AWS re:Invent

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Inside Johnson & Johnson's cloud transformation

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Speakers

Dan Sheeran, Industry Director, Healthcare Life Sciences, Amazon Web Services

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Challenges we're hearing from life sciences executives

"I need to make drug discovery **data-driven** and de-risk my research portfolio sooner."

"Drug supply must be **smart** and **agile** for precision medicine and the batch-of-one."

"Commercial models are evolving – **I need to transform** our go-to-market process."

"Customers are expecting **a different experience** and level of engagement from our organization."

"I have to turn our organizational data into an **asset.**"

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Transform the life sciences value chain

**Research
& discovery**

**Clinical
development**

**Manufacturing
& supply chain**

Commercial

**Post-market surveillance
& patient support**

Improve agility
to fail fast

On-demand,
cost-effective HPC

Digitize and integrate
lab environments globally

Customer
engagement
with wearables
and IoT

Optimized patient
recruitment and
trial locations

Optimization of supply
chain, operations, and
feedback loops

Mechanisms for
batch-of-one

Optimize sales &
marketing
effectiveness

Streamline regulatory
submissions process

Value-based contracting
with real-world evidence

New distribution models

Digital therapeutic
engagement support

Accelerate discovery & research

Research & discovery

Clinical development

Manufacturing & supply chain

Commercial

Post-market surveillance & patient support

AstraZeneca Used ML to reduce time spent on classifying tissue samples by 50%

Numerate Sped candidate discovery by 5x with a 10x reduction in cost using ML & HPC
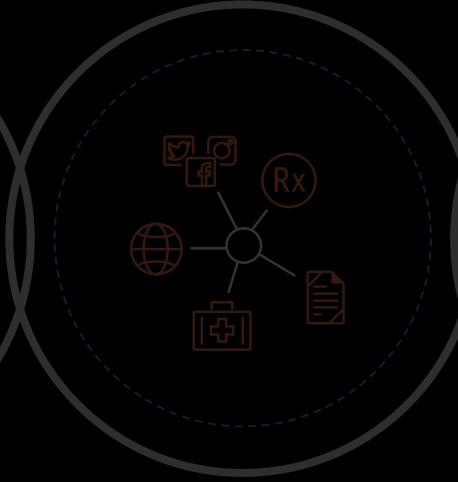
Enhance your clinical development

Research & discovery

Clinical development

Manufacturing & supply chain
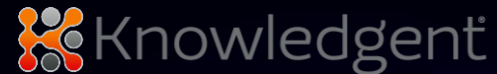
Commercial

Post-market surveillance & patient support

umotif

Secured mobile device data for 13,500 trial participants and 38 million data points

Knowledgent

Cut trial costs by 20% by eliminating poor trial sites with ML

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Precision manufacturing

Research & discovery

Clinical development

Manufacturing & supply chain

Commercial

Post-market surveillance & patient support

NOVARTIS

Used Insight Centers on AWS to look at the whole value chain from starting material, to demand forecasting, to shop floor operations, to how they supply customers and patients

moderna

All-in on AWS; optimized small batch drug manufacturing with GmP operations in the cloud; can manufacture personalized vaccines in <30 days

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Commercial excellence

Research
& discovery

Clinical
development

Manufacturing
& supply chain

Commercial

Post-market surveillance
& patient support

Predict healthcare providers with relevant patient base; identify next-best action for sales and marketing

NAVIFY®

Digital diagnostic tool that uses analytics to match patients' tumor types so care teams can quickly select the right therapy for each patient

Improve patient support

Research & discovery

Clinical development

Manufacturing & supply chain

Commercial

Post-market surveillance & patient support

MERCK Built a enterprise RWE analytics platform to provide the right data at the right time for the right purpose

Propeller Uses sensors on respiratory devices along with ML to provide personalized health predictions for patients

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"How do I **innovate faster** without introducing risk to **mission-critical operations**?"

"I need to **get to S/4HANA** to prepare for **2027 ECC end of support**."

"We want to **combine our SAP data with other enterprise data sources** to drive new value."

"I need to **reduce infrastructure and management costs** for my SAP systems."

Challenges we're hearing from SAP customers

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5,000+ SAP customers across industries and geos trust AWS

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SAP on AWS life sciences customer outcomes

moderna®

Uses AWS IoT platform
with SAP to improve
manufacturing and supply
chain efficiency

Bristol Myers Squibb™

Automates GxP compliance and
high availability for mission-
critical S/4HANA systems

vyaire
MEDICAL

Rapidly scaled ventilator
production and distribution
for COVID-19 using SAP
and Amazon S3 with AWS
Lake Formation

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Johnson & Johnson's cloud transformation

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Rowena Yeo

Chief Technology Officer,
Global Vice President of Technology Services

Johnson&Johnson

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Who is Johnson & Johnson (J&J)?

