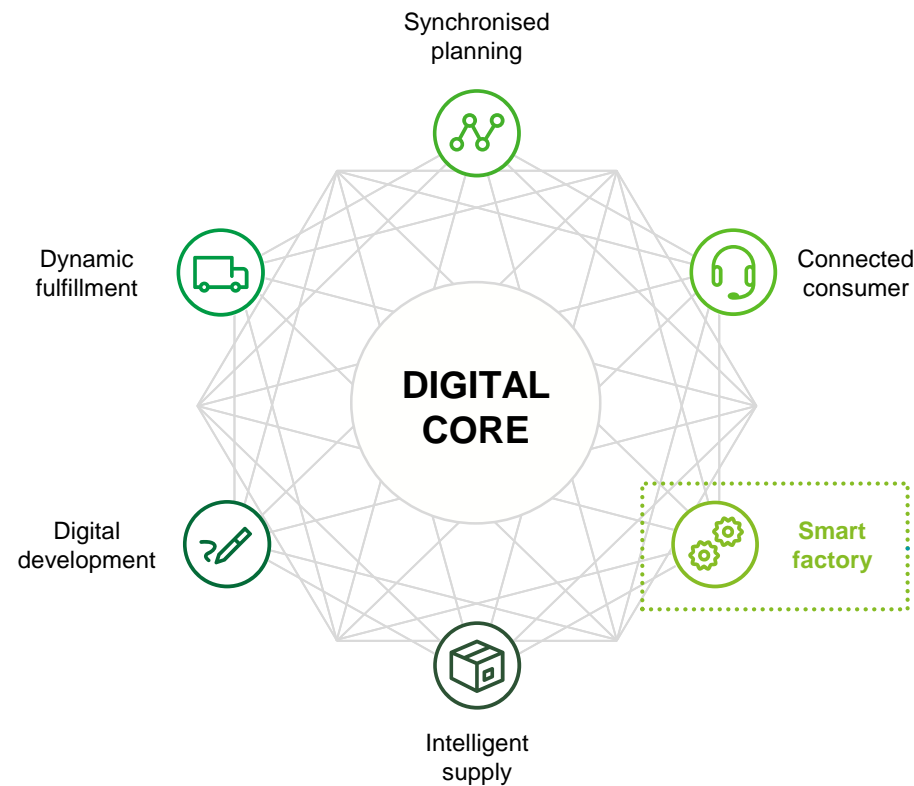**aws | Deloitte.**

Why is a Cloud based smart factory transformation imperative to driving bottom-line growth?

Smart factory transformations allow you to address daily production execution inefficiencies and to drive increased value, both within and beyond the four walls of the factory.

Synchronised planning

Dynamic fulfillment

Connected consumer

DIGITAL CORE

Digital development

Smart factory

Intelligent supply

Characteristics of a smart factory

- Connected
- Optimised
- Transparent
- Proactive
- Agile

A smart factory…

Leverages intelligent data to resolve the right business issue

Combines new technologies such as AI/ML to predict failures

Streamlines your operations by enhancing workforce collaboration

Collects, connects, and analyses production data to drive insight

Augments human intelligence with machine intelligence

Drives better insights and sustained step change improvements in performance, quality, and safety

