

SIEMENS DIGITAL INDUSTRIES SOFTWARE

# Tracing a potato chip's journey from farm to table

How Traceability & Lifecycle Intelligence minimizes the complexities and complications of delivering potato chips to the consumer





Creating a potato chip involves three essential ingredients: potatoes, oil and salt. So, how do the countless potato chip manufacturers create something that distinguishes themselves from all the others and remain competitive in a constantly evolving consumer market? Some legacy potato chip makers have become household names with a strong following while others may be small, startups trying to claw their way into a niche market – it's the ability to adapt to market changes and deliver a combination of brand familiarity and new product introductions that can make companies of all sizes competitive.

What potato chip makers know is that to stand out, they need to craft a unique consumer experience. Why else would there be unconventional flavors, locally celebrated brands and company history printed on the bag?

Part of the branding and loyalty stems from the concept that every ingredient, manufacturing capability and supply chain logistic is critical to bringing the farm to table. Each of these involves an endless supply of data that impacts the final product and a company's decision-making ability, including where to source materials, how to manufacture sustainably and how to deliver the product.

Most potato chips include more than just potatoes, oil and salt. How Food & Beverage companies create their product and design its manufacturing are critical to being more competitive and operating more efficiently.

Traceability & Lifecycle Intelligence is key to leveraging information and data about your product development, supply chain and logistics, and performance.



# Transparency and traceability

Environmentally friendly products, more merchandise options, and access to personalized goods are now consumers' expectations. In addition, customers are increasingly interested in the origins of the raw materials used to make the purchased products, which requires more transparency from the companies.

## Traceability by the numbers

**72%** of adults surveyed indicate that transparency is extremely important to them when deciding which food brands to support. However, there is no consensus on what “transparency” means to them.<sup>1</sup>

**40-50%** of Generation Z or Millennials will use a QR code that directs them to a website or app to access additional information regarding a company's transparency and sustainability.<sup>2</sup> This means that information on the packaging isn't important, but access is.

Regarding just the United States, there are approximately **2 million** farms for more than **60,000 grocery stores** and about **750,000 restaurants**.<sup>3</sup> Supply chain logistics is imperative for Food & Beverage companies to ensure safe transport and traceability of raw ingredients used in their products.

Traceability & Lifecycle Intelligence digital solutions can help Food & Beverage companies increase their transparency, enhance their supply chain reliability and experience better flexibility to meet the fast-changing consumer demands. These are the three imperatives that can help companies succeed in the volatile Consumer Products & Retail industry, especially Food & Beverage:

1. Product performance intelligence to promote a unique consumer experience
2. Trusted traceability
3. Logistics management







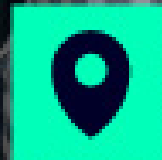
## Product performance intelligence and unique consumer experience

Part of creating the consumer experience is understanding product use and performance. This involves having the data and information necessary to know if you need to increase or decrease production, potentially change flavors in the manufacturing process based on consumer response and demand, test new flavors or even design healthier alternatives.

The right digital solutions can help companies understand more about their product use and performance using the Internet of Things, including ranking the most important design features based on consumer feedback and demand trends. Capturing customer feedback data helps generate unique consumer experiences and improves two-way communication with the final customer.

As a potato chip manufacturer, imagine having the ability to track consumer preference changes in real-time and then being able to take the data, make quick decisions on where to increase manufacturing output and make production changes without sacrificing time or brand quality.

A choice in marketing may trickle down to an increase in consumer demand, for instance, when Lay's redesigned their packaging in 2019 to be more social media friendly. By updating their packaging across 100+ types of design, they were able to reignite their brand and provide a unique consumer experience.





# Trusted traceability

There was a time when you drove down I-75 in the state of Michigan, you would see a Lay's Potato Chips billboard indicating that they proudly supported local Michigan farmers and that the state's farmers grew 250 million pounds of potatoes for the company every year.

Customers want a clear view of a product's journey and lifecycle, and even a billboard can establish more trust in a product's origins and allow the consumer to have a better experience because of it.

But trusted traceability is more than just a marketing tool. Food & Beverage companies can use advanced technologies to monitor and capture every data point within production, supply chain and delivery. This kind of access helps consumers have more trust in the supply chain because it shows them that products are made safely throughout the whole product lifecycle.

Better traceability allows for follow-ups should any issues regarding recalls or product problems arise. In the past year, there has been several recalls because of people sick with E. coli infections when consuming food products. The Center for Disease Control and Prevention (CDC), public health and regulatory officials in several states and the U.S. Food and Drug Administration (FDA) all collected epidemiologic and traceback data showing that fresh, slivered onions were the likely source of this outbreak.

With traceability data, grocery stores and restaurants alongside government officials discovered the cause and locations of the issue and acted in a manner that made the public confident in food supply chain safety.





# Logistics management

With Traceability & Lifecycle Intelligence technology, Food & Beverage companies can enhance visibility in the supply chain with logistics management and combine the real and digital world to complete a digital twin model of the supply chain for planning and simulation. Without visibility into the supply chain, companies are making themselves vulnerable to unknown risks and vulnerabilities as well as hindering their ability to adapt to changes quickly, such as weather-related issues in crop yields or transportation issues.

Companies can use logistics management solutions to integrate all partners and systems in their supply chain network and use real-time data for transparent processes and effortless collaboration. Logistics management also allows companies to identify potential areas for optimization and boost support planning and decision-making processes using both planning data and actual data.

