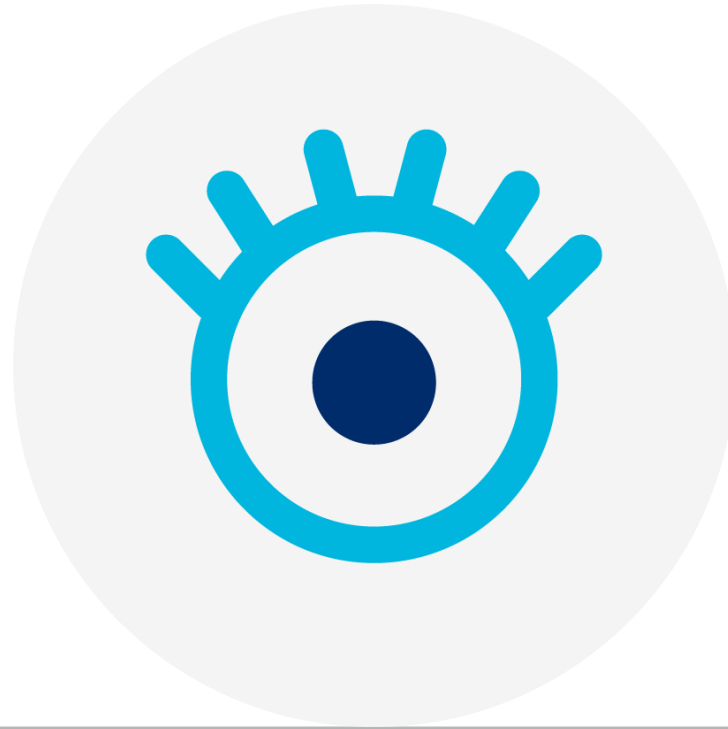# GS1 Identification Keys –
The Global Trade Item Number GTIN

For identifying trade item and services
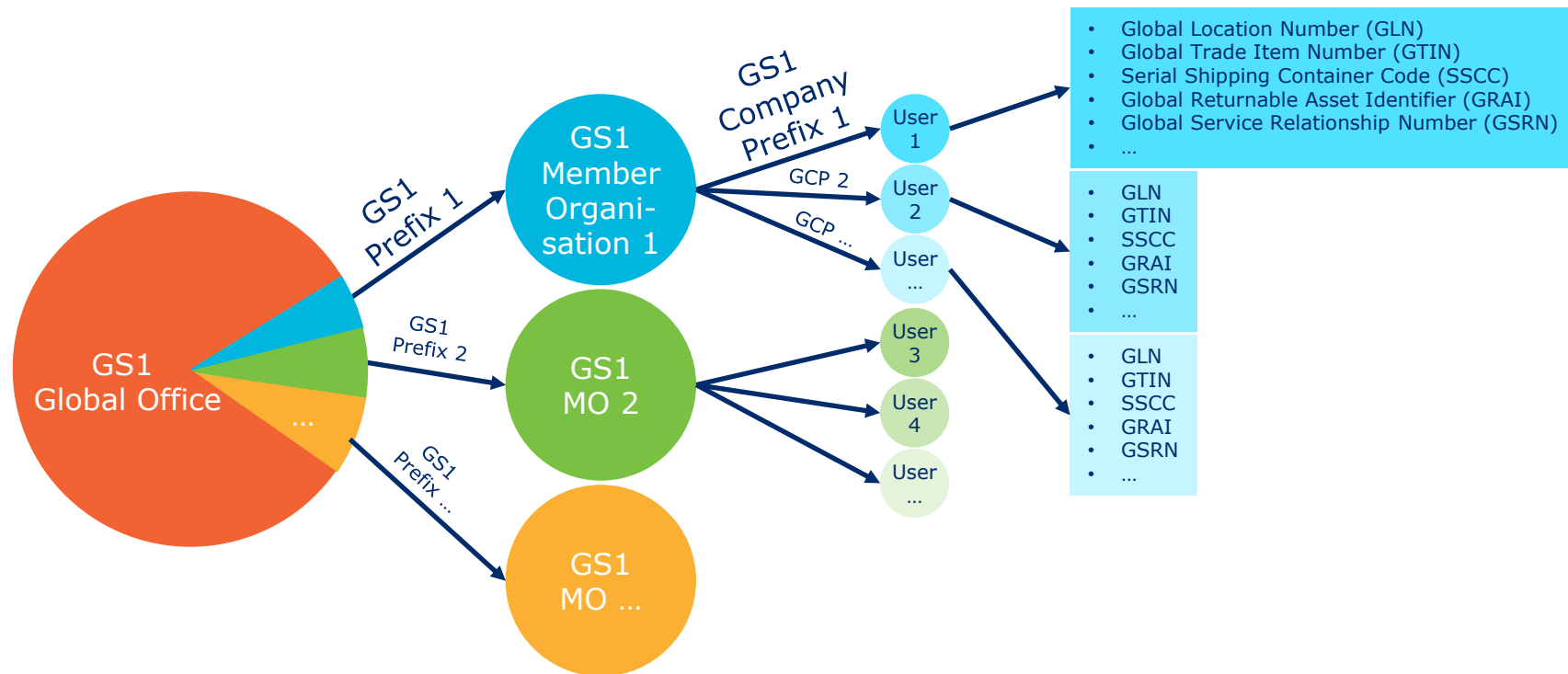
Andrew

