

Preface

- This DIY Self Learning Material will provide insights into:
 - The barcodes used for **logistics and inventory management**
 - **Application Identifiers (AI)**
 - **Function One Key (FNC1)**
 - **Serial Shipping Container Code (SSCC)**
 - **GS1 Logistic Label**

Barcode Symbols Recognised by GS1

Product-level Packaging (Retail)



EAN-13



UPC-A



EAN-8



UPC-E



GS1 DataBar

Carton-level Packaging (Non-retail)



ITF-14



GS1-128

Multi-level Packaging (Retail and Non-retail)

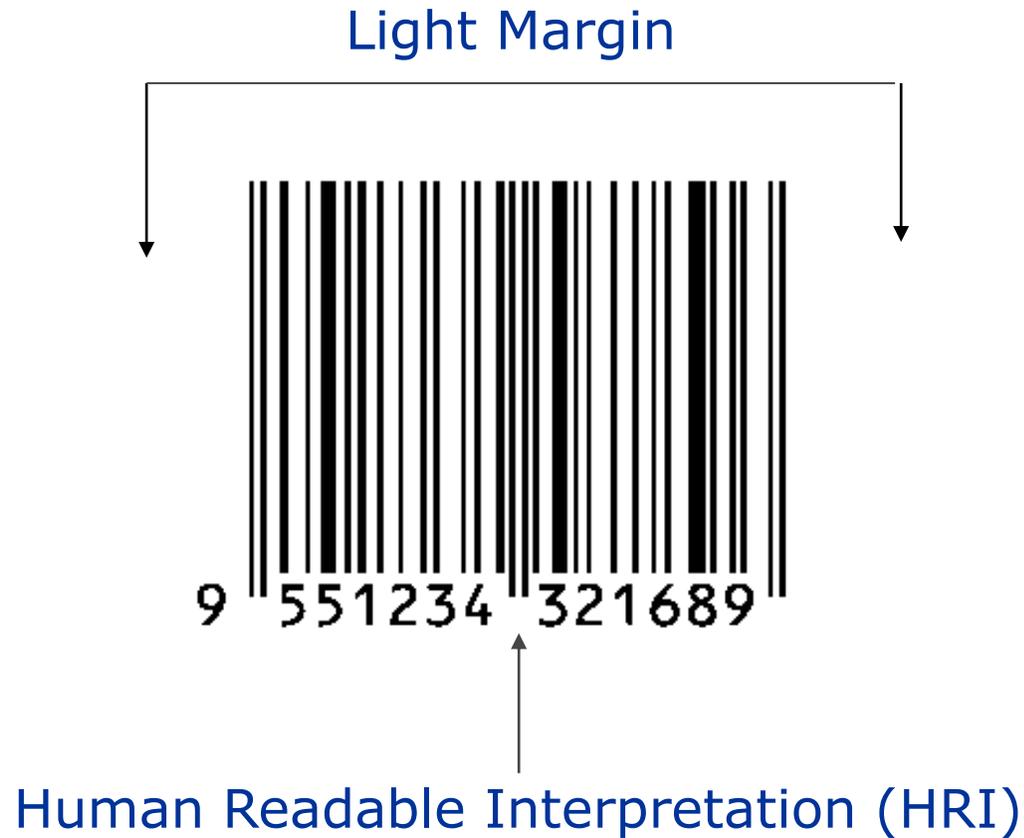


GS1 2D DataMatrix



GS1 QR Code

Commonly Used 1D GS1 Barcode Symbols: EAN-13 Symbol Structure

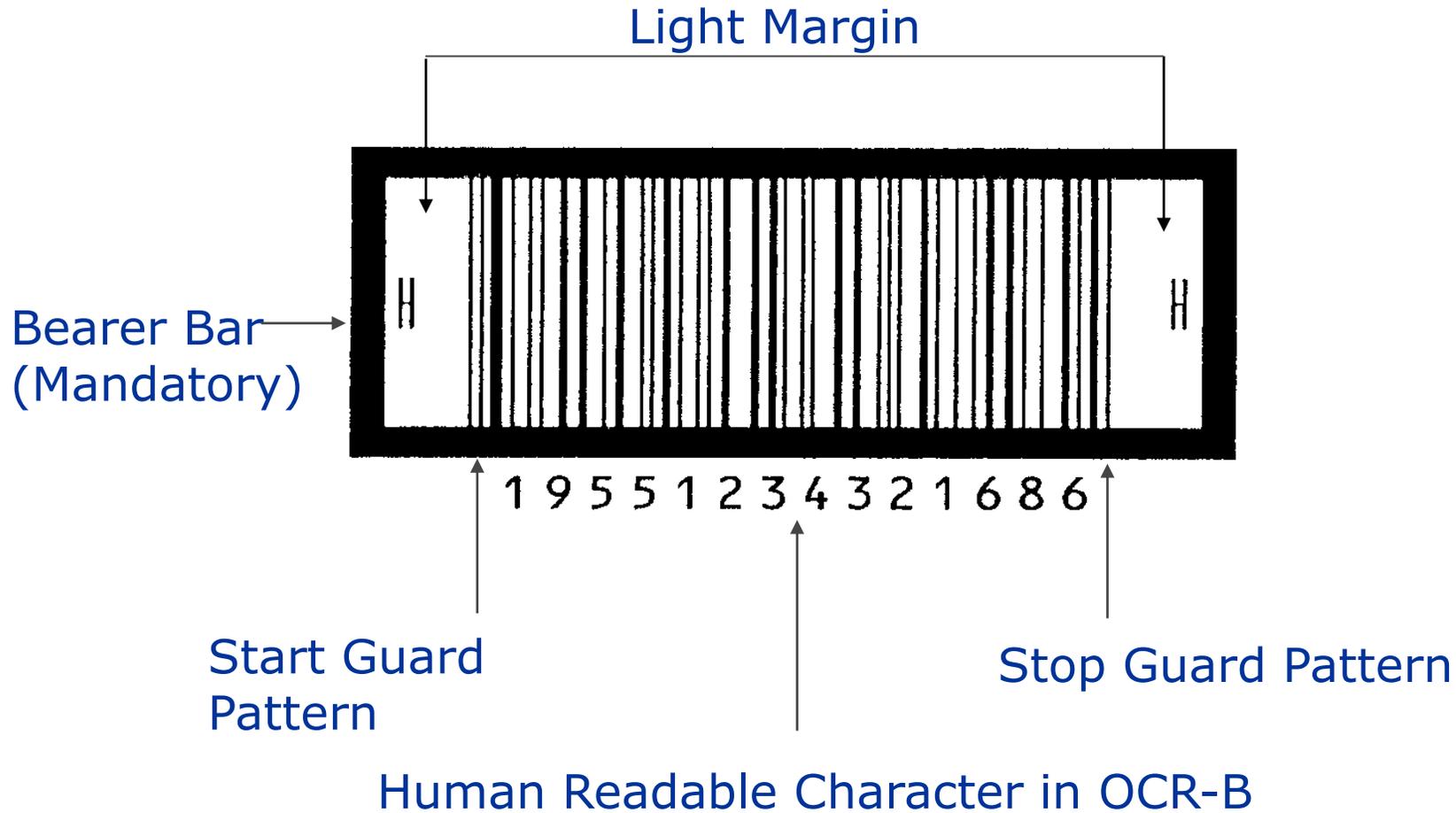


Other versions

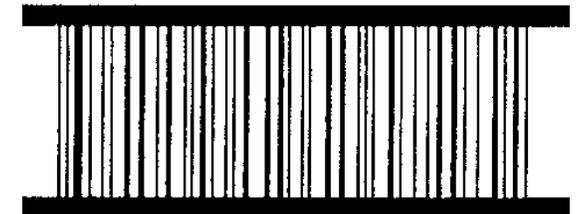


- The EAN-13 barcode symbol is generated from a GTIN-13 barcode number.
- **Used to label products**
- *EAN = European Article Number.*

