The Global Language of Business

GS1 – Initiatives and Innovation

RAIN RFID Alliance Meeting
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Agenda

- **A few words about GS1**
- **GS1 Initiatives**
  - *GS1 Digital link*
  - *Verified by GS1*
  - *RAIN RFID and EPCIS software tools*
- **Examples of EPC-enabled RAIN RFID**
- **Conclusion**

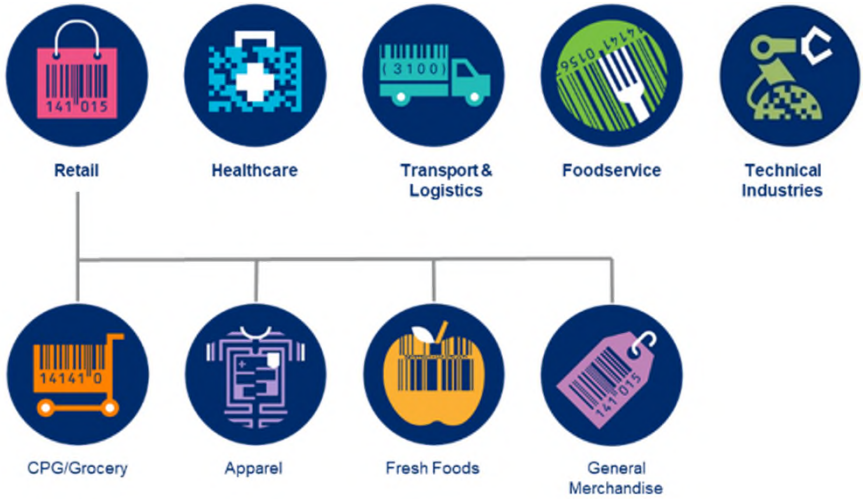
GS1 – the global language of business

GS1 is a global standards organization

- **Neutral and not-for-profit**
- **User-driven and governed**
- **Global and local**
- **Inclusive and collaborative**

Who we are, who we serve

- **112 local Member Organisations**
- **1.5 million companies** use GS1 standards
- **100 million products** carry GS1 barcodes
- **6 billion GS1 barcodes** are scanned every day



GS1 standards framework

Identify

Globally unique identification keys

Companies, Products, Locations, Providers, Assets, Logistics, Documents, Services, Shipments, …

Capture

Automatic data capture

Barcodes and EPC-enabled RFID

Share

Exchange of accurate business information

Master Data, Transactional Data, Traceability & Event Data and Digital Content

GS1 standards framework: Identify

Item identifier = **GTIN**

Global Trade Item Number

dentify **Globally unique identification keys**

Companies, Products, Locations, Providers, Assets, Logistics, Documents, Services, Shipments, …

