



MANUFACTURING'S NEW ERA: WHY TECHNOLOGY IS THE GROWTH BLUEPRINT FOR GERMAN INDUSTRY

Insights and industry benchmarks to help manufacturers assess their AI, robotics and data strategy maturity.

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EXECUTIVE SUMMARY

For decades, Germany's manufacturing sector has been the nation's crown jewel. But recent speculation has indicated a decline in competitiveness and significant challenges dimming its shine. Contributing factors include higher energy costs, slowing global demand, sluggish digital transformation, and increased competition from markets like China.

But the reality is much more nuanced. In fact, German manufacturers are not only **defying sluggish perceptions, but many organisations are also confident about their growth – with technology providing a critical tool for growth.** Those investing in AI, data analytics, and automation aren't just surviving, they're thriving. Tech-savvy manufacturers have a significantly more positive outlook of the industry's overall, and this is directly impacting revenues, with nearly all (91%) expecting revenue growth in the next 12 months, far outpacing their peers.

Not all technologies are created equal when it comes to achieving ROI, however – something increasingly important as AI moves from the hype and experimentation phase towards needing to show clear return. While AI and robotics are the “buzz” technologies of the day, **our study has found investing in more foundational technologies is proving to deliver greater ROI, drive growth and inspire optimism.**

This report reveals the state of German manufacturing today and how technology is creating a blueprint for growth.

METHODOLOGY

Snowflake has partnered with Sapio Research to interview 150 senior IT decision makers at German manufacturers to discover the state of the industry today, technology adoption, and predictions for the future.

KEY FINDINGS

German manufacturers defy pessimism

The majority (67%) of German manufacturers disagree with the pessimism around German manufacturing, and 81% are confident the industry will prosper in the next 3-5 years.

Technology is the growth engine

While 73% anticipate an increase in revenue over the next 12 months, **tech-savvy companies are even more optimistic, and nearly all (91%) anticipate growth.** 61% say technology plays a critical role to survival and success.

Data before AI: The foundations for impact

While AI and ML adoption is gaining momentum, **95% of manufacturers already see positive revenue or cost savings from data management investments.** A robust data management strategy forms the foundation for better decision-making, optimised processes, and, ultimately, sustainable growth.

Mittelstand is investing big in tech

Germany's backbone SMEs are recognising the power of technology to remain competitive and are prioritising foundational technologies. In the next year, **58% plan to increase budgets for data management** (vs. 40% avg), while **55% plan to invest more in the Industrial Internet of Things (IIoT)** (vs. 39% avg).

Enterprises are doubling down on AI

Large enterprises are still leading the way in AI and ML investment, however, with 61% planning to increase AI budgets, compared to 52% of SMEs.

WHAT YOU'LL LEARN IN THIS REPORT

- The state of technology adoption in German manufacturers today – and why it matters.
- How your company compares to other manufacturers in key technology adoption.
- Which technologies are creating the biggest impact on revenue, growth and confidence.
- How the Mittelstand is faring vs. large enterprises in tech adoption.
- How leading manufacturers like tesa are getting AI-ready with a robust data strategy.



BENCHMARKS: HOW DOES TECHNOLOGY ADOPTION COMPARE AMONG GERMAN MANUFACTURERS?

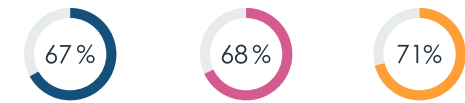


Percentage of businesses that have adopted the following technologies.

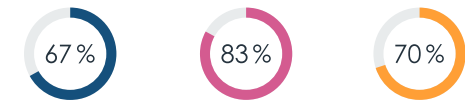
Definitions | ■ Mittelstand or SMBs = 100-500 employees ■ Mid-size = 500-1,000 employees ■ Enterprise = 1,000+ employees

DATA MANAGEMENT ADOPTION

Easily scalable and elastic systems in data management



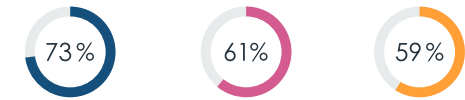
Data management that is integrated with existing manufacturing systems and solutions



