

Global Trend on IoT Development & Rising Opportunities to Electronics Industry

Empowering Omni-channel Consumer Trust with Innovations

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Presentation summary:

1. Three purposes of having standards of identification
2. Distinguished IoT innovations in Hong Kong
3. Omni-channel: The era of “one-object-one-code”
4. Applications
5. Further GS1 anti-counterfeit innovation

1. Three purposes of having standards of identification

1.1. Identify

Standards assign a unique ID onto each item on the supply chain, allowing instant recognition and traceability of a certain item.

1.2. Capture

A symbology of container that stores information via standards.

1.3. Share

Share data or interactions via standards through the network.

2. Distinguished IoT innovations in Hong Kong

Case 1: Hong Kong International Airport

A unique RFID tag is installed onto baggage telling the belt how to ship baggage. It is the world's first airport that implements efficient RFID-enabled baggage handling

using UHF Gen2 tags.

Case 2: RFID-based e-charm management system at Wong Tai Sin Temple

Worshippers at the temple often take away fortune sticks (aka “charm”), leaving the next worshippers an incomplete stick sets. In the past, temple staff had to check and ensure stick sets if were full from time to time, urging the temple to call for a more efficient system by implanting a unique RFID code into every fortune stick.

Whenever a fortune stick is missing from the set, the staff acknowledges and makes up more efficiently and accurately.

3. Omni-channel: The era of “one-object-one-code”

3.1. Overview

“One-object-one-code” means each object on the production line is allocated with a unique ID. In the age of IoT, it is widely applied to capture interactional data for the sake of strengthening consumer trust by consumer caring and loyalty programmes.

3.2. GS1 Standard – Electronic product code information services (EPCIS)

Developed by GS1 and Massachusetts Institute of Technology (MIT), the standard emphasizes on three major dimensions: identify, capture, share. The data shows “what”, “when”, “where”, and “why” at each read point in the supply chain.

3.3. Opportunities

Retail big data insights are mostly beneficial for the below industries:

- 53%: Merchandising
- 48%: Marketing
- 42%: Store operation
- 42%: E-commerce
- 27%: Supply chain
- 23%: Finance
- 21%: Loss prevention

IDTechEx reports that RFID is seeing rapid growth for apparel tagging – that application alone demanded three billion RFID labels in 2014, and predicts that more than 25 billion RFID tags will be used on retail apparel and shows in 2020.

4. Applications

4.1. Apparel retail industry – Tagging

- For reliable and up-to-date information
Many global major retailers, such as Marks & Spencer, require suppliers to tag all products with RFID before they are being shipped. The data stored in the RFID is then automatically uploaded onto their exclusive system, generating substantial and timely data for retailers and major decision makers.
- Inventory accuracy
With the popularity of e-commerce, there are chances that users look at the product at one retail shop, purchase it online and have it delivered to another retail shop. Therefore, inventory accuracy is critical if retailers want to execute a successful and rewarding omni-channel strategy.

4.2. Apparel retail industry – Smart shelf

As all products are tagged with RFID, retailers further install a RFID scanner behind each display shelf. Whenever an item is removed from the shelf for fitting or purchase, data is stored and automatically shown on a dashboard. This does not only ensure inventory accuracy and O2O visibility, but also provides consumer behaviour information for analytics among retailers, merchandisers, designers, and decision makers.

4.3. Jewelry industry – Chow Tai Fook's Smart tray

In order to capture consumer behaviour information, the jewelry heavyweight has launched a RFID jewelry tray which constitutes a huge amount of consumer data namely reason for purchase, products checked and purchased, etc. The data collected has been critical in their evaluation on product design and business strategies. The innovation is so successful in Hong Kong that it will be launched in a

flagship branch in China soon.

4.4. Jewelry industry – Fukui's unique identifier

To name each pearl with a unique ID, GS1 has implanted a tiny RFID into the pearl's nucleus during the oyster's embryo stage, so that the oyster and pearl grows with the RFID tag which stores key growth data. Whenever users need information about the pearl, they can scan to get check without disturbing the oyster.

There is also a certificate accompanying each pearl which synchronises with its RFID tag, getting rid of counterfeit and building a robust consumer trust and enriching consumers' knowledge about the pearl they purchase.

4.5. Dairy industry – China Mengniu Dairy Company

Having learnt from the product recall due to food safety a few years ago, Mengniu has adopted QR codes to enhance manufacturing distribution channel visibility, ie to track the exact location of the targeted badge of product in no time.

The application allows easy product recall with the help of codes, strengthening consumer trust for product quality. It also favours easy control of distributing channel. For example, when a Beijing-targeted product is found in Guangzhou, Mengniu can investigate easily for improvement.

4.6. Retail industry – Metro Group

According to the European fisheries controls, fishermen are bounded by quantity, location, and duration of fisheries. Metro Group thus assigns each and every fishing boat, fish caught, and even cut pieces of fish with a unique ID. Customer can login to the fTRACE app and track all food source Metro Group offers, enhancing food source visibility.

The application favours the regulatory compliance, facilitates easy control of distributing channel, and creates a credible from-catch-to-customer cycle, and thus foster strong consumer trust.

5. Further GS1 anti-counterfeit innovation

5.1. Challenge of counterfeiting

Consumer faces the difficulties of recognising authentic and counterfeit products.

5.2. Value+

Value+ is a product authentication and consumer loyalty solution. It assigns a unique number for every single item for the merchandiser. However, it is often regarded as the last generation's technologies as it requires to stick a label to the product.

5.3. Anti-Counterfeit Barcode

Patent technologies which use micro-printing technologies to insert some coding into barcode.

The end

To learn more, please visit the presentation video at [here](#).