

Making the physical digital

Why product identities matter





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Transforming your brand with traceability

Across industries and throughout the value chain, companies are seeing the value of transparency through product traceability and product digitization. Beset by all manner of supply chain disruptions, they have recognized the need for visibility to increase efficiency, manage targeted recalls, understand product journeys, conduct audits, and gain insight into everything from manufacturing, inventory, and consumer preferences.

But transforming physical products into digital entities has been challenging. Supply chains are complex and long, and product digitization has not always been possible at the level of granularity required to deliver enough value to make it cost-effective. This has changed in the age of digitization. [PwC's 2023 Digital Trends in Supply Chain survey](#) explored perceptions of digitization and supply chains, revealing that lower costs, improved efficiency, and increased resilience are key drivers for transforming the physical to the digital and making connected products a reality.

Ultimately, digital product identities are essential for the level of transparency and traceability required to provide transformative insight. They form the foundation of the new digital supply chain and product journeys driven by connected products.



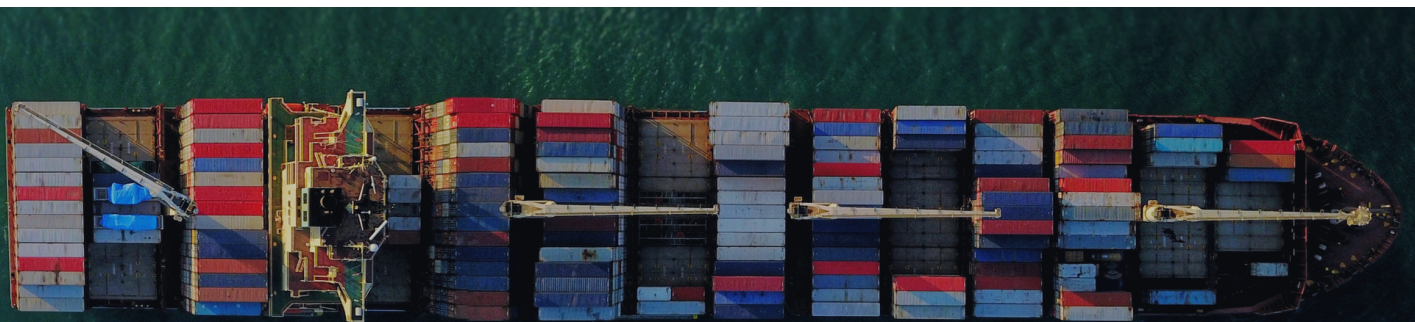
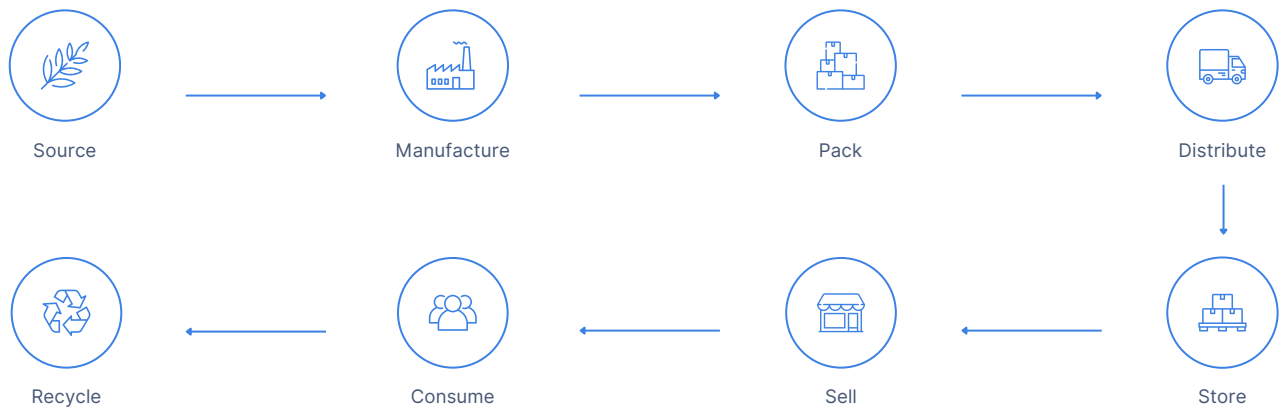
The rise of globalization and the impact on supply chains

