Dealing With Billions

The Role of Item Level Digital ID &
Connected Products in Enterprise IT Architecture

The Rise of Connected Products in the Modern Enterprise

In the rapidly evolving digital landscape, the maturing of product digitization has emerged as a game-changing trend, reshaping the enterprise architecture of large corporations.

With an increasingly connected ecosystem, connected products have moved from proof of concept to become the very core of business strategy and operations.

This transformation brings immense opportunities, from creating personalized customer experiences to unlocking new business models, but it also introduces complex challenges in harmonizing digital and physical aspects of the business. This document explores the impact of product digitization on the enterprise architecture of companies, the strategic shifts required to adapt, and the pivotal role this plays in fostering insight, innovation, and competitive differentiation in the era of the connected products.

Embracing the Growth Opportunities presented by Digital ID

To support business growth and fulfill regulatory requirements, companies are finding significant value in Digital ID and connected products technology. It's about strategically utilizing these digital advancements to enhance decision making, streamline operations, and strengthen resilience. As governments are increasingly demanding transparency in product lifecycles and supply chains, the integration of Digital ID provides an effective solution to comply with these regulations.

In today's competitive market landscape, connected products powered by Digital ID have become a crucial factor to reduce friction and increase competitiveness. It's the responsibility of CEOs and CIOs to make informed decisions about harnessing big data and the potentials of these emerging technologies. The company's IT architecture needs to adapt and evolve, ensuring it's equipped to manage the influx of product data, seamlessly integrate it with existing systems, and facilitate efficient data management.

the old requirement

Put the burden of post-sale use cases on the customer

the new requirement

Facilitate efficient digital post-sale services using unique Digital ID

Tackling the Data Integration Challenge

The industry is only beginning to come to terms with the impact of this data explosion, which was initially driven by the need for better workflows, processes, and data-driven insights for personalisation.

As we prepare for future of big data and the adoption of AI into mission critical processes, it's time for businesses to understand their current and future needs in the face of this new opportunity. However, integrating different systems and managing the vast amount of data generated by connected products can be overwhelming - where do we even start?

Most existing IT infrastructures have grown over time and consist of specialized systems for each part of the process.
Legacy IT architectures often struggle with complexity and cannon't provide a unified view, leading to inefficiencies, data silos, and missed opportunities for real-time process management and data-driven insights.

A New Business Mandate

Businesses are increasingly required to deliver on promises of transparency and across their entire value chain.
As a result, integration of supply chains with consumer insights - from sales, marketing, customer service, and customers themselves becomes an imperative, rather than a matter of choice.

To prepare, brands need to invest not just in sustainability, but also in an enterprise architecture design that enables them to manage, analyze and report on exponentially increasing volumes of item level data.

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the old requirement

Make sure plants, sites and processes were certified

the new requirement

Provide digital consumer relevant and compliance information through product interaction

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What This Means For The Business

What are the implications for companies as they shift from managing batch and SKU level data to handling data at the serialized item level? Most of the new data collected can go unused as organizations struggle to manage the density of item level data in a productive way. The sheer volume of it can overwhelm existing systems leading to a need for an effective IT architecture that is built to deliver on product level data.

So, how does the industry adapt? And how do smart businesses use this data to optimize their supply chains, improve authenticity, bolster the overall customer experience and stay ahead of an increasingly regulatory environment?

Identifying IT Infrastructure Gaps

First, there's a need to recognize the gaps in the existing IT infrastructure and acknowledge the need to invest in the required technology. RFID and QR technologies have already changed how businesses handle inventory management and engage with customers - and this is just one aspect of the change that must occur to truly maximize the potential of product digitization in the value chain.

Let Data Interoperate

The crux of establishing a sustainable and transparent supply chain lies in data interoperability. In Kezzler's view, the key lies in the adoption of internationally recognized GS1 standards EPCIS 2.0 and Digital Link. These frameworks pave the way for tracking, data interoperability, Internet of Things (IoT) integration, and sophisticated analytics to improve visibility.

By placing interoperability at the forefront of their strategic priorities, brands can safeguard their future readiness and ensure their ability to integrate with a broad spectrum of both established and burgeoning technologies.

Kezzler's Connected Products Platform is pre-integrated, simplifying the challenge and putting this opportunity in reach of all brands.