Helping keep people well at every age and every stage of life for more than 130 years. Through access and affordability, we create healthier communities and put a healthy mind, body, and environment within reach of everyone, everywhere.
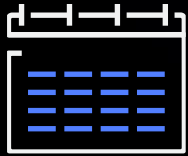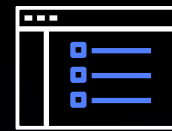
130 years

250+ companies

135K+ employees
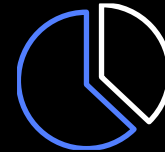
60+ ERPs
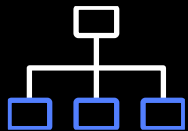
3 business sectors

175 countries where J&J products are sold

1 billion+ people touched daily by J&J worldwide

450 new applications released each year

The J&J technology strategy

PATIENTS **DOCTORS & NURSES** **EMPLOYEES** **COMMUNITIES** **SHAREHOLDERS**

Modernizing our technology ecosystem

Simplify, strengthen, and automate IT to enable speed, reliability, and security

- Secure and scalable technology foundation
- Data democratization
- Scaled and simplified platforms
- Decision science

Operating as a digital organization

Make digital a core competency of our diverse, global workforce

- Future-ready skill sets
- Diversity and global reach
- Digital acumen and agility

Accelerating business outcomes

Collaborate with business partners on the outcomes that matter most

- Aligned must-win priorities
- Partnerships and innovation
- Invest to optimize efficiency and value

The case for change for our cloud transformation

FASTER TIME TO MARKET AND SECURE, COMPLIANT, FLEXIBLE INFRASTRUCTURE AT GLOBAL SCALE

Johnson&Johnson

Business agility, security & resiliency

Rapidly changing industry, complex global footprint, and diverse needs of our businesses **require fit-for-purpose cloud-enabled capabilities** that are secure, compliant, and resilient

Global ERP consolidation and modernization

Digital transformation of supply chain is driving consolidation of global ERP landscapes where **cloud elasticity and modernization is a must-have**
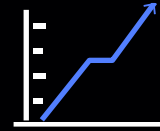
Exponential growth of data

Exponential growth in data (90+ TB, 30% YoY growth) **requires scalability while optimizing cost and performance**

Digital advancements and innovation

Adoption of advanced digital capabilities like artificial intelligence, real-time analytics, and Internet of Things across our businesses **require "fail fast" experimentation to drive innovation**

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Modernizing our global ERP landscape as part of our cloud transformation

Johnson & Johnson

63 ERPs without unified visibility

25+ year-old legacy systems

Obsolescence Due to end of support for ECC/JDE

Capabilities we're enabling

COMMON DATA LAYER
Single point of access to accurate and timely information

INTEROPERABILITY
Between SaaS and microservices including our common data layer, next-gen shop floor systems

STANDARD SINGLE CORE
Single core that is "always on" supply chain technology for each of our business sectors

TOUCHLESS SUPPLY CHAIN
Embedding AI and machine learning to help automate processes from start to finish

Value to J&J

Maximize efficiencies and increase employee productivity

Cost of technology footprint reducing by 30%

Reduce YoY technology investments for new business functions

Increase revenue margins and profitability

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Our SAP cloud migration journey

CONSOLIDATING 60+ SILOED AND LOCALIZED ERPS ACROSS A LARGE GLOBAL FOOTPRINT TO 4 GLOBAL S/4HANA SYSTEMS REQUIRED CRITICAL DESIGN AND ARCHITECTURE CONSIDERATIONS
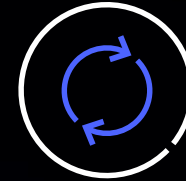
Prevent unplanned outages

Required **high availability on the cloud** and disaster recovery across the stack

Near-zero downtime

Architected near-zero downtime for online operating and patching **negating the need to negotiate with 63 business units**

Infrastructure flexibility

Flexibility, agility, and choice to respond quickly to rapidly changing business needs

Designing for consumption

Flexible provisioning and **real-time capacity adjustments** as needed

Lessons learned for our cloud journey

✓ Setting **expectations with business and technical partners** is essential

✓ **Automation is a foundational must-do,** not an optional roadmap item

✓ **User experience is critical** – ensure your requirements and testing account for *all* of your users

✓ **Align cloud provider roadmaps** with anticipated needs to prevent feature chasing

✓ Upskilling resources and change management is critical, but so is **aligning on new R&Rs** as functions merge into single teams

✓ **Shift financial management** to ensure optimizing cloud usage and managing consumption

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What's next for J&J's cloud transformation?

INNOVATION AT SCALE

Drive business modernization with cloud-native capabilities

Modernize edge to drive real-time insights for our labs, manufacturing plants, and warehouses

Drive data science/AI at scale

Accelerate automation and innovation

Thank you!