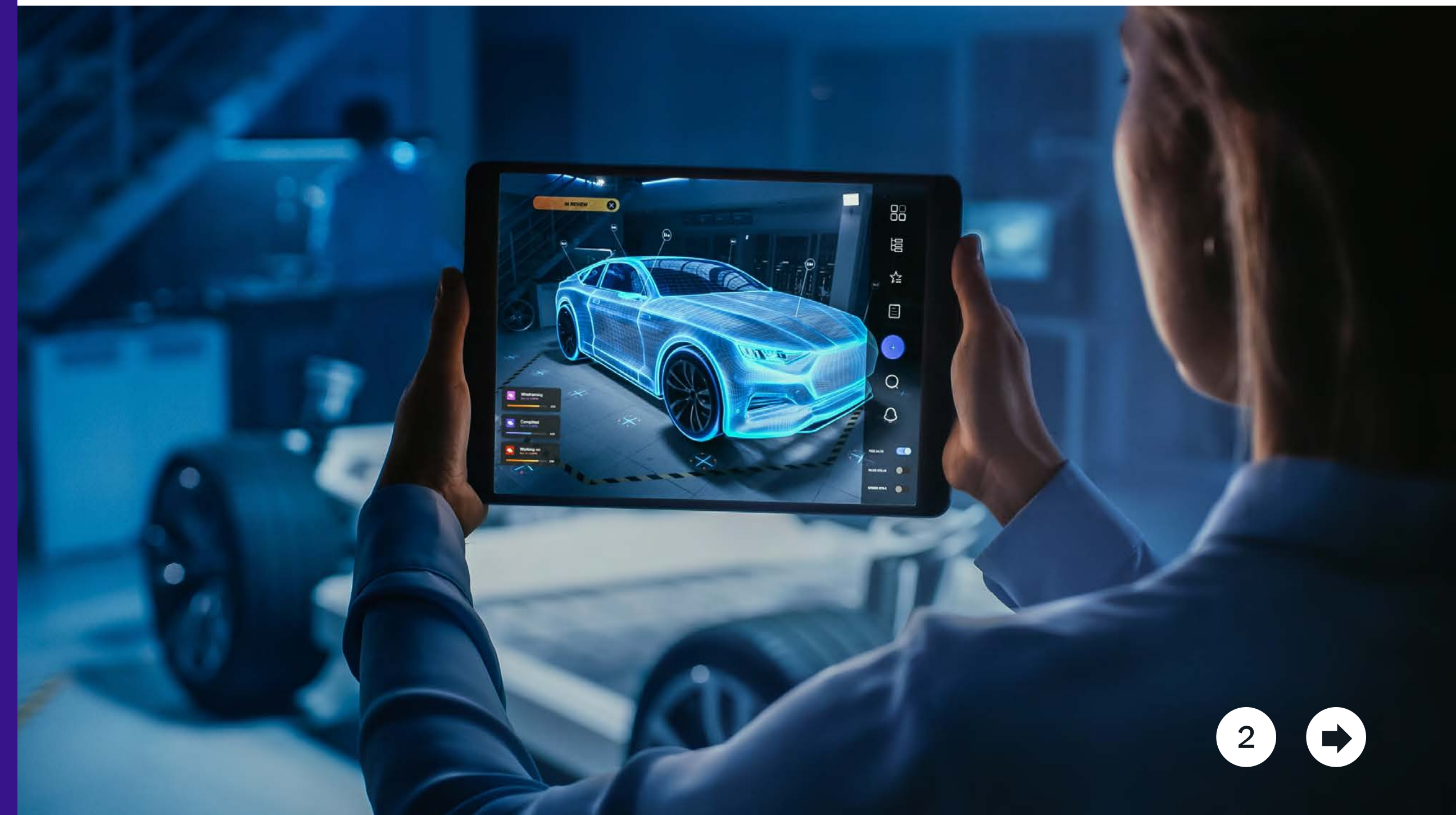
It's time to hit the accelerator

Data his now a driving force behind innovation and transformation. As vehicles become increasingly connected and autonomous, and IoT sensors become more important in manufacturing, the volume and complexity of data generated continues to grow exponentially.

