Labels and Data: How to Achieve B2B Supply Chain Excellence

Peter Zalinski

Barcoding, Inc.

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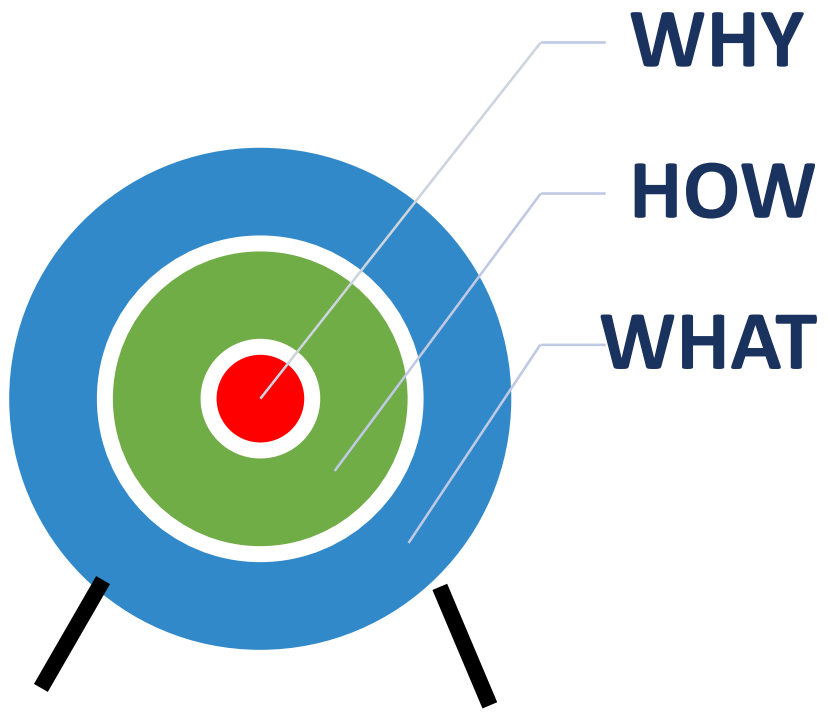
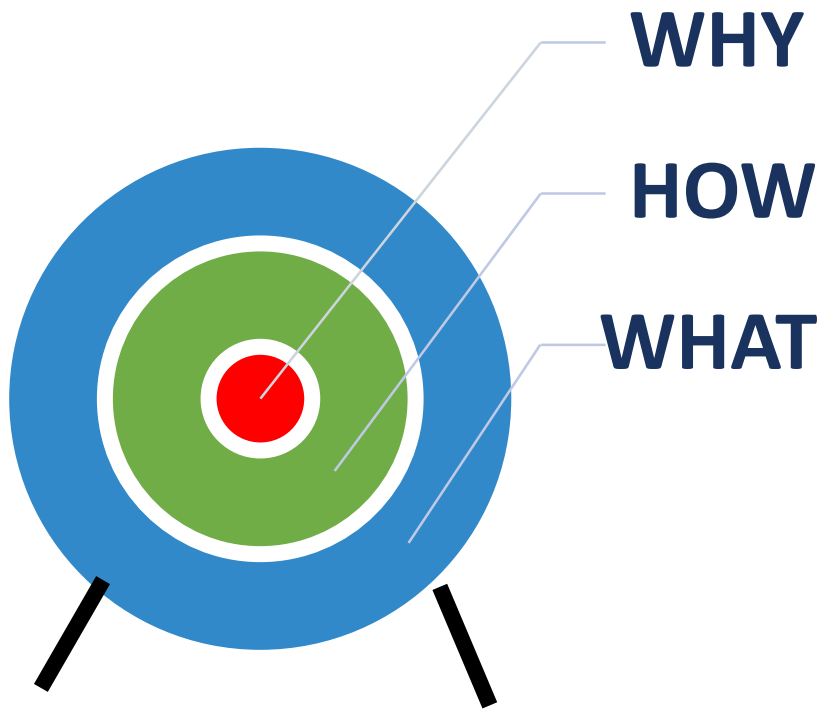
Supply Chain “Go and See”



Supply Chain “Go and See”

- **PPT**
  - Process
  - People
  - Technology…
- **C³**
  - Reduce Costs
  - Increase Cashflow
  - Improve the Customer Experience

and DATA



Objectives

- Identify B2B Supply Chain Excellence
- Improve the Customer Experience
- Use GS1 Standards: a Platform for Success
  - Identify
  - Capture
  - Share
  - And Use

What’s your B2B experience like if you need one of these in a hurry?

B2B: Maintenance needs a part

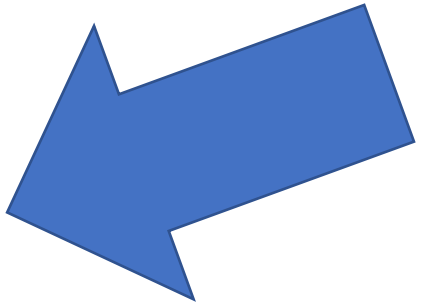
1. **Production is Down**
2. **Ordered Parts**
3. **Shipment Arriving (LTL) Today**
4. **Line to Resume by EOD**
5. **Waiting**

The pallet arrives

The case you need

The packages inside

The unit you need



“Needle in the haystack”

How long will you wait?

- Receive and Unload Pallet
- Validate BOL to PO
- Inspect Goods
- Match Order
- Check Quality
- Enter Receipt into ERP
- Put Away or Expedite

Manual receipt process: DISCOVERY

- Receive and Unload Pallet
- Validate BOL to PO
- Inspect Goods
- Match Order
- Check Quality
- Enter Receipt into ERP
- Put Away or Expedite

1 to 4 Hrs

Automated receipt process: DIRECTED

- Receive and Unload Pallet

  - Validate BOL to ASN
  - Match Order
  - Enter Receipt into ERP
- Inspect Goods
- Check Quality
- Put Away or Expedite

< 20 Min

B2B Excellence

- Pallet SSCC is Scanned at Dock into WMS
  - Directed to RUSH Location for Breakdown
- All Cases Get Scanned for Handling
  - Rush Item Gets Expedited to Maintenance
- Time Elapsed: Typically 20 Minutes or Less

B2B: MRO Costs Comparison

- Line is down, Cost is $10,000 per minute
- Receiving:
  - Standard 3PL Fees = $45/hour for handling inventory
  - Cost Average @ 1 minute per touch = $0.75/touch
- Best Case Manual Receipt:
  - 27 minutes = $270,020.25
- GS1 Automated Receipt:
  - 13 minutes = $130,009.75

B2B: MRO Costs Comparison

- **GS1 Receiving is:**
  - **More efficient**
  - **More accurate**
  - **More connected**
- **More Cost Effective**

	Touches Required	**Manual**	**GS1**
Receive	*Pallet*	1	1
	BOL	1	
	Search for PO	1	
	Stage Pallet	1	1
	Breakdown 5 layers	5	5
	ERP, 10 Lines	10	
Expedite	*Pallet*	1	
	Case	1	1
	Pack	1	1
	Unit	1	1
	Alert Maintenance	1	1
	Perform Transfer	2	2
	Record Transfer	1	
	Time in minutes	**27**	**13**
	Handling Cost	**$20.25**	**$9.75**
	Downtime Cost	**$ 270,000.00**	**$ 130,000.00**