18.08.2021

Identify

What are identification keys?

AN IDENTIFICATION KEY	PROVIDES ACCESS TO INFORMATION	HELD IN DATABASES

The GS1 Numbering System

- Global Location Number (GLN)
- Global Trade Item Number (GTIN)
- Serial Shipping Container Code (SSCC)
- Global Returnable Asset Identifier (GRAI)
- Global Service Relationship Number (GSRN)
- …

- GLN
- GTIN
- SSCC
- GRAI
- GSRN
- …

- GLN
- GTIN
- SSCC
- GRAI
- GSRN
- …

GS1 Global Office

GS1 Prefix 1 → GS1 Member Organisation 1

GS1 Prefix 2 → GS1 MO 2

GS1 Prefix … → GS1 MO …

GS1 Company Prefix 1

GCP 2

GCP …

User 1
User 2
User …
User 3
User 4
User …

The GS1 Numbering System

Typical Structure (example GTIN)

GS1 Prefix
as part of
GS1 Company Prefix

GS1 Company Prefix **Item Reference** **Check Digit**

Global Trade Item Number (GTIN)

GTIN learning objectives

9 524000 000019

1 Define what a GTIN is and specify where each GTIN type is used

2 Explain how a GTIN is structured

3 Identify the circumstances where a GTIN is required

GS1
Germany

What is a GTIN?

A Global Trade Item Number (GTIN) is used to **identify any type of item** (product or service) upon which there is a need to retrieve pre-defined information, and that may be **priced** or **ordered** or **invoiced** at any point in the supply chain.

What is a GTIN?

A Global Trade Item Number (GTIN):

- Does **not** contain any information about the item being identified

- Is the **GS1 identification key used** to access information and data from computer files or databases

