Avanade Intelligent Digital Twin solutions

Enabling manufacturers to lower costs, maximize sustainability, and do what matters

Do what matters

It's time to get smarter

Manufacturers are getting smarter about how they use digital technologies – because they have to.

Times are tough and staying tough – if not getting tougher. Margins are tighter, costs higher, supply chains less certain. One takeaway for manufacturers: Innovations now must deliver more value more quickly across more of the organization than ever before. The investments that will help manufacturers through recession, inflation, energy shortages, and global instability have to pay off in weeks and months, not years.

In this climate, it's never been more important for manufacturers to

- optimize production
- maximize sustainability and
- upgrade workers' skills.

Yet, key challenges stand in their way:

Operations are unprepared for today's fragmented market demand.
Mass production is increasingly giving way to mass customization and personalization. Companies need to meet these new customer expectations efficiently, without incurring high operating costs and stumbling over volatile demand. With legacy operations designed for high-volume runners, manufacturers must now transform their operations ecosystems.

Plant systems don't work together.
The need for frictionless factory systems that interoperate has never been greater – nor seemed further out of reach. Standalone information technology and operational technology systems don't talk to each other. Functional silos have idiosyncratic processes rather than integrated workflows.

Roadblocks inhibit manufacturing efficiency and productivity.
A lack of data and process efficiency limit end-to-end views of processes. Production errors reduce throughput, yield, and product quality. Worker safety remains a paramount concern.

Markets demand more sustainable and responsible operations.
Manufacturers must pivot toward sustainability both because it's the right thing to do and because their customers increasingly demand it. Energy cost and availability are crucial factors in production planning, driving the need for transparency and improvement.

Smarter use of new technologies is coming fast

33%
of product revenue comes from smart products.[1]

90%
of executives agree they must fast-track digital transformation with cloud to be agile.[2]

45%
of manufacturers are in development/POC for digital twins.[3]

1. Microsoft, IoT Analytics "IoT Signals 2022" Report based on May 2022 Survey of over 500 manufacturers. https://cloudblogs.microsoft.com/industry-blog/manufacturing/2022/08/11/top-6-findings-from-iot-signals-manufacturing-spotlight/

2. Accenture, "Technology Vision 2021," https://www.accenture.com/us-en/insights/technology/technology-trends-2021

3. Microsoft, IoT Analytics "IoT Signals 2022" Report based on May 2022 Survey of over 500 manufacturers. https://cloudblogs.microsoft.com/industry-blog/manufacturing/2022/08/11/top-6-findings-from-iot-signals-manufacturing-spotlight/

Smart digital manufacturing is the goal

Avanade's approach for addressing these challenges is called Smart Digital Manufacturing. It helps manufacturers to bring the factory of the future to life and do what matters.

Smart Digital Manufacturing does this by using digital technologies to achieve dramatic improvements in the three areas of greatest concern to manufacturers:

Transforming operations for greater agility, quality, safety and resilience from the shop floor to the boardroom, as well as for cost-savings that can be reinvested in innovation

Driving innovation at scale to reduce production time and increase speed to value for new products and services, as well as to continue to transform operations, boost sustainability and reduce energy costs

Enhancing experiences for workers, customers and partners by engaging stakeholders in new ways with connected systems and products.

Enhance experiences

Transform operations

Smart Digital Manufacturing: Helping manufacturers do what matters

Innovation at scale
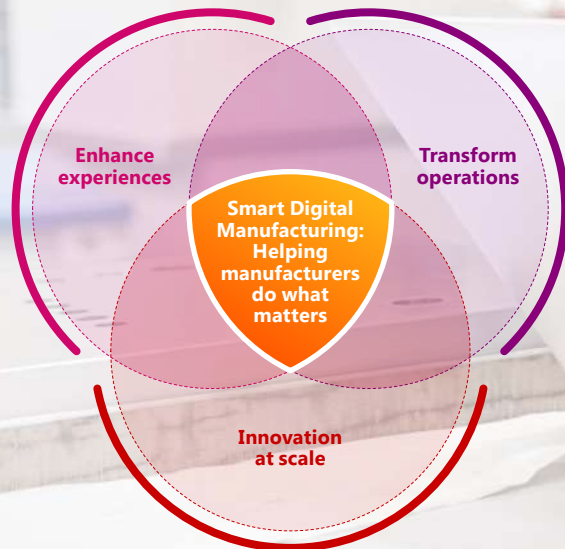
Avanade Intelligent Digital Twin solutions: Fast, scalable and value-based

