Making the digital connection

Developing a mirrored world through digital continuity

How Accenture can help companies unlock the full value
of enterprise digitization and maximize the ROI of past
and future technology investments

accenture

The challenge of change.

Markets are evolving, customer demands and expectations are rapidly changing, and a new era of industrial consumerism is emerging. These shifts were already exerting significant pressure on organizations.

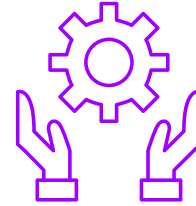Then the pandemic arrived, escalating the need for radical change.

To thrive, businesses must:
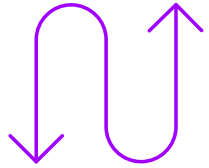
Be flexible and agile
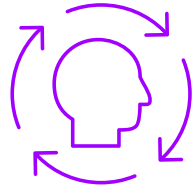
Offer product personalization

Be ready to embrace everything-as-a-service business models

This is easier said than done. Companies are trying to adapt, but longstanding issues and constraints are holding them back. Some examples? Organizational siloes. Lack of a common language. Data dispersed across disparate systems. Broken data flows. And to top it all off, a lack of customer centricity.

Temporary solutions aren't the answer. Instead, companies must courageously adopt innovation as a way of thinking, leaping forward to lead in the Industrial Renaissance. They must redesign their businesses, data architecture, processes, capabilities and technology. The aim? Achieving digital continuity, with a robust process and data flow that create a closed loop.

Digital continuity can unlock tremendous benefits for organizations. But to achieve real results, companies must be willing to transform. In this paper, we'll take a closer look at how to help drive digital continuity.
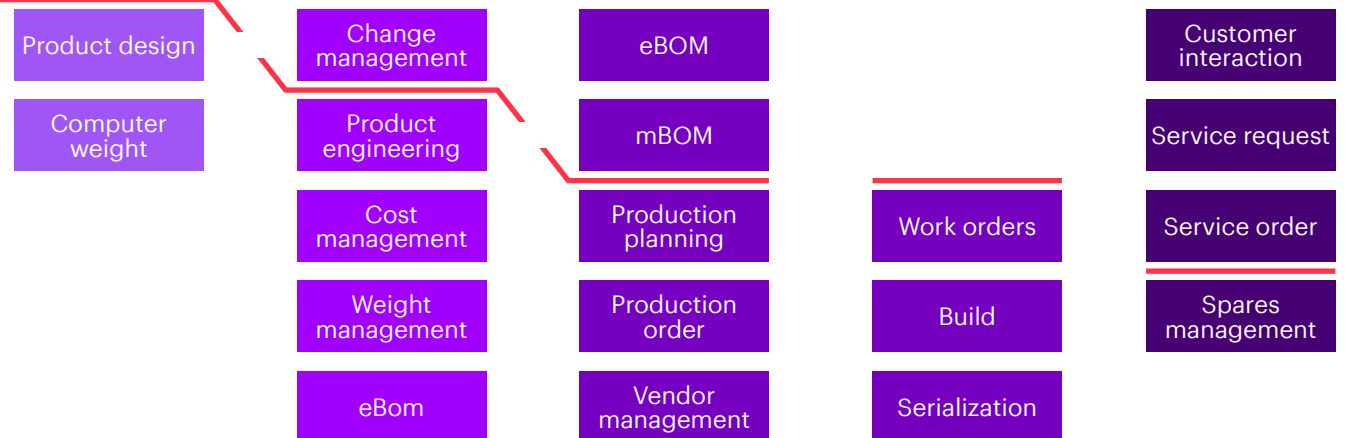
What's holding companies back?

Many businesses face challenges that stem from organizational and technology siloes. These can take various forms.

Organizations often have too many applications that are too poorly connected to support their businesses. A classic example is the disjunct communication between product design, engineering and production.

The broken thread

Design	Engineer	Manufacture	Operate
CAD	PLM	ERP	ERP

Key Data

Product design	Change management	eBOM		Customer interaction
Computer weight	Product engineering	mBOM		Service request
Cost management	Production planning	Work orders	Service order
Weight management	Production order	Build	Spares management
eBom	Vendor management	Serialization	

These kinds of issues can create challenges right across the organization

Marketing teams struggle to understand customers' expectations and opinions. So they can't give meaningful customer feedback to product design teams.

Engineering and design teams are unable to harness IoT data. So when they want to harvest and improve product performance, they must rely on product testing alone. The data flowing between design, engineering, production and after-sales is often incomplete or incorrect. This creates inefficiencies, and impairs the quality of products and services.