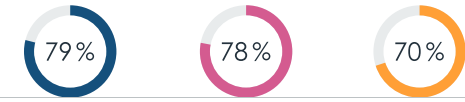
Data management that supports multiple hyperscalers such as AWS, MS Azure or GCP



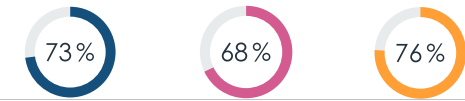
Data management that enables sharing and access to live data in near real time – with zero copying or moving



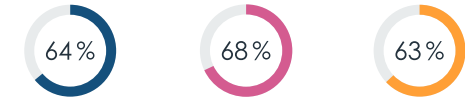
Data management that enables the integration of external data



Data management that enables the processing of data in near real time



A structured approach to identifying and resolving data quality issues



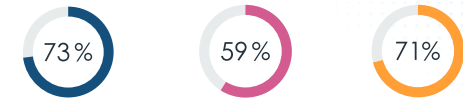


Percentage of businesses that have adopted the following technologies.

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INDUSTRIAL INTERNET OF THINGS (IIOT) ADOPTION

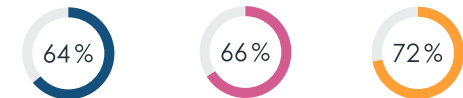
Factories connected via IIoT to the Cloud



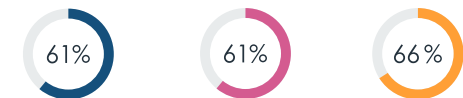
A standardized data approach to store, manage and ingest to cloud all relevant data on the shopfloor



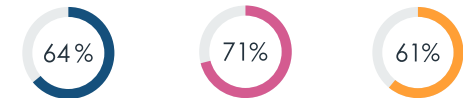
IIoT systems that allow for real-time monitoring and analysis of manufacturing processes



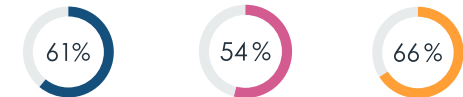
IIoT devices and sensors that integrate seamlessly with existing equipment and IT systems



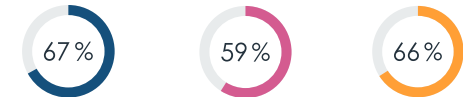
IIoT infrastructure that enable predictive maintenance to reduce downtime



An IIoT platform that ensures secure and reliable connectivity across all devices



IIoT data that is accessible in real-time for decision-making across the organization



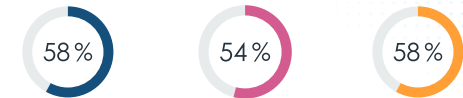


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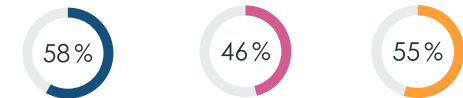
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AUTONOMOUS ROBOT ADOPTION

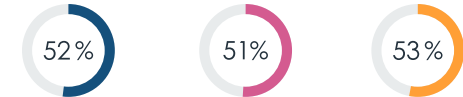
Autonomous Robots that are fully integrated with production workflows



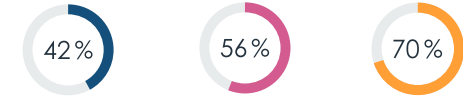
Autonomous Robots that can be reprogrammed and adapted for different production tasks



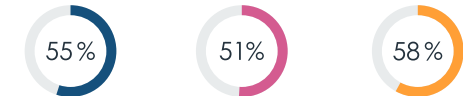
Generative AI to programme our robots



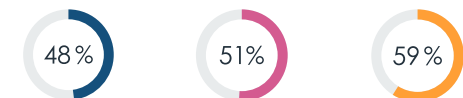
Autonomous Robots that reduce operational costs and improves efficiency