Let's explore how NetApp collaborates with automotive and manufacturing businesses to innovate faster and simplify operations of mission-critical applications in three key areas:

Product and engineering

See how we can help you reduce costs, increase productivity, and facilitate innovation by efficiently modelling resources for CAD/CAE, eVDI and PLM across the hybrid multicloud.

Autonomous driving and connected vehicles

Explore how we can help you build robust and resource-efficient data pipelines from edge to core to cloud, enabling ADAS/AV hybrid infrastructure and HPC simulation for AV development.

Software development

Learn how we empower manufacturers to innovate faster and simplify operations of mission-critical applications like agile software development through efficient management of the test environment or Kubernetes integration.

Smart manufacturing

Find out how we deliver secure collaboration and shopfloor IoT to improve product quality, reduce production defects, and shorten time to market.

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Product and engineering:
Why they belong in the cloud

There are three good reasons why businesses are moving their product and engineering workloads to the cloud:

1 **Speed and innovation capabilities:**
Hosting applications and product and engineering workloads in the cloud can provide rapid scalability and elasticity. This gives OEMs fresh ways to improve customer experiences, reduce costs and bring new vehicles, services and features to market quicker.

2 **Collaboration:**
Implementing the cloud enables collaborative workflows across the entire R&D process. Teams can access, view and edit files at any time, from any location. This helps them work faster and more efficiently which significantly cuts development time.

3 **Cloud economics:**
Reducing product and engineering costs through more efficient use of resources and economies of scale as cloud services can be scaled up or down as needed. OEMs only pay for what is used helping to trim infrastructure and R&D related costs.

20%
Amount of development time and R&D related costs an incumbent OEM could save by implementing cutting-edge practices.

Source: Kearney, 2023

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Engineering new capabilities with hybrid multicloud

Achieving cloud performance parity with on-premises for demanding project and engineering workloads, such as PLM systems, poses challenges. Remote design, collaboration, fast data access, and exchanging and optimizing costs within the public and hybrid multicloud requires having robust performance-enhancing infrastructure components in your tech stack. This is where NetApp comes in.

Why NetApp for product and engineering?

NetApp gives you the performance your operations demand by:

- Migrating workloads to the cloud (AWS, GCP or Azure) to cut costs, boost productivity, and efficiently model resources for CAD/CAE simulation and eVDI across the hybrid multi-cloud. Only NetApp has a first party file storage solution with the three major hyperscalers.

- Offering enterprise customers a unified data layer spanning from on-premises to the cloud that includes security, safety and data governance features – all fully integrated through ONTAP.

- Unlocking high performance through a reliable infrastructure that can host mission critical applications in any environment.

- Optimizing infrastructure costs and improving cross-functional collaboration between designers and engineers through our hybrid product and engineering architectures with full visibility into products and processes. All enabled by the ONTAP's fast transfer and replication of data as well as its extended multiprotocol access capability.

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Autonomous driving and connected vehicles:

Get ready for the data avalanche

Gathering, analysing and processing the vast volumes of data produced by ADAS systems and autonomous vehicles in real-time is a huge and growing task. Building an ADAS/AV hybrid infrastructure that can handle the data deluge will determine the success and safety of the autonomous driving experience.

At NetApp, we can help you create an end-to-end data pipeline to accelerate the development process from research to production.

Why NetApp for Autonomous driving and connected vehicles?

NetApp's hybrid cloud capabilities can help power your performance with:

Seamless operations: Manage your data and and enable HPC operations on-premises and in the cloud for the best cost-performance ratio through NetApp's cloud bursting capabilities. Enjoy an infrastructure that's AI and ML data ready.

Intelligent data management: Handle large volumes of data through data tiering and replication capabilities.

Multiprotocol access capabilities: Compatibility with a large range of computing tools used by the ecosystem.

4,000 gigabytes

Amount of data per day that will be generated by a single autonomous vehicle by 2030.

Source: Cubic Telecom, 2022

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Software development:
An agile foundation for success

Automotive firms today need to create innovative digital and connected services, infotainment, and autonomous vehicles. But without dependable, resource-efficient IaaS or a modern infrastructure foundation that enables agile software development and DevOps, this isn't possible.

