

SAP Point of View | PUBLIC

The Digital Retail Industry Unlocking New Business Value with Intelligent Technology

THE BEST RUN



“Never before have retailers faced so much change. Global digitalization changes the way customers are interacting and puts pressure on the traditional retail model, but it also offers huge opportunities for retailers to gain market share in this new environment. The borders between brick and click are blurring, and customers always choose the experience with the least friction. We are already seeing the use of breakthrough technologies such as artificial intelligence, blockchain, and the Internet of Things in stores, enabling retailers to optimize their business processes and driving a frictionless experience for their customers.

The future of shopping will be defined by front-runners who can adopt innovative technologies to create compelling, personal, and robust experiences.”



A handwritten signature in black ink, appearing to read 'Achim Schneider', written in a cursive style.

Achim Schneider
Global Head of Retail Solutions
SAP SE

The Digital Economy Is Putting Pressure on Traditional Retailers While Offering Infinite New Opportunities

Leading retailers use market dynamics to create and capture new business opportunities.

Digitally armed customers

Customers are prepared to share their data, yet expect new types of shopping experiences in return.



Retailers that can take advantage of consumer insights and offer targeted, differentiating experiences grow consumer share of wallet and capture market share.

Delivery in real time or not at all

Customers are no longer loyal to a retail brand and will switch for better service and faster delivery.



Retailers that run an efficient and flexible supply chain from suppliers to homes and offer convenience and reliability will outperform their competition.

New competition

New competitors and innovative business models are continually emerging and capturing market share.



Retailers that can effectively integrate manufacturing and wholesale into an end-to-end value chain can stay close to the consumer and gain control over value creation.

Digitalization

Digital technology is connecting things, consumers, and enterprises.



Retailers that use digital technologies to create new value for customers through better products and services, better in-store experiences, and better connectivity to consumers remove friction along the value chain.



Leading retailers use digital technologies to become intelligent enterprises and reimagine:

- Shopper engagement to create compelling immersive experiences that create lifelong loyalty and grow share of wallet
- Retail processes to capitalize on insight and create efficiencies through automation
- Work by equipping store associates as well as sales and service teams with real-time customer and business insight to serve customers better
- Business models by fundamentally rethinking the use of technology in creating and capturing new sources of value

Innovative Retailers Use Customer Proximity and Operational Excellence to Transform Their Businesses

Digitalization has reached every aspect of today's life, and it is here to stay.

Improved processing power is making machine learning applicable in more and more retail areas, enabling further optimization and automation of business processes as well as more-impactful, personalized, and contextual consumer experiences. The Internet of Things (IoT) is leading to unprecedented efficiency and optimization as well as to new levels of customer connectivity and new retail business models. Innovative retailers leverage new technologies to support their digital transformation strategies and respond effectively to both encroaching competitors and new demands of the digitally empowered customer.



Customer centricity

New technology allows retailers to detect, predict, and anticipate unspoken needs. Understanding the profitability impact from start to finish, down to the single article, through integration of all process areas is key to providing the right experience all the way from awareness, to the shopping journey, delivery, and postpurchase engagement.



Serving the "segment of one"

The ability to capture and anticipate customer needs in the moment is key to giving customers exactly what they want, when they want it. Sensors monitor use, consumption, wear, and freshness, alerting consumers to replace, replenish, or repair, thus creating demand that can be met just in time with the right corresponding personalized offer. Machine learning will drive more-impactful, personalized, and contextual consumer experiences.



Digital supply chains

Connecting the end-to-end supply chain from suppliers to consumers' homes allows retailers to drive efficiency in material flows, better demand and supply matching, and faster response, offering new opportunities for automated replenishment and new convenient delivery options.



Smart Store

Virtual reality (VR), the use of digital technology to create immersive simulations, and augmented reality (AR), let users interact with digital content that is overlaid on real-world content, allowing retailers to create new and differentiating shopping experiences. Customer identification, smart fitting, endless aisles, gamification – the opportunities are endless – help drive loyalty as well as new revenue opportunities.



Monetizing new customer offers

A superior understanding of customer needs is now possible by leveraging Data and predictive analytics, allowing new revenue-generating offers. The ability to monitor use and consumption with sensors enables new business models, such as subscriptions, pay-per-use, or outcome-based models.