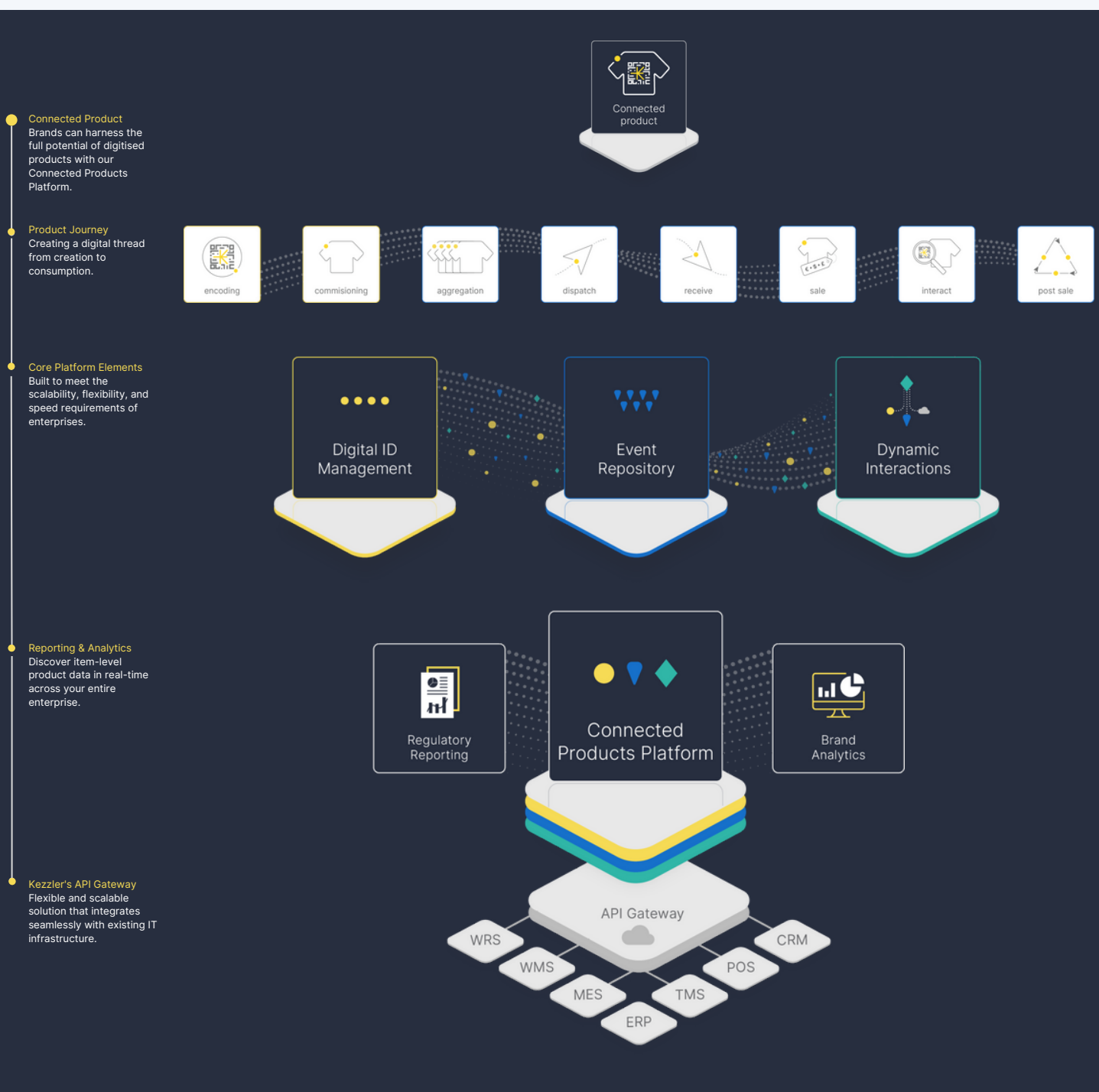# Connected Products Platform

Bolstering Enterprise IT Architecture

Kezzler's Connected Products Platform offers a managed SaaS solution with robustness, scalability, and security built over decades of development. We are cloud-vendor agnostic, data carrier agnostic, and geographically distributable to meet our clients' unique requirements.

With layered security, access control mechanisms, and SSO (Single Sign-On) support, Kezzler ensures the utmost protection of client data while adhering to industry standards.

Our platform is designed to manage the trillions of live data points generated by item-level traceability.

By keeping all data 'hot' and available, Kezzler's platform enables a transformational way of working that has been used in multiple mission-critical projects that deal with over five million transactions per day, querying event repositories with hundreds of billions of data points.

