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DECEMBER | 2019

Uniting the Retail Supply Chain by Sharing Trusted Data

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The Chain Integration Project (CHIP) 1

Serialization and GS1 Standards 2

The Impact of Inefficiencies 2

Since the smartphone became an essential part of daily life, retail companies have been challenged by the real-time demands of hyper connectivity. The industry faces a hard reality that aging systems often can't keep pace with what consumers want, and even just one bad shopper experience can have a significant impact on loyalty and brand perception.

In an eye-opening position paper titled "Why The Retail Industry is Ready for Blockchain," researchers from the Auburn University RFID Lab outline how to drive meaningful innovation in the supply chain, and encourages the industry to learn from the progression of technological advancements over the past decade. The researchers believe that blockchain, if applied to a foundation built on RFID and GS1 Standards, can help the industry overcome challenges that have made the supply chain sometimes frustratingly costly and slow.

Simply put, advanced technology can better enable a future state where the seamless sharing of trusted data is the norm.

More widespread data sharing can unite retail's disjointed systems and processes, however, any technology solution, like blockchain, is only as useful as the data that the industry stakeholders supply to it. The basic tenets of supply chain visibility in a GS1 Standards-based framework--are more relevant than ever for those testing blockchain's data sharing capabilities.

Through a proof of concept called the Chain Integration Project (CHIP), the RFID Lab is studying the specific intersections of RFID, GS1 Standards and blockchain. The results of the study will be released later this year. Armed with this research, the retail community can be better-equipped to make decisions about blockchain and prepare for a successful implementation. Through more collaboration on these advancements, the supply chain will become more cost-effective and will catch up to consumer expectations for seamless and consistent shopping experiences.

THE CHAIN INTEGRATION PROJECT (CHIP)

CHIP is a blockchain proof-of-concept for serialized data exchange in the retail and apparel supply chain. Since the inception of the project last year, more than 20 partners have signed on to participate, including five leading brands, four major retailers, half a dozen technology solution providers, and industry groups like GS1 US to support the project as a collective working group. The study builds on the findings of Project Zipper, a 2018 research project also conducted by the RFID Lab and GS1 US that found order accuracy can rise to 99.9% when both brands and retailers use RFID. By comparison, almost 70 percent of the orders based on legacy barcode scanning contained some kind of process error in picking, shipping, or receiving.

The goal of the CHIP proof-of-concept is to further put this knowledge to the test and integrate the information pulled from the RFID tags attached to products from various stakeholders into a peer-to-peer blockchain network. Retail and apparel

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companies will communicate with their suppliers about their product inventories through a common record of information.

Historically, the retail supply chain has been challenged with sharing data resulting from the use of RFID. According to IBM, most supply chains today are flooded with 50 times more data than they were just five years earlier, yet only a quarter of that data is utilized in a relevant timeframe.

Blockchain can potentially change this because of the shared responsibility of the network--it eliminates the need for third parties to act as middlemen, and establishes greater trust and integrity for those sharing the data. Those participating in a blockchain network are able to transact directly and more efficiently, as well as maintain ownership of their data.

SERIALIZATION AND GS1 STANDARDS

Similar to the way RFID implementation has been approached in retail, standards form an essential foundation for blockchain, as they enable effective external data sharing and systems interoperability. Often referred to as the common language of business, GS1 Standards help companies ensure data is complete, accurate and structured for use on a blockchain. The RFID Lab paper offers a helpful analogy:

Spanish and Portuguese share the same romance language roots, but they are still distinct languages with different rules, vocabularies, and pronunciations. If an individual who is fluent in Spanish and an individual who is fluent in Portuguese were to converse, they might be able to stumble their way through a conversation, but the majority of what the other was saying would be lost in translation. Likewise, product data provided by a brand may have some commonality with the product data produced by a retailer, but more often than not, the differences outweigh the similarities.

Sharing a common language through standards has helped companies using RFID reap the benefits of inventory accuracy and enhanced efficiency, as item level serialization provides the digital identity needed to make a single item distinguishable from others. A handbag worth $1,000 can be distinguished from one that looks the same but is of lesser value, for example. This will be even more important as a blockchain layer is added.

Serialized Global Trade Identification Numbers (SGTINs) append a unique serial number to the end of a Global Trade Item Number (GTIN), which differentiates it from other items of the same type. SGTINs are flexible in that they can be encoded into 2D or QR codes, NFC tags, as well as RFID tags. There are more than 14 billion individual items accounted for with SGTINs in the retail supply chain today, according to the RFID Lab, ranging from luxury coats and jewelry to t-shirts and tennis shoes. But there is more work to be done to make this a more widely accepted best practice in the retail industry.

THE IMPACT OF INEFFICIENCIES

By not sharing data in a standards-based framework, the retail industry is missing an opportunity to drastically cut down the inefficiencies and complexities that burden the supply chain. Reducing unreliable communication and outdated technological infrastructure in international supply networks could add $2.6 trillion to global GDP annually, equivalent to a 15% increase in international trade, according to the World Economic Forum.

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The biggest cost culprits are claims, shrink, and counterfeiting. Claims and resulting chargebacks cost the retail industry up to $36 billion in 2017, according to the US Department of Commerce. They are caused when shipments are damaged, lost, or inaccurate. The retailer often holds brands and their logistics partners responsible for these errors. Claims, as well as shrink--when inventory is simply unaccounted for--can be directly attributed to the lack of visibility in the supply chain. Shrink cost the industry nearly $47 billion, according to the National Retail Federation. Counterfeiting is an even costlier problem than the other two combined. Losses due to counterfeit footwear, apparel, and other high-end consumer goods exceeded $98 billion in 2017, according to the Global Brand Counterfeiting Report. Counterfeiting holds the potential to dilute a brand's reputation, pose safety hazards, and contribute to the overall loss of revenue. With these hefty price tags, the retail industry simply cannot afford to operate so inefficiently.

Ultimately, many industry stakeholders that have already piloted blockchain concur that success is fundamentally driven by collaboration. Learning from the implementation of standards and technology over the past decade, the retail industry can work together to drive unnecessary waste out of the supply chain, freeing up to time and resources to transform commerce for generations to come. For more information on blockchain in the retail supply chain, visit www.gs1us.org/blockchain and https://rfid.auburn.edu/.

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