

Labels and Data: How to Achieve B2B Supply Chain Excellence



POWERED BY POSSIBILITIES.

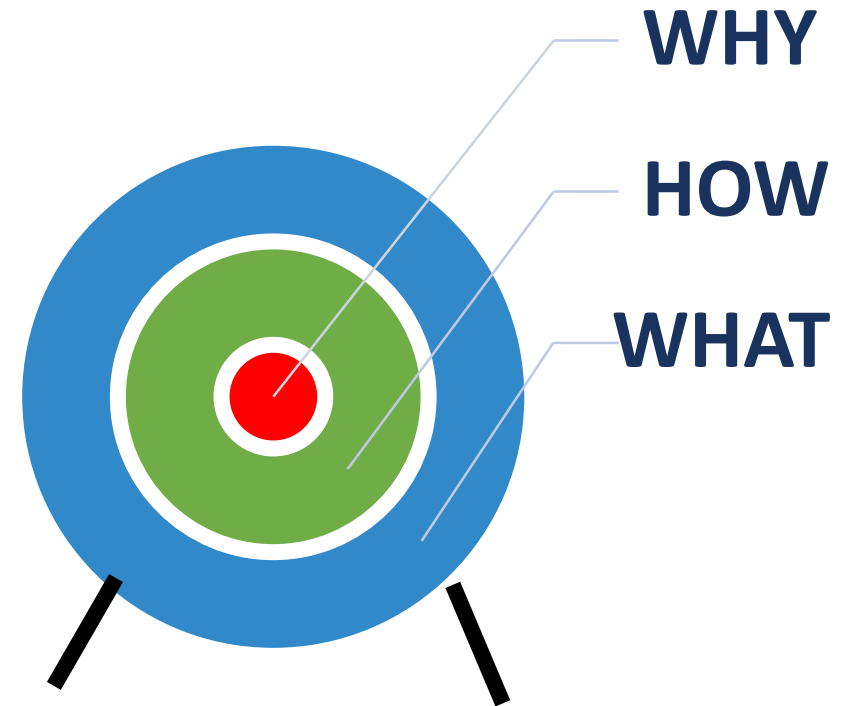


Peter Zalinski
Barcoding, Inc.



powered by  MHI

Supply Chain “Go and See”



Supply Chain “Go and See”

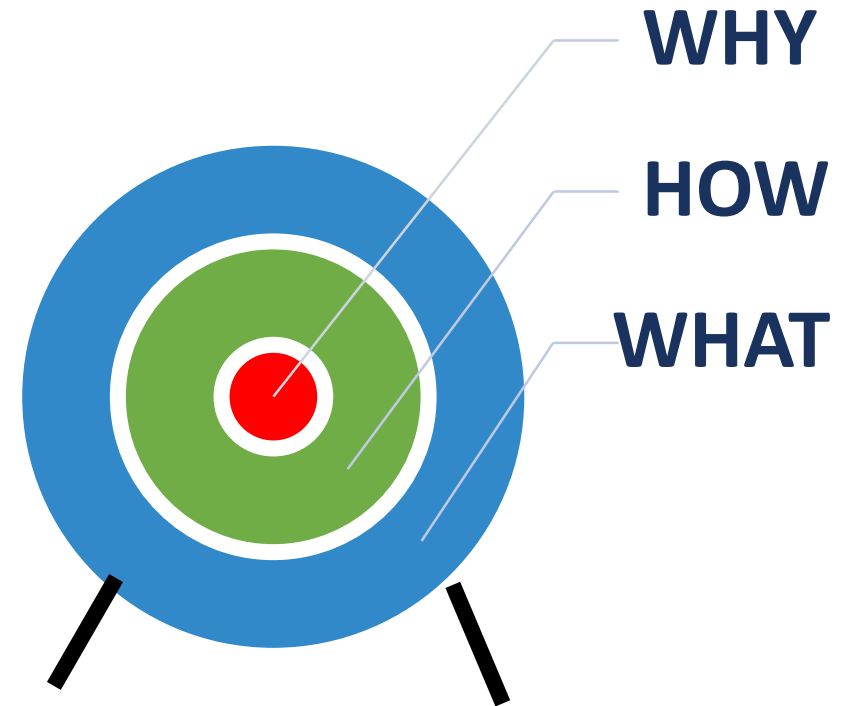
- **PPT**

- Process
- People
- Technology...

and DATA

- **C³**

- Reduce Costs
- Increase Cashflow
- Improve the Customer Experience



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?