- Is used to support a wide range of business processes

The GTIN—more than just a number

Trusted
By industry and customers alike
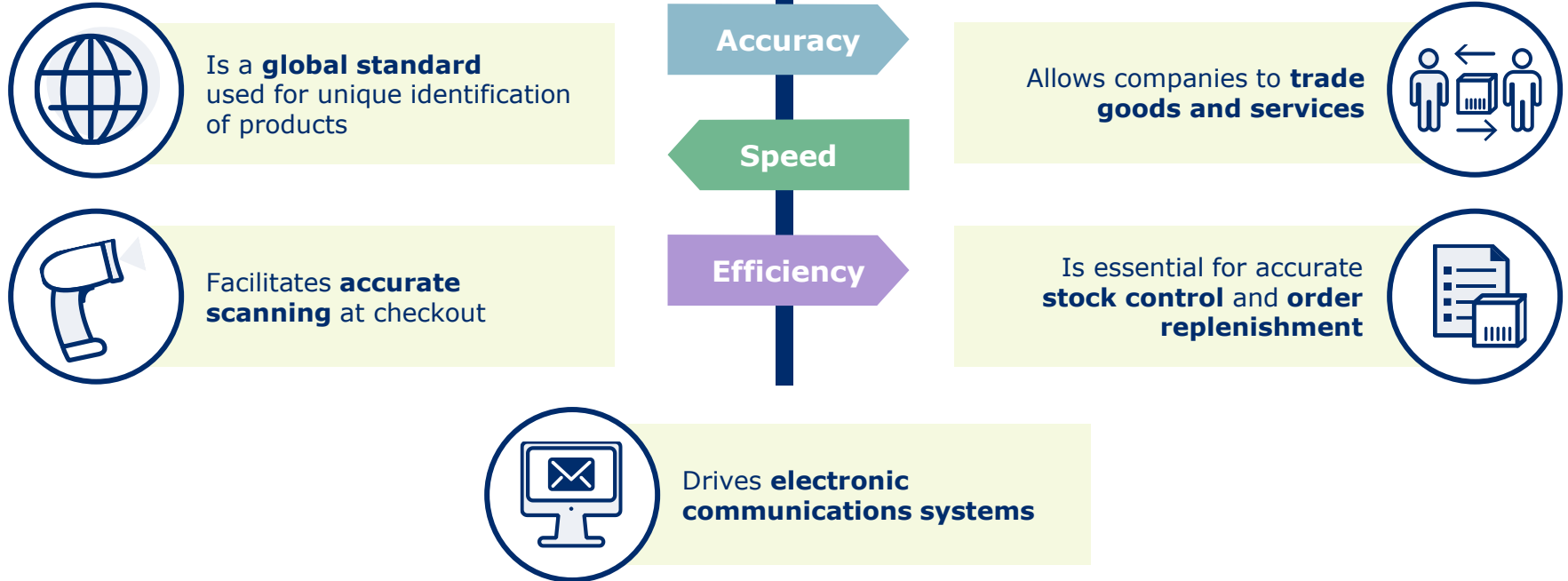
Unique
Ensuring brand protection

Traceable
Linked directly back to your company

Universal
One system used by everyone, everywhere, both on and offline

Why should I use a GTIN?

Is a **global standard** used for unique identification of products

Accuracy

Allows companies to **trade goods and services**

Speed

Facilitates **accurate scanning** at checkout

Efficiency

Is essential for accurate **stock control** and **order replenishment**

Drives **electronic communications systems**

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Why use GTINs on marketplaces

AIPI

Many marketplaces require GTINs for item listings

Helps consumers **find your product**

Ensures consumers are viewing an **accurate product listing**
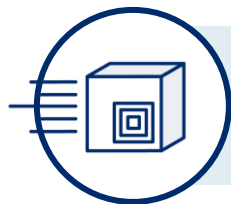
Is critical for marketplaces to **manage inventory**