54%

Of retailers say customer experience is their most important area of focus¹

33%

Of retailers cite targeting and personalization among their top three tactical priorities for the year ahead – higher than any other marketing tactic²

21 billion

Connected devices will be in use by 2020 and over 65% will be consumer touch points³

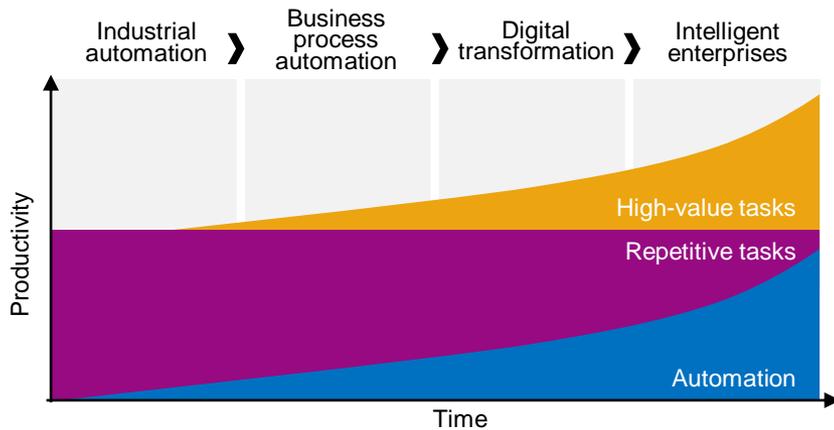
1., 2. Giselle Abramovich, "15 Mind-Blowing Stats About Digital Retail Trends," CMO, June 23, 2017.
3. "Gartner Says the Internet of Things Installed Base Will Grow to 26 Billion Units By 2020," Gartner, December 12, 2013.

Our Point of View: To Achieve These Strategic Priorities, Leading Retailers Are Becoming Intelligent Enterprises

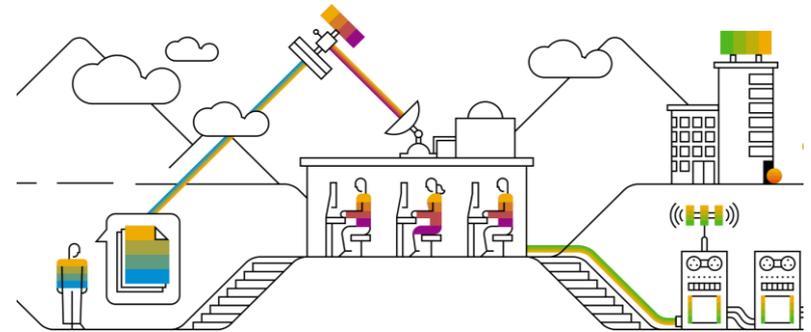
An intelligent enterprise enables employees to focus on higher-value outcomes and to invent new business models and revenue streams.

By applying intelligent technologies such as the Internet of Things (IoT), artificial intelligence (AI), machine learning, and advanced analytics, leading retailers transform into event-driven businesses. These event-driven businesses automate repetitive tasks, enable employees to focus on higher-value tasks, and allow the invention of new business models and revenue streams by monetizing data-driven capabilities and applying core competencies in new ways.

Optimize and extend the value of current processes



Transform with next-generation business processes



Optimize existing processes for more efficiency or reliability.



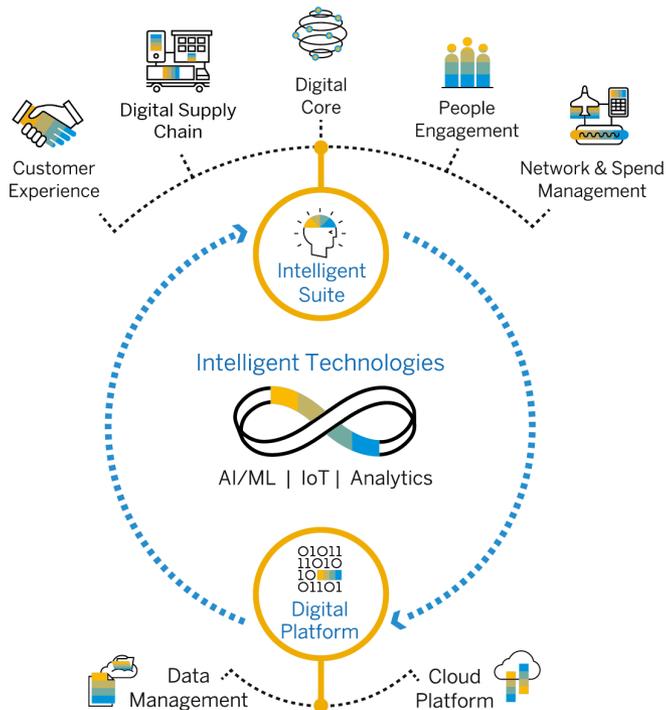
Extend current business processes beyond efficiency gains to capture new sources of value.



