

SIEMENS



How technology and low code power sustainability and loyalty in the consumer products & retail industry

Today's products are rapidly changing

When you think of the first time you had a burger at a fast-food restaurant, it's easy to remember its look and taste. But it's much harder to know if the meat was grass-fed and antibiotic-free, if the lettuce was organic and locally sourced, or if the packaging was biodegradable.

Consumers demand transparency for the food they eat, the clothes they wear and the electronics they use. From sustainability to healthfulness, they want information of what goes into their purchases, and companies must provide it with verifiable data. It's no longer sufficient for a company to sell a good product: it must now sell a good product experience.

This e-book delves into these new consumer trends, the challenges they're creating for consumer products and retail (CP&R) companies, and how to address these challenges with solutions available through new technologies like low code, the industrial Internet of Things (IIoT) and edge computing.



Internet-enabled services, automation across the value chain, the rise of Big Data and pervasive social media-driven consumption are fundamentally transforming how all of us live, work, communicate, shop and do business.”

Indra K. Nooyi

Former PepsiCo Chairman & CEO



Industry trends: What does the future look like?

As CP&R companies lay the foundation for future business, understanding which trends are driving significant changes in the industry is crucial to ensure their continued success and innovation – and to gain an edge on the competition. **Here are the four trends shaping the future of the industry.**

Trend #1

Consumer-driven innovation

Consumers are driving growth in the healthy foods and beverages sector. It's leading to an overhaul of what they consume and what's being asked of manufacturers.

Some examples of what consumers are asking for:

Natural, organic products

- No pesticides
- No GMOs

Healthier ingredients

- Less sugar
- Healthier fats

Accommodating food allergies or dietary preferences

- Gluten- or dairy-free options
- Keto and paleo diets



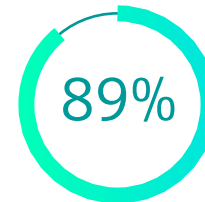
Sales of organic food and other organic products in the U.S. rose to nearly \$62 billion in 2020, up more than 12% from the previous year.¹

Trend #2

Personalized and connected experiences

Good value and great products are no longer enough to win over consumers; they also want unique experiences.

Consumers are looking for more personalized interactions with brands and to connect with others on social media. The result is an entirely new approach to interacting with consumers and adapting to what they want.



of consumers are more likely to make another purchase after a positive customer service experience, according to Salesforce Research.²

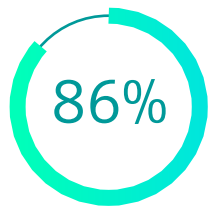
Trend #3

Sustainability and responsibility

Environmental awareness has been elevated by younger consumers to a top priority in CP&R companies. To earn their business, consumers now demand that companies limit their carbon footprint.

And it's not just insisting on compostable packaging or eliminating single-use plastic. Consumers want transparency into the entire supply chain and manufacturing process to determine how eco-friendly an organization is, from sourcing, to production and delivery, to the recycling and composting options for the final product and packaging.

If they don't like what they see, they'll take their business elsewhere.



86% of Millennial and younger consumers would pay more for transparent products.³

Trend #4

Emerging markets and consumers

New markets and new consumers continue to emerge. Like the customers who want personalized experiences, these emerging markets expect customized products, not the same mass-produced items.

Emerging consumers are sensible shoppers who consider many factors other than price in determining a purchase. These emerging markets and consumers present both opportunities and challenges to CP&R companies.



50%-75%

Emerging consumers spend between 50%-75% of their disposable income on consumer products.⁴



There are perhaps signs of a realization here that CX is more than just customer satisfaction; you actually have to drive word-of-mouth recommendations and give your existing customers more reasons to keep coming back to you."

Nick Ingelbrecht
Gartner research director

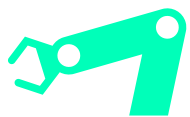
Growing challenges in the industry

In addition to preparing for these trends, CP&R companies face a host of new or increasing challenges as the industry continues to evolve.

Challenge #1 Visibility and connectivity

Addressing the four major trends requires increased visibility and connectivity. Many organizations have implemented systems over the past decade that gather massive amounts of data, but all that data is in silos.