Autonomous Robots that can operate collaboratively with human workers safely



Autonomous Robots processes that are continuously optimized using data analytics

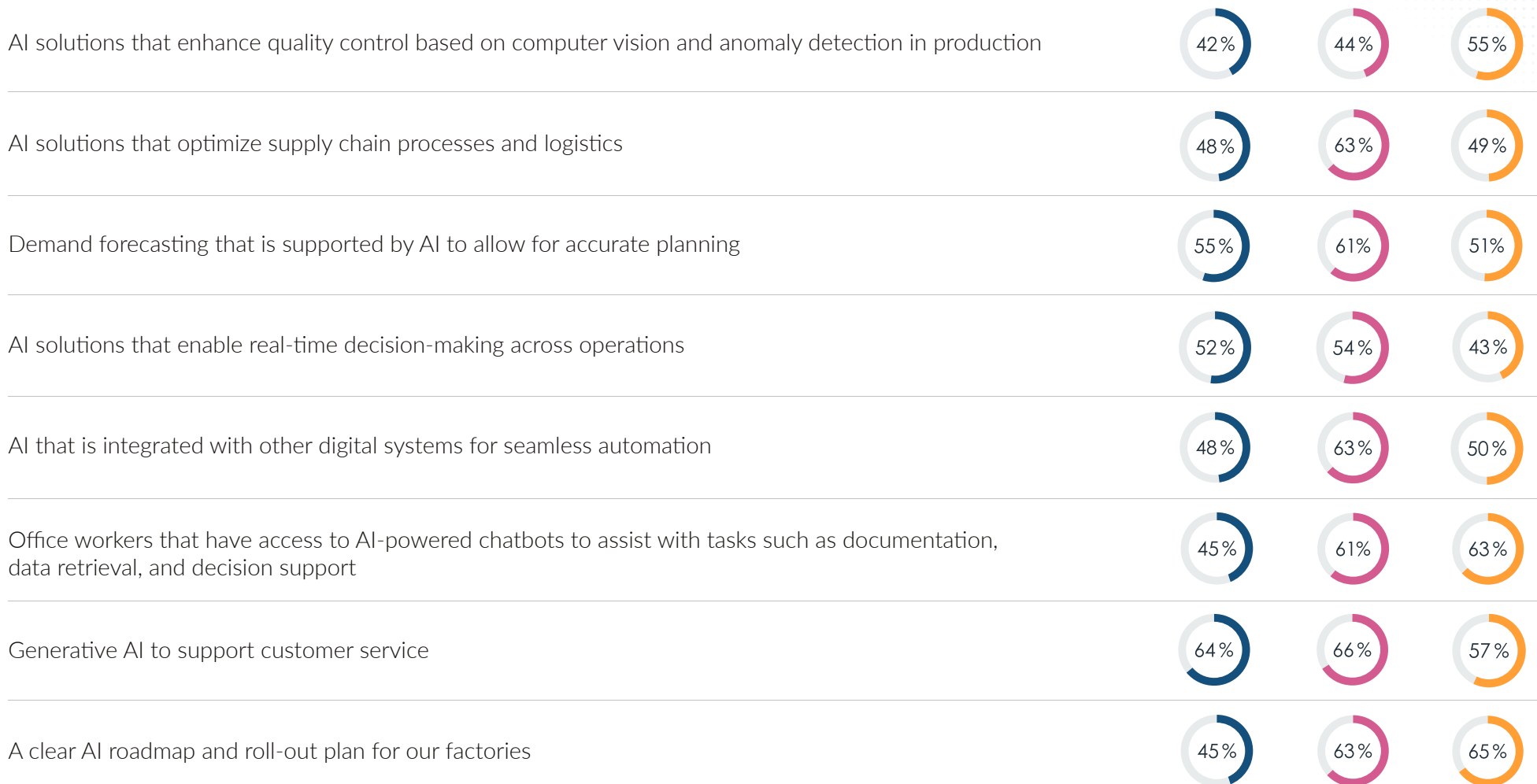




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AI AND ML ADOPTION



CONFIDENCE ON THE GLOBAL STAGE: TECHNOLOGY DRIVES GROWTH AND OPTIMISM

German manufacturers are all-too aware they risk losing their competitiveness on the global stage if they don't invest in advanced data analytics and AI (80%). But that's not to say they currently feel in a bad position – only 14% of manufacturers feel they are falling behind internationally when it comes to generative AI and ML adoption, while half (50%) see themselves as pioneers or ahead of international competition in adoption. Manufacturers are similarly confident in autonomous robotics – just 23% see themselves as laggards and nearly half as pioneers.