Sales teams still struggle to abandon paper brochures and complex catalogs. Meanwhile, customers don't have easy access to fully priced quotations. The result? A slow sales cycle.

Production planning isn't closely tied to demand. What's more, teams lack insight into inventory levels, because there's no smooth flow of information between planning, execution and warehouse management.

Customer service and satisfaction levels are low, and this has a knock-on effect on company reputations. The root cause? Product lifecycle management is too often limited to fixing items that are under warranty.

In short, processes are obsolete and disconnected. As things stand, many companies aren't ready for the new Industrial Renaissance, and they risk getting left behind.
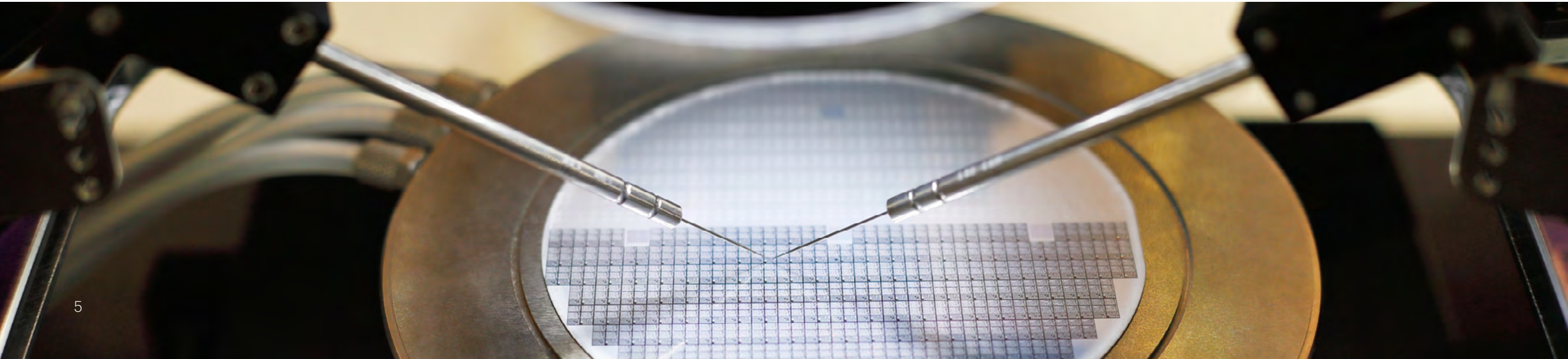
A glimpse into the future

How can companies unlock the full value of enterprise digitization and maximize the ROI of past and future technology investments?

We believe the answer lies in digital continuity. It's enabled by an integrated digital platform that helps create a digital thread connecting the whole organization. It helps join up all the systems involved in business operations, traversing diverse functions and lines of business.

Continuity is a powerful way to help achieve seamless operations. It helps enable data-driven collaboration within companies and with business partners. It helps empower companies to transform their businesses by enriching their customer offerings with value-added features and supplier collaboration.

Continuity is part of a broader trend. As companies digitize more of their operations, they're unlocking new sources of data that are fueling massive networks of intelligent digital twins.

Digital twins are powerful tools. But until recently, they've been limited to mirroring, monitoring and simulating discrete devices.

Now, as the number of digital twins increases and more AI is layered in, organizations are creating massive networks of intelligent twins capable of modeling entire systems – including products, factories and complex supply chains. In other words? It's creating a mirrored world that businesses can use to test and optimize the lifecycle of physical assets, ask "what-if" questions about future scenarios, and design and test new or enhanced products even without building them physically.

Let's take a look at how continuity can transform different parts of the business

