



Accelerate AI-Driven Innovations in Life Sciences to Make a Genuine Human Impact

A guide to increase the value of data and AI in life sciences and accelerate growth.

Do What Matters

Reimagine data and AI from molecule to market

The life sciences industry has only begun to uncover the potential of artificial intelligence (AI). By melding AI with rigorous medical and scientific knowledge, companies can do even more to use this technology to transform processes and achieve a competitive edge.

Top use cases drive the greatest value

AI has the potential to identify and validate genetic targets for drug development, design novel compounds, expedite drug development, make supply chains smarter and more responsive, and help launch and market products.

In this guide, we will highlight top use cases to help you identify how data and AI can renew digital strategies and grow value – **from research and operations to supply chain and commercialization.**



Accelerate insights

Accelerate drug development, optimize product portfolio and identify additional indications for new and existing pharmaceutical products.

Enhance operational agility

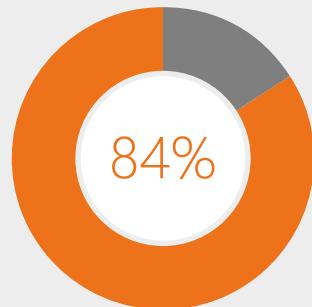
Invest in data integrity and secure, simple sharing of information to increase efficiency and accelerate your data-driven transformation.

Build resilient supply chains

Quickly predict and address the fragility of supply chains by making them more resilient and transparent at any point and time.

Create personalized experiences

Create more personalized experiences that help engage and educate a doctor and patient to improve drug efficacy and compliance.



of executives believe they won't achieve their growth objectives unless they scale AI

How do I **rapidly and effectively** conduct research and develop new products?

Reshape product portfolios to balance the mix of branded and generic drugs to effectively compete

AI can help identify new uses for existing drugs and discover biomarker connections we didn't even know existed. In so doing, new uses for drugs already on the market can be accurately identified. On the business side, AI and machine learning (ML) can also help decision-makers understand how brands performed across different indications and against the competition.

Accelerate the identification of new drugs and applications and still adhere to required regulations

Data analytic tools are being used to effectively deliver more efficient and personalized healthcare. With the [Healthcare on Azure Cohort Browser](#), Avanade clients have immediate access to a 54 million patient clinical data-set including inpatient and ambulatory records and longitudinal data up to 12 years. This advanced analytic tool supports patient segmentation and clinical, genomic, financial and population health modeling.

Better understand the patient to reduce adverse reactions and improve treatment outcomes

AI can help [improve the medical treatment process](#) using digital devices with health measurement and remote monitoring capabilities. With privacy and security controls built into every step, personalized data from these digital tools can help healthcare professionals analyze the data collected to improve research and development, inform physicians and improve treatment effectiveness.

High-value use cases

Cohort Browser – Healthcare on Azure

Quickly filter and search extensive database for rapid insights.

Genomics – Healthcare on Azure

Rapidly analyze genetics around phenotypic conditions and comorbidities of patient populations.

Precision Medicine – Healthcare on Azure

Conduct predictive modeling by disease type to help manage and deploy next best actions.

Generative chemistry drug discovery

Use deep learning generative models for advanced drug discovery.

Real-world data to accelerate clinical trials

Randomized clinical trials remain the gold standard when it comes to gathering efficacy and safety data on medical treatments in development.

The Avanade team of experts are working with a global pharmaceutical company to provide access to real-world data to support clinical trials, track patient's progress on specific medicines, and improve decentralized trials.

As a result, real-world data is being used to complement typical development programs by informing the selection of endpoints, the design, and recruitment of studies – which can potentially accelerate timelines, reduce clinical trial costs, and increase the probability of success.

Surpass the competition

Companies in the pharmaceutical and biotechnology industries typically spend more than \$1 billion to bring a drug to market, in a process that often lasts over 10–15 years.



How do I **improve** how we work and **reduce frustration** with outdated systems and methods?

Reduce costly legacy methods for approvals, risk assessments, and defect tracking and resolution

In life sciences, some companies have experimented with automation, and there are many examples of success – for instance, [Intelligent Business Process Automation](#) in operational maintenance processes and for patient self-service support. Whether using alert sensors on critical production equipment or predicting final product quality to reduce lab testing lag times, internet of things (IoT) technologies offer companies intelligence that can help reduce costs and downtime.