Technology adoption is accepted as essential to a bright future for German manufacturing, and fuelling optimism about the future even in international comparison.

Advanced technology adoption is directly linked to revenue and growth too, with nearly all (91%) of tech-savvy manufacturers expecting revenue growth in the next 12 months versus a 73% average. Businesses leading in AI, automation and data analytics adoption not only see the industry in a more positive light but are also seeing real business outcomes already.

Germany is optimistic about its future, but this trust is based on strong technological foundations. The manufacturers that are embracing technology now – from AI to robotics to data management – are those that are leading the way and must set the tone for bolder innovation and investment.

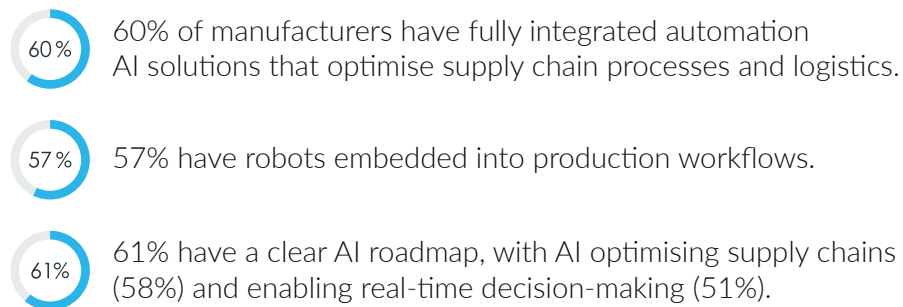


BEYOND THE BUZZ: UNLOCKING THE VALUE OF AI & ROBOTICS IN MANUFACTURING

HOW SHOULD MANUFACTURERS INVEST IN TECHNOLOGY?

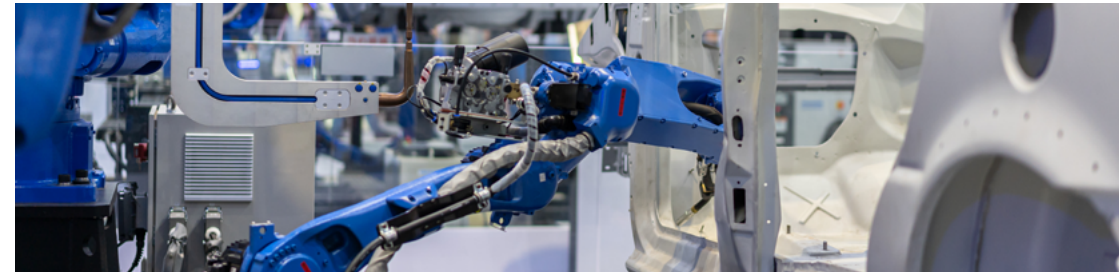
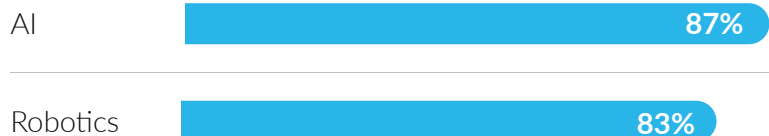
Technology is key to staying competitive on the global stage – but winning the race isn't just about jumping on the most buzzworthy new technologies first. Manufacturers are embracing cutting-edge technologies, like AI and robotics, but those seeing the biggest impact on ROI are prioritising **strong foundational technical capabilities**, like data management.

AI and Robotics adoption is accelerating

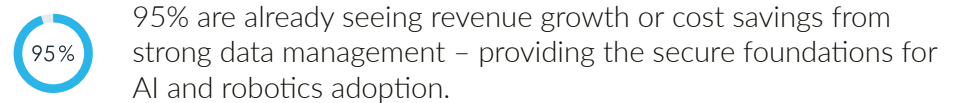


Expectations are high

Over the next five years, manufacturers overwhelmingly believe AI and robotics will have a positive impact.