Using GS1 Standards for receiving

- Pallet SSCC is Scanned at Dock into WMS
  - Directed to RUSH Location for Breakdown
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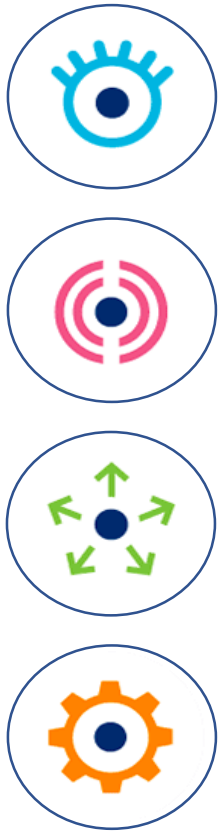
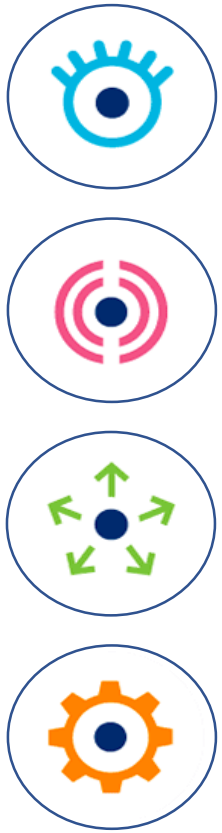
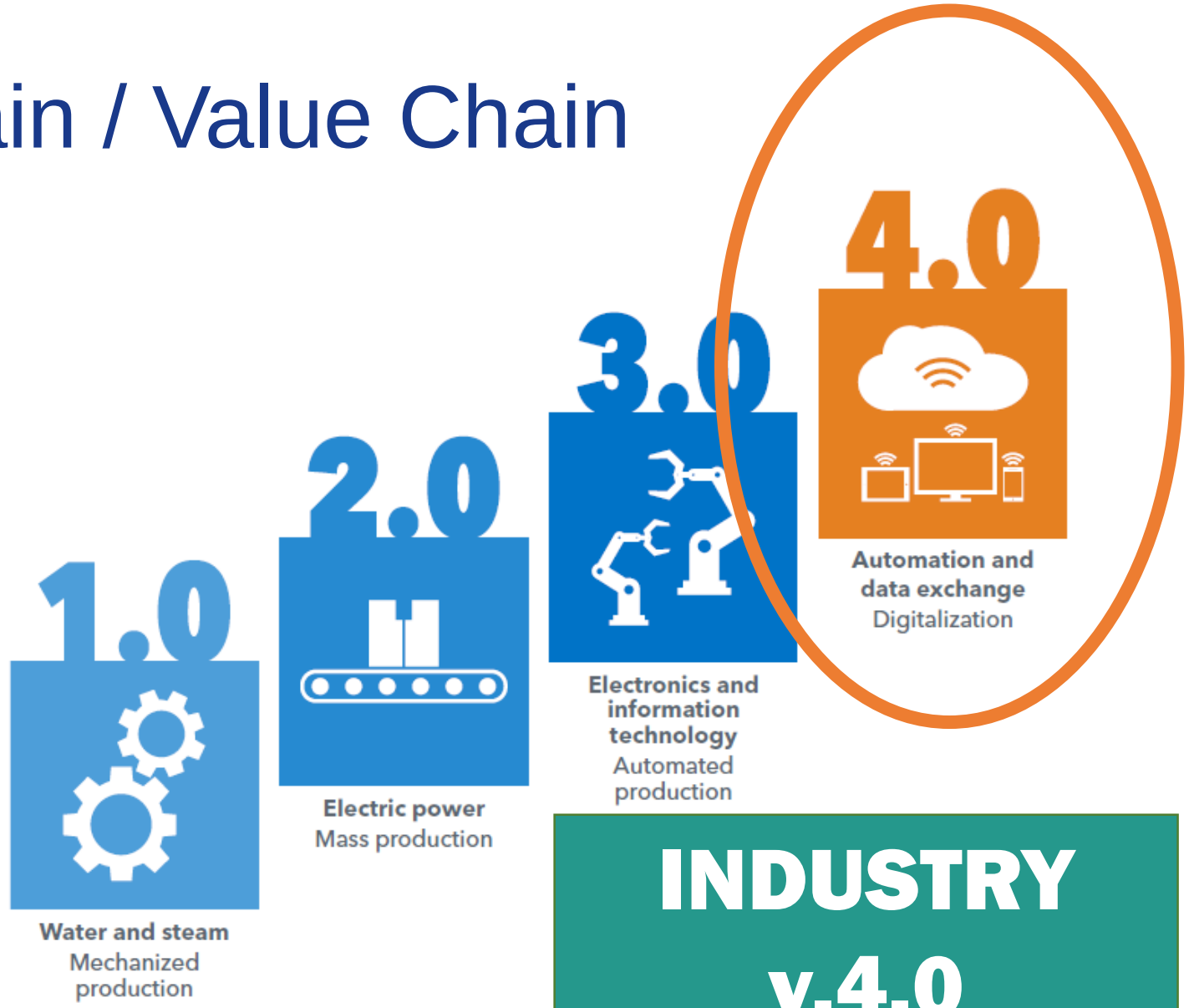


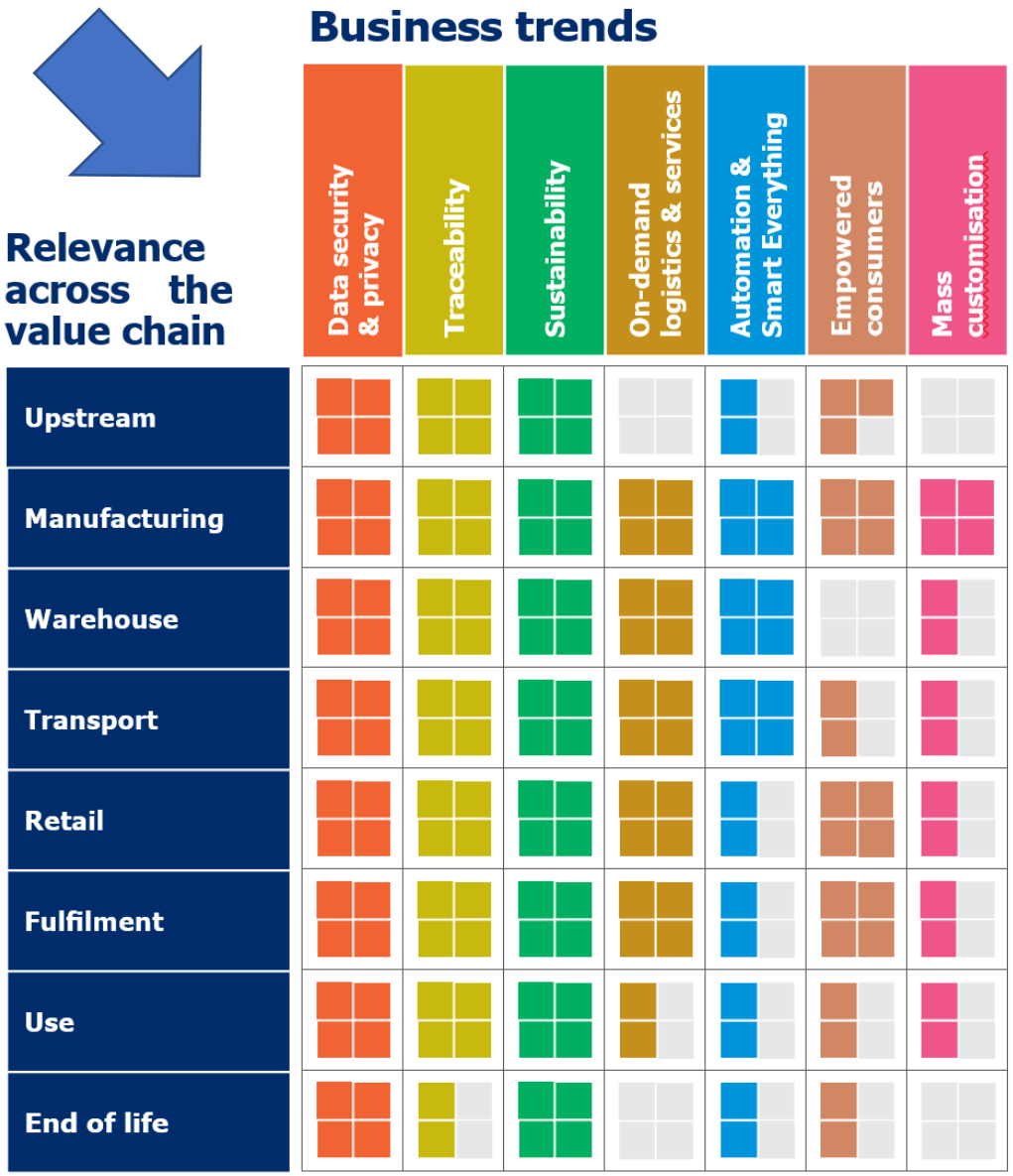
Benefits of GS1 Standards

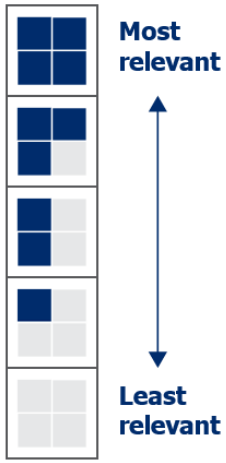
- Reduced Inefficiencies
- Improved Product Information
- Enhanced Traceability
- Electronic Order Management
- Automatic Data Capture
- Inventory Visibility
- ***Operational Excellence***



Supply Chain / Value Chain Evolution







Where GS1 Standards are relevant to the value chain

26 APRIL 2019 - *Business trends and the GS1 value chain, GS1.org*

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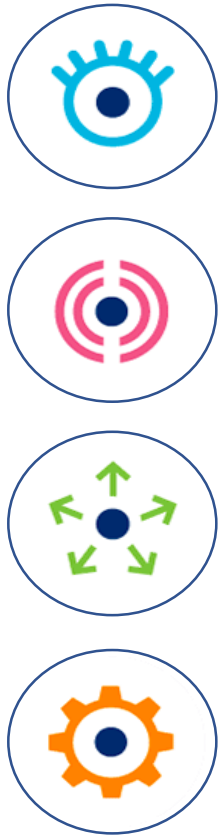
GS1 Standards: a common language



- Identify
  - Physical and digital identity for products, logistics units, locations, assets, documents, relationships and events
- Capture
  - Capture, store, locate, retrieve and analyze data about the things identified
- Share
  - Actionable data
  - Data sharing standards for interoperability
    - **EPCIS** + **CBV**
- Use
  - Automate your interaction with the supply chain