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Why now? Now more than ever, organisations need to do more with less; either scale up rapidly to match increasing demand or maintain capacity while reducing footprint. Data availability, compute, and store capabilities are more accessible than ever. We can now create visibility to proactively address inefficiencies in the "hidden factories" and day to day operations.
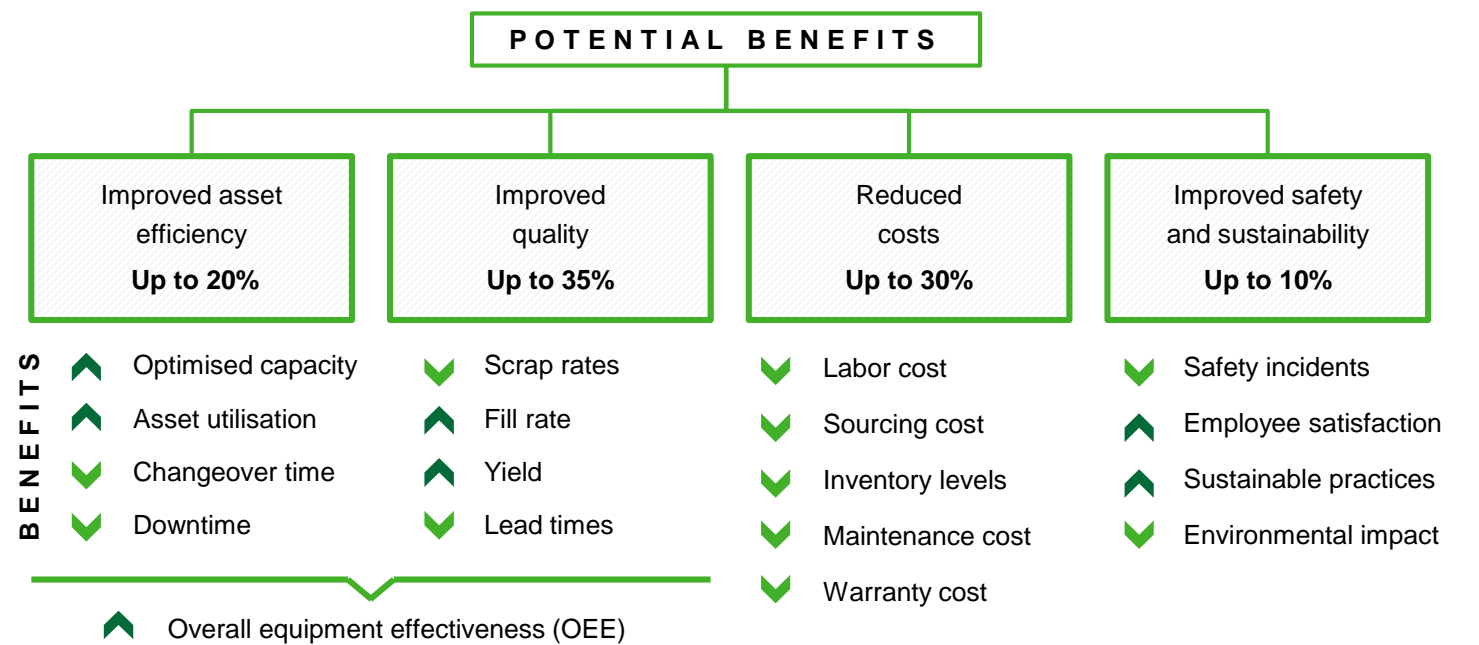
Typical brown field manufacturing issues…	…can be addressed in new ways.
A workstation **unexpectedly failed** and is offline waiting for maintenance repair	**Predict** machine downtime by analysing performance trends
A line has been continuously reporting 10% **quality rejection** in the last week of production	**Sense** quality degradation and immediately enact correction efforts
WIP inventory pile up at one workstation as another is **waiting for materials** to continue operation	Track material movements in **real time** and **dynamically schedule** production cycles based on resource availability
A technician did not report for work, **causing a gap on the line** for a critical skillset	Actively manage the workforce and **track worker performance** data

What are the expected outcomes? Smart factory transformations, when done at the plant or enterprise level, can deliver significant cost savings, improved product quality, and increased employee and customer satisfaction.

POTENTIAL BENEFITS

Improved asset efficiency **Up to 20%**	Improved quality **Up to 35%**	Reduced costs **Up to 30%**	Improved safety and sustainability **Up to 10%**
Optimised capacity	Scrap rates	Labor cost	Safety incidents
Asset utilisation	Fill rate	Sourcing cost	Employee satisfaction
Changeover time	Yield	Inventory levels	Sustainable practices
Downtime	Lead times	Maintenance cost	Environmental impact
		Warranty cost	

BENEFITS

Overall equipment effectiveness (OEE)

Accelerating your smart factory journey: Smart Factory Fabric on Amazon Web Services (AWS)