Operate

Design

Fulfil

Customers

Engineer

Product

Manufacture

Sell
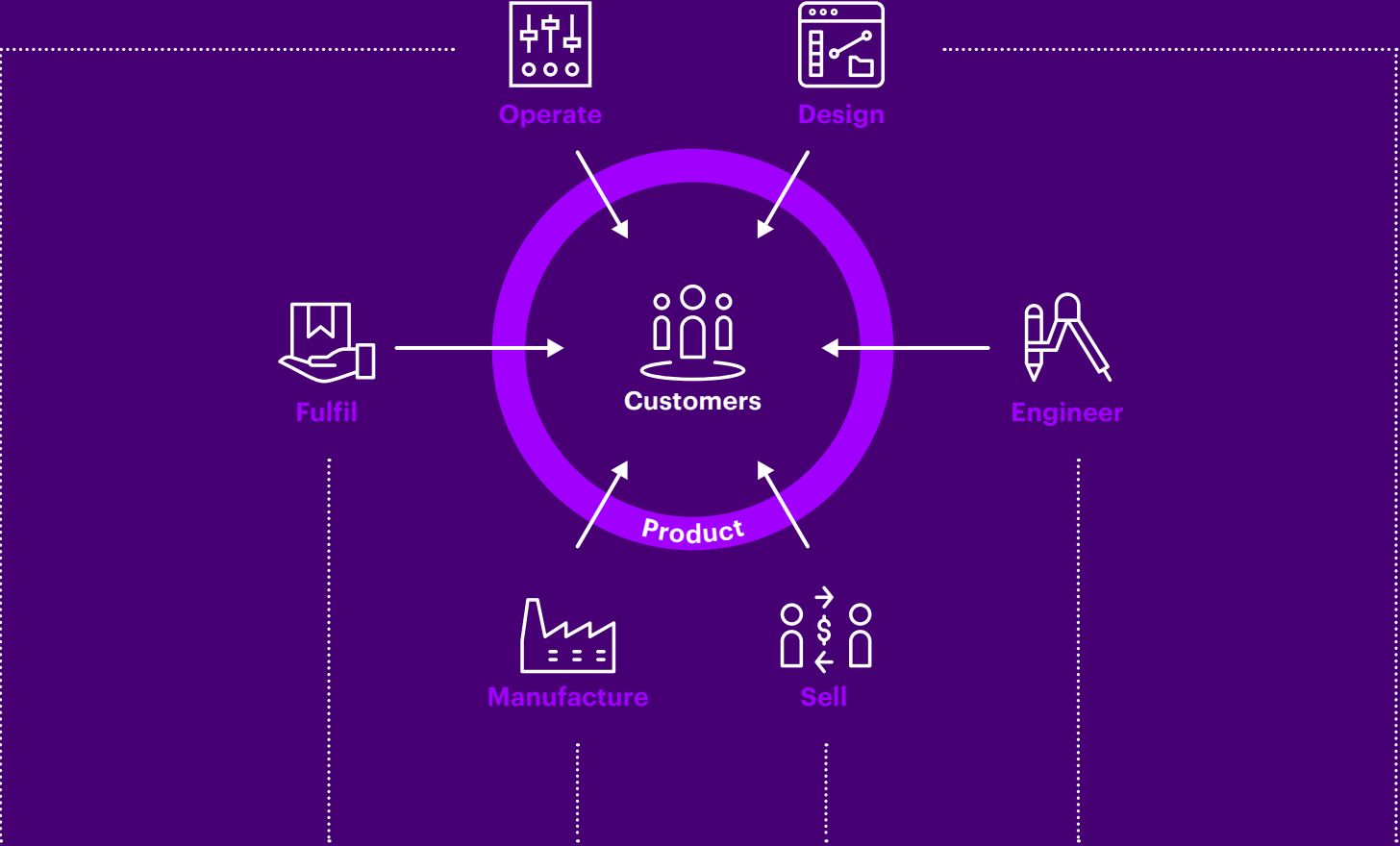
Combining innovative emerging technologies with the transactional backbone can drive tangible business benefits across your organization.

Product design: Imagine you wanted to involve customers in the product design process. You could collect customers' requirements dynamically via shared platforms. Then AI would leverage these insights to guide the creation of new products. That's not all. Imagine you could harness IoT data from existing products, and combine those with customer requirements. All of a sudden, you could dramatically improve your products and ensure they satisfy customers' needs.

Engineering: Imagine now the engineering teams working on these new, co-designed products. Thanks to continuity and powerful value-added tools, you can quickly choose the right parts and components through quantum computing. Imagine using collaborative virtual prototyping to reduce time-to-market.

Production: Imagine empowering customers to virtually try out and configure new products before they buy them. Imagine bolstering quality controls by using photography and image recognition to detect possible faults before goods are shipped.

After-sales support: Imagine transforming maintenance from a cost into an opportunity for revenue growth. Or being able to offer predictive maintenance as a value-added service.