Our partnerships with Accenture, DNV, GS1, Microsoft, Amcor and Rockwell Automation provides customers with future-proof technology solutions that optimize supply chain operations, improve customer satisfaction, and increase profitability.

Connected Product
Brands can harness the full potential of digitised products with our Connected Products Platform.

Product Journey
Creating a digital thread from creation to consumption.

encoding · commisioning · aggregation · dispatch · receive · sale · interact · post sale

Core Platform Elements
Built to meet the scalability, flexibility, and speed requirements of enterprises.

Digital ID Management · Event Repository · Dynamic Interactions

Reporting & Analytics
Discover item-level product data in real-time across your entire enterprise.

Regulatory Reporting · Connected Products Platform · Brand Analytics

Kezzler's API Gateway
Flexible and scalable solution that integrates seamlessly with existing IT infrastructure.

API Gateway

WRS · WMS · MES · ERP · TMS · POS · CRM

Digital ID Management

The Foundation of Connected Products

One of the critical aspects of a Connected Products Platform is Digital ID management. This involves generating and managing trillions of cryptographically secure unique digital identities for products. This ensures each individual item possesses a distinctive identifier that faithfully accompanies it throughout its lifecycle.

With flexible metadata enrichment, the platform captures the appropriate data at the right moment. This capability translates into granular visibility, steadfast compliance with regulatory stipulations, and an interactive experience. It results in products that are not only intelligent but also truly circular in nature.

Cryptographically Secure Unique Identities

Ensuring the integrity and security of digital identities is a priority at Kezzler. We employ advanced cryptographic algorithms to generate distinctive Digital IDs, forming the bedrock of trust and traceability in our platform. Whether these IDs are created using Kezzler's proprietary system or external UID engines, they are implemented with scalability and flexibility at the forefront.

Our unique approach enables seamless integration with various GS1 standard primary identification keys, further enhancing our platform's compatibility and usability.

the old requirement

Use separate data carriers for production, shipping & consumer engagement

the new requirement

Use single Digital ID per item to consolidate information & processes

It's OK to leave consumer interaction data in customer data platforms

Combine consumer interaction data with production, supply chain, and logistics data

Event Repository

Orchestrating a Data Symphony Across the Product Life Cycle

The Event Repository, a key feature of our Connected Products Platform, is engineered to synchronise a myriad of events and interactions spanning the entirety of a product's life cycle, all linked to its unique Digital ID. This includes tracking pivotal events and dynamic interactions, thereby painting a holistic portrait of the product's voyage from raw materials to the hands of the end consumers.

Adhering to the latest EPCIS 2.0 standard, our platform ensures interoperability and data integrity across various supply chain systems. It also captures all critical events and dynamic interactions, creating a comprehensive view of the product's journey.

Insightful Visibility and Informed Decision Making

The Event Repository acts as a critical nexus, facilitating the synthesis of data across disparate stages of the product journey. It provides tangible visibility into the intricate workings of the supply chain while capturing rich first-party data on interactions.

This strategic amalgamation of data serves as a catalyst for driving insights, guiding informed decision-making, and fostering enhancements in overall business performance.

Purpose-built compression technology further enhances the Event Repository, offering unparalleled scalability and flexibility. Experience a new production environment where operational data is perpetually accessible, and archiving becomes obsolete.

kezzler.com/our-platform

Dynamic Interactions

Enhancing the Consumer Journey and Advancing Sustainability

Kezzler stands at the forefront of dynamic customer interactions, providing users with real-time access to a product's complete life history. By leveraging the power of GS1 digital links and the wealth of data within the Connected Products Platform, we deliver contextually relevant information about each item directly to the user.

Providing Value at each Interaction

In the realm of customer engagement, dynamic interactions are pivotal. They serve as a conduit for brands to disseminate value at each point of contact with consumers.
Our platform enables this seamless exchange, utilising the same data carrier to underpin a myriad of use cases, from compliance with regulatory requirements to personalised user experiences.

Rapid, Scalable, and Customizable Solutions

With rapid, sub-second item query response times and globally distributed engines, Kezzler's Connected Products Platform offers scalable, configurable, and robust solutions that support product - and location-based redirections.

By capitalising on the Event Repository and GS1 digital link technology, brands are empowered to craft bespoke consumer experiences. This is achieved by tailoring interactions based on the status and journey of the product, thereby delivering a truly personalised customer experience.