Quickly identify the right clinical study site, population and monitor progress

Clinical trials produce massive amounts of documents in different formats. Automation of data collection, machine learning platforms and natural language processing (NLP) can empower clinical teams to perform the most tedious tasks in a fraction of the time. In addition, AI can help clinicians identify viable study sites based on prerequisites such as geographical location, availability of equipment, and time constraints as well as identify patients who fit into specific groups before conducting eligibility screenings.

Minimize repetitive, rule-based tasks for back-office operations

Areas such as sourcing and procurement, purchase order creation and dispatch are ideal places to start evaluating how intelligent automation can reduce costs, minimize errors and help employees better balance high workloads.

Augmenting business processes with AI automation expands the possibilities of back-office efficiency and workforce productivity where people are empowered to do more important work. [Tools like immersive technologies](#) such as the [Microsoft HoloLens](#) also can be used to virtually train employees on how to become more skilled in digital technologies.

High-value use cases

AI and IoT

Provide sensor data and predictive maintenance intelligence to prevent costly downtime.

Intelligent automation/business process automation

Minimize repetitive tasks, reduce costs and free employees to deliver high-value work.

Intelligent field services for medical devices

Reduce downtime with predictive and preventative maintenance for medical devices.

Immersive technologies (HoloLens)

Virtually educate and train employees for improved quality and a more skilled workforce.

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Fresenius works to improve employee collaboration, increase efficiency and reduce IT complexity

A global healthcare group offering high-quality products and services for dialysis, hospitals and outpatient treatment wanted to reduce its costly, complex IT infrastructure with tens of thousands of unmanaged, offline applications no longer supported.

With the help of Avanade, it began sunsetting over 17,000 Lotus Notes applications on 170 servers and moving employees onto Microsoft SharePoint Online.

This sunsetting and cloud migration gave Fresenius the modern technology it needs to equip employees with connectivity, mobility and faster support. Results include improved employee engagement and collaboration, increased efficiency, reduced licensing costs and less IT complexity.

The value of unifying communications

Large firms have an average of 129 apps per business unit. Smaller firms average 73. Unifying your communications services increases your operational efficiency, saves you time and money, and eases employee tensions.

How do I **reduce** and anticipate disruptions in our supply chain?

Efficiently track assets along the supply chain, to know if or when they'll arrive

Increasingly life sciences organizations are using IoT-connected sensors, beacons and readers to track and trace items from place to place. The use of remote monitoring and visual pattern recognition is helping identify trouble spots and chokepoints.

Improve supply chain visibility to forecast demand more accurately and quickly

Organizations need supply chains that don't just minimize day-to-day risk but can also anticipate disruption. With computer vision, part of Azure Cognitive Services, organizations can accurately recognize objects and use analytics to predict potential threats. The ability to interface with existing systems including [Microsoft Dynamics 365](#) or other enterprise resource planning systems is essential to collect the data needed to more accurately forecast demand.

Identify the appropriate allocation of supplies and resources to prevent shortages of critical equipment

At Avanade, we've developed a Smart Inventory Accelerator including prebuilt code and connectors that can accelerate visibility and control over your inventory – everywhere – and deliver data to the cloud where it can connect to all your other systems. Connected cameras continuously observe stocking space to identify inventory changes as they occur using an AI solution with computer vision. This improves profit margins by eliminating inconsistent, error-prone inventory tracking.

High-value use cases

Smart inventory management

Use data insights to improve profit margins and integrate with existing backend logistic systems to transform workflows.