POWERED BY POSSIBILITIES.

B2B: Maintenance needs a part

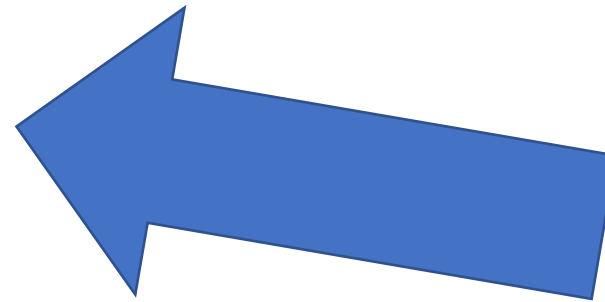


- 1. Production is Down**
- 2. Ordered Parts**
- 3. Shipment Arriving (LTL)
Today**
- 4. Line to Resume by EOD**
- 5. Waiting**

The pallet arrives



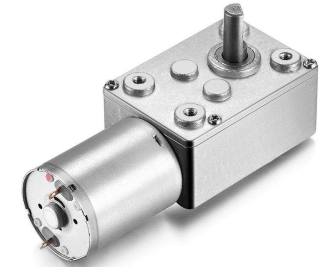
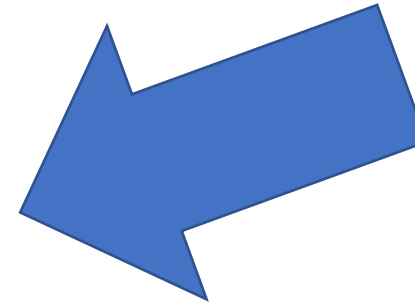
The case you need



The packages inside



The unit you need



“Needle in the haystack”



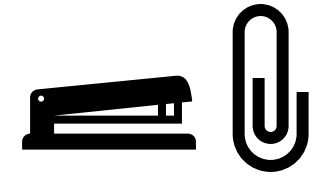
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How long will you wait?



- 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



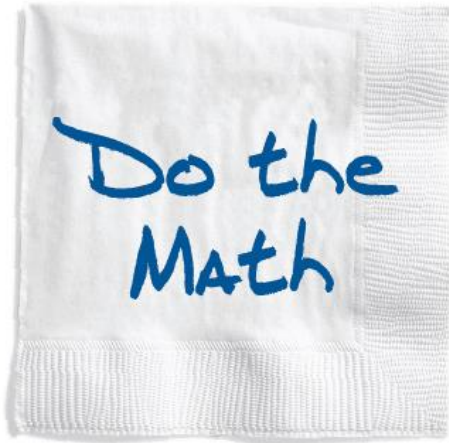
- ✓ Receive and Unload Pallet
 - Validate BOL to ASN
 - Match Order
 - Enter Receipt into ERP
 - ✓ Inspect Goods
 - ✓ Check Quality
 - ✓ Put Away or Expedite
- < 20 Min**



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

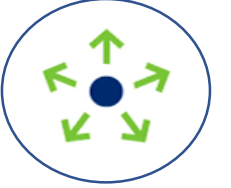
- **GS1 Receiving is:**
 - **More efficient**
 - **More accurate**
 - **More connected**
- **More Cost Effective**

	<i>Touches Required</i>	Manual	GS1
Receive	<i>Pallet</i>	1	1
	<i>BOL</i>	1	
	<i>Search for PO</i>	1	
	<i>Stage Pallet</i>	1	1
	<i>Breakdown 5 layers</i>	5	5
	<i>ERP, 10 Lines</i>	10	
Expedite	<i>Pallet</i>	1	
	<i>Case</i>	1	1
	<i>Pack</i>	1	1
	<i>Unit</i>	1	1
	<i>Alert Maintenance</i>	1	1
	<i>Perform Transfer</i>	2	2
	<i>Record Transfer</i>	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

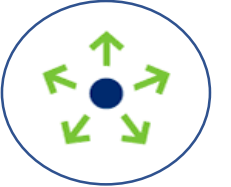
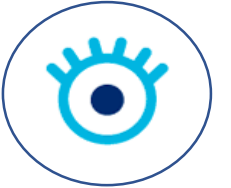