Once upon a time, a consumer in the northern hemisphere craving an out-of-season fruit or vegetable would just have to wait. The rise of globalization has changed all of this, making available all kinds of products that were once impossible to imagine having year round. As the supply chain has gone global, consumers have been exposed to unprecedented choice at generally reasonable and stable prices. At the same time, companies have expanded operations, operating in new markets, gaining new efficiencies, and diversifying their supply and sourcing – all made cost-effective by the economies of scale enabled by global accessibility.

However, the interconnectedness of the supply chain poses a variety of challenges, including increased complexity and susceptibility to disruption. From a ship being stuck in the Suez Canal to climate-change-influenced natural disasters to political unrest, a crisis in one part of the world can send shock waves through the entire supply chain, making shortages and delays almost inevitable – but increasingly unpredictable.

To mitigate these risks, supply chains must be made more resilient and flexible through digital technologies and real-time data analytics, which are enabled by traceability. Product digitization and the assignment of item-level digital IDs is needed to truly make this level of traceability and connected products possible.

Let's look at how:





A world without traceability means supply chain risks and challenges

A traditional supply chain is a “linear path that moves information along with raw products and finished goods from one end of the production system to the other.” The modern and traceable supply chain is digital and flexible, with data flowing in a non-linear fashion, potentially providing insight all along the way, in real-time. By connecting individual physical products to the digital, companies can get the visibility they need to understand exactly what is happening in their supply chain, seeing the product journey in action. This kind of traceability, according to ISO standard 9000:2015, is the ability to trace the history, application, or location of an entity by means of recorded identifications.

But in a world without this traceability, all kinds of risks and challenges lie in wait, because there is a lack of transparency in the supply chain. The European Commission defines “transparency” as the ability to tap into relevant information from the value chain in a standardized way. Without this, true transparency isn’t possible, and the benefits of creating connected products are much reduced.

Transparency: the ability to tap into relevant information from the value chain in a standardized way



Some supply chain disruptions related to transport, weather, and similar issues can be out of businesses' control. Yet other challenges can actually be flipped on their head and solved by digitization and traceability, turning them into advantages for brands.

Challenges that can be solved by traceability include:

Counterfeit goods

Combating counterfeit goods is a fight that's never done. Counterfeits affect multiple industries from pharmaceuticals to food to fashion, which can include clothing, cosmetics, watches, jewellery and handbags.



Food fraud

Counterfeit foods or food fraud is widespread and has been uncovered across food types (news stories have highlighted major incidences of food fraud in seafood, oils, meats, coffee, baby formula, and much more). In addition to violating food-related regulations and damaging brands, food fraud can lead to significant consumer health risks.



Fashion fraud

In 2020, the fashion industry lost more than 50 billion USD due to the sale of fake products. Some estimates value the trade in fake fashion products at more than 600 billion USD – as much as 10% of branded goods may be counterfeit. According to The Economist, sneakers alone account for about 20% of the value of all counterfeit goods in a global market worth more than 500 billion USD.

While counterfeit goods are a major problem in the fashion industry, item-level digitization and traceability can help brands guarantee the authenticity of a garment. This not only will protect their brand, but also give consumers peace of mind that they're purchasing authentic goods.





Product recalls

Consumer safety and regulatory compliance are dual drivers for traceability, particularly in cases where a product recall may be required. No brand wants to have to issue a product recall due to safety or quality concerns. However, a recall can be much more expensive in terms of the harm to consumers and long-term or even irreparable reputational damage.

Using digital IDs and traceability, product recalls can be less painful and more targeted. Products slated for recall can be quickly located based on their IDs and removed from circulation. Traceability ensures that the product can also be traced back in the supply chain to locate the source of the problem, contamination or manufacturing error.