Marketing: Imagine being able to use customers' purchase histories to cross- and up-sell more effectively.
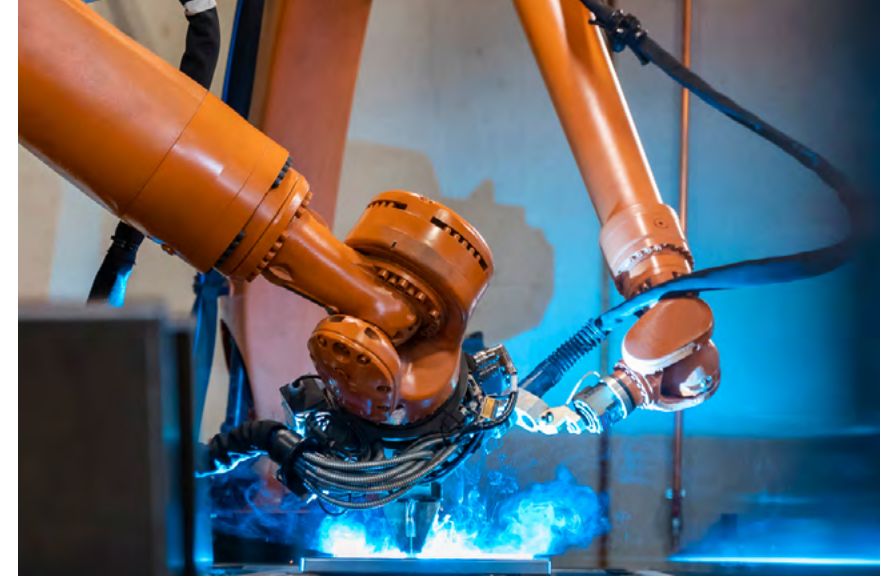
These are just some of the benefits that companies can achieve by implementing a digital continuity and end-to-end data flows. Continuity isn't just a technology topic. It's a leading-edge path to successful business transformation.
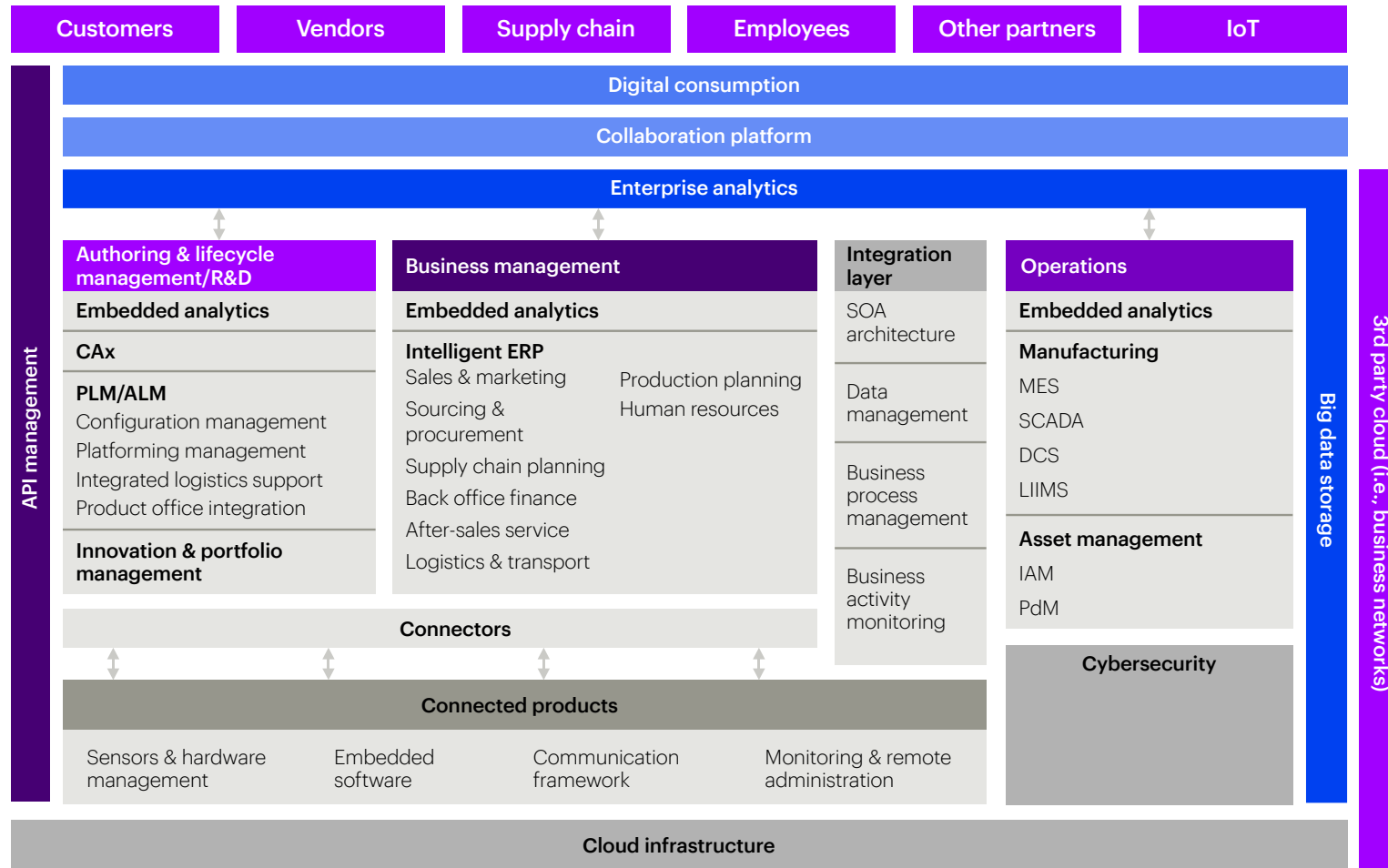
Making it happen