- Pallet **SSCC** is Scanned at **Dock** into **WMS**
 - Directed to **RUSH Location** for Breakdown
- All **Cases** Get Scanned for Handling
 - **Rush Item** Gets Expedited to **Maintenance**
- Time Elapsed: Typically 20 Minutes or Less



Benefits of GS1 Standards

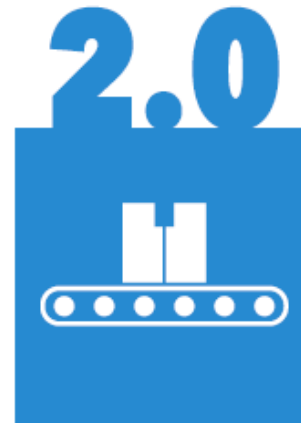
- Reduced Inefficiencies
- Improved Product Information
- Enhanced Traceability
- Electronic Order Management
- Automatic Data Capture
- Inventory Visibility
- ***Operational Excellence***



Supply Chain / Value Chain Evolution



1.0
Water and steam
Mechanized
production



2.0
Electric power
Mass production



3.0
Electronics and
information
technology
Automated
production



4.0
Automation and
data exchange
Digitalization

INDUSTRY
v.4.0

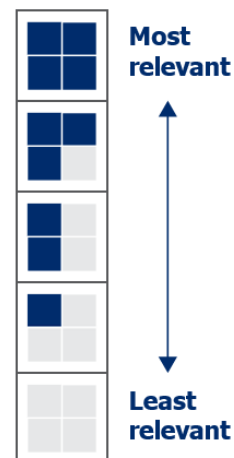
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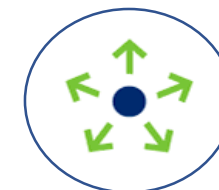
Relevance
across the
value chain

Business trends

	Data security & privacy	Traceability	Sustainability	On-demand logistics & services	Automation & Smart Everything	Empowered consumers	Mass customisation
Upstream							
Manufacturing							
Warehouse							
Transport							
Retail							
Fulfilment							
Use							
End of life							



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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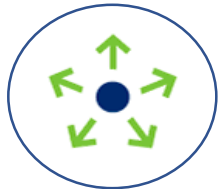
GS1 Standards: a common language



- 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



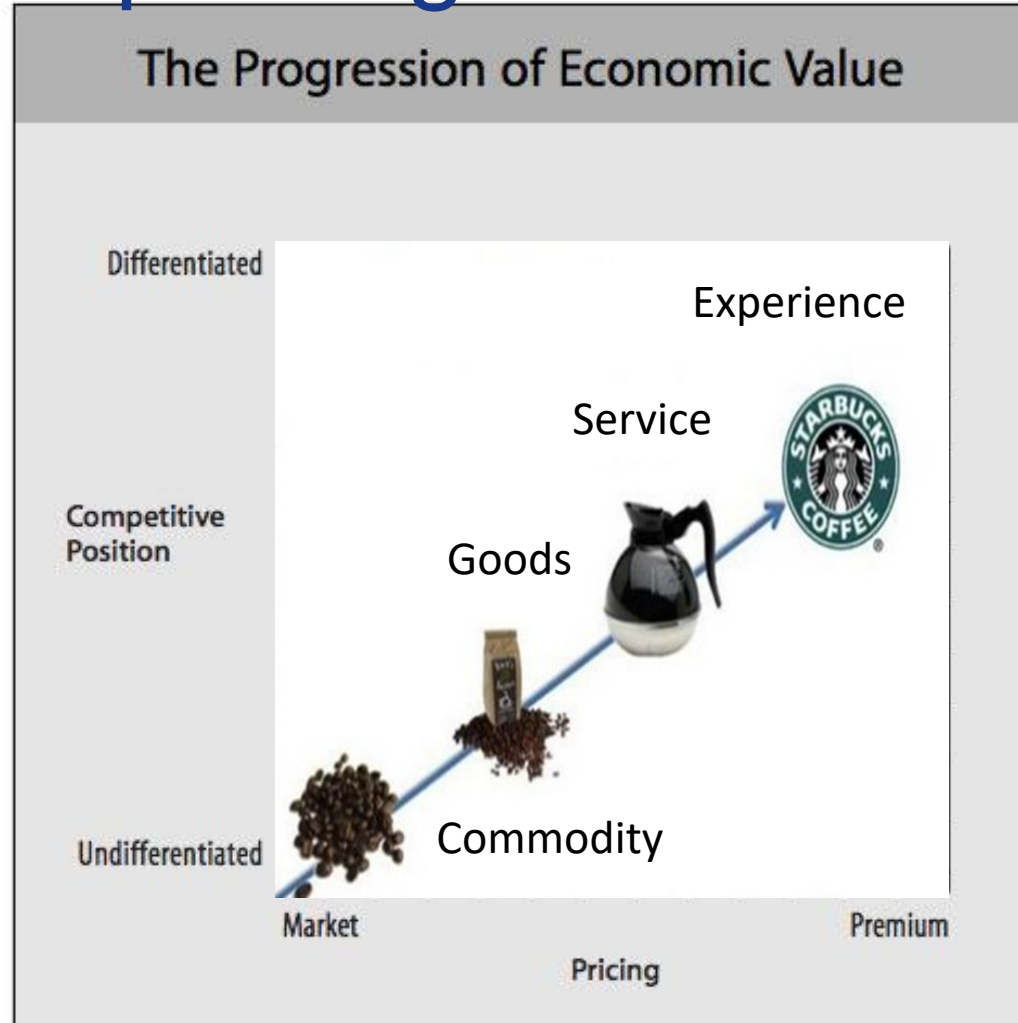
- Share
 - Actionable data
 - Data sharing standards for interoperability
 - **EPCIS + CBV**