Helps deliver the **right product** to the consumer **as fast as possible**

An example of how a GTIN is used

Barcode symbol is **scanned** at the point-of-sale
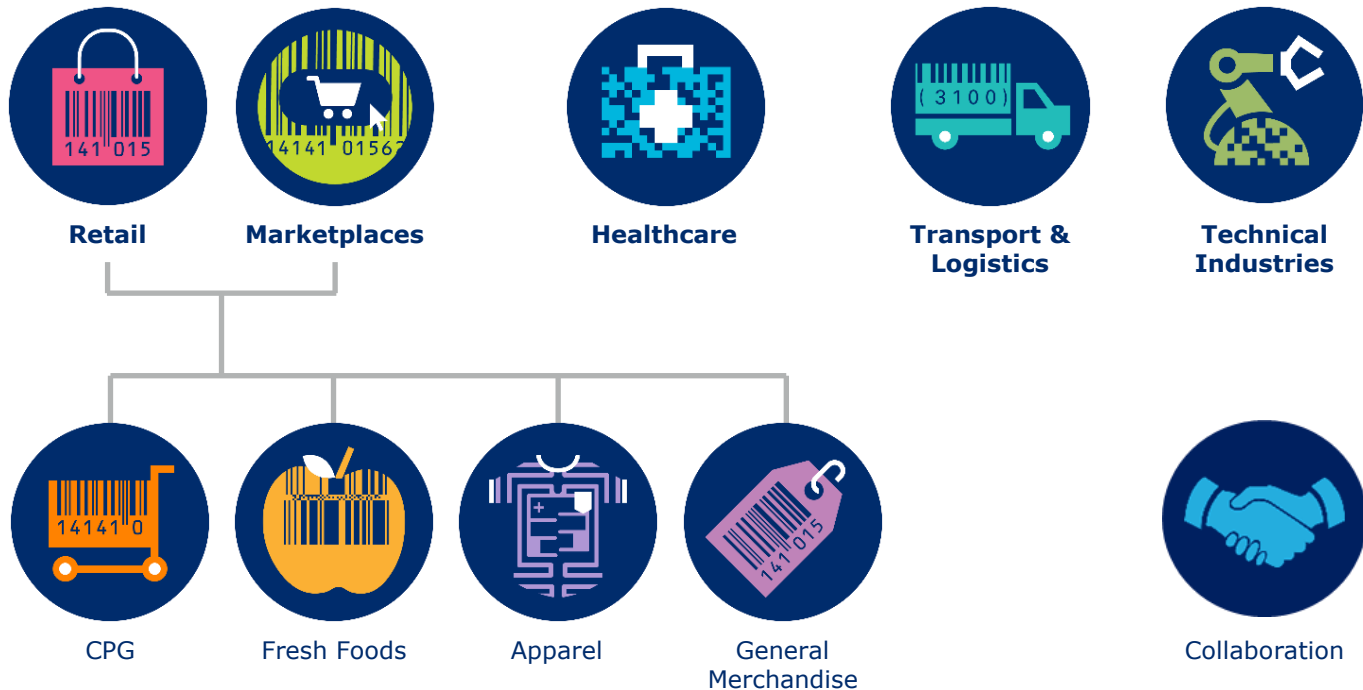
A GTIN is located in the **database**

Price of the item is accessed and added to the customer's bill

Inventory

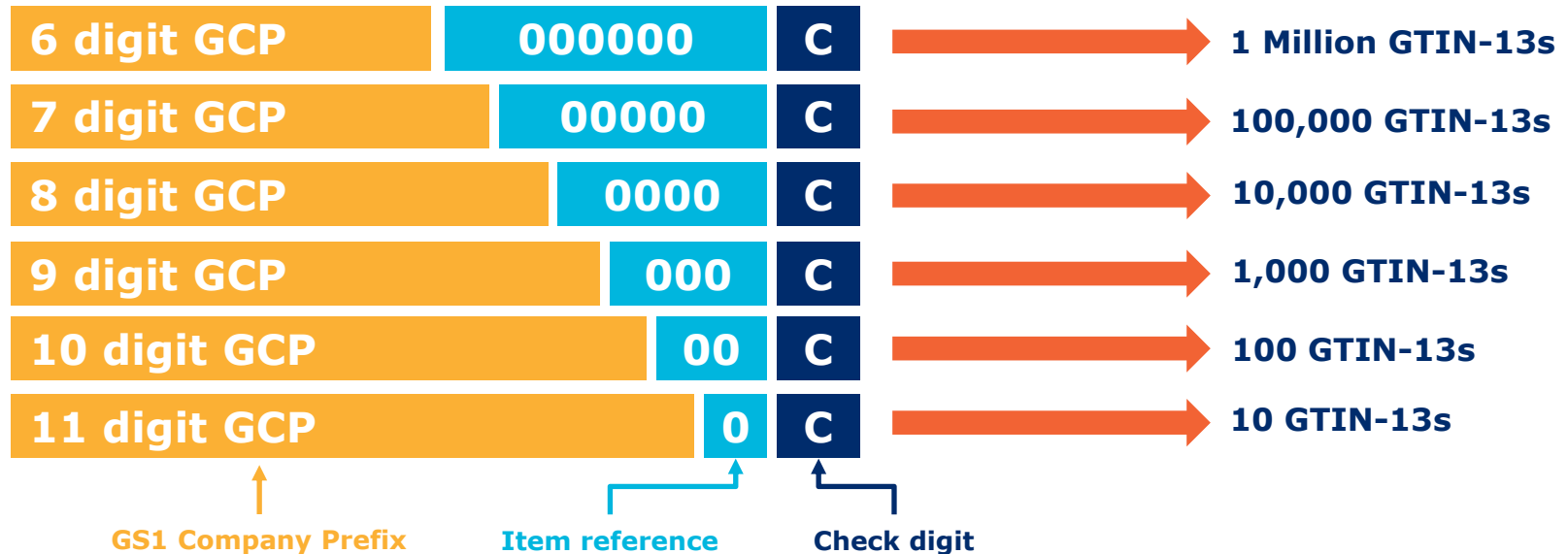GTIN helps companies **manage their inventory** by capturing the number of sales transacted