Transform the company's value chain or business model to capture new revenue streams.

SAP Enables Retail Companies to Become Intelligent Enterprises

SAP helps retail companies transform into intelligent enterprises through integrated business applications that use intelligent technologies and can be extended on SAP® Cloud Platform. This enables next-generation business processes to deliver breakthrough business value on our customers' journey to becoming intelligent enterprises.



Intelligent Suite

The set of applications provides the business capabilities that retail companies need to run their business. End-to-end business processes span multiple applications, so processes and data must be integrated for automation, a seamless user experience, fast adoption, and ease of operations.

Intelligent Technologies

Several innovative technologies have matured to practical use:

- The Internet of Things makes business applications interact with the physical world.
- Big Data makes large data sets accessible for advanced analytics and intelligence.
- Machine learning and artificial intelligence automate repetitive processes and learn from human exception handling and decision-making.
- Advanced analytics find data patterns to support decisions and predict the future.
- Blockchain distributes collaborative processes across the entire value network.
- Data intelligence finds new value in data assets for new business models.

Digital Platform

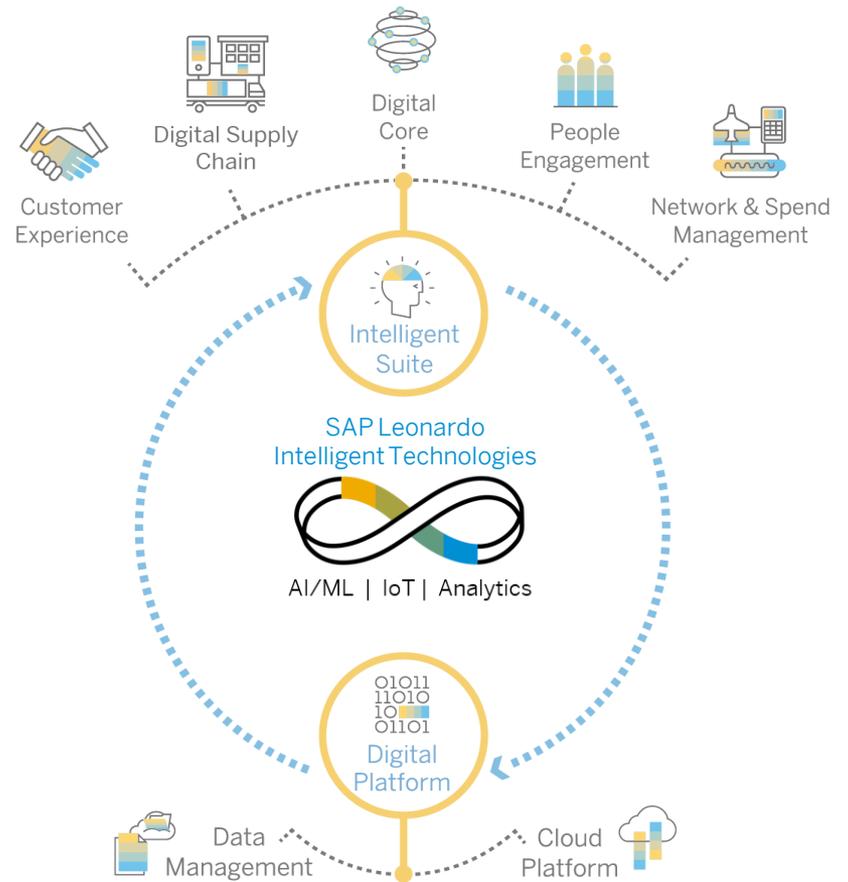
The digital platform, which is powered by SAP HANA®, extends the intelligent end-to-end processes and connects to data sources:

- Cloud platform that allows customers and partners to extend their intelligent suite to run additional business processes
- Data management to handle and organize data, a key asset of an intelligent enterprise

SAP Leonardo

SAP Leonardo brings the power of intelligent technology to your platform and applications to streamline existing workloads, reveal optimal decisions, maximize revenue and profits, improve customer satisfaction, and capitalize on digitally transformed business models.