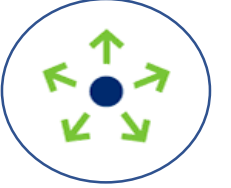
- Use
 - Automate your interaction with the supply chain



Improving the Customer Experience

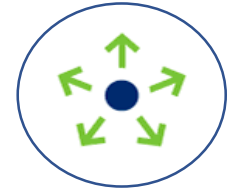
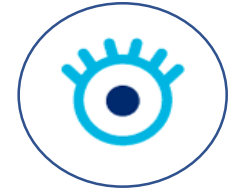


Value-add activities



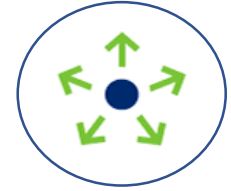
GS1 value add activities

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



Shared Data

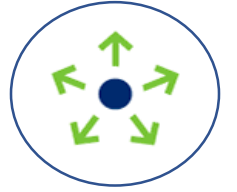
5W's + H



= \$aving\$

POWERED BY POSSIBILITIES.

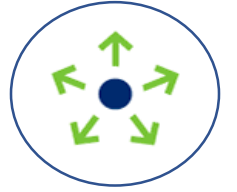
Sharing your data



1WorldSync



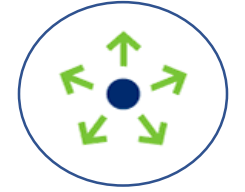
GS1 solves the Master Data problem



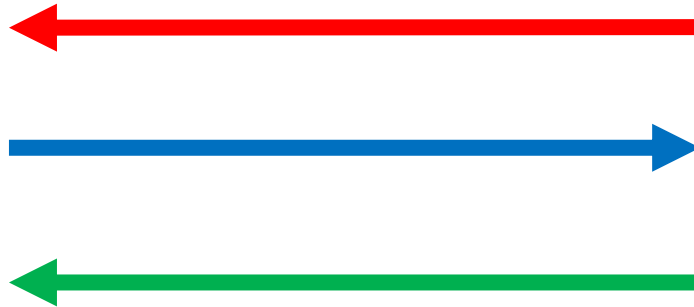
1WorldSync

- 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

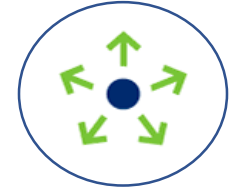


Supply Chain: Two or more parties **CONNECTED** by a flow of Information, Goods and Money that fulfills a customer request.