Commonly Used 1D GS1 Barcode Symbols: ITF-14 Symbol Structure



Other versions

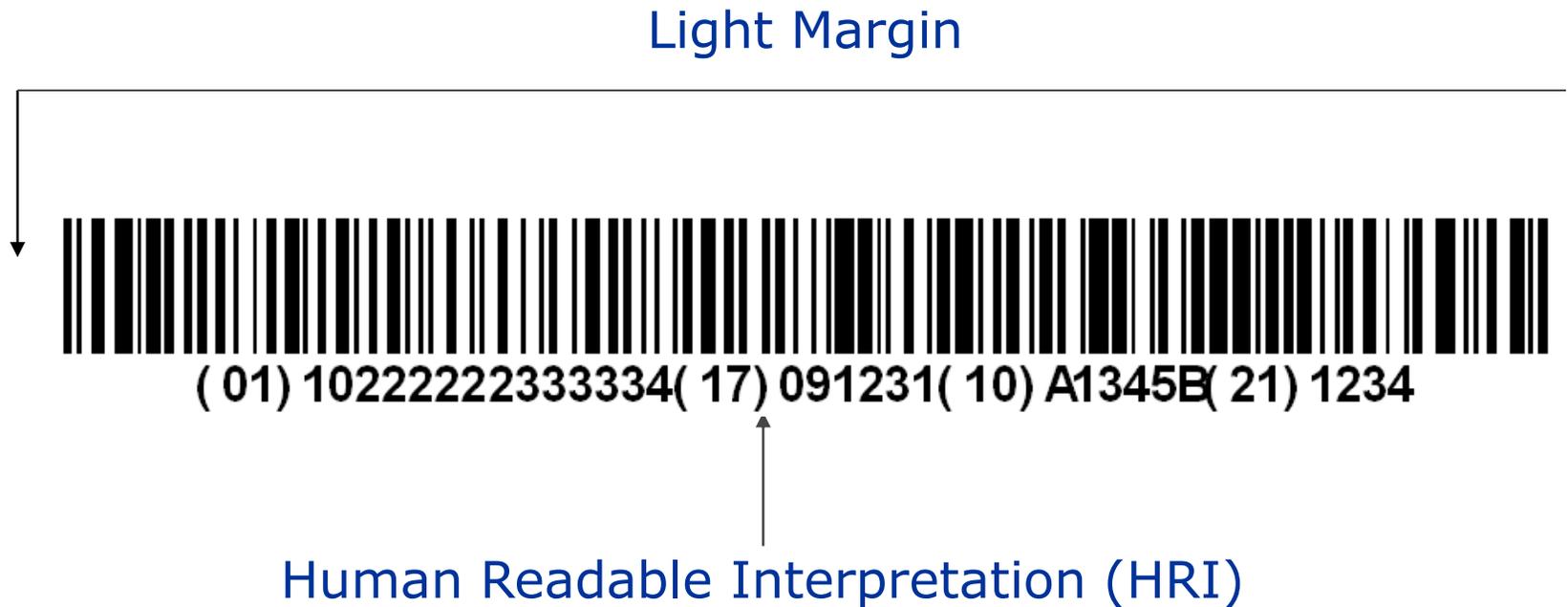


1 9 5 5 1 2 3 4 3 2 1 6 8 6

* Only when printed on smooth label / surface

- The ITF-14 barcode symbol is generated from a GTIN-14 barcode number.
- **Used to label cartons and trade items**
- *ITF = Interleaved.*

Commonly Used 1D GS1 Barcode Symbols: GS1-128 Symbol Structure



There are over
100 GS1 AI
Codes, scan here
to see them!



- Used for **traceability** of products and trade items, for **inventory and logistical use**.
- Able to contain additional production information such as batch/lot, expiry date, etc. using **GS1 Application Identifiers**.

Commonly Used 2D GS1 Barcode Symbols



GS1 2D DataMatrix

2D Barcode Symbol, can store a lot of information in a small space. Only readable using camera-based scanners. The default barcode symbol for **Healthcare traceability** use.