With that in mind, Accenture has converted continuity from an ideal into a path. We've designed ways for our customers to build their own mirrored world to connect the diverse functions across their businesses.

The result? End-to-end processes and digital continuity that help drive true customer centricity in a closed loop.

We've developed a reference architecture that helps translate this vision into reality. It's built on SAP S/4HANA® as a digital core, surrounded by an ecosystem of solutions (e.g. Qualtrics®, SAP® Field Service Management, SAP® Extended Warehouse Management, SAP® Asset Intelligence Network, and Teamcenter® PLM software).

For example, the architecture mirrors the flow of materials and information using SAP's demand-driven material requirements planning capabilities. It leverages SAP® Integrated Business Planning to simulate the impact of supply chain volatility on logistics and finance – helping companies protect their businesses and reduce risk. And it creates a digital twin through which manufacturers, operators and service providers can mirror operational data (such as equipment performance), by using the SAP® Asset Intelligence Network.

Digital thread reference architecture

Customers	Vendors	Supply chain	Employees	Other partners	IoT

Digital consumption

Collaboration platform

Enterprise analytics

API management

Authoring & lifecycle management/R&D
Embedded analytics

CAx

PLM/ALM
Configuration management
Platforming management
Integrated logistics support
Product office integration

Innovation & portfolio management

Business management
Embedded analytics

Intelligent ERP
Sales & marketing · Production planning
Sourcing & procurement · Human resources
Supply chain planning
Back office finance
After-sales service
Logistics & transport

Integration layer
SOA architecture

Data management

Business process management

Business activity monitoring

Operations
Embedded analytics

Manufacturing
MES
SCADA
DCS
LIIMS

Asset management
IAM
PdM

Cybersecurity

Big data storage

3rd party cloud (i.e., business networks)

Connectors

Connected products

Sensors & hardware management · Embedded software · Communication framework · Monitoring & remote administration

Cloud infrastructure

On top of all this, we've developed our own innovative assets using the SAP Business Technology Platform. And we've refined our methods to address the challenges of the new Industrial Renaissance.

We've used our vision, architecture, assets and methods to test one of the possible ways clients can achieve digital continuity.

Through this vision, we've verified every part of the digital thread that connects diverse business functions:

- We've helped enable companies to connect their CAD modeling with their suppliers. We've tested immersive collaboration to enable co-creation and co-design.

- We've developed our own assets that closely integrate PLM and ERP systems. This helps foster seamless collaboration between design, engineering and production teams. Using quantum computing, we've designed processes and tools that can define an optimum Bill of Materials.

- We've enabled virtual prototyping to help accelerate time-to-market.

- We can help protect companies from counterfeit parts by using blockchain technology.

- We've implemented automated quality controls using image recognition and cloud-based services.

- We've helped drive preventative maintenance by harnessing predictive algorithms.

Learn more

As markets evolve, buying habits change and new business models emerge, we're witnessing the dawn of a new era for businesses. Companies that don't adapt risk getting left behind.

To thrive in this new environment, companies must invest in creating digital continuity and implementing a digital thread that joins up diverse business functions. These investments can help secure companies' futures.

The good news? Accenture is here to help. We can help our clients achieve their objectives and support their journey toward digital continuity. We'll take it one step at a time.

To discuss further and build your own vision together with us, get in touch.

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