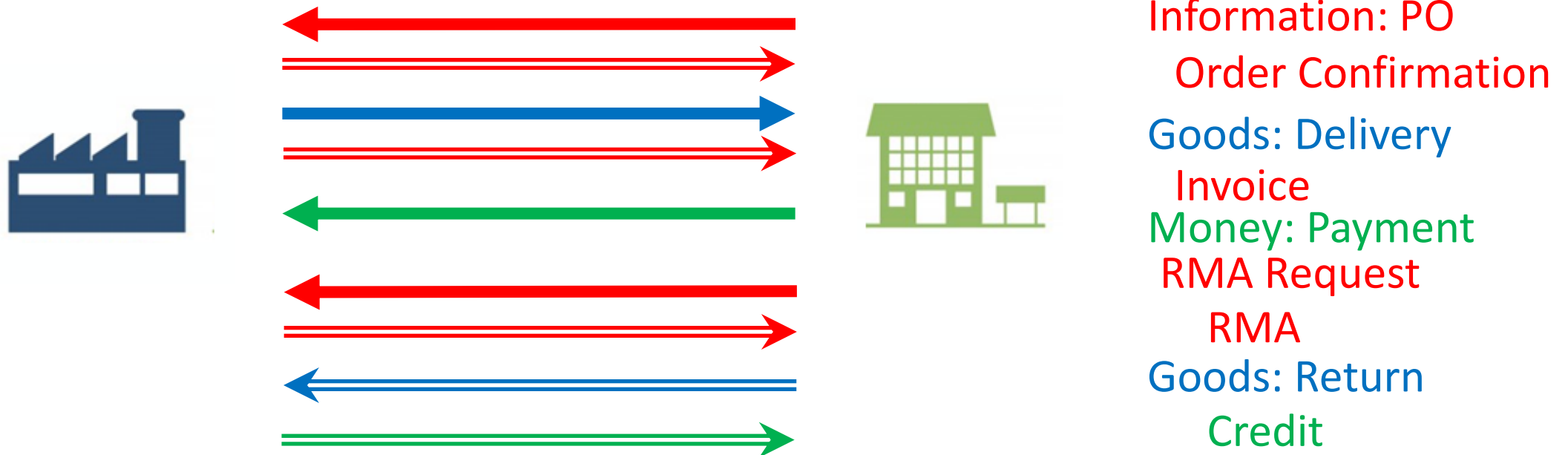
Information: Order
Order Confirmation
Goods: Delivery
Invoice
Money: Payment

Share your information B2B

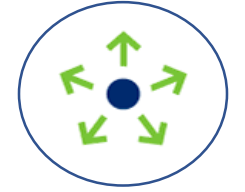


Supply Chain: Two or more parties **CONNECTED** by a flow of Information, Goods and Money that fulfills a customer request.