In addition, companies can use SAP Leonardo Services, delivered by world-class innovators that combine industry and emerging technology expertise, to help drive innovation and business impact at scale.



SAP Leonardo: Intelligent Technologies Optimize, Extend, and Transform the Business

Retail intelligent scenarios

SAP Leonardo technical capabilities are embedded in the business-core and industry applications to optimize and extend business processes. Companies can also use them together with innovation services to build and assemble next-generation business processes. For retail companies, we support more than 20 intelligent scenarios to optimize, extend, and transform their business. Below are a few highlighted ones that will be further explained on subsequent pages.

Begin by challenging the status quo. Are we doing the right things in serving our customers and running the business? Here are some ideas on how to do even better.



Optimize existing processes for more efficiency or reliability.



Extend current business processes beyond efficiency gains to capture new sources of value.



Transform the company's value chain or business model to capture new revenue streams.

- Conversational customer experience (CX) bots for service and commerce
- Customer retention
- Intelligent allocation management
- Intelligent assortment planning
- Cash application

- Digital boardroom
- Retail shelf
- Floor optimization
- Stock count and transfer
- Warehouse insights

- Retail zero waste
- Retail article profitability analysis
- Global track and trace



SAP Leonardo: Applications Optimize Business Processes

Optimizing business processes begins with scrutinizing current practices: What can be automated using machine learning and AI? How can we derive better insights from available data to optimize the business? How can we make more forward-looking processes by connecting to real-time consumer data? How do we give people the right analytical tools to make sense of vast amounts of data and to handle exceptions where machines (still) need help?

Conversational CX bots for service and commerce	Customer retention	Intelligent allocation management	Intelligent assortment planning	Cash application
Manual customer interactions that yield no meaningful results	Detection of hidden behavioral patterns with respect to a target action, such as lead conversion	POS data sets with uncovered correlations that do not provide insights to allocation	Trends in demand and taste and assortment gaps discovered after the fact	Labor-intensive and error-prone invoice matching processes
Add relevance and improve customer satisfaction and automate and optimize customer interactions by leveraging always-on artificial intelligence bots that have access to all information.	Use lead insight to help sales and marketing teams to focus on leads with the highest propensity to convert and become customers. Customer at risk helps focus on customers who are at risk of churning and the key factors that influence customer churn.	Use machine learning to get more insights from available POS data to support cross-product allocation, smart pack size optimization, and promotion-driven allocation, and to resolve constraints.	Use machine learning and include search rankings and product similarity scoring to help preempt changes in demand and optimize assortments, prepacking, and store clustering with relevant KPIs.	Engage machine learning intelligence to boost automatic matching rates and free up finance professionals to focus on strategy and service quality.
<ul style="list-style-type: none"> • Increased reach • Increased revenue 	<ul style="list-style-type: none"> • Higher conversion rates and revenue • Reduced customer churn 	<ul style="list-style-type: none"> • Increased revenue • Reduced markdowns 	<ul style="list-style-type: none"> • Better assortments • Increased revenue 	<ul style="list-style-type: none"> • Increased productivity • Reduced error rates

Swarowski is using machine learning to help service employees match customer repair requests to the correct product.

Coop Switzerland is using machine learning in demand planning and forecasting based on real-time inventory to detect the items most likely to run out of stock.⁵

4. Presentation at SAP Forum for Retail, Wiesbaden, May 5, 2018.
5. Presentation at SAP Forum for Retail, Wiesbaden, May 4, 2018.

SAP Leonardo: Capabilities and Services Extend Current Processes to Capture New Sources of Value



Extending business processes aims to generate more value and new outcomes. How can we make processes aware of the real world by connecting them to the things around them? Innovators use digital technology to reimagine business processes and create new value: Stores are always prepared to serve the shopper with the right staff and fully stocked shelves. Deliveries are always on time. Vending machine outages never happen because they have been predicted and prevented. Inventory is mobilized to cover actual demand where it occurs.