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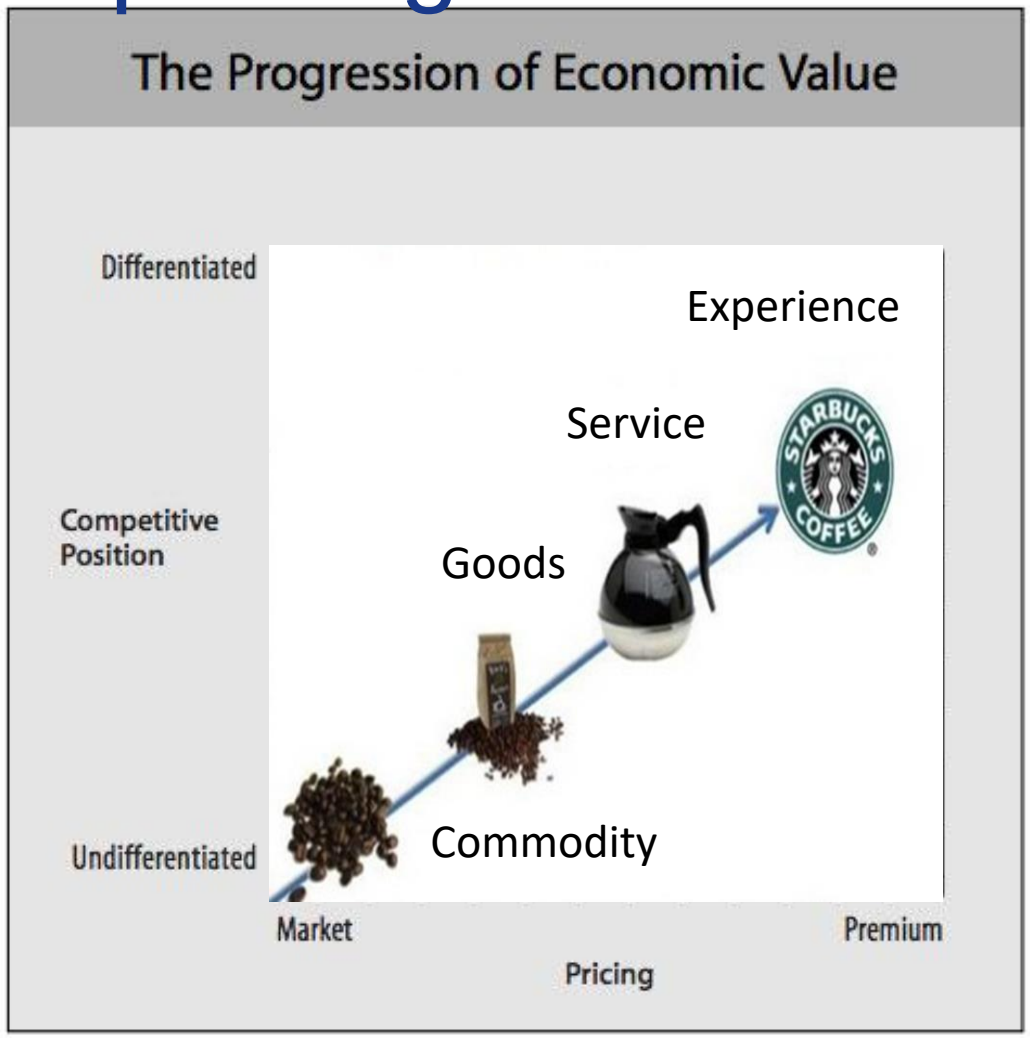
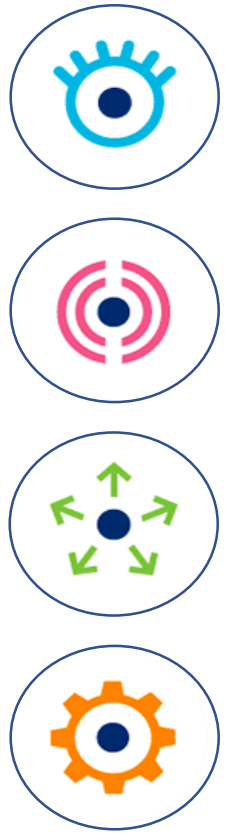
Improving the Customer Experience



Value-add activities

GS1 value add activities

- Customer compliant labelling
  - Item
  - Carton
  - Case-Pack
  - Pallet
- Serial Shipping Container Codes (SSCC’s)
  - License Plates
- ASN’s / EDI
  - Dispatch advice = shared data



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Shared Data

5W's + H

= $aving$

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Sharing your data

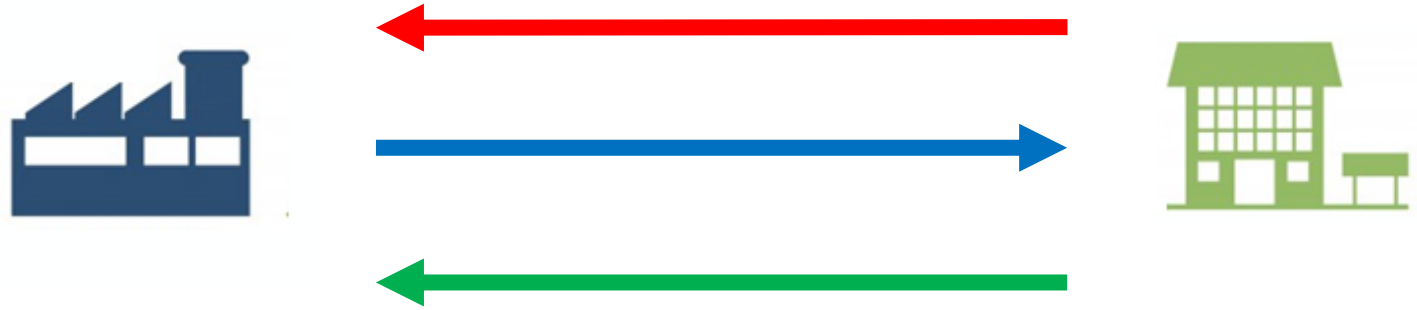
GS1 solves the Master Data problem

1WorldSync

- Every company has a database filled with master data about the products they make, sell or buy
- When a company changes any bit of that information in their database or adds a new item, other databases can become outdated!
- Sync your master data, share it with trading partners

Share your information B2B

Supply Chain: Two or more parties CONNECTED by a flow of Information, Goods and Money that fulfills a customer request.



Information: Order

Goods: Delivery

Money: Payment

Share your information B2B

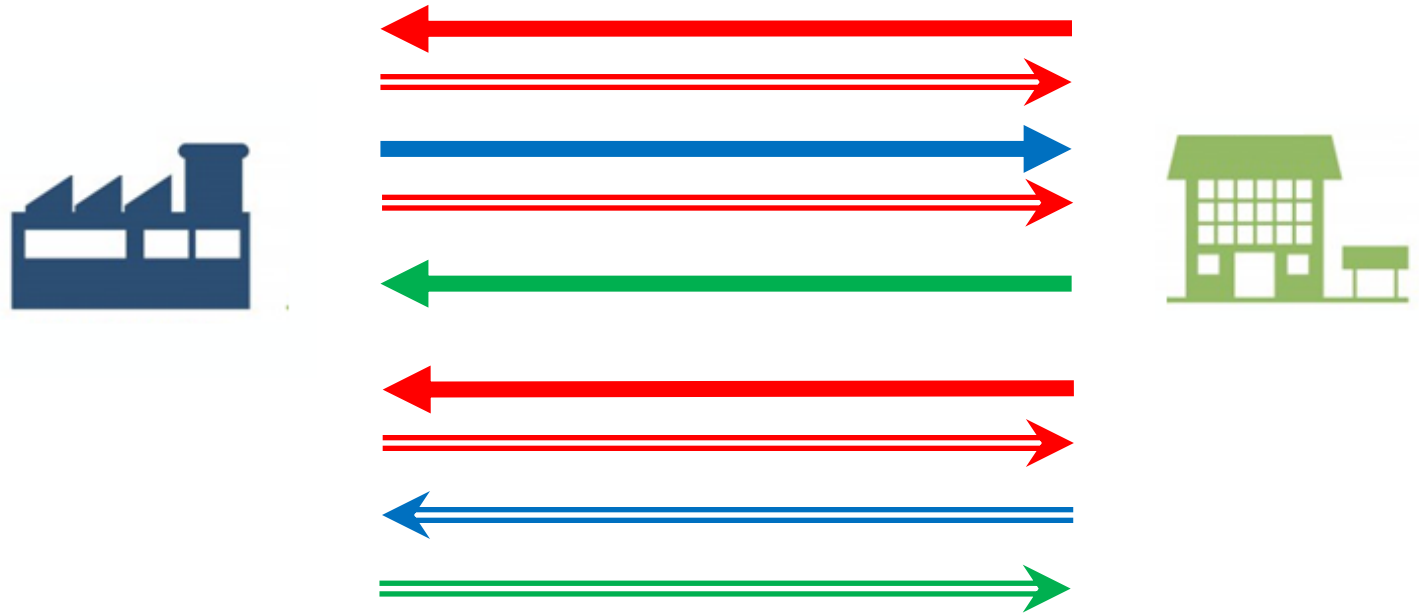
Supply Chain: Two or more parties CONNECTED by a flow of Information, Goods and Money that fulfills a customer request.

Information: Order
Order Confirmation
Goods: Delivery
Invoice
Money: Payment

Share your information B2B

Supply Chain: Two or more parties CONNECTED by a flow of Information, Goods and Money that fulfills a customer request.