Data management – the real game-changer



Those investing in data strategy first are reporting smoother AI rollouts, improved forecasting, and stronger supply chain optimisation.

AI and robotics are high-performance engines. Without quality fuel - data - they will never accelerate to their full potential and, worse, risk a breakdown further along the road.

Leaders who prioritise **data-driven transformation** will be the ones to **fully capitalise on these advanced technologies**.

THE RISE OF THE MITTELSTAND?

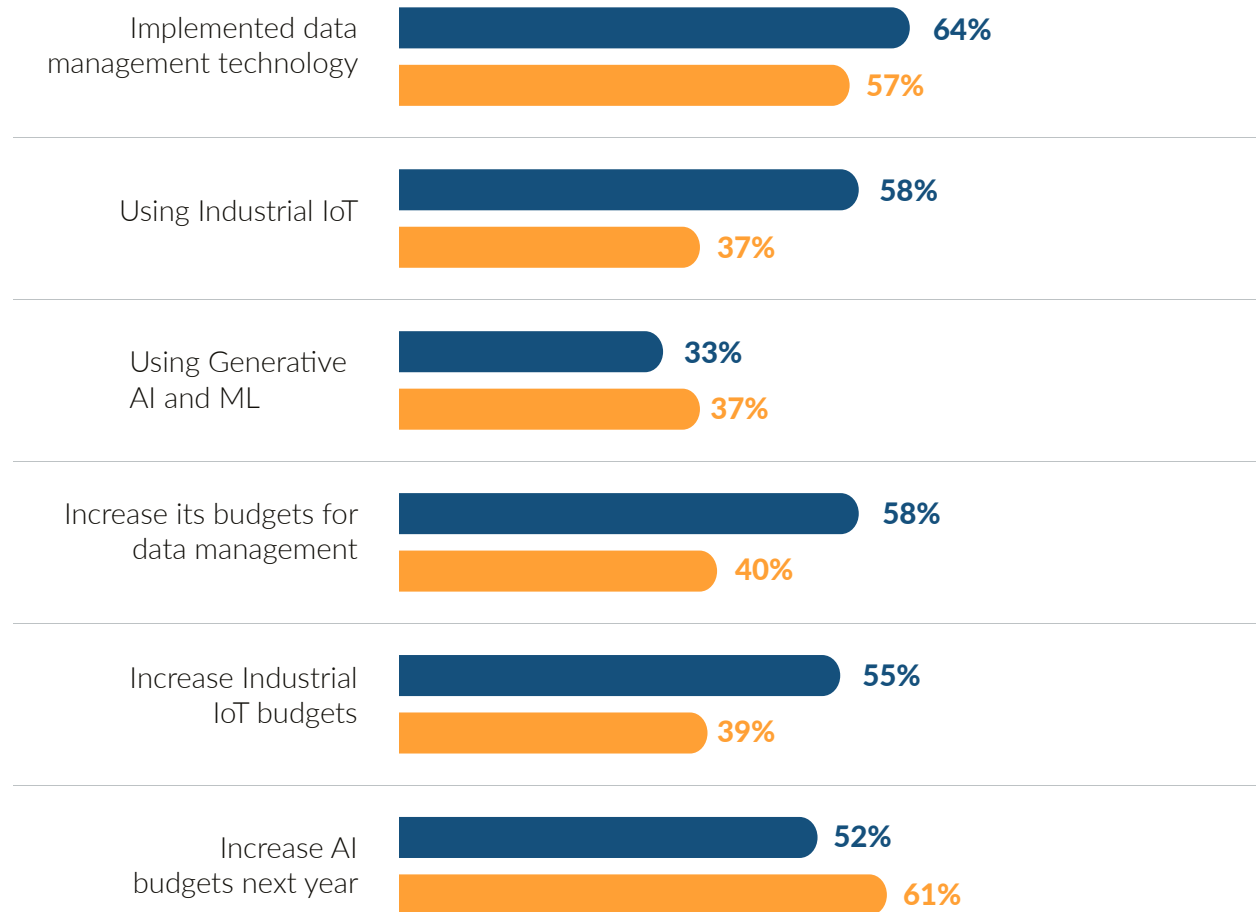
The Mittelstand (small and medium-sized enterprises or SMEs) has long been considered the “backbone” of the German economy. It represents around [99% of all German companies and employs over half of the German workforce](#).