Internet of things

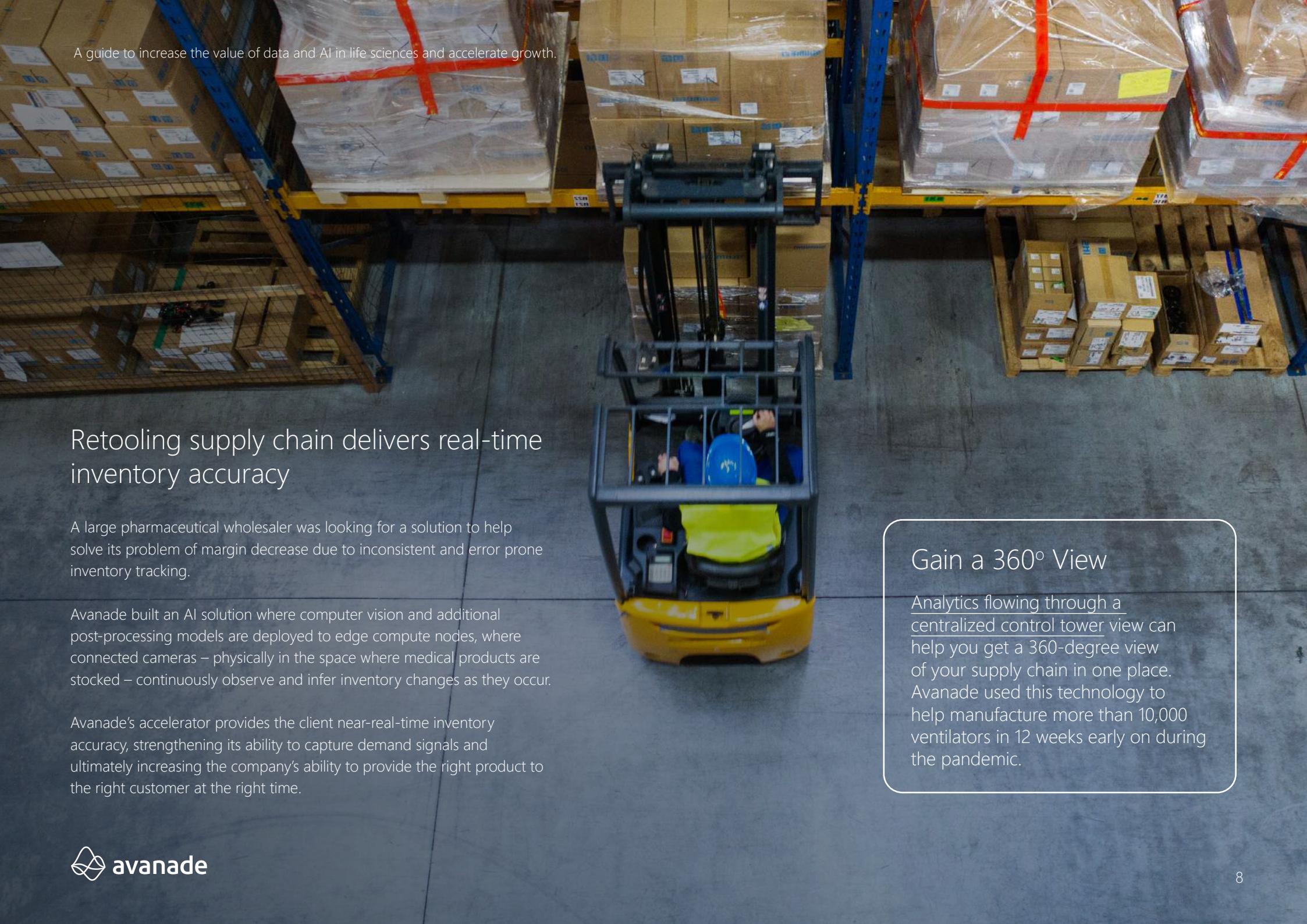
Connect and track medical devices to deliver real-time visibility from warehouse to care site to provider and patient.

AI-driven computer vision

Proactively identify issues eliminating inconsistent, error-prone inventory tracking.

RFID, Bluetooth and ultra-wide band network

Enable advanced data collection and analytics to reduce supply chain disruption and lower costs.



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Retooling supply chain delivers real-time inventory accuracy

A large pharmaceutical wholesaler was looking for a solution to help solve its problem of margin decrease due to inconsistent and error prone inventory tracking.

Avanade built an AI solution where computer vision and additional post-processing models are deployed to edge compute nodes, where connected cameras – physically in the space where medical products are stocked – continuously observe and infer inventory changes as they occur.

Avanade's accelerator provides the client near-real-time inventory accuracy, strengthening its ability to capture demand signals and ultimately increasing the company's ability to provide the right product to the right customer at the right time.

Gain a 360° View

Analytics flowing through a centralized control tower view can help you get a 360-degree view of your supply chain in one place. Avanade used this technology to help manufacture more than 10,000 ventilators in 12 weeks early on during the pandemic.

How do I create **a personalized experience** for physicians and patients to increase engagement?

Design an integrated omnichannel marketing approach

Omnichannel marketing is increasingly replacing multichannel marketing. With advanced technologies (AI, ML, and NLP), omnichannel marketing can perform dynamic analytics and modeling customized for each physician by specialty. Omnichannel marketing also has the potential to improve the pharmaceutical customer experience by increasingly influencing the number and adherence of patients on therapy through integrated promotional efforts that engage them in their own unique healthcare journey.

