Fueling Digital Transformation with IoT

THE STORY OF IOT BEGAN IN 1999....

The term "Internet of Things" was first used in 1999 by the Auto-ID Centre at the MIT

In 2003, Auto-ID Center released "Electronic Product Code" (EPC) standard based on RFID tags, unique identification & internet technology. EPC was transferred to EPCglobal® formed by GS1 for development & management to realize IoT

EPCIS, a global GS1 standard for creating & sharing visibility event data within and across enterprises, was first ratified by EPCGlobal® in 2007

In 2008, GS1 HK launched an IoT platform "ezTRACK" based on EPCIS to enable end-to-end supply chain visibility

THE EPC STANDARD FOR IOT

Electronic Product Code (EPC) is the global IoT/RFID standard for numbering, providing a unique number to identify a specific item (object ID). It works with Radio Frequency Identification (RFID) technology and global communications networks, to track-and-trace and retrieve information of the object.
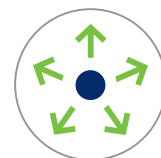
Identify
GS1 Identifiers
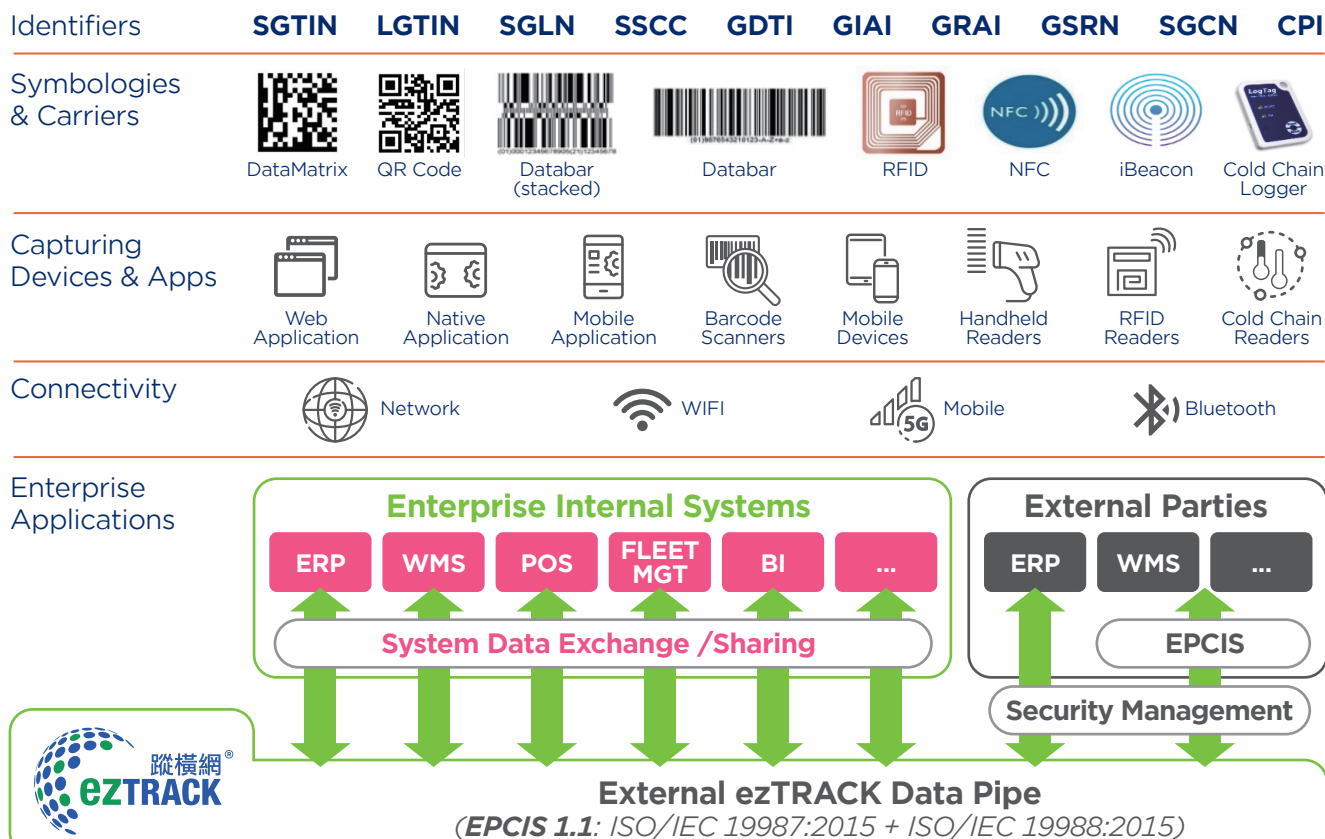
Capture
Low cost EPC UHF
Gen2 RFID Tag

Share
Electronic Product Code
Information Services (EPCIS)

As its adoption has spread, EPC is helping more and more businesses to control product quality, deliver goods on time and achieve optimal supply chain efficiency, which ultimately benefits the consumer.