Product quality

No one, least of all retailers and suppliers, likes waste or substandard products. Foodstuffs can be particularly vulnerable to supply chain disruptions, and without a digital thread connected to a single item, it is not possible to track where in the supply chain certain items are, leading to poor inventory management, unnecessary waste, and higher operational costs and losses.

This doesn't have to be the case. Transparent supply chains enable brands to monitor and improve product quality consistently and understand where in the journey the product is at any given time. Any issues or defects can be quickly identified and addressed, reducing the risk of recalls and damage to the brand's reputation. Real-time product tracking through the supply chain (e.g., monitoring time-to-market, cold-chain tracking, etc.) can increase product quality and reduce waste.

Real-time data and monitoring could ensure that new shipments are dispatched when, for example, one shipment has been delayed and will arrive after its best-by/sell-by date. Consumer data about product quality can be used to optimize production processes and segmentation based on preferences indicated. This is the kind of specificity and granularity that food traceability can provide.



The rise of sustainability and ESG

Regulations have begun to require verifiably sustainable practices, and in parallel, consumers are beginning to vote for environmental and social “good” with their wallets. Brands recognize the need to reduce their environmental footprint as well as source goods and labor ethically.

With product digitization and traceability, brands are able to provide a clear view of products’ journeys, ensuring compliance with regulations and giving consumers a pathway to more informed decision-making power, whether they prioritize fair trade, organic products, or want to make sure their purchases have been made under fair labor standards.

Through greater visibility into the value chain, brands can also improve their resource allocation, product lifecycle management and identify more sustainable and efficient production processes.





The changing demand for traceability and connected products

Recognizing even a fraction of the advantages offered by digital product identities, it is clear that connected products offer significant value to businesses. Supply chain visibility and efficiency, improved recall management, reduction in counterfeits, improved consumer safety, verifiable sustainability credentials, and many other potential benefits make it unsurprising that the demand for traceability solutions is growing fast.

But how do brands achieve product digitization and traceability? It depends on where a company is in its digital journey. Notably, [Bain & Company's 2021 Global State of Traceability Survey](#) indicated that while 68% of supply chain leaders cited traceability as a top concern, only 15% were capturing value at scale - and most leadership teams found traceability implementation "painfully complex."

68% of supply chain leaders cited traceability as a top concern





Easing the complexity of traceability

Supply chains are inherently complex, and characterized by a lack of standardization across systems, processes, and data interoperability. When one single product on its own can account for billions of data points, and a brand might have thousands of product types, the scale of traceability rapidly spins out of control.

Assigning an individual product a unique, secure digital identity at the item level forms the basis of connected products. While many brands already give products a kind of identifier or serial number, a connected product takes several steps beyond to include the data attributed to and generated by the product and its interactions throughout its entire life cycle. The digital ID accompanies the item throughout its entire product journey, and the product data can live in a Connected Products Platform (CPP) that can significantly reduce the complexity of traceability. With a CPP, event data is captured throughout the product journey, which translates to the granular visibility that drives traceability use cases. These include but aren't limited to: regulatory compliance, interactive consumer experiences, circular business models, and identifying supply chain or manufacturing efficiencies.

The event data becomes part of an event repository (ideally using standard data exchange formats such as EPCIS), which is central to the CPP concept. It pulls together and synchronizes events and interactions from the product's complete journey, all linked to its digital ID. This rich store of data from across the product journey is the source of visibility into the supply chain and the key to "de-complexifying" it while also forming the groundwork for actionable data insights drawn from first-party data extracted from interactions.