Logistics unit identifier = **SSCC**

Serial Shipping Container Code

Location identifier = **GLN**

Global Location Number

Service relation identifier = **GSRN**

Global Service Relation Number

…and there are more …

GS1 standards framework: Capture

EAN/UPC

GS1 Comp
Compor

ED MEMORY

MORY

IORY

EMORY

GS1 Innovation: GS1 Digital Link

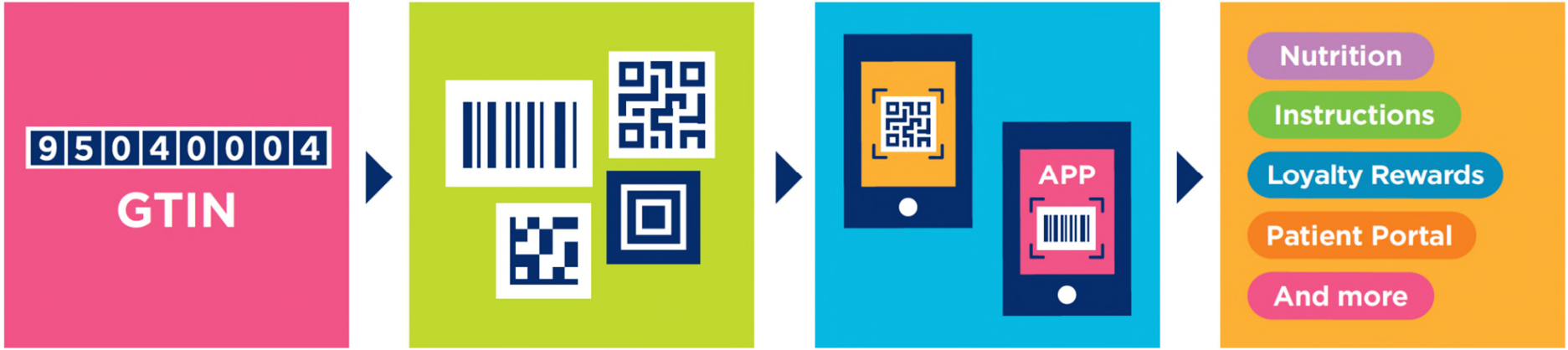
GS1 Digital Link

Connect your customers to the product information they want and need

Today there is no seamless, non-proprietary way for brands, retailers and healthcare suppliers to communicate with consumers via a barcode or RFID scan.

GS1 proposed standard is “simply” a web address with a GS1 key in it, e.g:

https://example.com/gtin/09507000009060

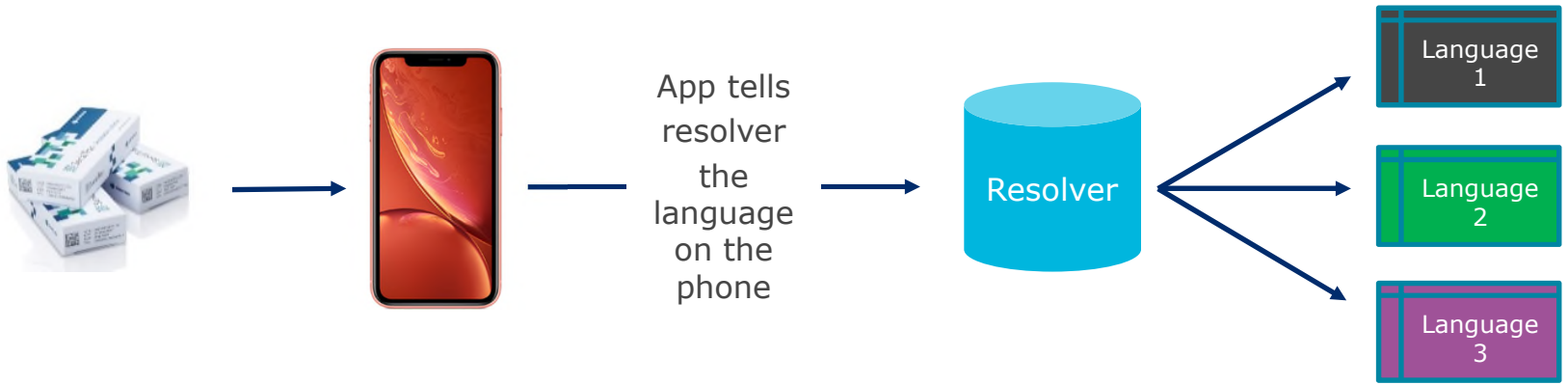


The GS1 Digital Link standard works with all kinds of data carriers:

- All one- and two-dimensional barcodes (construction of the Digital Link by an app for barcodes that do not contain a URL/web link)
- RAIN RFID tag (e.g., EPC-enabled RFID)
- Other technologies

GS1 Innovation: GS1 Digital Link

Example: Patient Information Leaflet



GS1 Innovation: GS1 Digital Link

Example: retailer app for product recall

Product recall!

(01)05400141130812(3103)000500(10)08153365

Verified by GS1: a new service based on Registry platform

Verified by GS1 is a global solution that **enables Retailers and Marketplaces to verify the identity of a product** by querying the GS1 Registry Platform.