GS1 STANDARDS AND SERVICES FOSTER IOT DEVELOPMENT

1 STANDARDS **2** SOLUTIONS **3** SMART PROFESSIONAL SERVICES **4** TRAINING & CERTIFICATION **5** EMPOWERING A SMART CITY

1 GS1 STANDARDS - CAPTURING & INTERFACING

Identifiers	SGTIN	LGTIN	SGLN	SSCC	GDTI	GIAI	GRAI	GSRN	SGCN	CPI

Symbologies & Carriers

DataMatrix	QR Code	Databar (stacked)	Databar	RFID	NFC	iBeacon	Cold Chain Logger

Capturing Devices & Apps

Web Application	Native Application	Mobile Application	Barcode Scanners	Mobile Devices	Handheld Readers	RFID Readers	Cold Chain Readers

Connectivity

Network   WIFI   5G Mobile   Bluetooth

Enterprise Applications

Enterprise Internal Systems
ERP | WMS | POS | FLEET MGT | BI | ...

System Data Exchange /Sharing

External Parties
ERP | WMS | ...

EPCIS

Security Management

ezTRACK 蹤橫網®

External ezTRACK Data Pipe
(**EPCIS 1.1**: ISO/IEC 19987:2015 + ISO/IEC 19988:2015)

Remarks: ISO/IEC 19987 ratifies GS1 EPCIS standards improved traceability & anti-counterfeiting. ISO also incorporates the EPC Gen2 standard into its ISO/IEC 18000-6C standard.

2 SOLUTIONS

GS1 HK's IoT solutions powered by EPCIS-based IoT platform ezTRACK:

1) REAL Visibility
Using patented anti-forgery micro printing technology, it empowers consumers with instant product authentication and traceability while enabling brand owners with real-time visibility on scan activities.

2) Smart Retail
Integrated with the latest IoT (RFID & video analytics) and AI (data analytics and predictive analysis) technologies, it captures and understands consumer buying behavior and creates a more personalised experience for consumers to promote sales.

3) Smart Traceability
Built on EPCIS, it helps businesses to address the demand for end-to-end traceability, and build trust among supply chain stakeholders, from upstream suppliers to end consumers.

4) Cold Chain Sensor Network
A solution that provides simplifed, precise, standardised and cost-effective temperature monitoring on a real-time basis, transforming data into powerful information and insights.

5) Smart Operations
Leveraging leading-edge technologies, it helps transform business with automated data capturing and real-time actionable insights throughout the entire operation flow.

3

SMART PROFESSIONAL SERVICES

Leveraging the globally-recognised assessment tools, our certified supply chain professionals offer consultancy services to help companies to utilise best practices and robust RFID / IoT technologies and solutions into their supply chain, using GS1 standards.

Our Services	Supply Chain Stakeholders		
	Manufacturer	Logistics Providers	Retail
Supply Chain Visibility	●	●	●
ERP Process Consultancy	●	●	●
RFID Item Level Tagging	●	●	●
RFID Asset Management	●	●	●
PMS Process Consultancy	●		●
WMS Process Consultancy	●	●	●
TMS Process Consultancy		●	●

Case: Sun Fat Heung   Indigo   Swire Coca Cola

4

TRAINING & CERTIFICATION

GS1 HK offers education and certification services to meet the needs of different individuals / companies:

GS1HK
ACADEMY

IoT / EPC / RFID Training
– Grasp the principles of IoT / RFID while study application and implementation of the technologies in specific industry / environment (both standard and customised courses)

Supply Chain 4.0 Certification Course
- Understand how the adoption of standards and technologies can help achieve supply chain automation and digitalisation.

Smart Retail Supply Chain and Big Data Analytics
– A CPFA (Certified Professionals for Apache projects) Certified Citizen Data Scientist course that bridges data and business objectives to create real value through analytics.

Solution Certification
– A software testing service offered by the GS1 Hong Kong to check the compliance of software solution to GS1 Standards and Best Practices.