GS1 QR Code

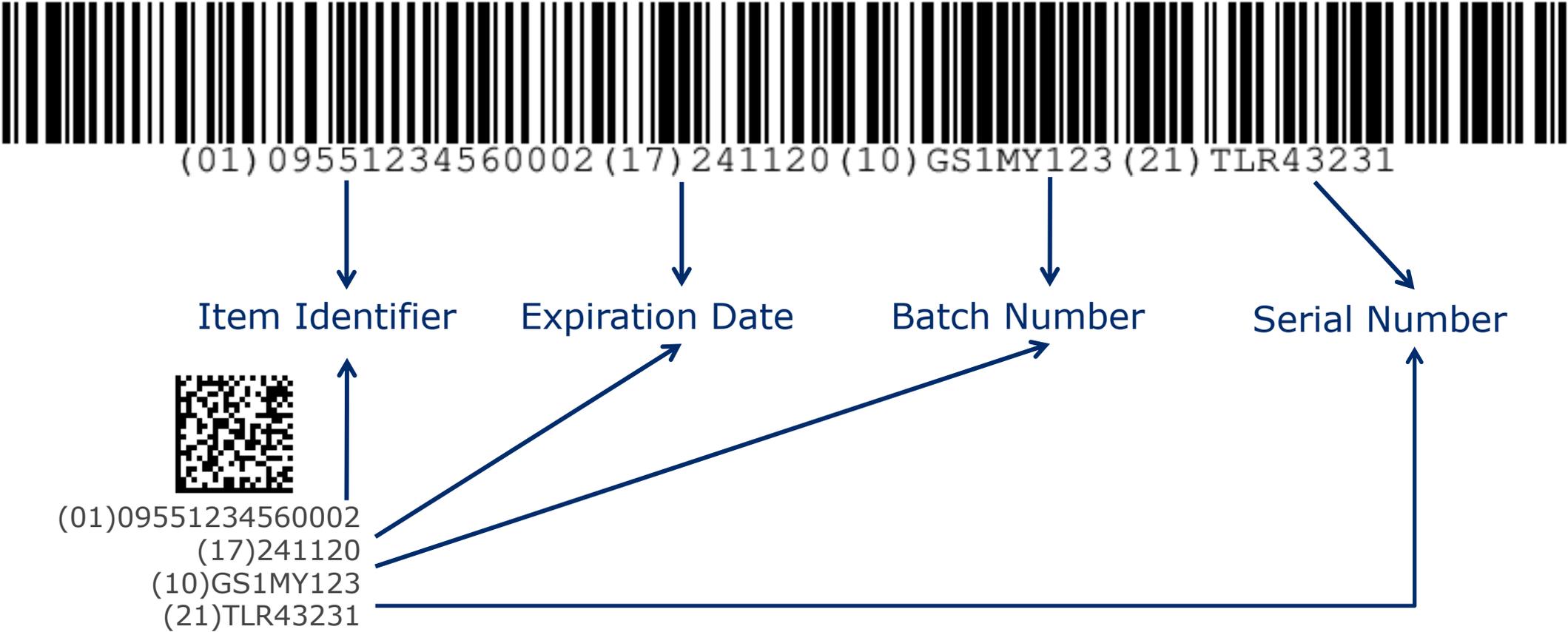
2D Barcode Symbol, can store a lot of information in a small space. Only readable using camera-based scanners. Similar to 2D Datamatrix, but is more efficient at encoding **logograms** such as Chinese, Japanese, Korean, etc. and **website links**

Did you know?

- GS1 2D Barcode can hold large amounts of data in a relatively small space as compared to traditional linear barcodes. Example information – expiry date, batch number & serial number
- Can be used on Retail & Non-Retail Product Units.

Join the free "GS1 2D Standards & VbG-PDSS Fulfil Global Circularity & Sustainability" briefing session every Thursday from 11am to 11.45am to learn more about 2D barcodes!

Space-saving: GS1-128 & GS1 Data Matrix Comparison



GS1 Function One / <FNC1> Key

- A GS1 Malaysia barcode must contain functions that identify it as using GS1 standards.
- A **FNC1 key** is used to **show that a barcode is following GS1 standards** and as a **group separator**.
- A group separator is used to **tell a barcode scanner** when a group of variable data **finishes**, and when the next one **starts**.