GS1 Initiatives: Software Tools

GS1 acquired Ken Traub's tools and updated versions of these tools will be released Q3 2019

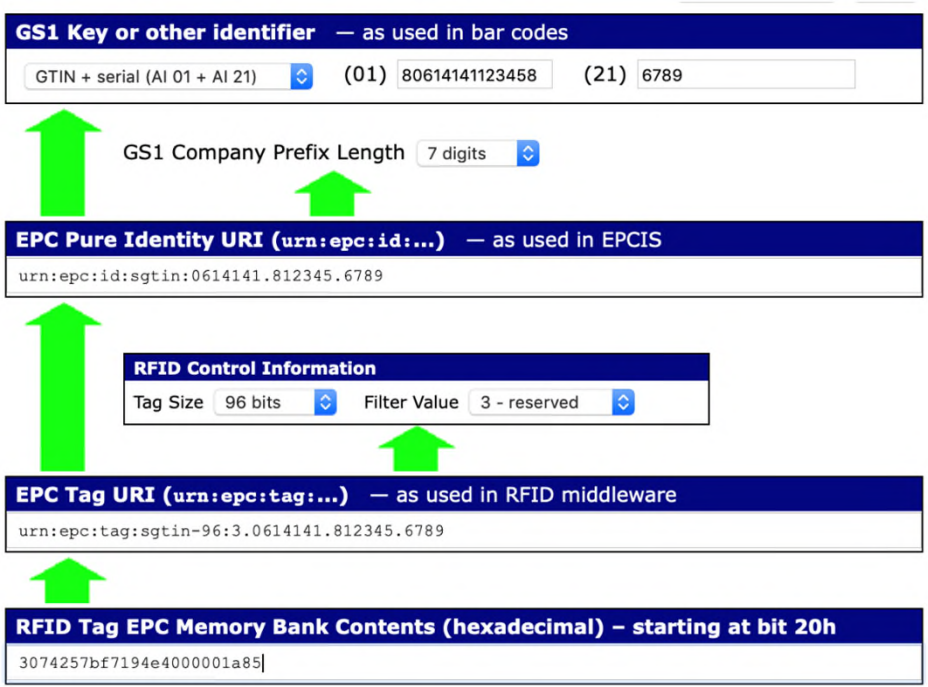
EPCIS Workbench (Visibility Workbench)

- Decode and validate the contents of an EPCIS data file
- Create new EPCIS events or edit an existing file
- Send EPCIS events to an EPCIS repository for capture
- Query an EPCIS repository for events

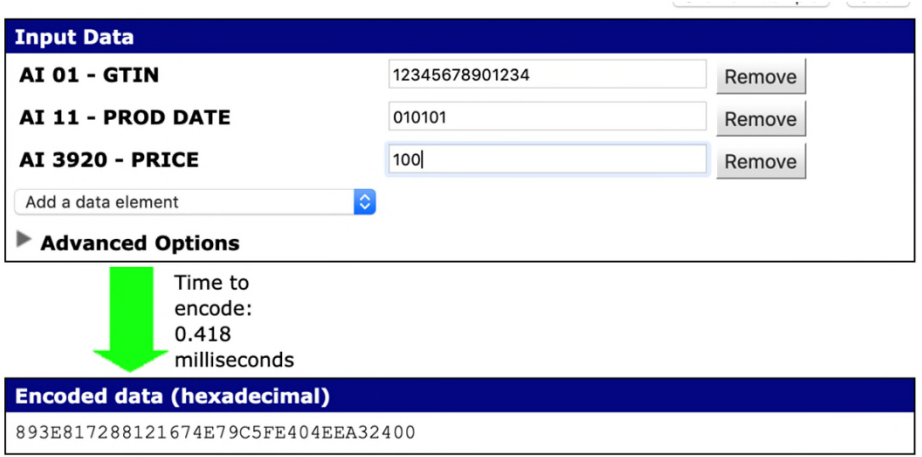
RAIN RFID Encoder/decoder

- EPC, User Memory, TID
- Free web-based tool
- Software library for end-user or OEM
- Based on TDS 1.11