Manufacturing feels confident about the power of this sector of the industry too, with **most (67%) believing Germany’s Mittelstand is more agile than large enterprises**. That said, our survey found both company sizes are strongly positioned in different areas. While the Mittelstand has a more sophisticated adoption of key foundational technologies and is prioritising investment here, large enterprises are ahead in the implementation of more robotics and AI technologies and planning to spend more here in future.

It’s impressive Germany’s heartland businesses are keeping up with innovation and even outpacing when it comes to investment levels in technology. But considering today’s key technology – AI – it’s the large enterprises that are really putting their money on the table.

MITTELSTAND IS FIGHTING FIT AND INVESTING BIG IN TECH

■ Mittelstand or SMBs = 100-500 employees ■ Enterprise = 1,000+ employees



MEET MARTIN GUTBERLET

INDUSTRY PRINCIPAL FOR MANUFACTURING AT SNOWFLAKE



MARTIN GUTBERLET

Is a seasoned executive with nearly 30 years of experience in driving digital transformation and technology leadership. With over 15 years in senior

roles as CIO and CDO, and a strong background in consulting, Martin has held influential positions at Gartner (VP/RVP), KPMG (Partner) and Ericsson, where they helped organizations navigate complex challenges and harness the power of innovation.

Currently serving as Industry Principal for Manufacturing and a trusted C-Level Advisor, Martin specializes in guiding senior leaders through digital, data & AI evolution, optimizing operations, and driving long-term growth. Known for a pragmatic approach that blends strategic insight with real-world implementation, Martin continues to create lasting value across industries.

How would you describe the current state of Germany's manufacturing industry? Are you optimistic about its future?

Germany's manufacturing industry is currently at a pivotal point. On one side, we still maintain

a strong market presence and continue to lead in areas like precision engineering and industrial innovation. However, despite the industry's more positive outlook than some reports or forecasts indicate, it's impossible to ignore the growing global competition from all sides, creating mounting pressure for companies to stay ahead.

The key to revitalising the sector lies in technology. Companies that have embraced AI, automation, and data management are not only more confident about the future but are also already seeing notable improvements in growth and efficiency.

What are the biggest opportunities and challenges you see for manufacturers today?

The opportunity is clear: those that invest in technology will unlock major efficiency gains, cost savings, and remain competitive on the global stage. The challenge, however, is a little more nuanced. While the promise of technologies like AI is high, we know many companies are struggling when putting ambitious plans into action.

Fragmented IT & OT data and legacy systems prevent scaling, slow projects down and ultimately, limit the potential of even the most advanced AI solution.

There's a lot of excitement about AI and robotics, but the report shows more foundational

technologies – like data management – are delivering the highest ROI. Why is that?

It's unsurprising AI and robotics get the headlines, and we cannot downplay the future impact they will have on our industry, but these technologies only unlock their real value when built on a strong data strategy. As we're talking about manufacturing, we can think of it like a production line – if what you put into the machine is unreliable and of bad quality, what comes out of the other side will be too.

Nearly all (95%) of manufacturers are already seeing revenue growth and cost savings from better data management.

How can a strong data strategy help organisations realise the full potential of AI?

Right now, many businesses are switching focus from AI experimentation toward how to generate real business impact. Our experience shows that data is the main barrier to integrating AI into daily operations.

Those investing in data quality, accessibility, and governance are those that are then able to turn AI into measurable results. Having scalable and cloud-based data foundation is proving critical to effective deployment, rather than isolated pilots that don't scale.

What advice would you give to a manufacturer just starting to scale AI and data analytics?

Start with your data strategy. Real-time, high-quality, well-governed data is the foundation for AI to reach its full potential. Second, I'd look for use cases that can quickly deliver value rather than what feels most impressive. Start with quick wins. This could be predictive maintenance or using AI in demand forecasting. It's easy to get carried away with all the potential of AI, but there are often more immediate wins right under our noses.