Smart Factory Fabric is a **pre-configured** suite of cloud-based Internet of Things (IoT) applications built on AWS designed to accelerate smart factory transformations across the enterprise, customisable to meet your unique needs, and resolve the right business issues.
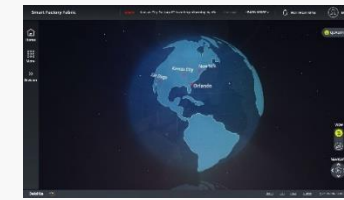
The Smart Factory Fabric platform includes:

1 Proven technology with a scalable cloud-based and IoT-enabled architecture

2 Integrated use cases addressing the most common factory challenges

3 ROI-driven deployment approach

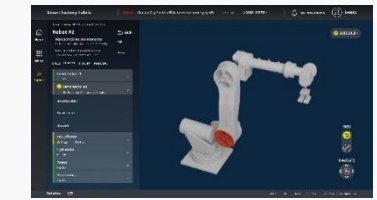**4** Focus on user adoption and enterprise transformation

Solution preview

| Manage at the plant level | View enterprise performance | Address the man, machine, and material constraints that hinder performance |

Built for the enterprise with a proven architecture:
modular, scalable and anchored on AWS; secure by design and ready to complement your existing IT landscape.

Targeted Personas:
Addressing executive, plant manager, and shop floor technician needs.

Highly Integrated:
Start with 1 or multiple use cases. The solution is built for easy expansion.

How the AWS services are leveraged:

AWS IoT Greengrass extends AWS to edge devices so they can act locally on the data they generate, while still using the cloud for management, analytics, and durable storage.

AWS IoT Things Graph makes it easy to visually connect different assets and web services to build IoT applications through reusable models.

… and there are many others

Use cases *

COMMAND CENTER
Bird's eye view of all factory operations and plant performance, prioritising critical needs and allowing for enterprise analysis

- 5-10% Improved ROI CapEx Decisions
- 3-5% Increased Factory Utilisation
- 15-20% Reduced Manual Overhead

MACHINE MONITORING
Connect to and view machine status, KPIs, and critical performance data

- 7-10% Reduced Machine Downtime
- 5-8% Reduced Material Span
- 10-15% Reduced Changeover Time

MATERIAL TRACKING AND VISIBILITY
Track location material movements in real time to improve efficiency and visibility

- 7-10% Reduced Machine Downtime
- 5-8% Reduced Material Span
- 10-15% Reduced Changeover Time

PREDICTIVE MAINTENANCE
Capturing real-time and historical machine health data over its lifecycle to diagnose specific issues before it causes downtime in production

- 15-20% Reduced Scrap And Rework
- 8-12% Increased Machine Uptime
- 10-20% Reduced Maintenance Labor Costs

ADVANCED WORKER SOLUTIONS
Advanced analytics for optimal manning and traceability of workers, dynamic crew planning and work allocation

- 10-20% Labor Cost Reduction
- 15-25% Operational span increase

DYNAMIC PRODUCTION SCHEDULING
Dynamically schedule production cycles based on resource availability and requirement

- 5-10% Increased Throughput
- 15-20% Reduced Inventory (Material Utilisation)
- 5-10% Reduced Resolution Span

QUALITY SENSING AND PREDICTION
Identify potential quality issues faster and earlier in the value chain

- 5-8% Reduced Scrap and Rework
- 20-30% Increased Early Identification
- 10-15% Reduced Resolution Span

AND MORE…
Deloitte and AWS will continue to invest in building new pre-configured accelerators addressing the wider market

* Estimated benefits for use cases are based on Deloitte's experience

The Smart Factory Fabric on AWS accelerator brings together leading providers in the industry, each with highly complementary services.

The offering is:

More than technology: Preconfigured accelerators, process change centric, human-centric design user adoption obsessed

ROI Driven: Simple, highly effective user experiences constantly tuned to help drive ROI

Native AWS stack: Potential lower costs, greater scalability and security, and higher availability—at lower risk

Secure by design: Security is built into our solution and is a focus of everything we do from sensor to cloud

Flexible and adaptable: Open and extensible platform with the flexibility to use third-party offerings

Learn more about Smart Factory Fabric on AWS, contact:

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