There are two main challenges:

1 Moving towards a microservice architecture that decouples dependencies and enables transition from a monolithic to a modular service architecture.

2 Changing to robust decentralized data platforms with enterprise data protection and secure, highly available distributed access to a DevOps methodology.
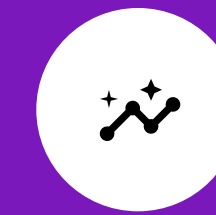
Why NetApp for software development?

At NetApp, our solutions empower high-quality software delivery for continuous integration (CI), continuous delivery (CD), and agile software development. We can help you with:

DevOps: Optimize and automate infrastructure for CI/CD pipelines by integrating and simplifying infrastructure operations and benefit from NetApp's near-instantaneous replication and cloning capabilities.

FinOps: Improve resource efficiency of cloud operations by enabling the most efficient and automated allocation of compute and storage resources with our SPOT by NetApp solution and Kubernetes resource management via NetApp Astra.

SecOps: Keep data, systems, and processes secure by reducing risks and improving business continuity.

Cloud Connectivity: Increase data mobility and overall flexibility across your on-premises and public cloud infrastructure dedicated to DevOps workloads.

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Smart manufacturing:
Retooling technology for rapid transformation

75% Number of product development executives who say that further digitization was a key priority for them.

Source: McKinsey, 2023

In smart factories, data-driven IoT sensors and interoperable systems can empower production machinery with predictive maintenance and AI can assist every step of the manufacturing cycle to drive increased performance. But to get the best out of these new technologies you need the right infrastructure. NetApp can help you build an infrastructure for seamless data management from edge to core to cloud.

Making it smarter: IT and OT convergence

Integrating IT and OT into a holistic system gives companies access to real-time, actionable data and analytics. But with every manufacturer at a different stage of IT/OT convergence, they each face unique challenges. We understand the obstacles and we have the solutions to help.
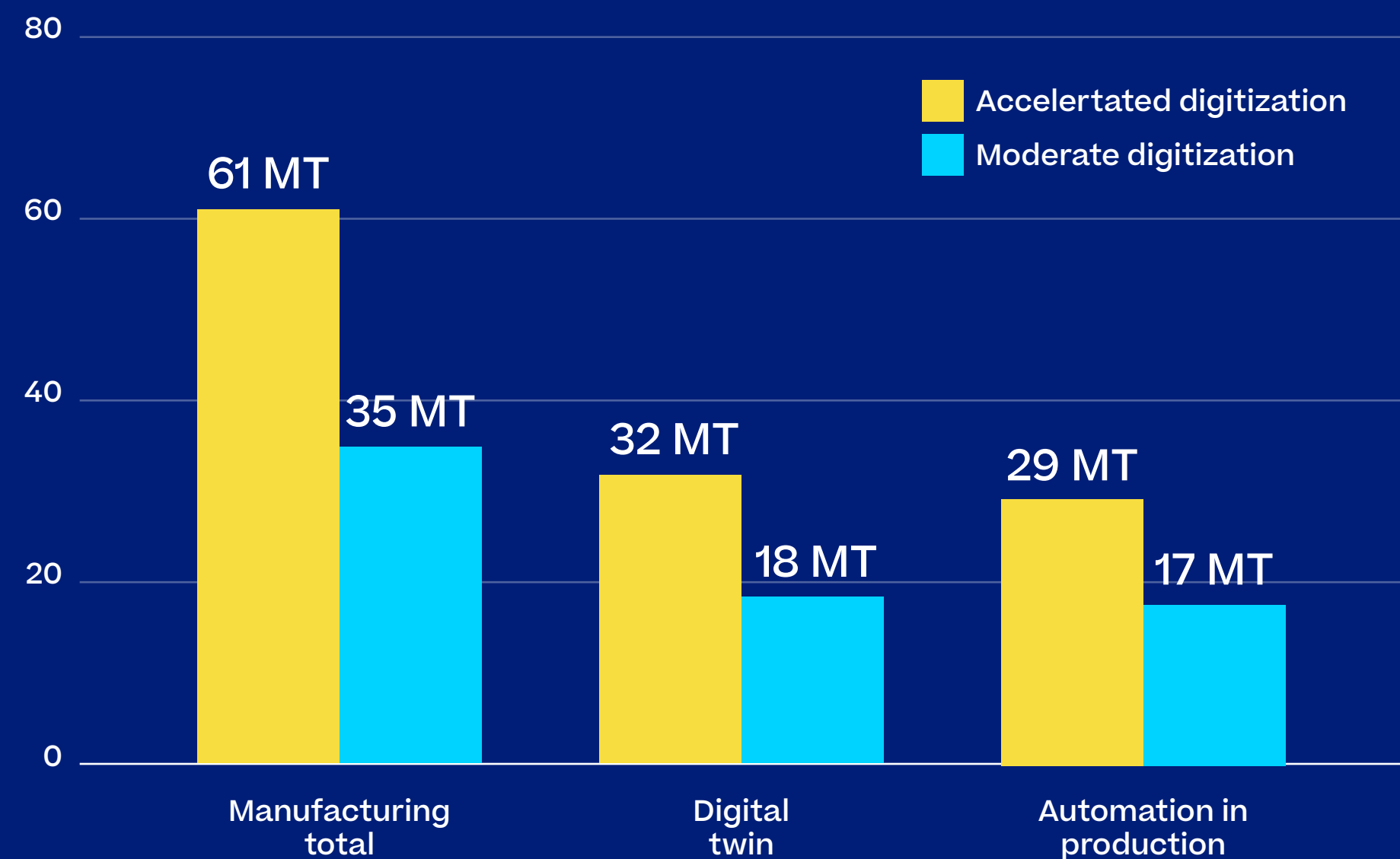
See our report on the IT-OT gap in manufacturing and how NetApp solutions can help