GS1 Function One / <FNC1> Key

- All production data that can be encoded into a GS1 barcode is separated into 2 types; fixed length and non-fixed length.
- Fixed length = non-variable data, e.g.
 - **All Dates**; i.e. **expiry date, sell-by date**; are 6 digits in length
 - **GTIN** is always 14 digits in length
- Non-fixed length = variable data, e.g.
 - **Batch / Lot Number**, can be of any length up, to a maximum of 20
 - **Serial Number**, can be of any length, up to a maximum of 20

Logistics Unit

- Items of any composition
- Established for transport and/or storage
- Tracked and traced through the supply chain
- Logistic units are individually identified with the **Serial Shipping Container Code (SSCC)**.
- Millions of products in many configurations and packaging types.

Possible types of logistic units :

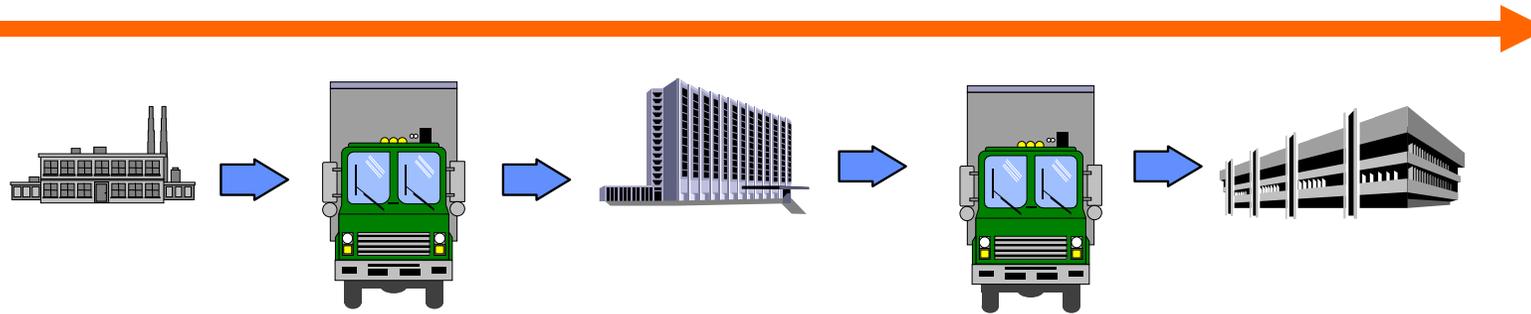
- ✓ A carton
- ✓ A pallet
- ✓ A group of shrink-wrapped units
- ✓ A cargo container

Serial Shipping Container Code (SSCC)

- The Serial Shipping Container Code is a standard for the individual identification of logistic units.
- The SSCC can be used by all parties in the supply chain as a reference number to the relevant information held in computer files.
- It is identified by the Application Identifier (AI) '00'.
- It is most commonly represented with the GS1-128 symbol.
- It is a mandatory field on the GS1 Logistic Label.
- The SSCC individually identifies the logistic unit to which it is applied for the lifetime of that unit (it can be re-used after 1 year).

SSCC: An Entity Identifier

Supplier Transporter Distributor Transporter Customer



All stakeholders in a supply chain can use SSCC to keep track of their products as it moves

GS1 Logistics Label

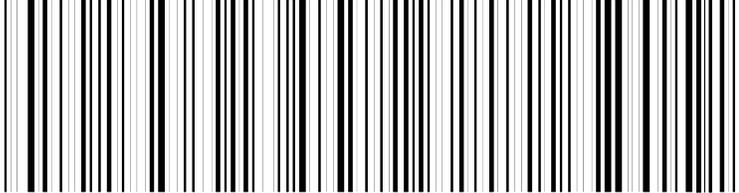
- A voluntary standard for the numbering and barcoding of logistic units.
- Provides clear and concise information about the logistic unit to which the label is fixed, in both machine and human readable form.