- Or (more likely) THIS:



Information: PO

Order Confirmation

Goods: Delivery

Invoice

Money: Payment

RMA Request

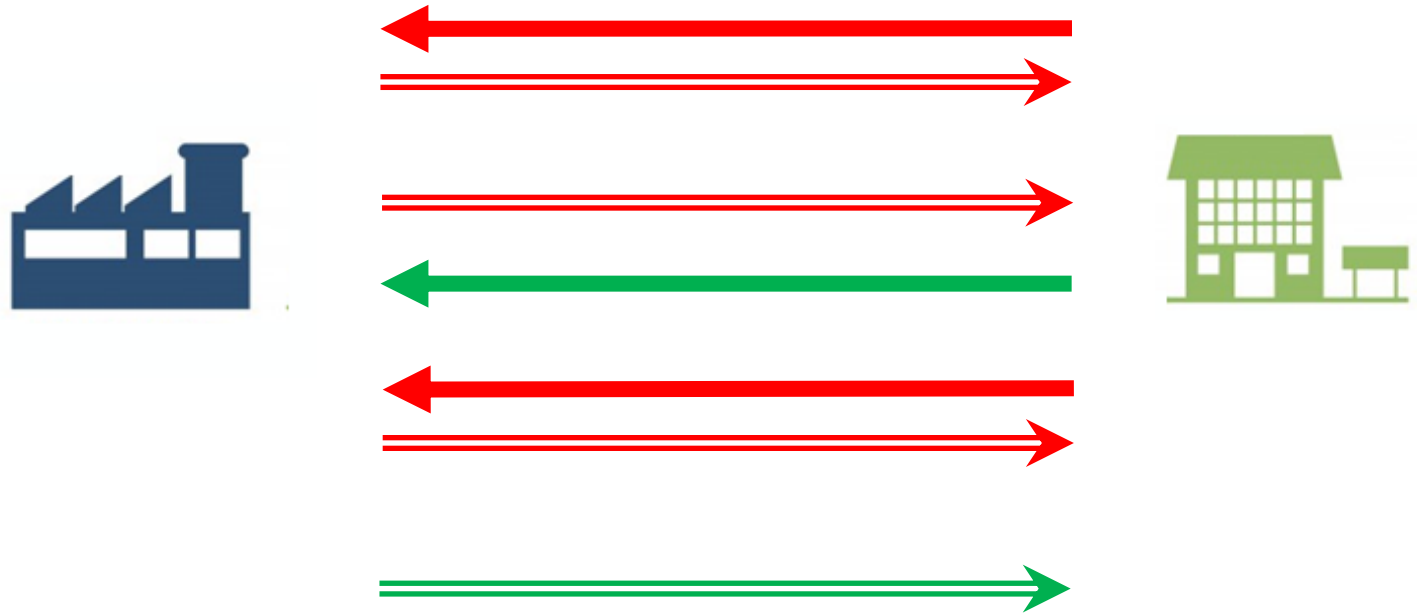
RMA

Goods: Return

Credit

B2B Supply Chain Excellence

EDI



EPCIS

Electronic Data Interchange

Global Language of Business

- **EPCIS**
  - a GS1 and ISO Open Standard
  - Helps share visibility data **across** & **between enterprises**
  - Defines technical interfaces & framework data model using the Common Business Vocabuary (CBV)
  - Identify the “What” “When” “Where” & “Why” of visibility events

Global Language of Business

The 4 Data Dimensions of an EPCIS Event

- **What** objects are the subject of event?
  - Individual objects (SGTIN) or groupings (GTIN + lot/batch)
- **When** did this event take place?
  - Date, time, time zone offset
- **Where** did this event occur?
  - GLN of the physical location (SGLN)
- **Why** did this event take place?
  - Business Step (e.g. “Shipping”) and Disposition (e.g. “in transit”); Business Transaction; Source/Destination

Global Language of Business

What are the Benefits of EPCIS?

- Increased product safety through traceability
- Improved inventory management
  - Increased on-shelf product availability
  - Reduction of out-of-stock
- Increased counterfeit protection
- Improved theft prevention
- Data for Analytics

Global Language of Business

- **GDSN** – Global Data Synchronization Network MASTER DATA
- **GLN** – Global Location Number WHERE
- **SSCC's** for Logistics Units WHAT, OBSCURED
- **GTIN's with Application Identifiers** (AI's) for Handling Units WHAT, DETAILED
- **SGTIN** – Serialized Global Trade Item Number WHAT, PRECISELY
  - RFID / EPC
  - Blockchain

Identify the pallet

Identify the pallet: GS1 Transport Label

MNA MANUFACTURING

2023 N Marshal Blvd
New Berlin, WI
53151

Ship to:

STP Fabrication LLC
7321 N 2nd St
Milwaukee, WI 53201

SSCC:

059076543210000091

(00) 0 5907654 321000009 1

Free Formatted Info

Clear Text Info

GS1-128 Barcode with Clear Text Info

Identify the carton: GS1 SSCC or GTIN

MNA MANUFACTURING
2023 N Marshal Blvd
New Berlin, WI 53151

SSCC:
059076543210000237
GTIN:
1590765432101
BATCH/LOT
ABCDEF123456

(01) 1 5907654 32101 2 (10) ABCDEF123456

(00) 0 5907654 321000023 7

Carton License Plate

MNA MANUFACTURING
GTIN: 0 0590765 41234 2
LOT: ABCDEF123456 Qty: 8

(01) 0 0590765 41234 2 (10) ABCEDF123456 (37) 8

GS1-128 Content Label

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Identify the case-pack

MNA MANUFACTURING

GTIN: 00590765412342

LOT: ABCDEF123456

(01) 0 0590765 41234 2 (10) ABCEDF123456

GS1-128 Content Label

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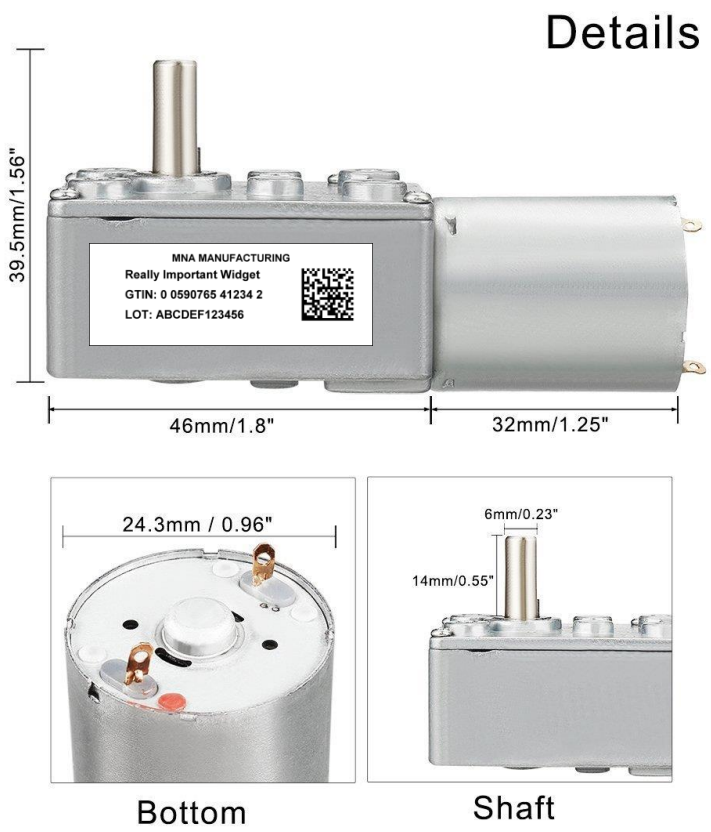
Identify the item



MNA MANUFACTURING

Really Important Widget

GTIN: 0 0590765 41234 2

LOT: ABCDEF123456

GS1-DataMatrix Item Label

Identify all Handling Units using GS1 Standards

Case-Pack Unit

Item Unit

Carton Unit

Logistics Unit

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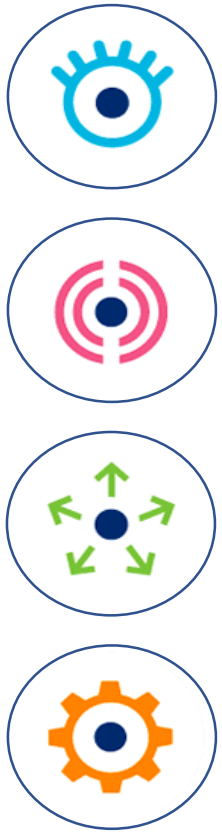
Capture, share and use

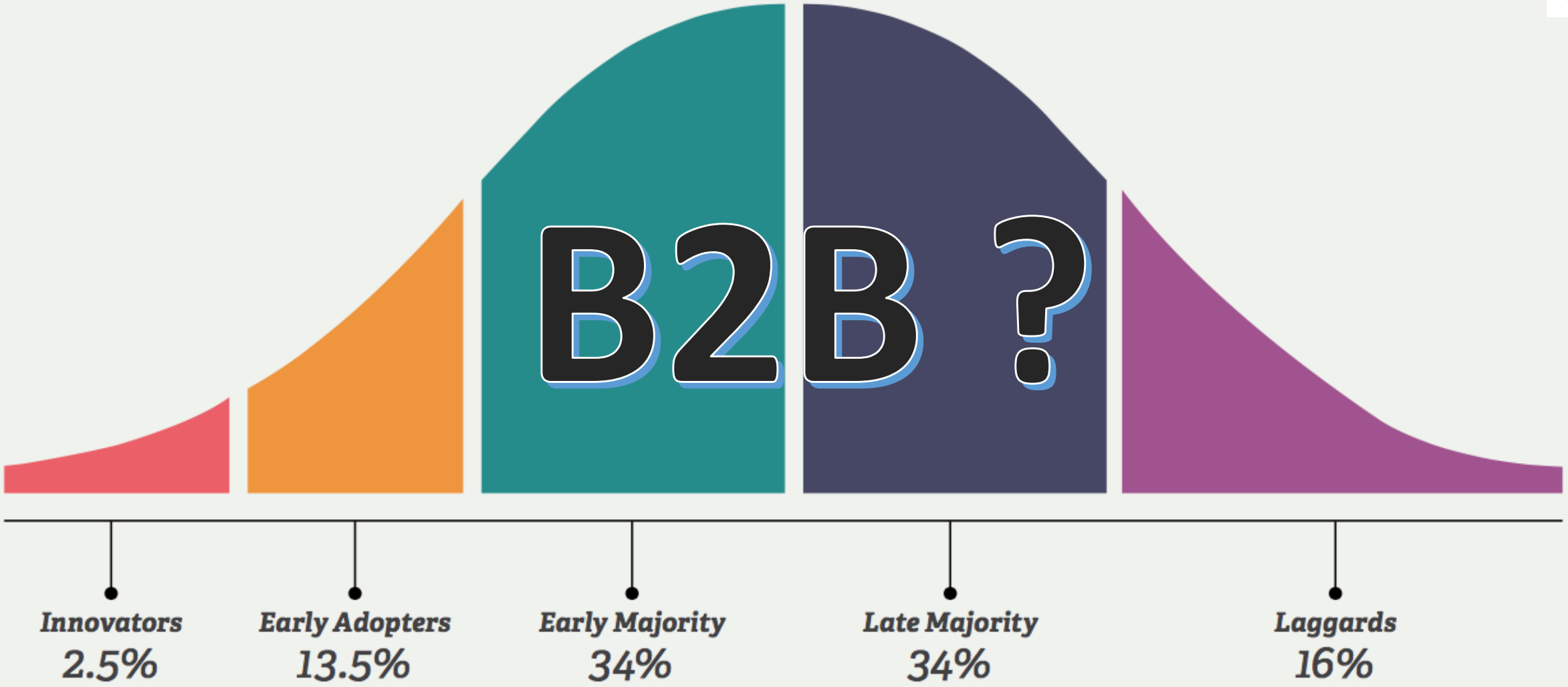
Benefits of GS1 Standards

- Reduced Inefficiencies
- Improved Product Information
- Enhanced Traceability
- Electronic Order Management
- Automatic Data Capture
- Inventory Visibility
- ***Operational Excellence***