Embracing a Connected Products Platform will help you future-proof your enterprise IT architecture, unlock innovation, efficiency, and customer satisfaction, as well as differentiate your organisation from competitors.
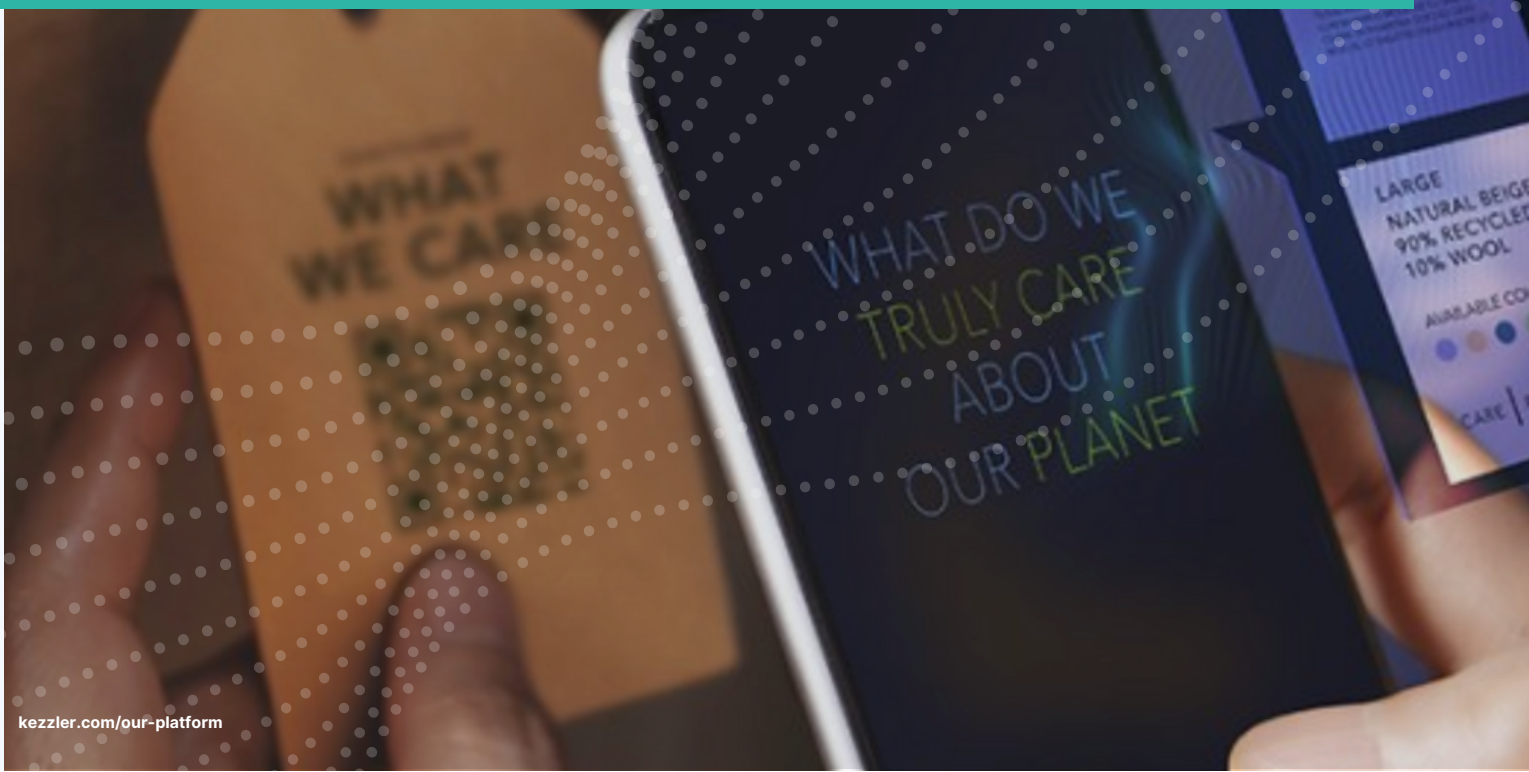
Harness the power of connected products today – don't let your enterprise fall behind.

the old requirement

Every QR scan produces the same results

the new requirement

Every QR scan produces a different, personalised result

Company

Kezzler is a software company and technology leader specializing in providing Digital ID solutions for connected products. Since 2010, Kezzler has powered product digitization and helped build sustainable value chains for global businesses across industries as varied as food and beverage, retail and apparel, industrial goods, OTC pharmaceuticals and consumer packaged goods.