Digital boardroom	Retail shelf	Floor optimization	Stock count and transfer	Warehouse insights
Limited visibility across key dimensions of the business as one of the main reasons for slow and delayed decision-making	Failure to capture customer interactions, interests, and shelf inventory in the store	No real-time insight into store traffic and performance	Manual stock counts, which prevent proactive stock balancing	Missing resource demand information and resource task assignment insights
SAP Digital Boardroom helps show what an intelligent enterprise looks like by providing oversight and alignment on all corporate objectives at every level. Meaningful insights, better decisions, and immediate action come together in SAP Digital Boardroom, enabled by SAP Analytics Cloud.	Industry innovation kits for Retail, shelf option, provide real-time details from physical shelves through IoT-based sensor connections to optimize retail operations, avoid out-of-stock situations, and improve the customer experience.	In-store sensors provide information about customer behavior on the shop floor and help optimize space and placement of goods. They can help to optimize margins and improve the shopping experience by eliminating waiting zones.	RFID-enabled stock count and transfer of stock make it possible to balance inventory and increase revenue while reducing markdowns. They release staff from low-productivity tasks to focus on selling and value-add activities.	Warehouse insights is an advanced planning tool in the cloud to help modern warehouses optimize warehouse operations using algorithms. It helps visualize warehouse layout, analyze warehouse operation KPIs, simulate optimization scenarios, and monitor warehouse operations.
<ul style="list-style-type: none"> • Faster response to market dynamics • Increased revenue and profit 	<ul style="list-style-type: none"> • Increased productivity • Increased customer loyalty 	<ul style="list-style-type: none"> • Reduced depletion and shrinkage • Improved on-shelf availability and fill level 	<ul style="list-style-type: none"> • Increased productivity • Higher customer satisfaction 	<ul style="list-style-type: none"> • Increased warehouse throughput • Reduced distribution costs

Continental is using SAP Leonardo technical capabilities and the SAP Vehicle Insights application to create an innovative remote vehicle diagnostics and fleet analytics application for the digitalization of the car aftermarket.⁶

[Coop Netherlands](#) is using IoT sensors to track shoppers in real time and connect this data to real-time transaction and inventory data to optimize the presentation and replenishment of goods.

Intelligent Technologies and Innovation Transform the Retail Value Chain and Business Models



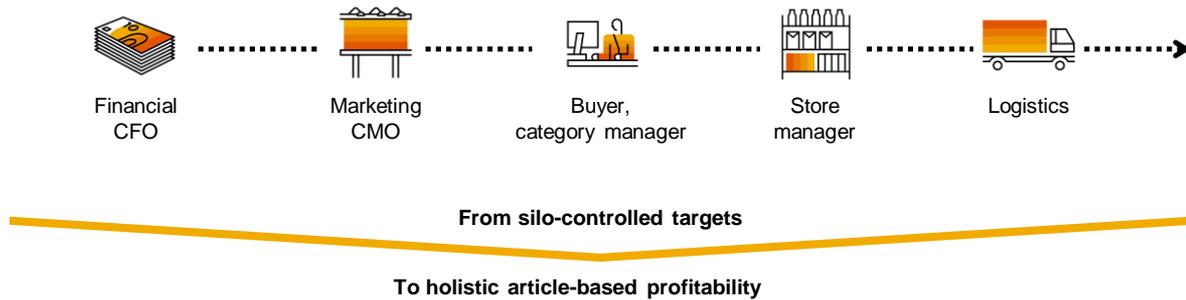
Transforming the business in an industry under pressure starts with ideas to conquer new markets with current products or deliver new value on your home turf. It often goes along with a renewed view of who the ultimate customer is and what kind of value they really need.

Retail zero waste	Retail article profitability analysis	Global track and trace
Inability to forecast daily store demand for short-shelf-life food, leading to increased waste and revenue loss	Lack of transparency and a fragmented view of the true costs of responding to today's customer expectations	Lack of transparency of item movements and locations along the supply chain
Industry innovation kits for Retail, zero waste option, optimize point-of-sale data to accurately predict daily demand, optimize store inventory, capture revenue opportunity by reducing waste, and maximize margins.	Retail article profitability analysis allows retailers to track the lifecycle at the article level and monitor and predict profitability along the entire journey from production to the customer.	Global track and trace can record item movements on a serialized basis at every sensor-enabled position along the supply chain. This enables automation of retail processes and provides detailed benchmarks and analytics to optimize the flow of goods.
<ul style="list-style-type: none"> • Optimized cost • Reduction of waste • Improved shopping experiences 	<ul style="list-style-type: none"> • Increased article profitability • Increased overall profitability 	<ul style="list-style-type: none"> • Reduced cost • Improved stock visibility

[Costco](#) leveraged seven years of sales data, business intelligence, and machine learning technology from SAP to improve forecasting for in-store production of bakery items. The company reduced waste significantly while achieving cost savings through optimized production schedules. It is rolling out the solution to 500 bakeries in the United States as well as to other categories, such as fresh meat, and their food courts.