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Smart manufacturing drives sustainability

One of the greatest potentials for increasing sustainability lies in smart manufacturing. Embracing automation in production and utilizing digital twin technology are two use cases that can have a massive impact.

**CO_{2E} reduction potential with moderate and accelerated digitization.**

Legend:
- Accelertated digitization
- Moderate digitization

Chart values:
- Manufacturing total: 61 MT (accelerated), 35 MT (moderate)
- Digital twin: 32 MT (accelerated), 18 MT (moderate)
- Automation in production: 29 MT (accelerated), 17 MT (moderate)

Source: bitkom, 2020

Nearly 50% of the CO2e savings required for Germany to reach their climate goals can be achieved by 2030 if digitalization is sped up.

Source: bitkom, 2020
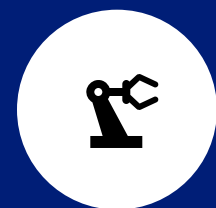
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Why NetApp for Smart Manufacturing?

NetApp can provide you with a secure, resilient, and flexible hybrid cloud architecture that connects all your operations. We give you:

- **A complete view of your operations:** Connect data from the manufacturing plant to the enterprise side of the business so it flows seamlessly across operations and is unified in a single view.

- **Built-in resiliency:** Build a resilient architecture that ensures business continuity and minimizes any potential losses of data. Our zero-trust framework identifies potential ransomware attacks, stopping them in real-time.

- **Seamless cost optimization:** Automate cloud infrastructure and seamlessly integrate new technologies, so you can modernize while optimizing the usage and value of existing assets.