GS1 Initiatives: Software Tools



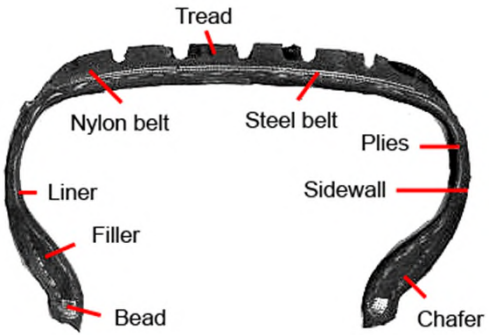
EPC and User Memory encoder/decoder



Examples of RAIN RFID
Tire identification and data-sharing

Market need

- Today: Identify and authenticate every tire to meet government and/or consumer demand
- Tomorrow: use RFID as a sensor (pressure, temperature, mechanical stress)



Issues

- No RFID-friendly way to embed tag in a tire today
- Data-sharing amongst many stakeholders

GS1 contribution

- SGTIN for tire identification offers traceability, etc.
- EPCIS for data-sharing
- Application Identifiers for user-memory data encoding

Examples of RAIN RFID
Retail stores—moving beyond inventory accuracy

Market need

- Would like more information than a simple inventory, e.g. the item is misplaced, was tried on but never sold, RFID-for-EAS, etc.

Issues

- EAS
- Reader interferences
- Human exposure
- Tag stacking

GS1 contribution

- Gen2v2 sessions improves efficiency of anti-theft systems SGTIN
- EPCIS

Why standards-based RFID is important

Standard and regulations

- Easy identification of the technology
- Taking into account privacy and security concerns (for better social acceptance)

Reduce User investments

- Backward-compatibility with existing deployments
- Costs can be shared among stakeholders

GS1 keys and Application Identifiers

- Enable interoperability and accurate data sharing across the global supply chain (many stakeholders)

GS1 and Universities

GS1 collaborates with laboratories and universities for:

- *Research and innovation*
- *Testing*
- *Education*
- *Antenna design*
- *Signal processing*
- *Microelectronics*
- *Energy harvesting*

AUTO-ID LABS

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

UNIVERSITY OF ST. GALLEN

UNIVERSITY OF CAMBRIDGE

KOREA ADVANCED INST. OF SCIENCE AND TECHNOLOGY

FUDAN UNIVERSITY

KEIO UNIVERSITY

AUBURN UNIVERSITY RFID LAB Radio Frequency Identification

GS1 and the RAIN RFID Alliance

- The RAIN RFID Alliance has become the main community of UHF RFID technology and solutions companies
- GS1 has a large community of end users that leverage standards-based technology

Collectively, we plan to bring our communities closer together to leverage our strengths and to be more valuable to industry

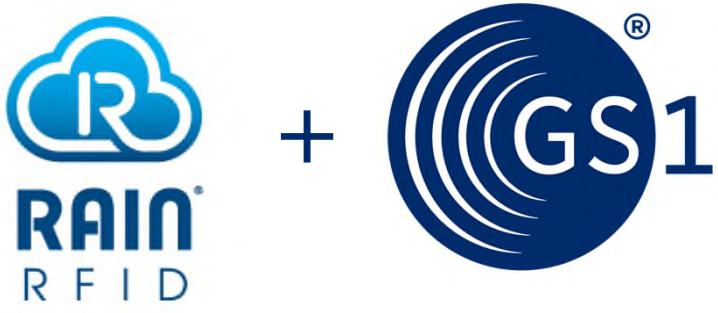
Conclusion

RAIN RFID is one of the key technology enablers for GS1 standards deployment

- *Identification*
- *Authentication*
- *Localisation*
- *Sensing*

For better:

- *Traceability*
- *Data sharing*



…and the winner is…

Industries and Consumers

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