BED BATH & BEYOND
PETSMART
Michaels
Where Creativity Hap
Marshalls
Neiman Marcus
TOYS "R" US
CVS pharmacy
Walgreens
WILLIAMS-SONOMA
TARGET
RETAIL
Brookstone
COSTCO WHOLESALE
macy's
ACE Hardware
KOHL'S
WHOLESALE CLUB
that was easy.
REI co-op
Walmart
Sam's CLUB
BEST BUY
THE HOME DEPOT
ULTA BEAUTY
LOWE'S
NEVER STOP IMPROVING

AUTOMOTIVE



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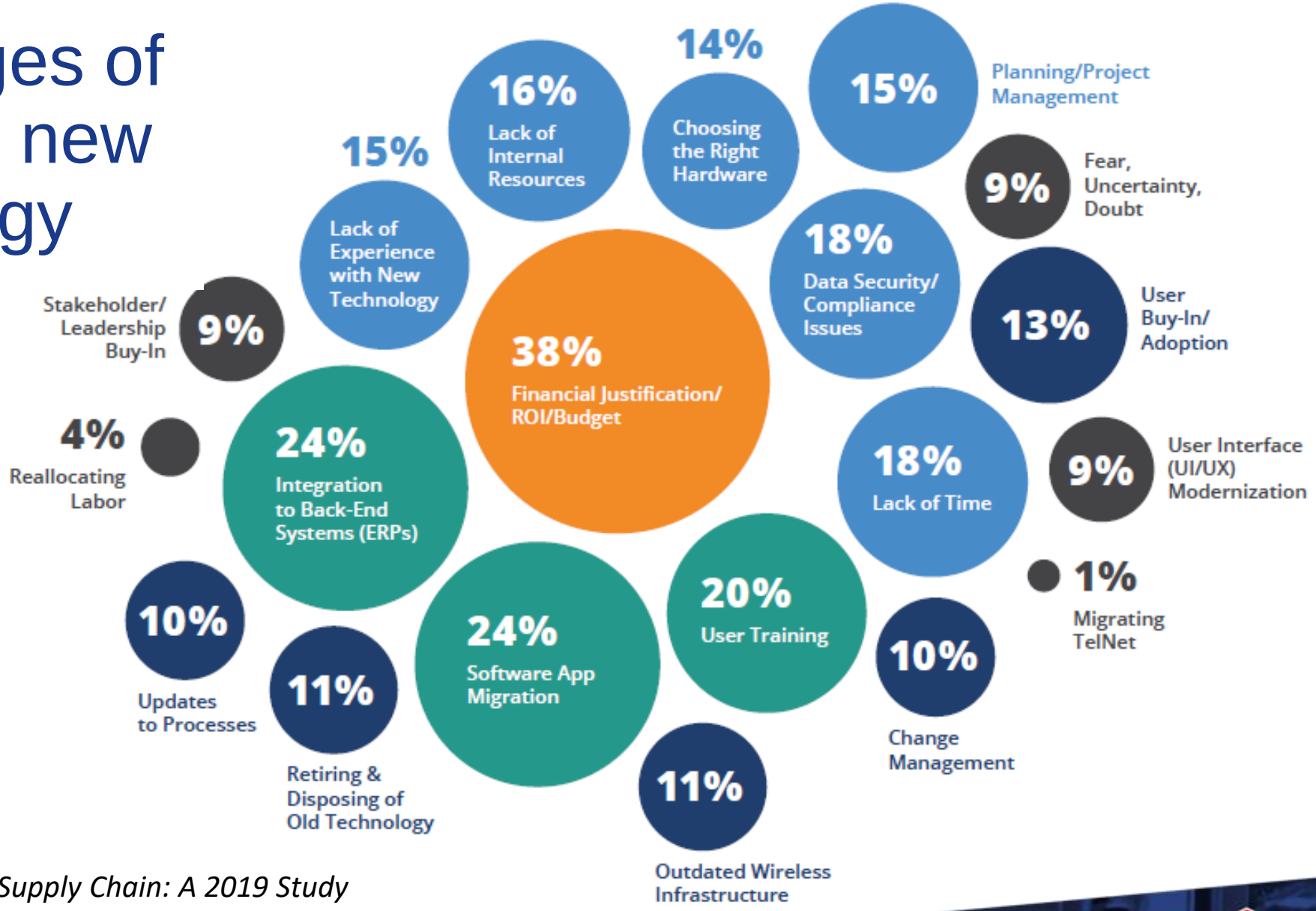
Challenges of adopting new technology



Barcoding: Future Proof Your Supply Chain: A 2019 Study

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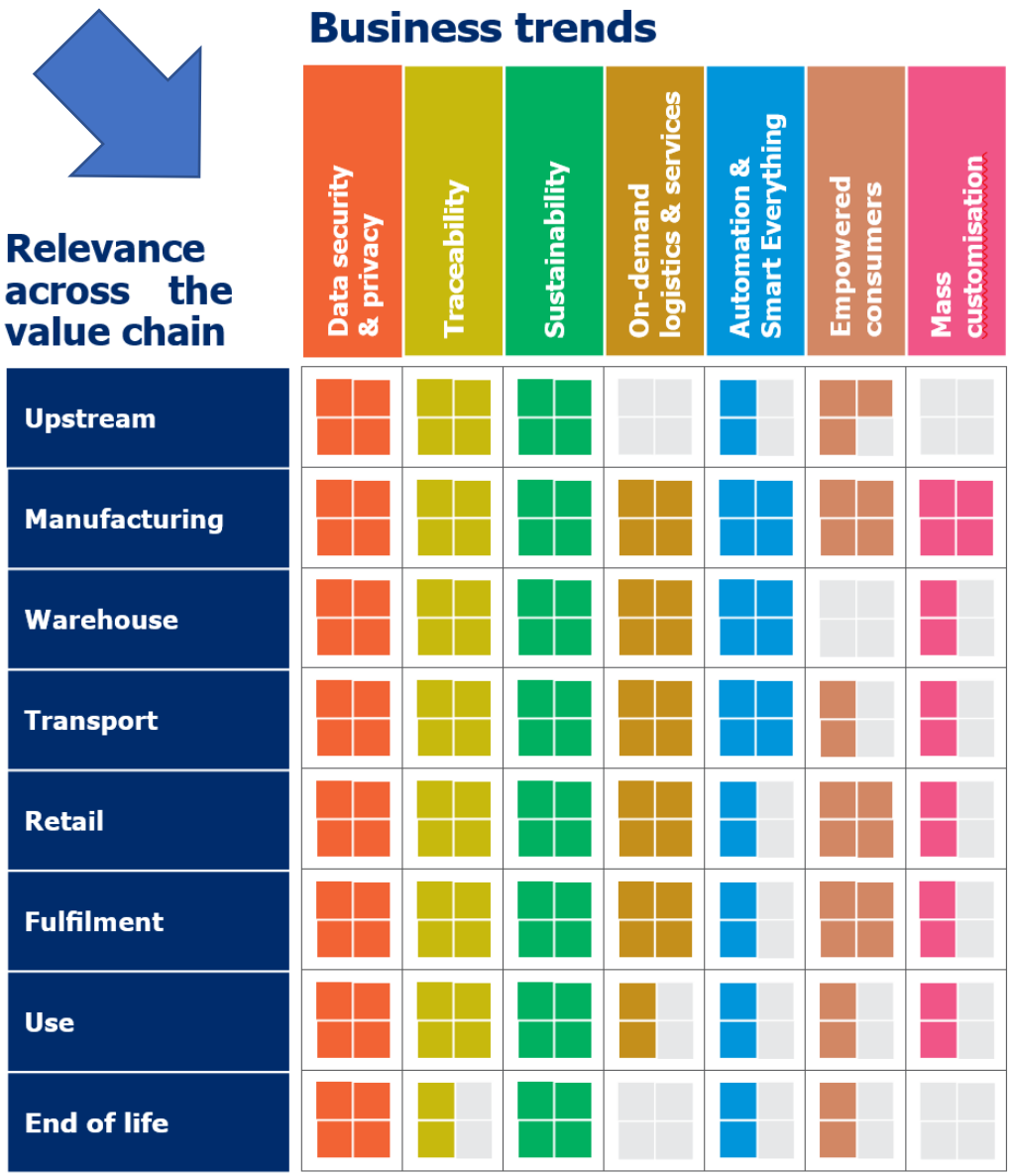