SAP Leonardo: Transformational Scenario – Retail Article Profitability Analysis

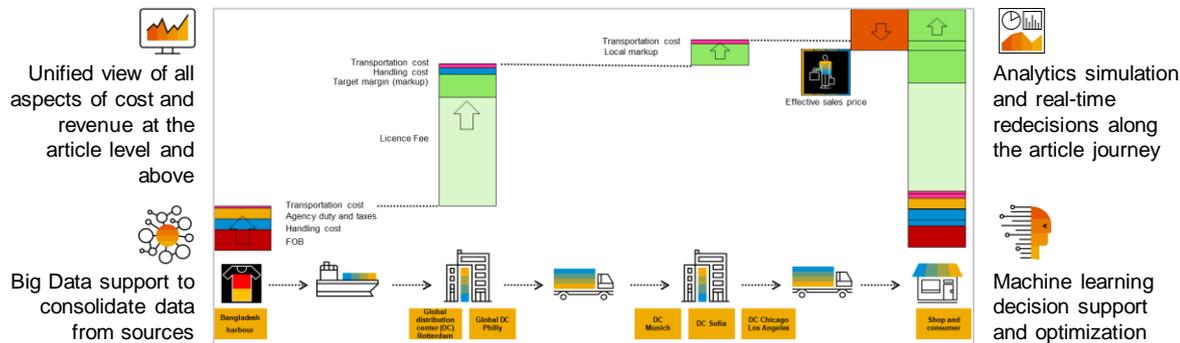
Apply Big Data analytics, machine learning, and simulations to understand holistic article profitability, pinpoint cost drivers, adjust product flows, and improve overall margins and customer satisfaction.



Historically, retail companies have been steered by siloed organizational entities and goals. The financial department plans on operational costs, revenue, and profitability overall.

Marketing has its own budget and targets, pushing the brand and driving promotions. Additionally, store managers, buyers, and logistics have their own targets and goals.

This leads to a fragmented view of the true costs of serving the customer.



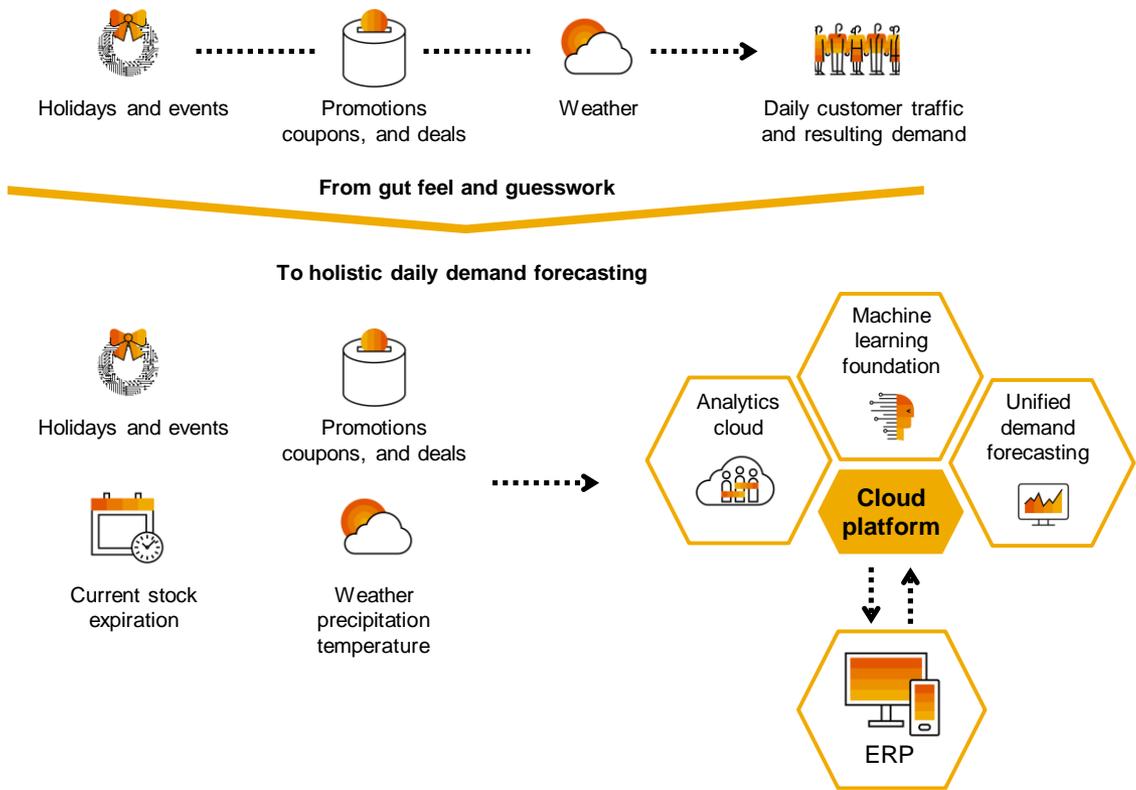
New technology will allow retailers to track the lifecycle on the article level and monitor and predict the profitability along the entire journey from production to the customer:

- Pinpoint cost drivers with real-time visibility of costs along the supply chain down to the article level
- Allow last-minute changes in logistics and distribution across channels at any point
- Use machine learning to support simulation and changes to maximize margins and customer satisfaction

Retailers can only optimize how products are bought, distributed, sold, and shipped if they have full cost transparency along this process. Understanding the impact of customer service options down to the article allows retailers to design the right end-to-end customer experience – giving customers and consumers what they need in a profitable manner.

SAP Leonardo: Transformational Scenario – Zero Waste

Apply machine learning and advanced analytics to drive holistic daily demand forecasting for volatile in-store demand to eliminate waste and improve the freshness of goods as well as the customer shopping experience.



Retailers often have to rely on guesswork when it comes to daily store demand. Forecasting of daily store demand is based on very rough estimates of store traffic and sales. The prediction is often muddled by coupons, promotions, and even weather.

This leads to significant waste of short shelf-life food at the retail level. Food expires and the margin is impacted. If the demand is underestimated, fresh products run out, leading to lost revenue. With current processes, there is no guidance to the workforce for what to have ready.

SAP Leonardo for Retail, zero-waste option, a cloud-based solution, allows retailers to forecast daily demand for short shelf-life products based on key demand drivers and with the help of machine learning algorithms. It accounts for coupons, promotions, and factors like weather forecasts to order materials weeks ahead.

Daily forecasting models, such as time series and deep learning, predict how much of each stock-keeping unit will be sold and creates automated staff instructions to prepare for future shifts or to reorder product.

Store staff can work on a mobile device, rather than with pen and paper, to digitally collect inventory data – thus centralizing information.

And finally, point-of-sale data loops back into the machine learning model – so every new business day makes the solution smarter.

With accurate daily demand forecasting, retail managers can see spikes in demand weeks in advance, scheduling orders and staff in line with demand. Retail employees can receive clear daily instructions to prepare the fresh food section while focusing less on managing stock and more on selling. Retail shoppers can see the products they want to buy, avoid encountering unattractive bare shelves, and avoid a hoard of old, nearly expired products.

SAP Leonardo: Transformational Scenario – Global Track and Trace

Apply real-time tracking to look at deliveries, orders, and single items from the point of production to the consumer and beyond.

Retail fashion companies with brick and mortar stores have only approximately 75% inventory accuracy today. This is mainly based on human errors when counting pieces, issues at the POS, and theft issues. The challenge in an omnichannel-focused industry is to have precise information about inventory levels for size, color, and style. Retailers need to maximize the on-floor availability of every piece to avoid lost sales. Additionally, they need to know how customers interact with the article, which products are looked at, and which are finally sold.

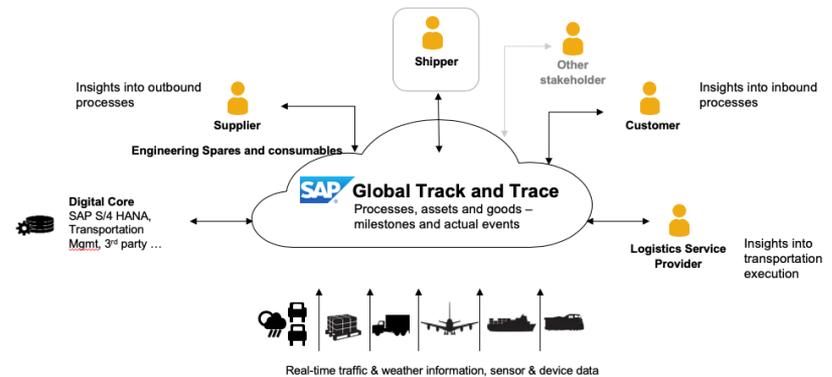
To maximize collection and store revenue, retail fashion companies must know:

- Inventory based on style, size, and color
- Inventory based on location (back store, front store, shelf location, fitting room)
- Which products are interacted with and which are not and what is finally sold

Global track and trace enables RFID product serialization and allows retailers to:

- Capture, process, and store tracking information about all types of business processes
- Support the modelling of new business processes and the milestones to be monitored
- Facilitate data sharing and visibility across multiple business partners and relevant stakeholders in a supply network to support business network applications
- Support integration into the Internet of Things and business back-end applications

From point-to-point logistics tracking to a Business network enabled tracking



Omnichannel business benefits of RFID product serialization:

- Ensure inventory accuracy on lowest level (size, style and color, shelf location) to eliminate lost sales and reduce markdowns
- Provide real actual conversion rates for fitting rooms or different store designs
- Identification of potential size, price, or quality issues by understanding which items have been touched, but not sold
- Enable maximum on-floor availability by real-time notification of misplacements and missing styles, sizes, and colors on the sales floor

SAP and Customers Jointly Enable Retail's Transformation Journey



Coop Netherlands saw significant value in equipping the store manager with a traceable transport app that provides real-time insight in transportation of fresh goods.

In addition, it has designed an in-store analytics app focused on personalization for customers.

[Click to view the video.](#)



Office Depot – which has a large online office supplies store – noticed that a lot of customers contacted customer service by phone after first searching for help online. Apparently, they did not find the information they were looking for. A chatbot named Vicky was able to help.

[Click to view the video.](#)



“Because we have small margins, we are always looking to improve our processes and find faster and smarter solutions to provide our customers with good products.

I am very pleased with the results that SAP and Coop have achieved. Together, we make a difference.”

Herco Boer, Group CFO,
Coop Netherlands



How to Get Started with SAP Leonardo

Whether you're still exploring new ideas or have defined one idea in detail already, SAP Leonardo brings together world-class innovators, industry and emerging technology expertise, proven use cases, and design thinking methods to help you optimize your business and drive innovation and impact at scale – faster and with less risk.



Explore in a workshop

Identify and prioritize your business challenges, explore how SAP Leonardo might help to rapidly solve them, and define a path for the way forward.



Accelerate

Draw on our library of industry innovation kits to address common value propositions, and let SAP guide you to a business outcome in weeks, not months.



Design for the future

Use a guided process to reimagine the future of your business and uncover where a blend of SAP Leonardo and established technologies might take you – from testing a new business model to organization transformation.



Bring your own idea

Bring a defined idea, and we'll support rapid prototyping and progression with a constant eye toward how to scale it across your business.

SAP takes a holistic approach to innovation. Because digital transformation isn't just about installing the latest technology, we also address the readiness to receive a new idea. From human capital to infrastructure, we bring best business practices across your organization to improve communication, plan for employee training, review technical and regulatory feasibility, and consider other cross-functional needs to drive change and truly scale your innovation.

SAP Is the Innovation Partner for Retailers



Ten-year innovation vision

Deliver fully intelligent business solutions and networks that span across company boundaries and promote purpose-driven businesses. These solutions will be the most empathic symbiosis between machine intelligence and human ingenuity.

- Self-running enterprise systems
- Self-organizing business ecosystems
- New markets and business models



Comprehensive industry coverage

SAP enables the comprehensive coverage of the complete retail value chain across the enterprise. With its clear industry road map, SAP is the partner of choice for the retail industry.

- More than 13,400 retail customers in 121 countries
- 86% of retailers in the Forbes Global 2000 are SAP customers
- All lines of business supported on a single platform



Proven services offering

By bringing together world-class innovators, industry and emerging technology expertise, proven use cases, and design thinking methods, we help retailers develop innovations that deliver impact at scale.

- Use proven methodologies to drive innovation, from reimagining customer experiences to enhancing operations
- Fuel your innovation through a managed innovation ecosystem from SAP
- Build your own innovation capability and culture



Learn more

- [SAP.com for retail](#)
- [SAP Leonardo](#)
- [SAP Digital Business Services](#)
- [SAP Design Thinking](#)

SAP delivers support for becoming an intelligent enterprise in the retail industry – providing integrated business applications that use intelligent technologies and can be extended on SAP Cloud Platform to deliver breakthrough business value.

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