Looking ahead, what excites you most about the future of Germany's manufacturing?

Manufacturing is a part of Germany's national identity and an economic backbone, with the highly innovative Mittelstand and hidden champions particularly a long-standing driving force of our global competitiveness and agility.

The research shows that isn't changing. Rather, what's exciting is how technology is taking this legacy into the new age, helping manufacturers to become even more resilient, agile, and competitive on the world stage. AI, automation and advanced data strategies are setting the stage for a new era of German manufacturing that is more efficient and intelligent than ever before, setting the standard for future industrial excellence.



BUILDING THE FOUNDATIONS FOR AI-POWERED MANUFACTURING WITH SNOWFLAKE

Leading manufacturers are unlocking the full potential of AI and advanced analytics with **Snowflake AI Data Cloud for Manufacturing**.

By unifying data, breaking down silos, and enabling real-time insights, they are driving efficiency, resilience, and innovation across their operations.



WHY MANUFACTURERS CHOOSE SNOWFLAKE

- 1 A Unified Data Foundation**
Top manufacturers are eliminating data silos by integrating IoT, ERP, supply chain, and operational data into a single, secure platform. This creates a **360-degree view** of operations, enabling faster, data-driven decision-making.
- 2 AI-Ready Infrastructure**
By leveraging Snowflake's cloud-first architecture, manufacturers are **accelerating AI and machine learning adoption** - powering predictive maintenance, quality control, and demand forecasting with real-time analytics.
- 3 End-to-End Supply Chain Visibility**
With seamless data sharing capabilities, industry leaders are **enhancing collaboration with suppliers, logistics partners, and distributors** - reducing disruptions and improving planning accuracy.
- 4 Limitless Scalability**
From high-volume production lines to complex global operations, manufacturers are tapping into Snowflake's **elastic compute power** to scale their analytics and AI workloads effortlessly, without performance bottlenecks.
- 5 Built-in Security and Compliance**
Manufacturing leaders ensure **secure, governed access to critical data**, meeting industry regulations while enabling controlled data sharing within their ecosystem.

REAL-WORLD IMPACT: HOW TESA UNLOCKED AI AND DATA-DRIVEN GROWTH



18

Systems
integrated

10

Terabytes of
data managed

TESA: ACCELERATING INNOVATION WITH A UNIFIED DATA PLATFORM

International adhesive leader, tesa, has no shortage of insights to work with, but disparate data streams, apps and skill sets were stopping it from reaching its data-driven ambitions. To effectively extract manufacturing data, integrate it with back-office systems and feed into new innovative AI applications, tesa knew it needed the right architecture and foundations. It also wanted to make analytics and data insights part of its company culture, consolidating multiple systems and enriching analytical skill sets across its 5,200 employees.

To bring together machine data, back-office and gen AI innovations, one solution provided the glue – Snowflake's AI Data Cloud.

"We saw Snowflake was on the same journey as us with its focus on AI."

SANJEEV KUMAR

Head of Data Management and Analytics, tesa

With Snowflake's data platform, tesa:

- Unlocked the power to experiment with countless new AI use cases using Snowflake's platform as a solid foundation.
- Optimised plant operations with the ability to spot anomalies and predict maintenance requirements based on machine data.
- Enriched customer journeys and services by providing back-office staff with the data they need, in real-time.

I've spoken with consultancy partners in the past who suggested it would take weeks to get machine data from plant systems like ours. We can do it in a matter of hours with Snowflake."

SANJEEV KUMAR

Head of Data Management and Analytics, tesa

Leading manufacturers like tesa are proving that data maturity is the critical foundation to build AI-driven transformation on. By reworking its data architecture to enable scalability, real-time insights and a single-source of truth, these organisations have empowered their teams and future-proofed their operations to stay competitive on the global stage.





ABOUT SNOWFLAKE

Snowflake makes enterprise AI easy, efficient and trusted. More than 11,000 companies around the globe, including hundreds of the world's largest, use Snowflake's AI Data Cloud to share data, build applications, and power their business with AI. The era of enterprise AI is here.

Learn more at snowflake.com (NYSE: SNOW)



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