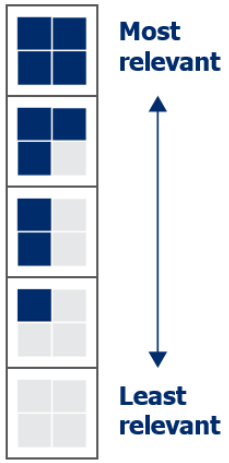

Where GS1 Standards are relevant to the value chain

26 APRIL 2019 - *Business trends and the GS1 value chain, GS1.org*

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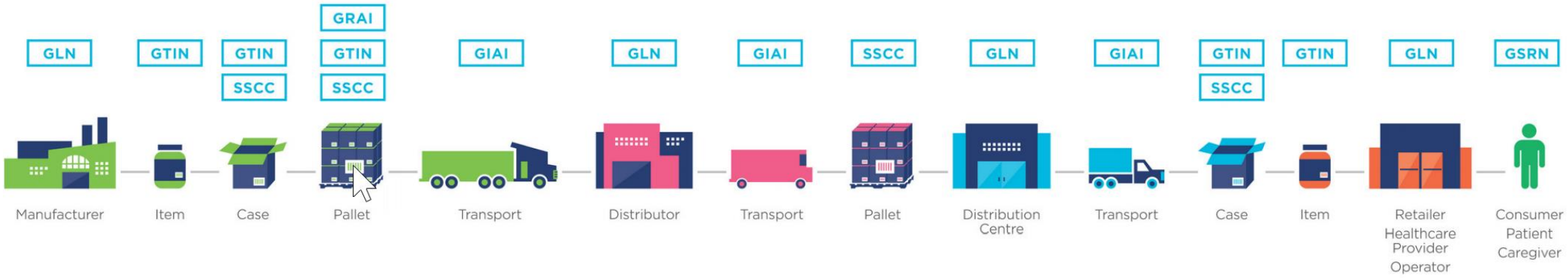
Identify: GS1 Standards for Identification

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**

EAN/UPC

GS1-128

ITF-14

GS1 DataBar

GS1 DataMatrix

GS1 QR Code

GS1 Composite Barcode

EPC HF Gen 2

EPC UHF Gen 2

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)

Interoperability

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GS1 Fundamentals

- It all starts with the GS1 Company Prefix

N1 Digit:

- Always 0 for consumer sale unit (GTIN-12, GTIN-13)
- Possibly 1-8 for logistic unit not sold at point-of-sale (case, pallet, etc.); in which case it is called the "indicator" digit

GS1 Company Prefix

- Allocated by GS1 to the company that allocates the specific GTIN (typically, but not necessarily, the brand owner)
- Between 4 and 11 digits in length (see footnote, page 16)
- First 3 digits are the GS1 Prefix, indicating which GS1 MO provided the numbering capacity from which this GTIN was allocated

Item Reference

- Allocated by the recipient of the GS1 Company Prefix to identify a specific trade item
- Between 6 and 1 digits in length, depending on the length of the GS1 Company Prefix (always 12 in total)

Check Digit

- Calculated as a function of the other digits, to protect against keying errors

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GS1 Fundamentals

GS1 Company Prefix

Global Location Number

UPC Company Prefix

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GS1 Fundamentals

- Serialized Shipping Container Code on Shipping Label
  - Tied to Shipping ASN/ EDI
    - “Logistics License Plate”
    - SSCC / SSCC-18
    - GS1-128 barcode with Application Identifier (00)
    - Can be re-issued one (1) year after break-down

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Identify people, places and things

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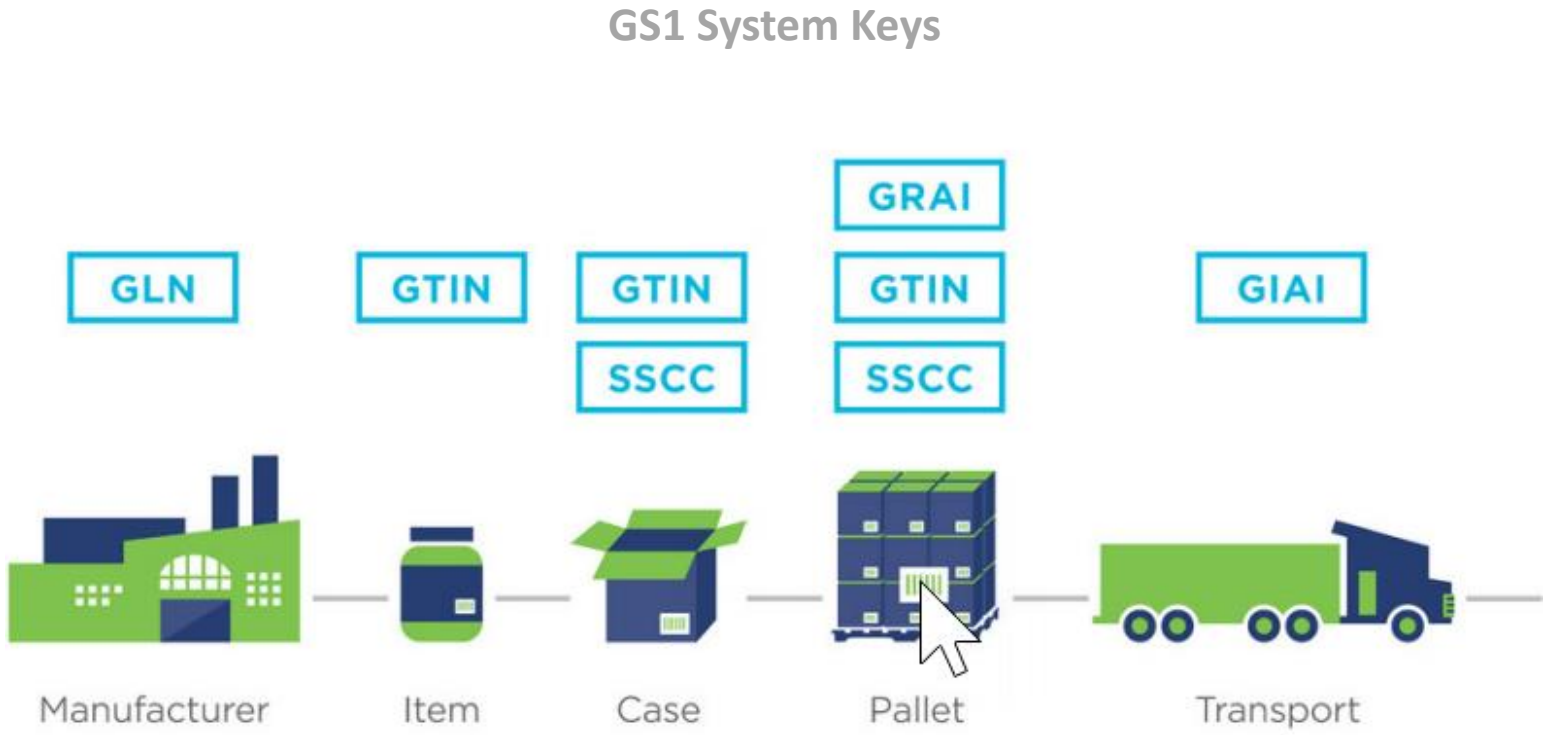
GS1 Fundamentals

- Global Location Number
- GTIN
- Serialized Shipping Container Code
- Global Returnable Asset Identifier
- Global Individual Asset Identifier



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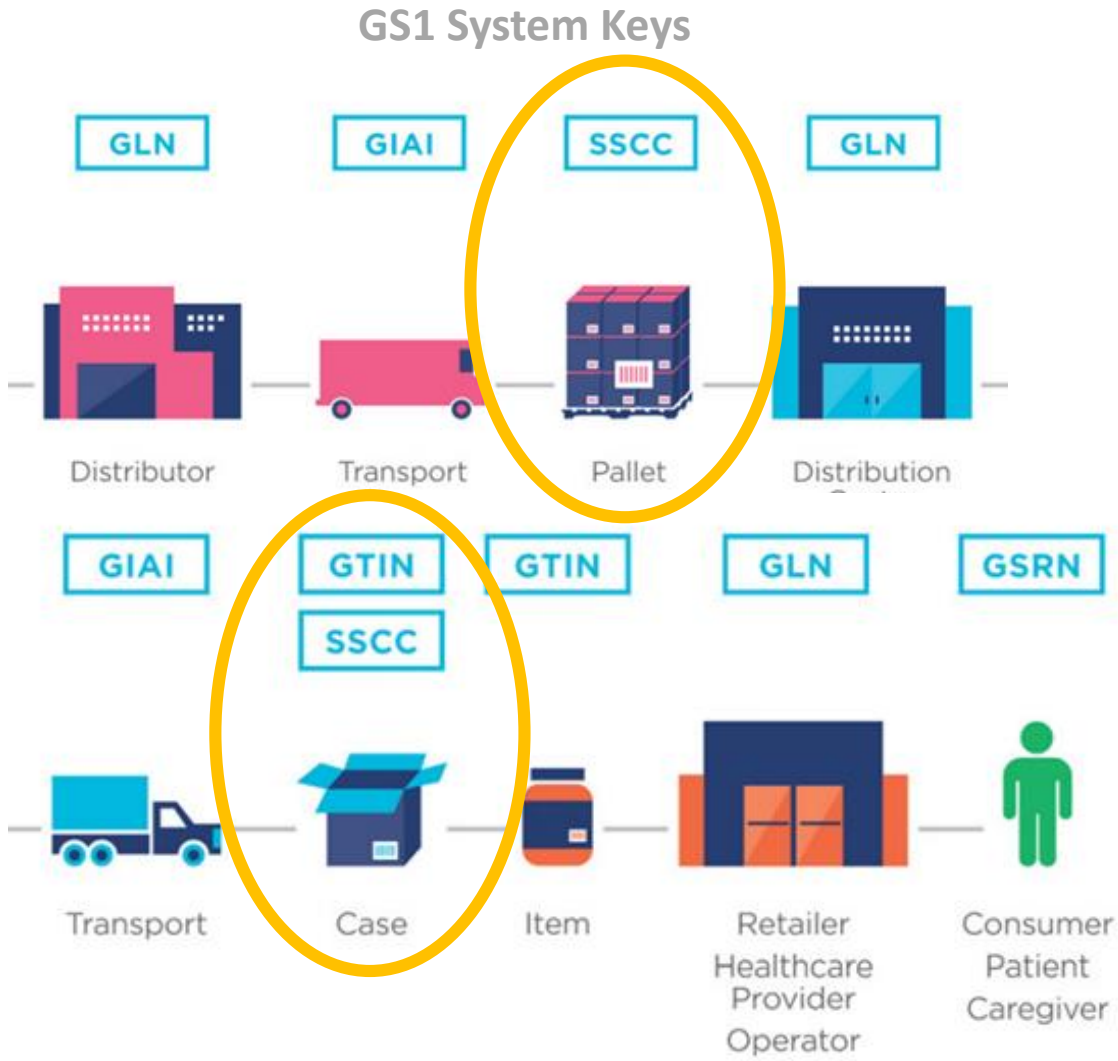
GS1 Fundamentals