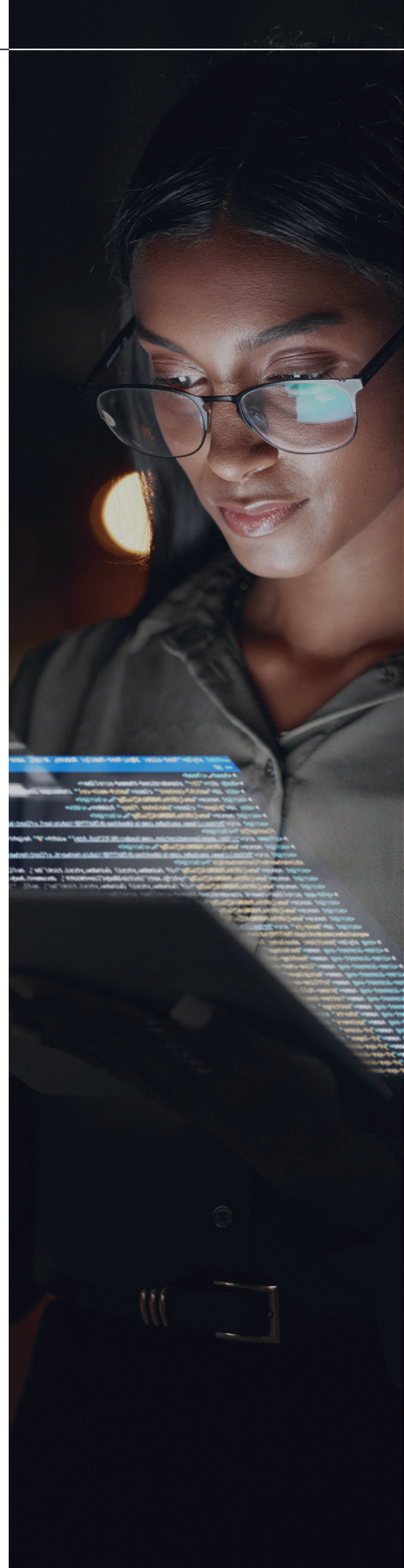
How can traceability and connected products work for your business?

Imagine a product that can tell you its own story. From the farm where its ingredients were grown, to the factory where it was made, to the store where it was purchased – a connected product carries its entire journey and all its data points with it. This is the power of connected products. Each product can be linked to a cloud-based data repository that stores information about its origin, manufacturing process, storage temperature history, and so much more.

The imperative of giving your products digital IDs is becoming increasingly evident as industries seek to use digital technology to connect their products and follow their entire product journey. While challenges exist, the potential for enhanced customer experiences, improved supply chain management, and sustainability benefits make product digitization a transformative force.

The amount of data that will accumulate over the products' lifetime, and the management of that data, demand enterprise-grade systems and data privacy – ultimately, non-negotiables.

With an enterprise-level Connected Products Platform (CPP), brands can capture the entire lifetime of each product and every event in its journey. Connected products, powered by secure digital IDs at scale, are smart products, and provide visibility into the journey throughout the supply chain. A CPP delivers flexibility and speed as well as item-level identification at a massive scale and can integrate seamlessly with a company's existing IT infrastructure.





If you're ready to learn more about the Kezzler Connected Products Platform, get in touch with our team.

www.kezzler.com



Additional Resources

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Solution Briefs & Whitepapers



DPP: From Concept to Compliance



Dealing With Billions



From Catwalk to Compliance



Fashion MRI



Digital ID: The CLV Accelerator

Digital ID Webinar Series: Fashion



GS1 Digital Link in the Real World

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The New Enterprise Architecture

Watch now



Tracking the Journey

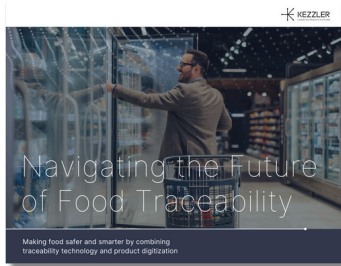
Watch now

eBooks & Guides



From Compliance to Opportunity: FSMA 204

What traceability means for your business.



Navigating the Future of Food Traceability

Making food safer and smarter by combining traceability technology and product digitization.



The Power of Digital IDs in Apparel

Getting to sustainable, circular and transparent supply chains for the apparel industry.



EU policy developments for the textile and fashion industries.

Breaking down EU policy and legislation on sustainable textiles and apparel for circular economy initiatives.



CONNECTED PRODUCTS PLATFORM



Six Steps to Digital Products Passport Readiness

EU Green Deal as a Profit Center



CONNECTED PRODUCTS PLATFORM



Nine reasons to connect and embrace data

Stay ahead in the infant nutrition market



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