To gain true visibility, companies need ways to connect and contextualize their data across silos. They also need new ways to analyze that data so they can get meaningful insights. To reduce their carbon footprint, for example, they need total visibility across their manufacturing process, supply chain and product lifecycle to understand where they can make changes.

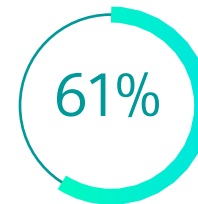


Close to 60%
of the total global energy consumption
is from the manufacturing industry.⁵

Challenge #2 Supply chain complexity

As supply chains continue to grow in scale, and as consumers continue to demand ethical and sustainable production, companies must contend with everything from labor laws to ecological regulations in different countries.

To address consumers' health and diet requirements, manufacturers must be sure of the accuracy of their sourcing – whether it's an ingredient labeled "organic," or something processed in a plant with nuts or other food allergens.



of all consumers worldwide say they are more likely to buy products from brands that act responsibly, even if this means spending more money.⁶

Challenge #3 Lack of loyalty

What's driving this lack of loyalty? The demand for healthier, more sustainable, more socially responsible products. If customers find another brand that meets their needs, they are less likely to stay with yours. Plus, social media empowers consumers to exchange information with like-minded buyers and more easily learn about brands that align with their preferences.

In addition, as consumers skew younger, their loyalty to brands decreases. This can cause issues for companies as they grapple with how to hold onto market share and plan for future initiatives.



Over 30%
of Generation Z consumers say they are willing to try new or unfamiliar brands.⁷

Challenge #4 Trust

The combination of pressure to accommodate consumers' demands and social media awareness has led to a perfect storm. If companies are caught selling inaccurately labeled products, consumer trust is damaged.

Whether it's organic food that isn't organic, malfunctions that lead to product recalls or retail items made in environmentally unsafe factories, modern consumers lose faith in the marketplace and begin to question every brand – not just yours.



15%

Experts estimate that approximately 15% of all food sold is now fake.⁸



Today's consumers are no longer just comparing experiences across competitors, but against the best experiences they have ever had."

Jeff Epstein
Comm100 Vice President of Product

Technology for a more future-proof business

CP&R companies are eager to address these trends and challenges and to fill the gaps in their processes that prevent them from delivering on consumer expectations.

Rather than starting from scratch, CP&R companies have the option to work with new, accessible technologies that can help them streamline and optimize their processes and successfully meet changing consumer demands. When these technologies are combined with the power of low-code application development, companies can leverage new technologies without disrupting their workflows or methodologies.

Here's how these technologies can bring needed change to CP&R companies, and how they can work with low code.





Solution #1

Manufacturing intelligence

With manufacturing intelligence (MI), CP&R companies have a set of software solutions that can gather, analyze and present information from across the enterprise to the right decision-makers. MI helps take big data to the next level by breaking down silos, enabling data connectivity and creating context that allows the data to tell its story.

Technologies like the IIoT, edge computing, artificial intelligence (AI) and low-code application development platforms drive MI. Together, they enable CP&R

companies to quickly respond to emerging consumer trends and challenges on their factory floors.

For instance, with IIoT-enabled sensors on production machines, CP&R companies can lessen their carbon footprints by determining which parts of their production use the most power and generate the most waste. Edge computing lets them process this data near-site and implement proactive changes to improve their sustainability. With a low-code application, decision-makers can access data from the sensors to get

the information they need to help their companies move toward decisions that reduce their carbon footprint.

In addition, the data allows organizations to concretely document their environmental efforts – an important step for both governmental regulations, sustainability reporting and the all-important court of public opinion.



Solution #2

Product performance intelligence

Performance intelligence includes the software solutions that help companies better understand how their products are performing in the field. This intelligence also helps companies analyze product performance in an external environment and generate input for product improvement and evolution.

Using sensors, technology and data storage cloud capabilities, CP&R companies are transforming traditional products into smart devices. More than

65% of enterprises have already adopted smart products, which can include anything from smart appliances and smart watches to smart makeup and smart vacuums.

By connecting their products to the IIoT and leveraging low-code applications to access and analyze performance data, companies can receive data in near-real time. This allows them to see not only how their products are performing, but also predict how

they will perform in the future or perform with optimizing alterations.