- Global Location Number
- GTIN
- Serialized Shipping Container Code
- Global Individual Asset Identifier
- Global Service Relationship Number



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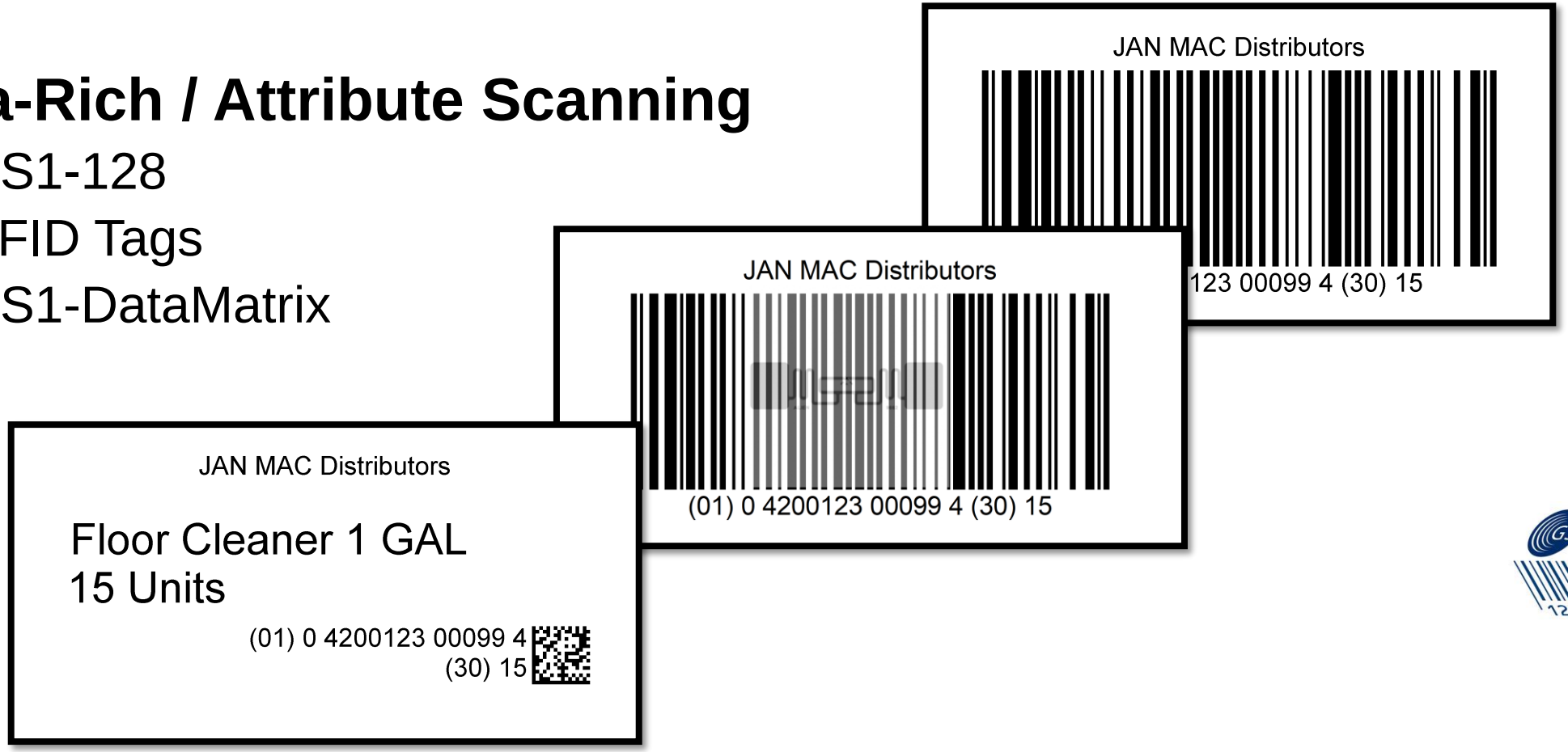
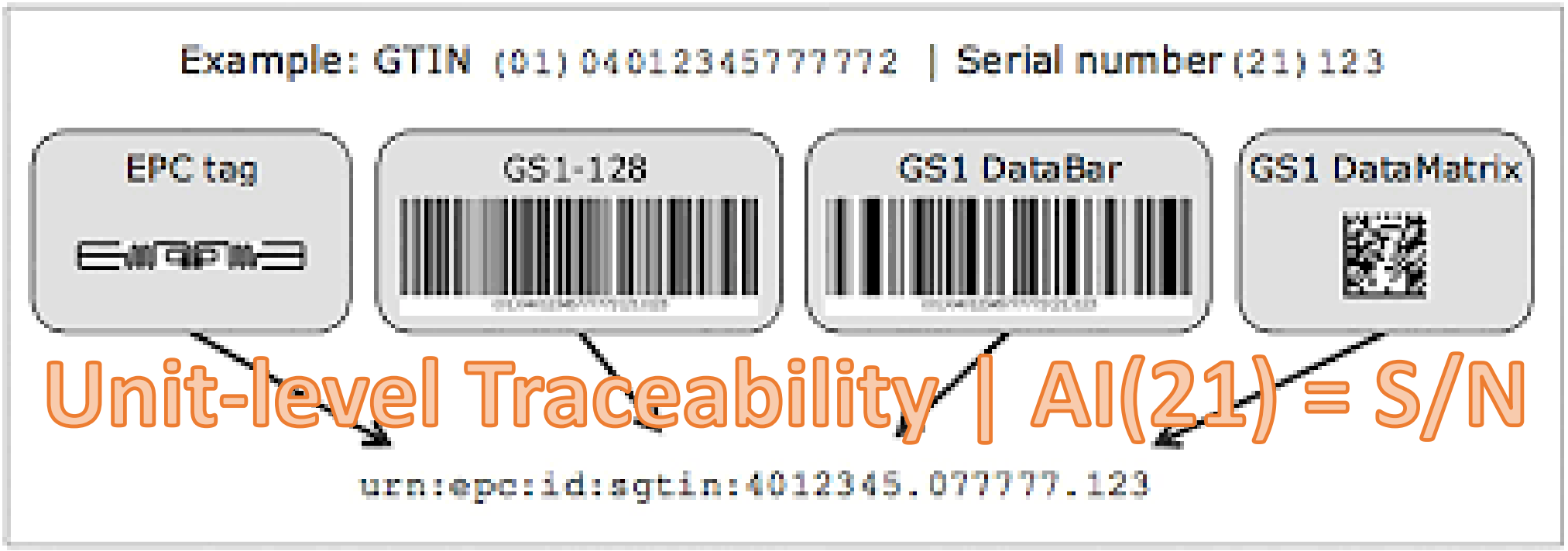
Beyond the U.P.C.

- **Data-Rich / Attribute Scanning**
  - GS1-128
  - RFID Tags
  - GS1-DataMatrix