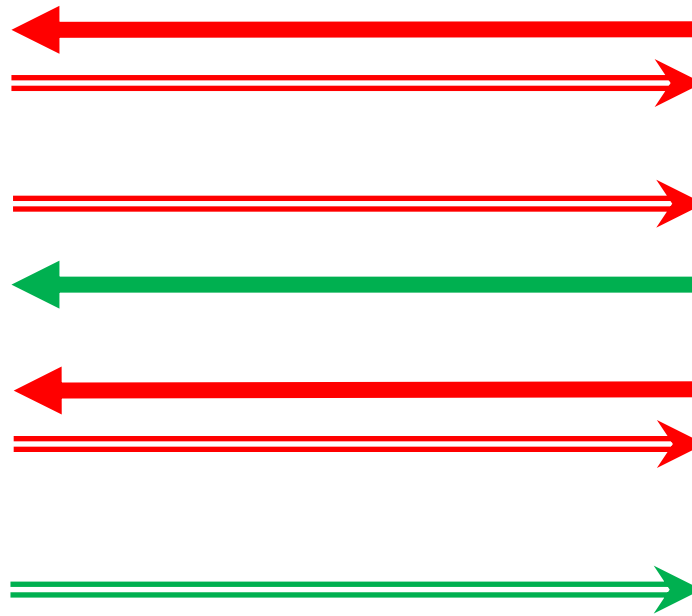
- Or (more likely) **THIS:**



B2B Supply Chain Excellence



EDI



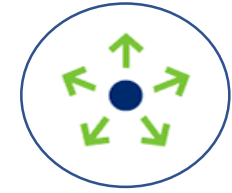
EPCIS

Electronic Data Interchange



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Global Language of Business

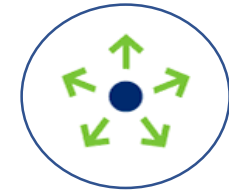


- **EPCIS**

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



Global Language of Business

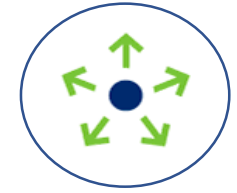


The 4 Data Dimensions of an EPCIS Event

- **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



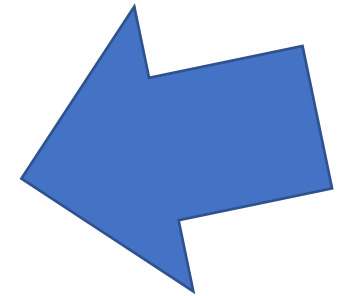
Global Language of Business



- **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




MNA MANUFACTURING	
GTIN: 0 0590765 41234 2	
LOT: ABCDEF123456	Qty: 8
 (01) 0 0590765 41234 2 (10) ABCDEF123456 (37) 8	

GS1-128 Content Label

Carton License Plate

Identify the case-pack



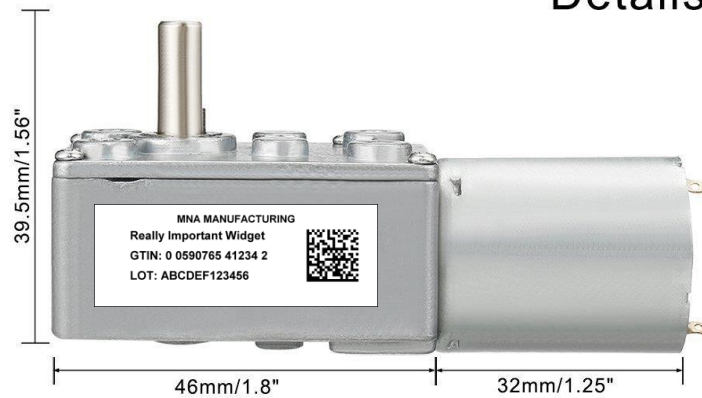
MNA MANUFACTURING
GTIN: 00590765412342
LOT: ABCDEF123456