Case: Lorence & Co.   Jebsen   Nestlé HK   Boxland HK

5

EMPOWERING A SMART CITY

HKSAR Government strives to build Hong Kong into a world class smart city, and focuses in six major areas. "Smart Mobility", "Smart Living", "Smart Environment", "Smart People", "Smart Government" and "Smart Economy".

In any smart city scenarios, besides citizens, is played by the concept of **"SMART OBJECT"**. A smart object is a physical/digital object augmented with sensing, processing and networking IoT capabilities.

Leveraging global standards and IoT technologies, GS1 Hong Kong helps realise the implementation of smart solutions to empower smart city ecosystem:

Smart retail contributes to smart economy and smart living

Retailers are facing intense challenges in the market. An increasing number of companies have turned to RFID (Radio-frequency identification) **item-level tagging** (ILT) based on Electronic Product Code (EPC) standards, to effectively enable supply chain visibility, in-store inventory management and consumer journey analytics.

Example: Chow Tai Fook Smart Tray solution backed by an IoT platform.

Scan to know more:

Smart food contributes to smart living and smart environment

Consumers increasingly demand to see improved transparency and enhanced regulation in the food supply chain. It is crucial for food companies to adopt a data-driven approach through food traceability platform and practices, enabling efficient recall and transparent food information.

Example: APEC projects Global Data Standards (GDS) on export and import routes of different food items.

Scan to know more:

Smart healthcare contributes to smart living and smart people

A global identification and traceability standard is needed to help healthcare professionals to do more and better with less. The traceability system, from product manufacturer to patient treatment, is imperative to enable healthcare providers to identify all "objects" - drugs, medical devices, patients, caregivers, assets and locations - for transparent processes across the healthcare value chain.

Example: Hospital Authority uses ezTRADE – a standard-based B2B EDI platform, on its pharmaceutical procurement management prcess.

Scan to know more:

GS1 connects the physical and digital worlds, laying the foundation for IoT. For more comprehensive use please visit: GS1 Standards in Building Smart Cities - A Korea case.

OUR VISION:
CONSTRUCTING A COLLABORATIVE ECOSYSTEM

Smart Business Innovation Centre

Serves as an industry support platform that enables the development of smart businesses.

Live demonstration in six thematic zones:

- Smart Retail & Omni-channel
- Enterprise Trading Services
- Smart Logistics
- Smart Operations
- Smart Healthcare
- Industry Recognition

Smart Business Innovation Centre
智慧科技創新中心

IoT-Related Events

We are uniquely positioned as a knowledge and networking hub for industry stakeholders to discover how IoT adoption in meeting different market needs and to exchange expertise, via webinars / seminars, workshops, training, conferences, exhibitions and so on.

Hong Kong ICT Awards – Smart Mobility Awards

Since 2015, GS1 HK has been the lead organisers for one of the Awards category, fueling the technology innovation and creating a platform of expertise exchange in ICT industry.

The Awards aims to recognise and promote outstanding ICT inventions and applications, thereby encouraging innovation and excellence among Hong Kong's ICT talents and enterprises in their constant pursuit for creative and better solutions to meet business and social needs.

HONG KONG
ICT AWARDS
2020 香港資訊及
通訊科技獎

Partners Programme

A business solution network to drive the adoption of IoT technologies, in order to provide the best of breed solutions conducive to driving the growth of our corporate members.

Benefits of being our Partner:

1 Branding and marketing opportunities

2 Market outreach and business development

3 GS1 Standard and Technology Enablement Programme

GS1® Hong Kong

Partner 2020

IoT Industry Advisory Council

An assembly of industry leaders to drive IoT development and adoption in Hong Kong formed in 2013, aiming to promote IoT innovations and broaden their adoption to uplift the competitiveness of local enterprises, and foster an IoT ecosystem for the continuous growth of this game-changing technology in Hong Kong.

Public Policy

We regularly submit policy responses and recommendations to government to ensure our members stay competitive:

- Made recommendations on Hong Kong's smart city development to promote the adoption of Global Data Standards and interoperability practice

- Enhance the level of integration in Greater Bay Area and promote a comprehensive international standard to facilitate goods trading

- Submitted proposal on Greater Bay Area (GBA) to regional administration to foster growth of GBA as IoT hub.

- Spearheaded Global Data Standard (GDS) Pilots with Hong Kong and regional government endorsed by APEC trade minister.

Unleash the full power of IoT in your business with GS1 standards!
To get started, contact us: **services@gs1hk.org**

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