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Where are GTINs used?

The Global Language of Business

What is a GS1 Company Prefix (GCP)?

GS1 Company Prefix

A GS1 Company Prefix is a unique string of **four to twelve digits** used to issue GS1 identification keys.

GTIN capacity from a GCP

6 digit GCP	**000000**	**C** → 1 Million GTIN-13s
7 digit GCP	**00000**	**C** → 100,000 GTIN-13s
8 digit GCP	**0000**	**C** → 10,000 GTIN-13s
9 digit GCP	**000**	**C** → 1,000 GTIN-13s
10 digit GCP	**00**	**C** → 100 GTIN-13s
11 digit GCP	**0**	**C** → 10 GTIN-13s

GS1 Company Prefix   **Item reference**   **Check digit**

Who assigns a GTIN?

The company or organisation that makes the product available to the market assigns the GTIN.

GTIN-13

952400	000001	9
952400	000002	6
952400	000003	3

GS1 Company Prefix   **Item reference**   **Check digit**

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What is a check digit?

9501101530096 **6** Your Check Digit

Copy this key

See this in GTIN 14 format

You've entered 12 digits, this corresponds with the GTIN-13 format. It could also be a GLN or the first 13 digits of a GRAI, GDTI or GCN.

The last digit of a barcode number is a computer check digit which makes sure the barcode is correctly composed.

Calculate a check digit

GS1 key without check digit

[   ]   Calculate

9 501101 530096 >

How to calculate the check digit for GTIN-13?

- The easy way:
  https://www.gs1.org/services/check-digit-calculator

- The ‚hard' way: calculate manually:

Positions	N_1	N_2	N_3	N_4	N_5	N_6	N_7	N_8	N_9	N_{10}	N_{11}	N_{12}	N_{13}
Number *without* Check Digit	6	2	9	1	0	4	1	5	0	0	2	1	-
Step 1: Multiply	x	x	x	x	x	x	x	x	x	x	x	x	-
by	1	3	1	3	1	3	1	3	1	3	1	3	-
Step 2: Add results	=	=	=	=	=	=	=	=	=	=	=	=	-
to create *sum*	6	6	9	3	0	12	1	15	0	0	2	3	= 57
Step 3: Subtract the **sum** from nearest equal or higher multiple of ten = 60- 57 = 3 (Check Digit)													
Number **with** Check Digit	6	2	9	1	0	4	1	5	0	0	2	1	3