Kezzler is headquartered in Oslo, Norway with a global footprint. Learn more at www.kezzler.com.

Platform

Kezzler's Connected Products Platform is a managed SaaS solution that enables businesses to manage, control and add value to their products throughout their entire journeys. By assigning unique Digital IDs to individual items, the platform provides real-time visibility, authentication, and connected experiences. With its agnostic approach to systems and platforms, Kezzler's platform seamlessly integrates with existing IT infrastructure, offering a scalable and flexible solution configurable to their needs.

- Designed to meet the requirements for scale, flexibility, and speed of any customer, industry or market
- Delivered to customers as managed SaaS on a dedicated instance hosted on the cloud vendor of choice

Massively Scalable
46bn
USD value of goods digitized last 12 months

Flexible & Fast
5m
daily platform interactions on one single client's software

Integration Friendly
25bn
connected products as of 2022

Purpose Built
>35
countries with activated products in the market

HQ | Norway
Schweigaards gate 15b
0191 Oslo

The Netherlands
Gamerschestraat 47
5301 AR Zaltbommel

USA
One Marina Park Drive
Suite 1410, 02210 Boston

Singapore
11 North Buona Vista Drive
Singapore 138589

China
Room 805,7/F No.1 Building
Chaoyang District, Beijing

India
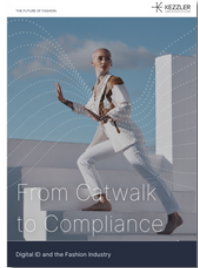Level 4 MBC Infotech Park
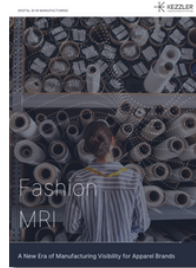Maharashtra

Additional Resources

Solution Briefs & Partnerships
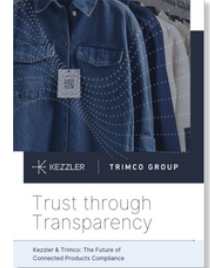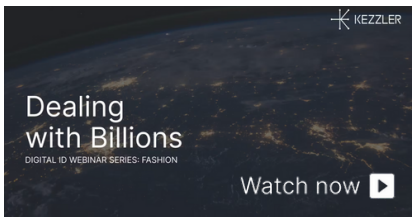

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With Billions

From Catwalk
to Compliance

Fashion
MRI

Digital ID: The CLV
Accelerator

Kezzler & Trimco
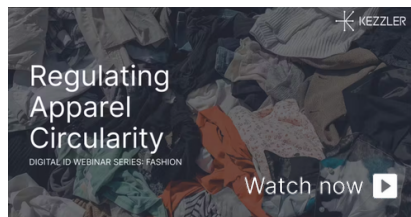Partnership

Digital ID Webinar Series: Fashion

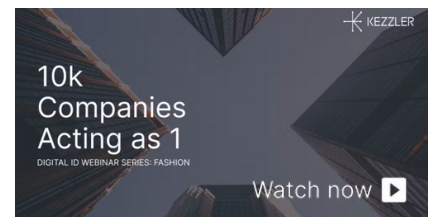Dealing
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DIGITAL ID WEBINAR SERIES: FASHION
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Regulating
Apparel
Circularity
DIGITAL ID WEBINAR SERIES: FASHION
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10k
Companies
Acting as 1
DIGITAL ID WEBINAR SERIES: FASHION
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GS1 Digital
Link in the
Real World
DIGITAL ID WEBINAR SERIES: FASHION
Watch now ▶

The New
Enterprise
Architecture
DIGITAL ID WEBINAR SERIES: FASHION
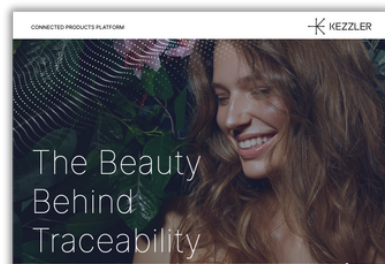Watch now ▶

Tracking
the Journey
DIGITAL ID WEBINAR SERIES: FASHION
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eBooks, Guides & Whitepapers

The Beauty
Behind
Traceability

EU policy developments
for the textile and
fashion industries.

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

Six Steps to Digital
Products Passport
Readiness
EU Green Deal as a Profit Center