(01) 0 0590765 41234 2 (10) ABCDEF123456

GS1-128 Content Label

Identify the item



Details



Bottom



Shaft

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



Carton Unit



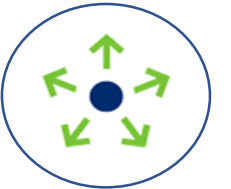
Logistics Unit

Item 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***

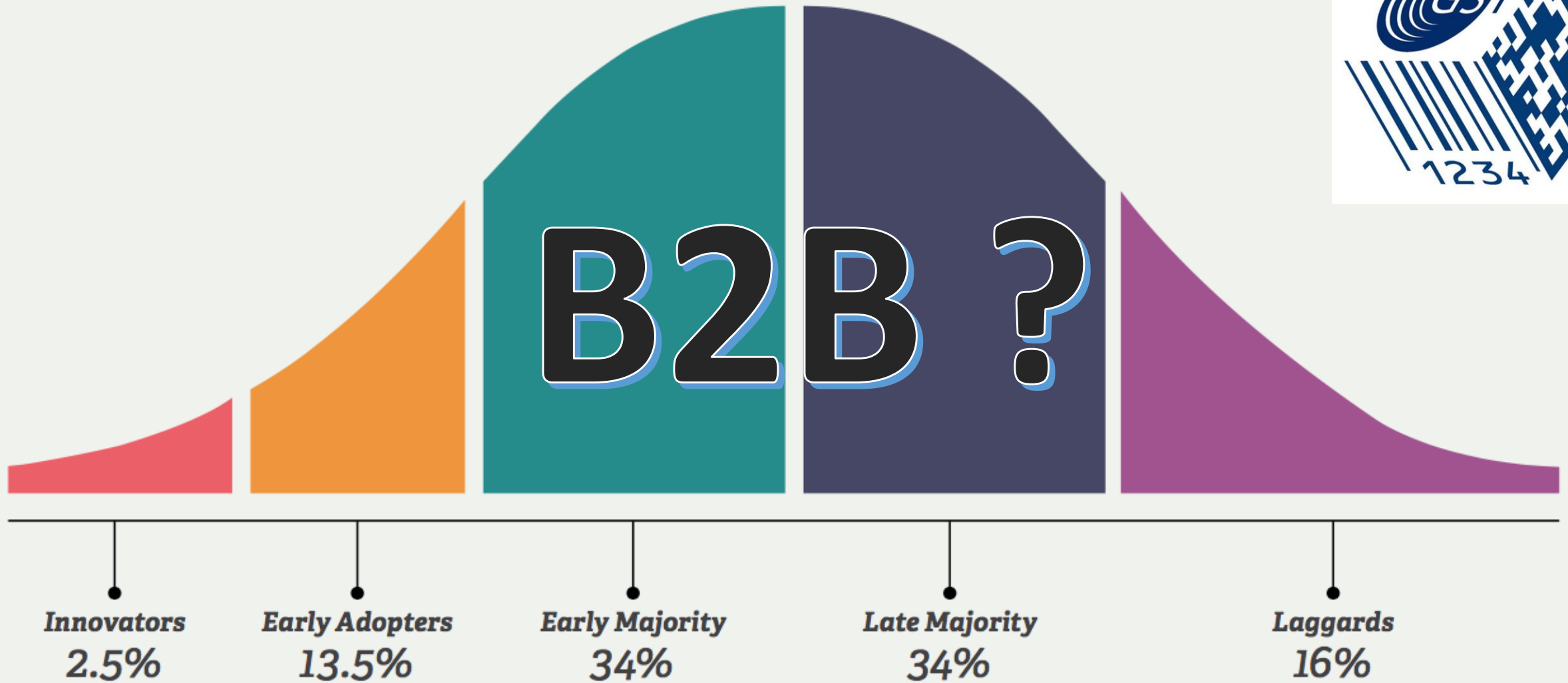




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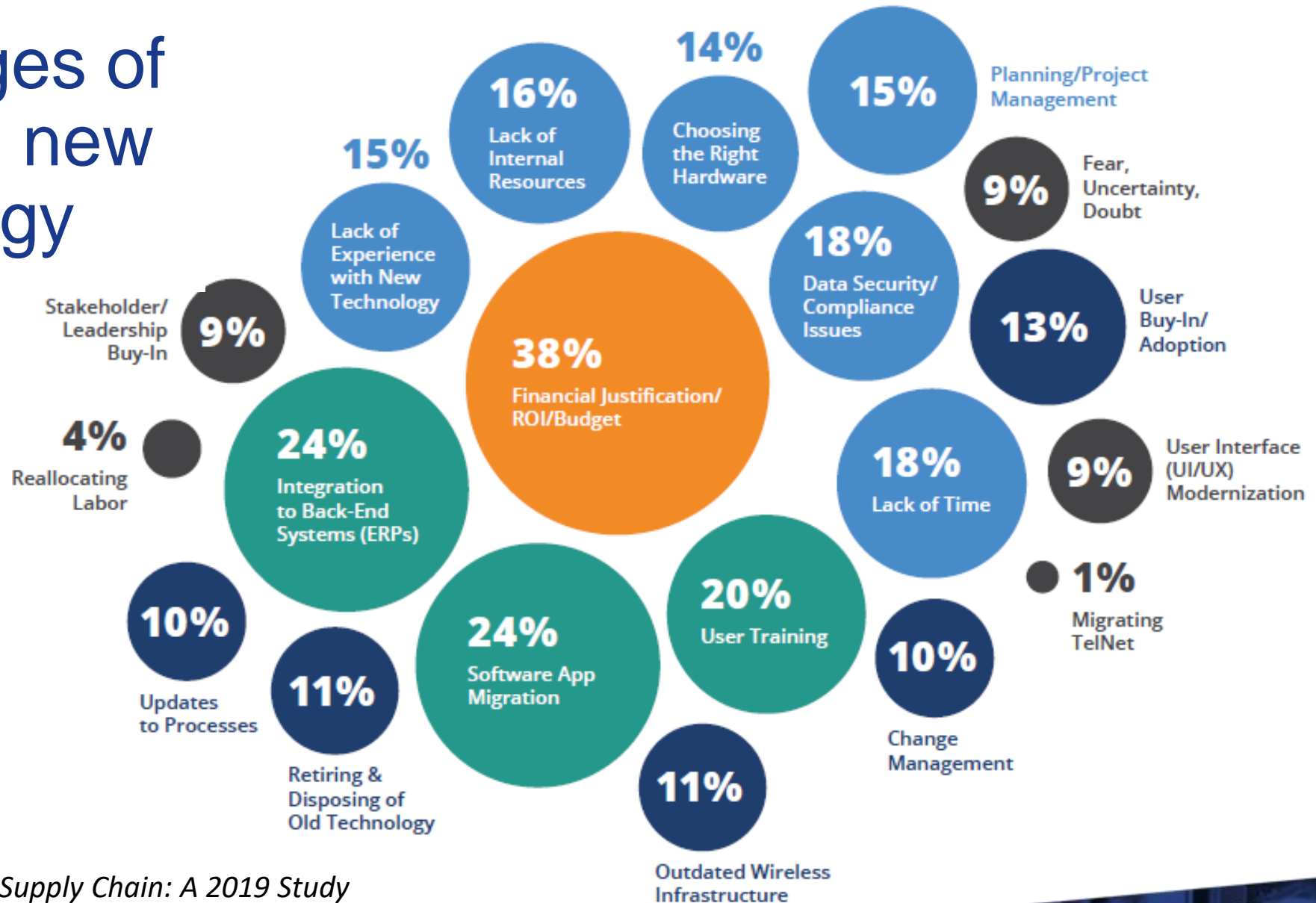