# GTIN Allocation Rules

www.gs1.org/gtinrules

GTIN-8

- The GTIN-8 is 8 digits and uses a prefix directly assigned by GS1.
- GS1 Member Organisations can directly allocate GTIN-8s for very small retail items.
- The GTIN-8 is restricted to retail products whose pack or label does not allow the printing of a standard EAN-13 or UPC-A barcode.
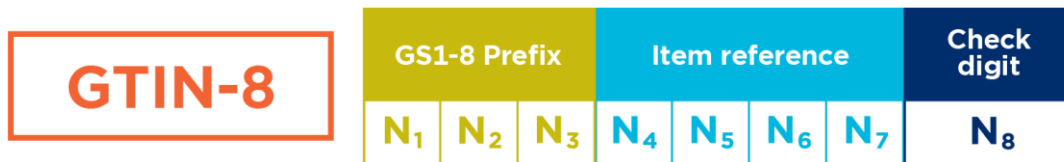
GTIN-8	GS1-8 Prefix			Item reference				Check digit
	N_1	N_2	N_3	N_4	N_5	N_6	N_7	N_8

If a GTIN contains <14 digits, the database adds leading zeroes in front of the GTIN to fill the 14-digit field.

GTIN-13

- The GTIN-13 is 13 digits containing a GS1 Company Prefix, an item reference and a check digit.
- The GTIN-13 is ideal for items sold at point-of-sale or online.
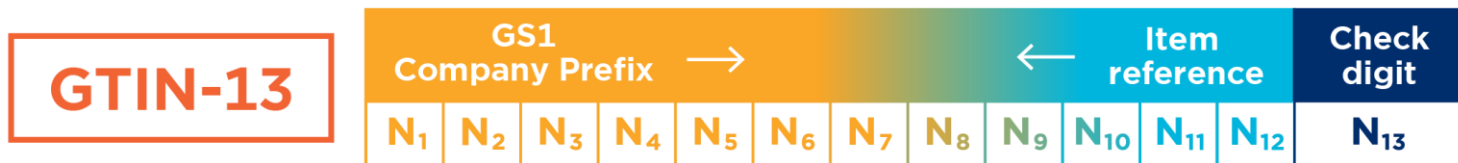
If a GTIN contains <14 digits, the database adds leading zeroes in front of the GTIN to fill the 14-digit field.

Sequential allocation of numbers

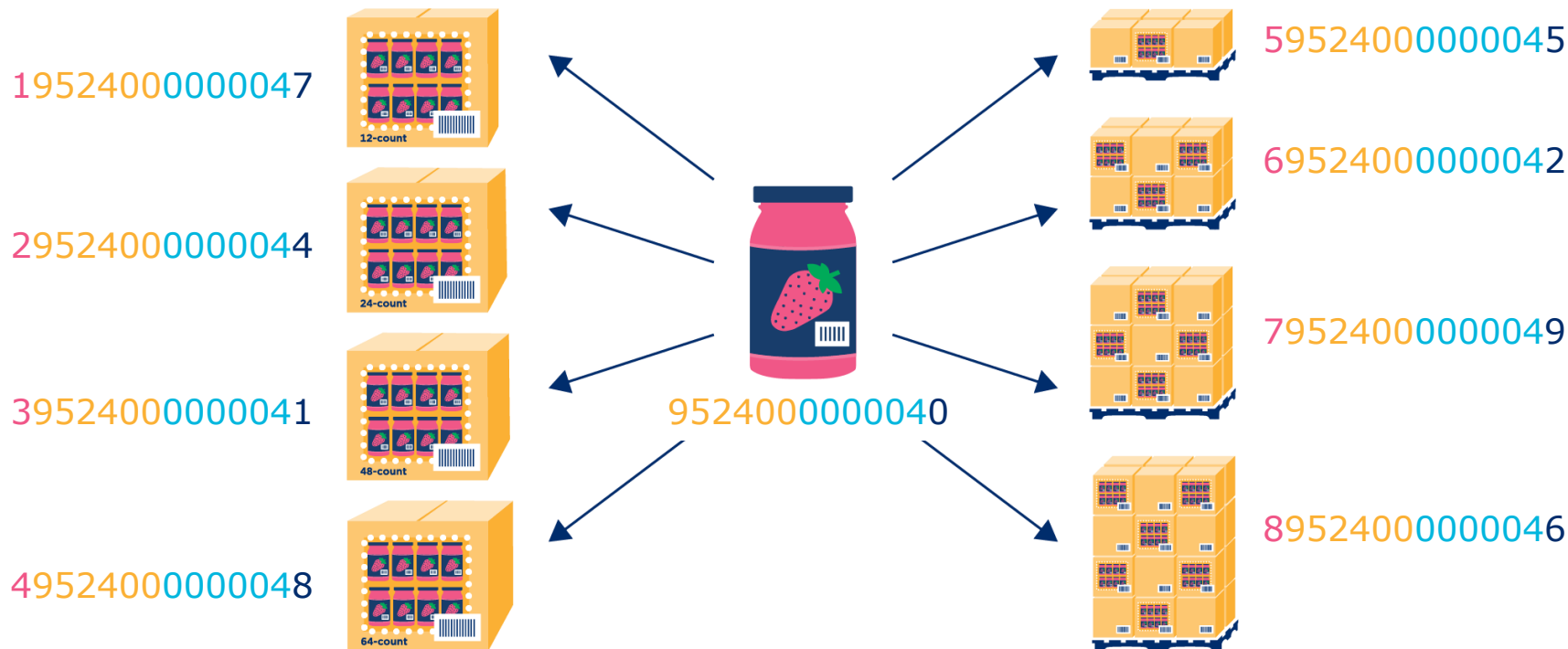|		GS1 Company Prefix	Item reference	Check digit
	1 Pack	9 5 2 4 0 0	0 0 0 0 0 1	9
	3 Pack	9 5 2 4 0 0	0 0 0 0 0 2	6
	5 Pack	9 5 2 4 0 0	0 0 0 0 0 3	3