Avanade provides its Intelligent Digital Twin solutions through a joint Avanade and Microsoft program that includes the latest digital twin and AI technologies from Microsoft and industry expertise from Avanade and Accenture. The program helps clients to accelerate transformation with a focus on production optimization, energy efficiency, and quality improvement at scale. The hallmarks of the program are fast, value-based results and scalability from an MVP on a single shop floor to a production solution across a manufacturer's global operations.
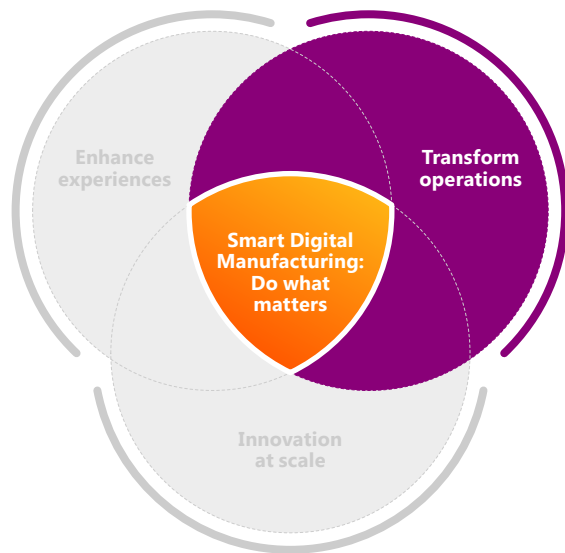
When outdated operations hinder scalability and speed, Avanade Intelligent Digital Twins are the solution.

- At the core of the 12–15-week program, Avanade works with your business, IT and OT leaders to align on the right use cases to generate value at scale and implement an MVP that can be scaled.

- You can use an Avanade Intelligent Digital Twin solution to solve a new use case that you haven't yet implemented or tested, one that would deliver measurable value once implemented and that is repeatable across production sites.

- Or, you can scale an existing use case that's already been tried in an MVP and now needs to be put into production and scaled to new sites.

- With the help of our accelerators and experience we significantly increase the speed to value and with the implemented solution we establish the digital foundation for our clients and their digital transformation of the factory network.

Enhance experiences

Transform operations

Smart Digital Manufacturing: Do what matters

Innovation at scale

Delivering value for your industry and your priorities

Far from a program for a narrowly targeted industry segment, Intelligent Digital Twin solutions from Avanade are right for you whether your business operates in discrete manufacturing, process manufacturing, or energy-related industries. From manufacturing to mining, consumer goods to chemicals, oil and gas production to heavy and high-volume manufacturing, medical equipment and more – whatever your business, you can use Avanade Intelligent Digital Twin solutions to quickly address your priorities, achieve measurable and value-based results, and scale your solution across lines and facilities.

Manufacturers are using Avanade Intelligent Digital Twin solutions to create added value in two key areas:

Production optimization

Examples under the production-optimization use case include real-time operations visibility, real-time asset health and efficiency monitoring, and predictive asset maintenance. Manufacturers see enhancements in OEE, line efficiency, cycle time, throughput rate, and changeover time.

Heavy and high-volume manufacturing

Mining

Consumer goods

Chemicals, oil and gas production

Medical equipment

Industrial Equipment

Mars to see significant savings in packing optimization

Every year, Mars – the global maker of popular confectionery products – lost significant sums by inadvertently packing too much candy in consumer bags. It was the highest source of systemic loss in the company's operations.

Mars turned to Microsoft, Avanade, and Accenture. We implemented Azure digital twin, Azure IoT Hub, and Azure Machine Learning. That enabled Mars to create a virtual representation of its production lines and explore "what if" efficiency options before touching or disrupting a single physical asset.

The MVP solution was tried at a single factory and Mars plans to scale it to similar packing lines across North America and, ultimately, the globe. Mars has also identified eight other use cases for Intelligent Digital Twin solutions.

Expected results: Mars expects to achieve significant savings globally each year when the solution is fully scaled.

Sustainability and Advanced Energy Management

Examples under the Sustainability and Advanced Energy Management use case include energy/resource consumption per plant/line/shift/product, and logistic and energy optimization. Our solution helps clients to understand how energy prices currently affect their production planning and product portfolio. What is the contribution of each product/production process to energy consumption? In light of high energy costs, companies need new guidance on what to produce, how to produce, and when and where to produce. With our solutions, manufacturers can see enhancements in carbon footprint, energy and resource efficiency, and waste reduction rate.