- **Access to the full power of AI:** Connect your data and AI solutions across your locations so you can run analytics across multiple environments. Gain new insights faster so you can deliver on what customers need.
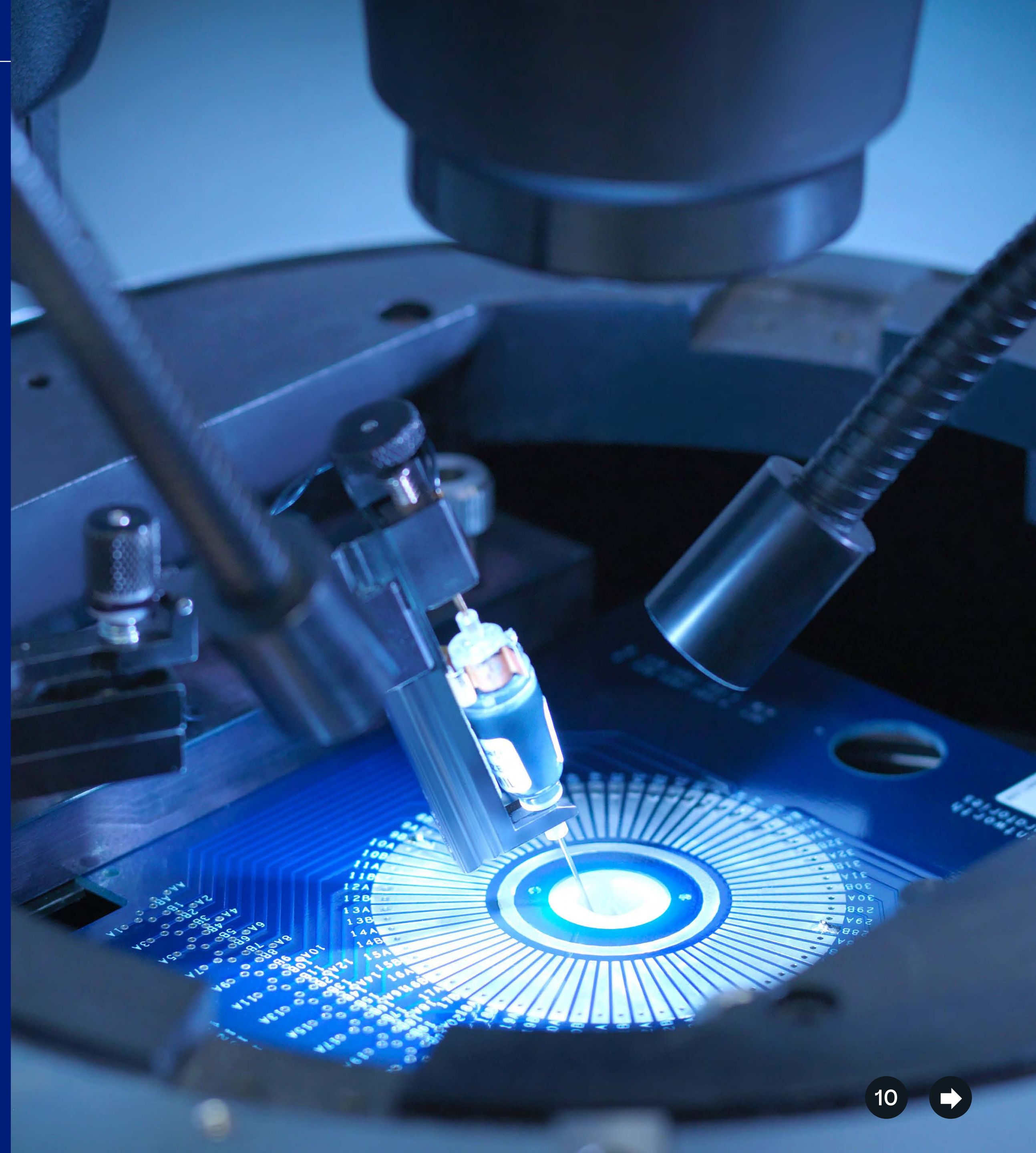
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Expertise and tech at the ready

At NetApp we're ready to empower automotive and manufacturing companies to achieve their optimum performance in an ever-changing industry. We'll help you embrace agility, become more cost-effective and speed up innovation by unlocking the power of your data.

See our automotive data solutions

About NetApp
In a world full of generalists, NetApp is a specialist. We're focused on one thing, helping your business get the most out of your data. NetApp brings the enterprise-grade data services you rely on into the cloud, and the simple flexibility of cloud into the data center. Our industry-leading solutions work across diverse customer environments and the world's biggest public clouds.

As a cloud-led, data-centric software company, only NetApp can help build your unique data fabric, simplify and connect your cloud, and securely deliver the right data, services, and applications to the right people—anytime, anywhere.

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