GTIN-14

- The GTIN-14 is 14 digits containing an indicator, a GS1 Company Prefix, an item reference plus a check digit.

- The GTIN-14 is used on items that will not be sold at the checkout and contains items that are themselves identified with a GTIN-8, GTIN-12 or GTIN-13 (e.g., a case of items).

- An "indicator" is a digit in the leftmost position of the GTIN-14 that can range from 1-8, with 9 reserved for variable measure.
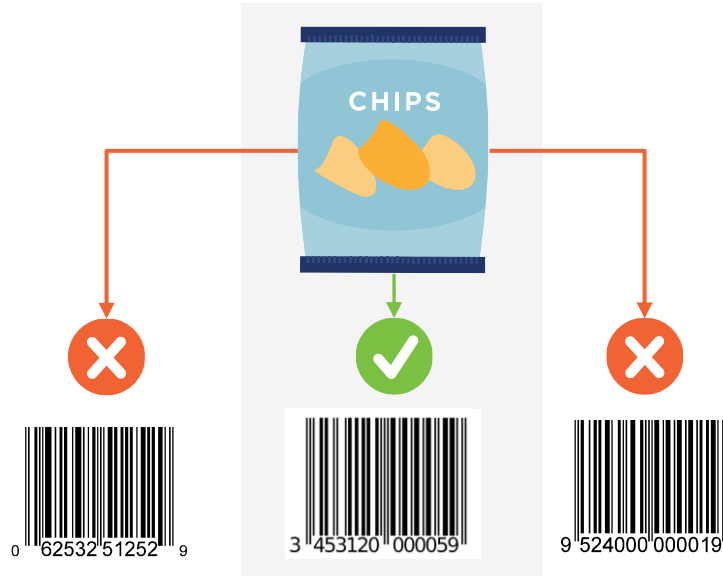
GTIN-14	Indicator	GS1 Company Prefix →							← Item reference				Check digit
	N_1	N_2	N_3	N_4	N_5	N_6	N_7	N_8	N_9	N_{10}	N_{11}	N_{12} N_{13}	N_{14}

Indicator Digit Allocation

Fundamental rule for GTIN allocation

1 product = 1 GTIN

0 62532 51252 9

3 453120 000059

9 524000 000019

1 GTIN = 1 product

9 521101 500011