Avanade Intelligent Digital Twin solutions also deliver value in areas including digital quality, workforce productivity, and supply chain management.

Auto Manufacturer using digital to achieve sustainability ambition

A European automotive manufacturer has an initiative to reach carbon neutral by 2040 and expanded sustainability targets to include circular business models. The company's sustainability lead for facilities worked with Avanade to create and deliver a Facility and Environmental Sustainability Tool (FEST) MVP in just 8 weeks. FEST serves as a baseline for energy consumption for its facilities and retailers, giving real-time insights into the company's carbon emissions. This tool is being rolled out to approximately 3000 employees in the company's manufacturing, workplace and retail segments. Additional work includes adopting advanced analytics to create a framework to meet all their sustainability needs.
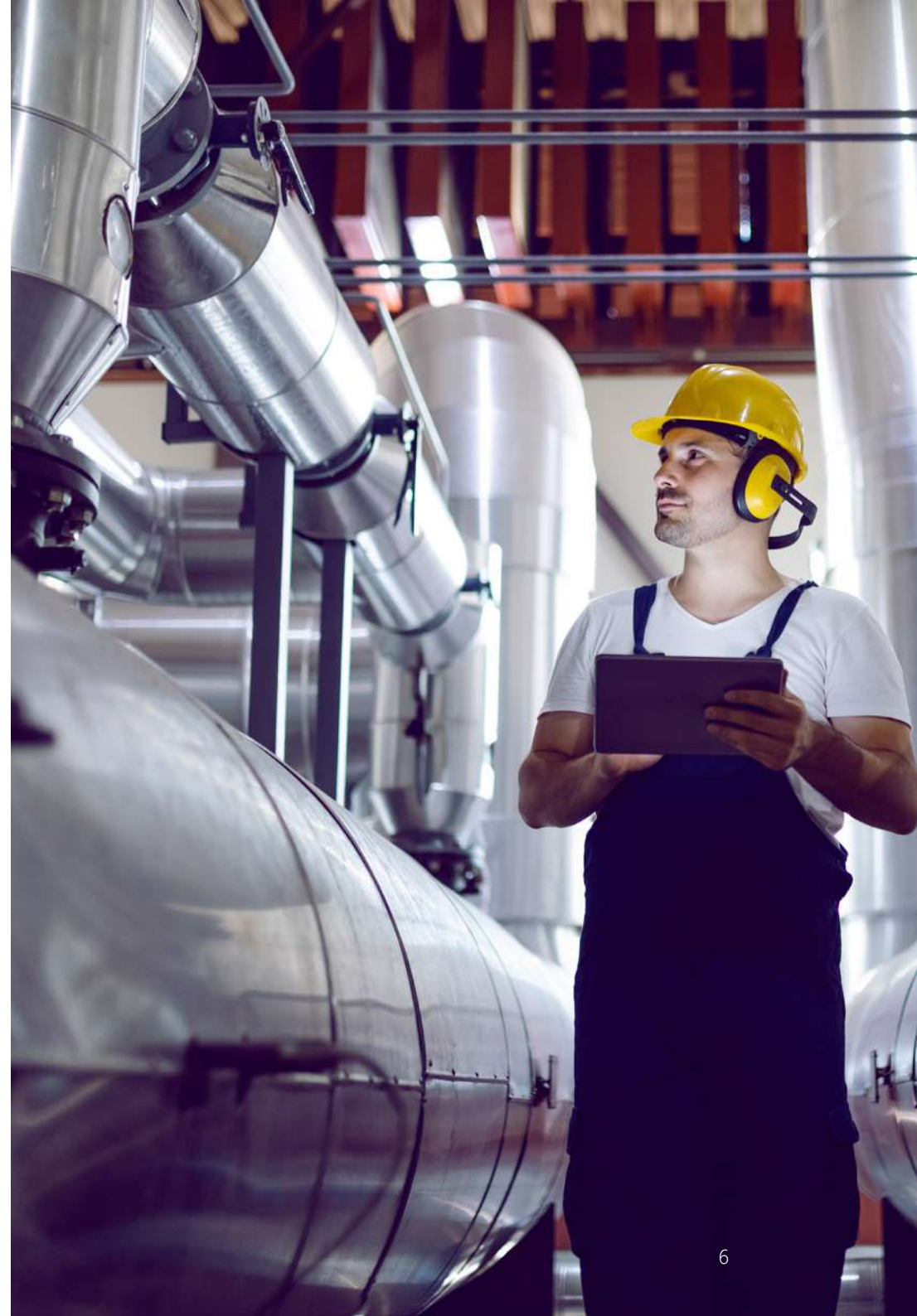
How much value will Avanade Intelligent Digital Twin solutions deliver to you?