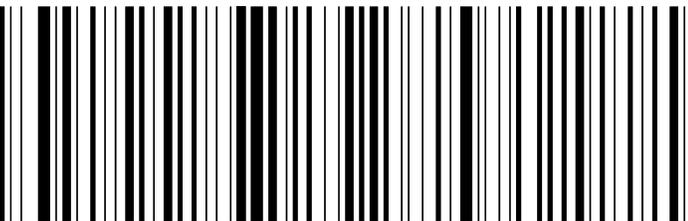
GS1 LOGISTICS LABEL

SSCC :
2 541234 0089765002 4

COUNT :	CONTENT :	BATCH :
64	0541234 5678908	879654



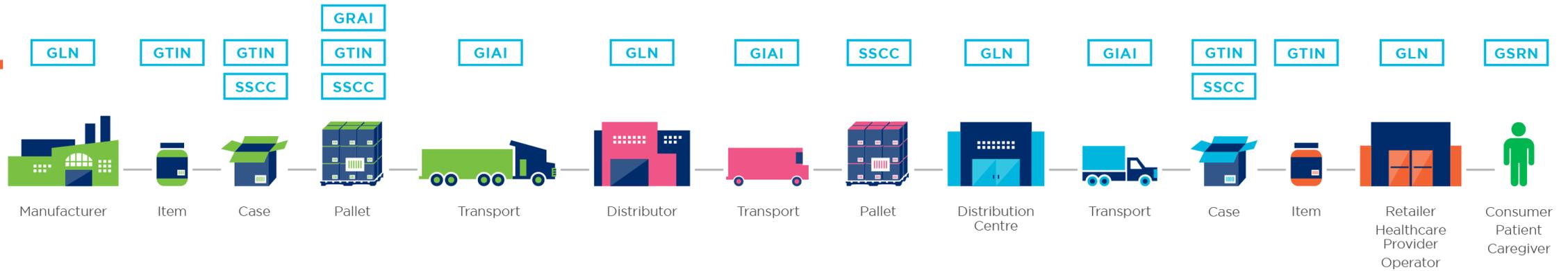
(0 2) 0 5 4 1 2 3 4 5 6 7 8 9 0 8 (3 7) 6 4 (1 0) 8 7 9 6 5 4



(0 0) 2 5 4 1 2 3 4 0 0 8 9 7 6 5 0 0 2 4

Identify: GS1 Standards for Identification

GLN Global Location Number **GTIN** Global Trade Item Number **SSCC** Serial Shipping Container Code **GRAI** Global Returnable Asset Identifier **GIAI** Global Individual Asset Identifier **GSRN** Global Service Relation Number



Capture: GS1 Standards for Barcodes & EPC/RFID

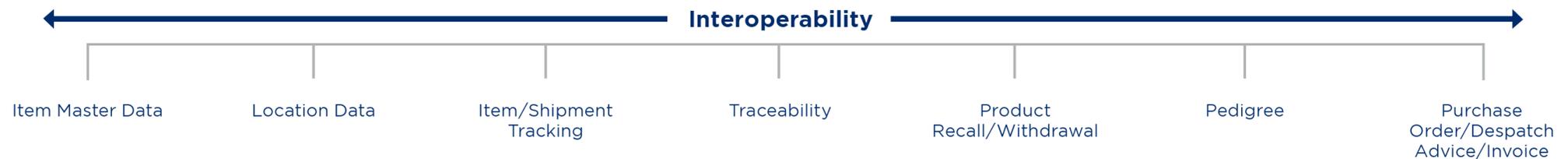
GS1 Barcodes

GS1 EPC/RFID



Share: GS1 Standards for Data Exchange

Master Data Global Data Synchronisation Network (GDSN) **Transactional Data** Electronic Data Interchange (EDI) **Event Data** EPC Information Services (EPCIS)



Official GS1 Communications Channels

Official GS1 Malaysia WhatsApp

+6014-3933 228

(Membership, Services & Support)

+6011-1616 8228

(Membership, Services & Support)

+6016-2455 228

(Strictly for Payment Only)

+6012-2722 646

(Strictly for Payment Only)

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+603-6286 7200

Official GS1 Malaysia Emails

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membership@gs1my.org

payment@gs1my.org

databank@gs1my.org

Official GS1 Malaysia Website

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