Gather data on individual physician preferences

Forward-thinking companies are helping their reps gather insights on individual physicians' preferences for engagement (for example, how often they want to engage and through which channels) via data lakes, predictive models, customer relationship management (CRM) systems, sales records, surveys and claims data. Companies can then tailor their launch strategies with specific providers based on the sales reps' pre-launch interactions with those same providers.

Keep physicians informed on drug efficacy and effectiveness in real time

We're already seeing patient-facing, cloud-based technologies being used to bring more efficiency and speed to drug launches. We're also seeing anonymized remote monitoring and telehealth solutions being used to track efficacy and safety, capture data on key health indicators, and increase patient compliance. With AI, these data insights can be customized for each physician depending on their specialty to help their patients understand the effectiveness of drugs prescribed.

High-value use cases

Increase digital marketing prowess

Pharma companies can transform sales from a series of single interactions into a fluid, personalized experience using AI and cloud computing.

Create a modern content management system

Connect related technologies such as customer relationship management systems, web analytics and social media platforms for greater reach and increased engagement.

Proactive outreach

Enable preventative patient care and help physicians increase patient safety and improve health outcomes.

Accelerate documentation

Use AI models to accelerate documentation and publishing process.

Merck improves access to a world-renowned medical resource

Merck needed to create a more accessible experience for its Merck Manual for users from different continents, viewing in different languages, and on a variety of devices. The Sitecore solution, hosted on Microsoft Azure and implemented by Avanade, has already provided the flexibility, scalability, and cost-predictability that Merck was seeking. Following the deployment, traffic to the Merck Manual website increased to approximately 450,000 impressions each day, with more than 14 million sessions logged each month.

"This is a great example of good user experience. Not only does the end consumer – such as physicians and patients – get a great experience, so do those who update and publish the content."

Michael DeFerrari, Director of Digital Publications for the Merck Manuals, Merck & Co., Inc.

AI vital to increase physician engagement

64% of meetings with pharma sales reps were held in person before COVID. This has shifted to 65% held virtually. From in-person communications to digital marketing initiatives, marketers have an opportunity to integrate analytics powered by AI to garner greater traction with physicians.

We bring **global scale and expertise** in accelerating AI-powered digital innovation in health and life sciences

Avanade has a global practice of over 1,000 technical, functional and organizational change professionals, supported by Accenture health strategists and consultants.

Our mission is to couple our unmatched Microsoft ecosystem capabilities with industry knowledge to partner with clients to innovate and help them digitally transform to renew and grow resiliently.

We provide services to a broad healthcare market

The Avanade/Accenture partnership serves health providers, health plans/payors, life sciences and medical device organizations. Through the work we do, we strive to make a positive impact for providers, clinicians, payors, biotech companies and health consumers worldwide.

We partner with clients worldwide

- **4,000+** clients since 2000
- **46%** of Global 500 companies are clients
- **34%** of Fortune 500 companies are clients
- 90% of Fortune 500 **life sciences companies**
- Avanade/Accenture services **41 of the top 100 hospitals** (U.S. Thomson Reuters)
- **21 out of 25** largest US health plans/payors
- All top **10 global pharmaceutical** companies

We've received more than 100 Microsoft awards

Avanade is a recognized leader in delivering Microsoft solutions to health and life sciences organizations. We bring together advisory, technology and experiences within Avanade combined with industry understanding and expertise.

In 2022, we were again named Microsoft Partner of the Year, 17 consecutive awards for excellence in innovation and implementation of customer solutions.

Learn more at avanade.com/lifesciences

Let Avanade partner with you to help you transform data and AI into digital innovations that drive better workplaces, experiences and accelerate growth

We can offer a **personalized fast track** to get you started.

First step:

A one-hour video call about how our approach can support your life sciences organization.

Discovery Workshop

- Ideation to collaboratively co-create the ideal experience and outcomes
- Storyboards to provide the design and build of a demo application

Design-Led Thinking

- Design and build with you a demo application based on the outputs from a Discovery Workshop
- Final design demo that aligns with your ideal outcomes

Demo and Readout

- Final demo of the application for your team
- Final readout to summarize activities and outputs
- Detailed readout includes user journeys, personas, outcomes, recommendations, and next steps.

Two to six weeks/virtual collaborations offered

We can help

Partner with Avanade to help you transform data and AI into relevant and enduring solutions for sustainable growth.

Contact us today.

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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