GS1 Fundamentals

- RFID EPC codes and SGTINS



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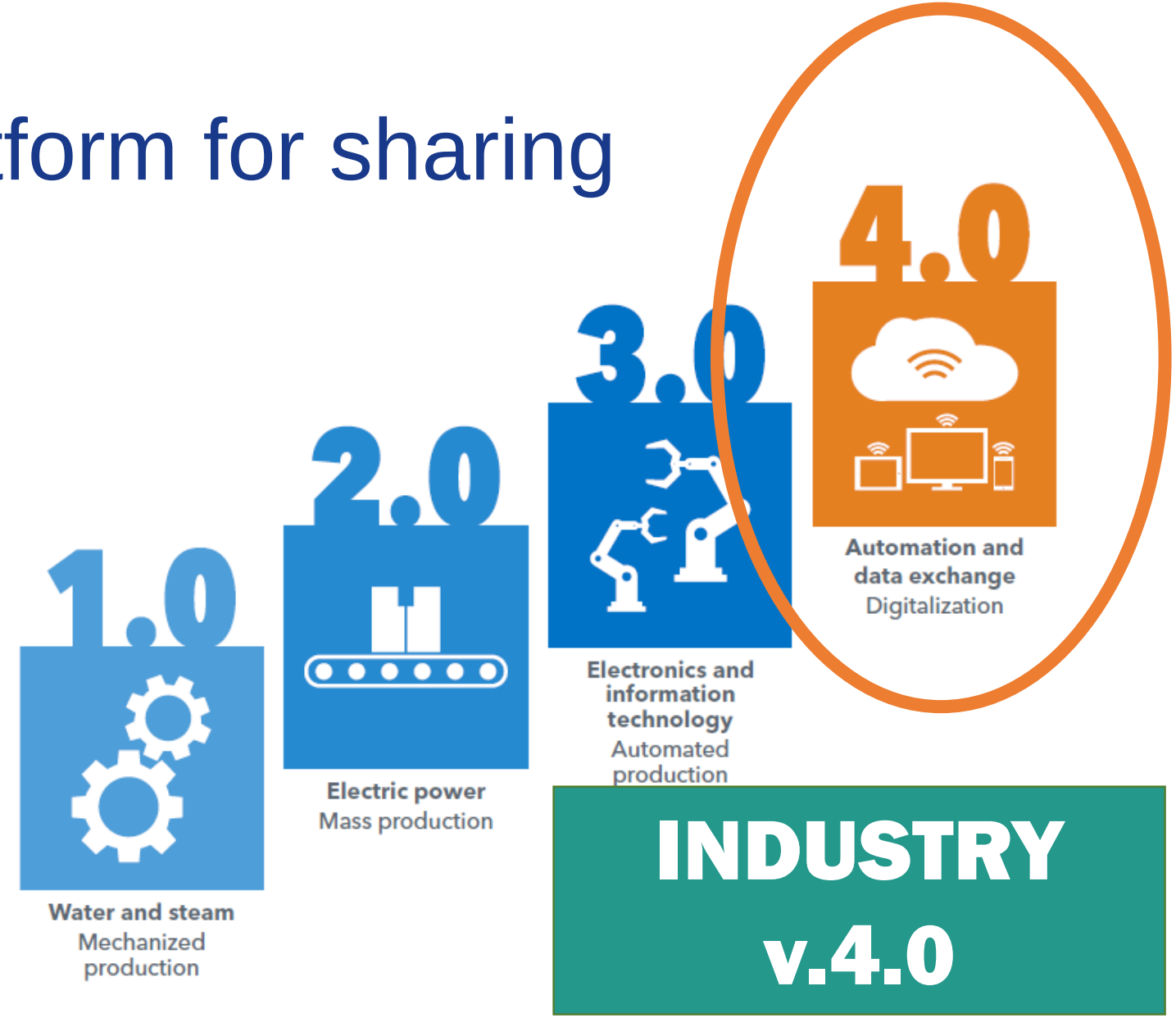
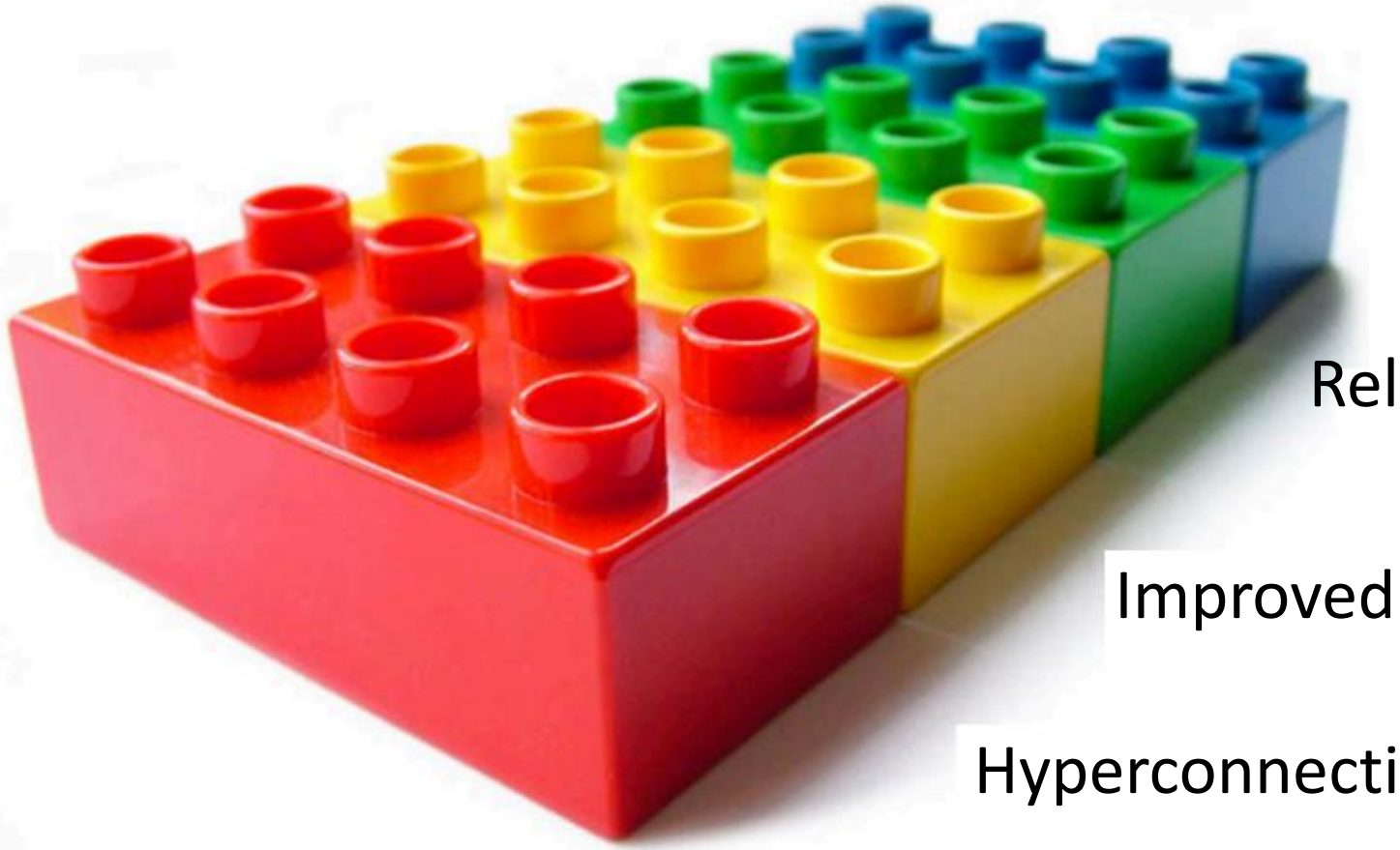
GS1: A platform for sharing



Enabling Technologies are like building blocks

They are stronger in combination



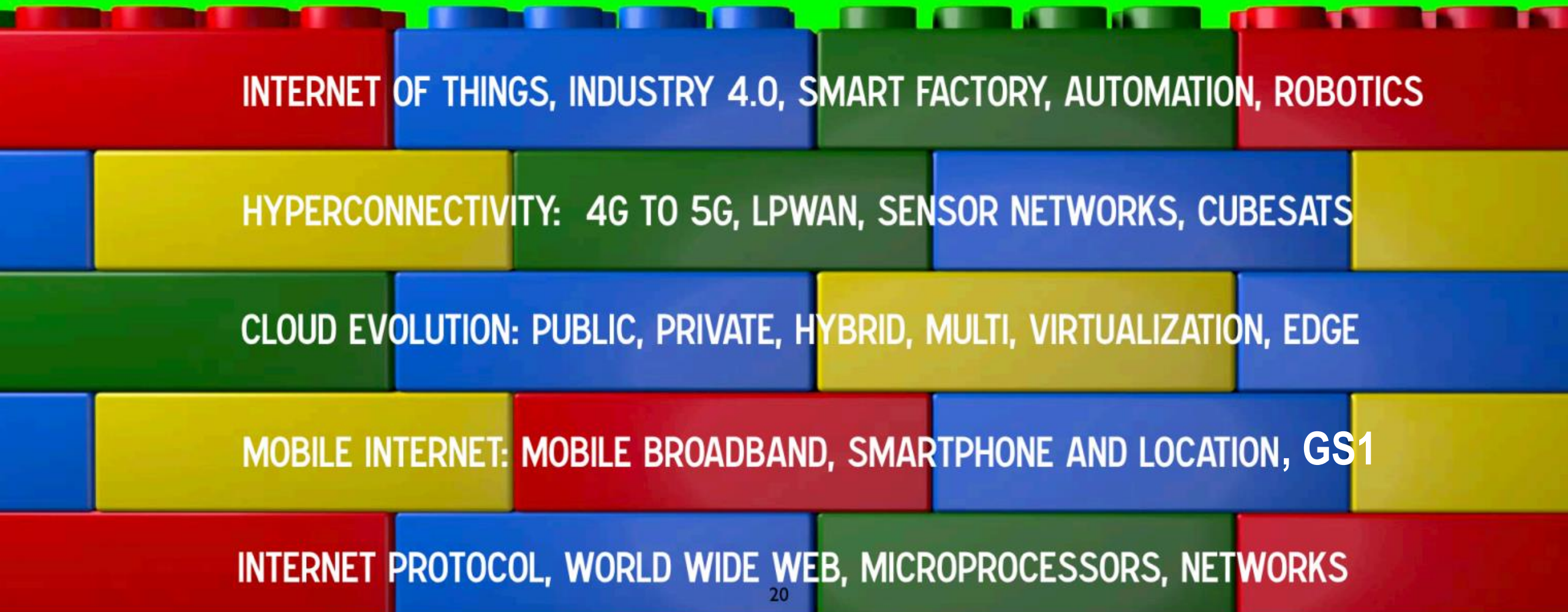
Machine Intelligence

Relevant Data + GS1 Standards

Improved Sensors and Monitoring

Hyperconnectivity and Cloud

EVERY INNOVATION BECOMES INFRASTRUCTURE



Thank You!

Peter Zalinski

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Website: www.barcoding.com

Or visit MODEX Booth # 4615