Manufacturers are seeing increased quality, revenues and profits right now from Intelligent Digital Twin solutions conceived and delivered through Avanade. For example:

$100 million **per year in increased revenue,** achieved by a petrochemical producer via a 2% increase in plant output

$200 million **per year in increased profits** by an equipment manufacturer via higher profit margins

$100,000 **per month in savings**, seen by a global large equipment manufacturer, by achieving 98% accuracy in predicting machine failure

15% **reduction in defects by an automotive parts manufacturer** reducing cost of quality and improving client satisfaction

50% **reduction in the cost of defect detection and resolution** by a construction equipment manufacturer

4 steps to a proven, value-based MVP

Forget monolithic, years-long development and implementation projects. With Avanade Intelligent Digital Twin solutions, your company can go from initial assessment to proven, value-based MVP in four steps and 12 to 15 weeks:

Step 1: Explore, Inspire & Discover.	Step 2: Acquire & Connect.	Step 3: Analytics & Insights.	Step 4: Deploy & Train.	Ongoing Support & Scale.
We help clients understand their value opportunities, define use cases, identify readiness gaps, and design solution architecture.	MVP creation starts here, with the installation of the solution's digital foundation, including digital twin, sensors, industrial gateways, data platforms, and more.	This step includes development of the digital twin and analytics model, testing and validation of analytical insights, and creation of dashboards and visualization. It results in a machine learning model that produces recommendations to address the pilot solution's use case.	We provide user training and support to enable plant users to adopt the solution, and we help put it into production use.	The MVP is in production, but Avanade continues to support you move onward, starting with additional use cases on the same line, then on new lines, and then expanding to additional factories. End-user support and solution enhancements continue, too.
2-3 weeks	**4-5 weeks**	**4-5 weeks**	**2 weeks**	

Why Avanade?

As a joint venture of Microsoft and Accenture, Avanade is the only technology provider with privileged access both to Microsoft technology and Accenture industry expertise. In addition, Avanade's expertise and resources include the following:

Microsoft Alliance Partner of the Year for 17 years

2022 Microsoft Manufacturing Partner of the Year and Finalist for Automotive Partner of the Year

Joint investments in industry innovation with Microsoft and Accenture

Partner and industry solution accelerators

3,500+ manufacturing industry delivery professionals

1,000+ manufacturing clients worldwide

46% of Global 500 companies are clients

How to get started

Want to explore how you can transform your operations with Avanade Digital Twin Solutions? Whatever your goals and timeline, we can help you get started.

Take one hour to talk with us about your challenges and how Avanade can help.

Take one day in which you and your colleagues meet with us to learn more.

Take one week to participate in an Art of the Possible Workshop, during which we'll work with your key stakeholders to:

- Identify how to drive maximum business value based on where you are now in defining and tackling your operational and production challenges.
- Determine the measurable value we can prove in the delivery of an MVP.
- Choose the relevant Avanade solution accelerators and related IP to accelerate project delivery and minimize the hours needed from you.
- Develop a reference architecture for standard use cases.
- Conduct factory and operational technology assessments
- Build a roadmap and strategic plan for enhancing production.

North America
Seattle
Phone +1 206 239 5600
America@avanade.com

South America
Sao Paulo
AvanadeBrasil@avanade.com

Asia-Pacific
Australia
Phone +61 2 9005 5900
AsiaPac@avanade.com

Europe
London
Phone +44 0 20 7025 1000
Europe@avanade.com

About Avanade
Avanade is the leading provider of innovative digital, cloud and advisory services, industry solutions and design-led experiences across the Microsoft ecosystem. Every day, our 60,000 professionals in 26 countries make a genuine human impact for our clients, their employees and their customers. Avanade was founded in 2000 by Accenture LLP and Microsoft Corporation. Learn more at www.avanade.com.

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Do what matters