This predictive, proactive approach with analytics enables companies to spot and solve problems before they exist – preventing breakdowns or avoiding service delays – while elevating customer satisfaction, limiting churn and building brand loyalty.



Solution #3

Unique user experiences

Consumer demand for more personalized, connected product experiences has driven companies to leverage data and create unique experiences. It's an important evolution in the traditional "the customer is always right" philosophy, one that would be time- and resource-intensive if not for modern software solutions.

IIoT combined with low-code development platforms allow CP&R companies to respond to consumer data and demands. With low code, organizations can quickly

and efficiently create applications tailored to consumers' data without needing to alter any of their existing processes. They can receive data from IIoT-enabled products, analyze that data through cloud computing capabilities, and rapidly respond to customer pain points with upgrades and updates.

In addition, connected products pave the way for valuable omni-channel user experiences. This creates a two-way communication between companies and

consumers with communication channels like social media, brand websites and mobile apps. In the end, today's customers want to feel "seen" by the brands that they buy, and this technology allows that to happen.



Solution #4

Trusted traceability

Trust and traceability have become huge challenges for companies, and blockchain technology allows them to develop verifiable tracking across their supply chains. It is an important step in responding to consumer suspicions and concerns. Showing them the lifecycle of their product allows consumers to fully trust the brand.

The IIoT, cloud and edge computing, and blockchain tracking technology help CP&R companies verify where their products' supplies have been before, during and

after manufacturing. Companies can trace the origins of every ingredient from farms all around the world. They can follow the supplies' travels through multiple countries or ports, until they reach their factory doors. And with a low-code application, companies can easily have information about ingredients in their products at their fingertips – and easily share that information with customers.

Some companies are already making a virtue of this technology. A German potato chip manufacturer and a Northern Irish craft beer brewer both are selling their products with QR codes printed on them. When consumers buy these products, they can scan the QR codes with their mobile phones and see exactly where their food has been. It's a revolutionary idea that addresses new consumer demands for transparency, building trust and brand loyalty along the way.

Future-proof your business

Consumer demands for transparency are pushing organizations to create healthier products with smaller impacts on the environment. From energy-efficient factories to certified-organic products, new technology is allowing CP&R companies to keep up with consumer trends and their subsequent challenges.

Siemens has created integrated software solutions that allow CP&R companies to leverage the industrial Internet of Things and low-code application development. MindSphere®, the industrial IoT as a service solution from Siemens, and Mendix™, the low-code application development platform, solve the challenges presented by new consumer trends, making your enterprise proactive to change, rather than reactive.

Learn how MindSphere and Mendix can give you the solutions to keep up with evolving customer trends.

Start for free with [MindSphere](#) and [Mendix](#).



About Siemens Digital Industries Software

Siemens Digital Industries Software is driving transformation to enable a digital enterprise where engineering, manufacturing and electronics design meet tomorrow. Xcelerator, our comprehensive and integrated portfolio of software and services from Siemens Digital Industries Software, helps companies of all sizes create and leverage a comprehensive digital twin that provides organizations with new insights, opportunities and levels of automation to drive innovation. For more information on Siemens Digital Industries Software products and services, visit [siemens.com/software](https://www.siemens.com/software) or follow us on [LinkedIn](#), [Twitter](#), [Facebook](#) and [Instagram](#). Siemens Digital Industries Software – Where today meets tomorrow.

Siemens Digital Industries Software

Americas: 1 800 498 5351

EMEA: 00 800 70002222

Asia-Pacific: 001 800 03061910

For additional numbers, click [here](#).

© 2022 Siemens. A list of relevant Siemens trademarks can be found [here](#). Other trademarks belong to their respective owners.

¹ EWG, “Organic sales soar in 2020 to over \$61 billion”

² Siemens/Incisiv, Product Performance Intelligence

³ Siemens, Blockchain in the Food & Beverage Industry, 2021

⁴ Euromonitor, New Insights and System Refresher

⁵ Siemens/Incisiv, The Fast Track to Manufacturing Intelligence, 2021

⁶ Siemens, Blockchain in the Food & Beverage Industry, 2021

⁷ Euromonitor, New Insights and System Refresher

⁸ Siemens, Blockchain in the Food & Beverage Industry, 2021

SIEMENS