Because a potato chip manufacturer needs to have all the raw materials to make the chips in their factory (a minimum of three ingredients before creating new flavors), as well as any number of packaging options, shipping containers and other resources, logistics management is imperative to making sure the ingredients are where they need be when they are needed. On top of that, they need to know that they can get the products to store shelves, restaurants or wherever the end consumer is located.

Logistics management can also aid in sustainability efforts as companies continue to seek out ways to reduce CO<sup>2</sup> emissions, cut material and water usage in the factory and minimize their impact on the environment.







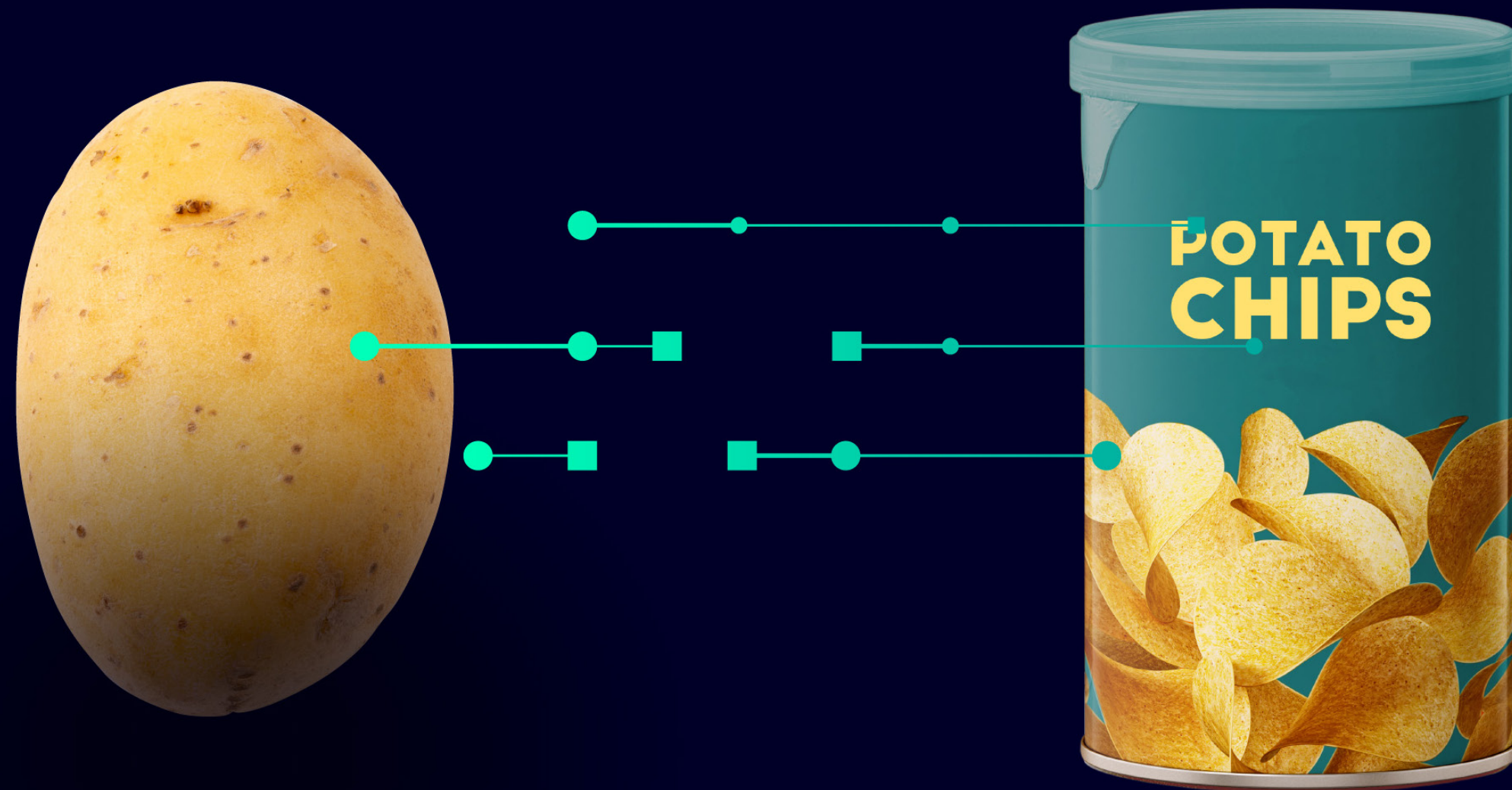
## Managing data from the farm to table

From the potatoes to the cooking oil to the various spices, potato chip makers are constantly receiving data regarding the ingredients involved in making their products. Being able to trace the origins of these ingredients and managing their processing throughout the product lifecycle is critical in staying competitive and delivering what the consumer wants.

But having access to more data doesn't make decision-making easier, knowing how to interpret and analyze it does. That's why companies must have the digital tools to preserve vast volumes of data and be able to provide necessary information in a world that demands transparency throughout the entire product lifecycle. This involves keeping accurate product data, including information on the raw materials and manufacturing equipment employed, as well as understanding how their products perform in the market. Moreover, in the event of product contamination and subsequent recall, it becomes imperative for brands to have the ability to pinpoint the origin of the contamination.

Siemens' Traceability & Lifecycle Intelligence solutions help gain visibility into the performance of products and the entire supply chain, even before the shift in customers' buying behaviors. This knowledge allows companies to remain more adaptable to rapid changes in the marketplace or problems that may arise in the supply chain.





#### References

1. [The Future of Traceability and Transparency in the Food System](#)
2. [The Future of Traceability and Transparency in the Food System](#)
3. [Why The Future Of The Food Supply Chain Hinges On Measurement And Data](#)

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Americas: +1 314 264 8499

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