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POWERED BY POSSIBILITIES.

Challenges of adopting new technology



Barcoding: Future Proof Your Supply Chain: A 2019 Study

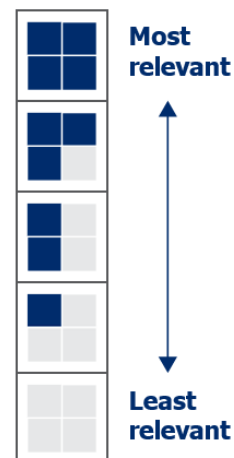
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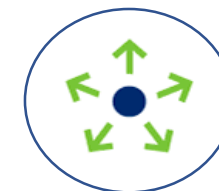
Relevance
across the
value chain

Business trends

	Data security & privacy	Traceability	Sustainability	On-demand logistics & services	Automation & Smart Everything	Empowered consumers	Mass customisation
Upstream							
Manufacturing							
Warehouse							
Transport							
Retail							
Fulfilment							
Use							
End of life							



Where GS1 Standards are relevant to the value chain



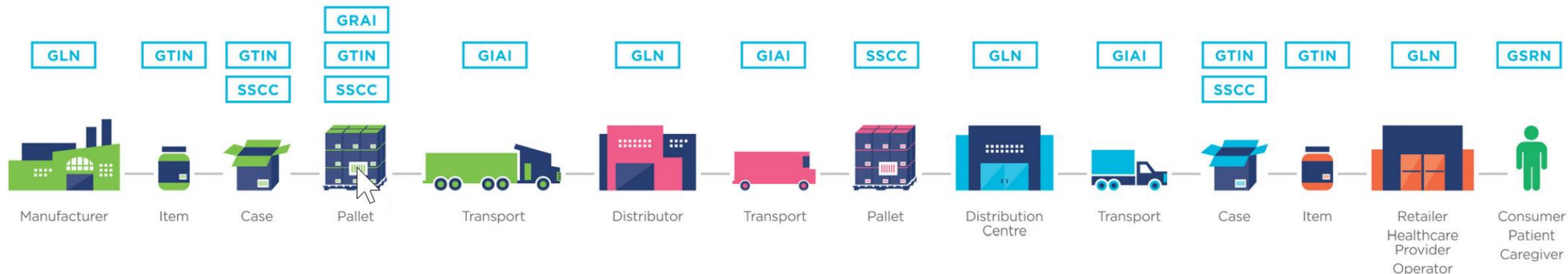
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Identify: GS1 Standards for Identification

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

EAN/UPC



GS1-128



ITF-14



GS1 DataBar



GS1 DataMatrix



GS1 QR Code

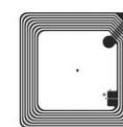


GS1 Composite Barcode



GS1 EPC/RFID

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)

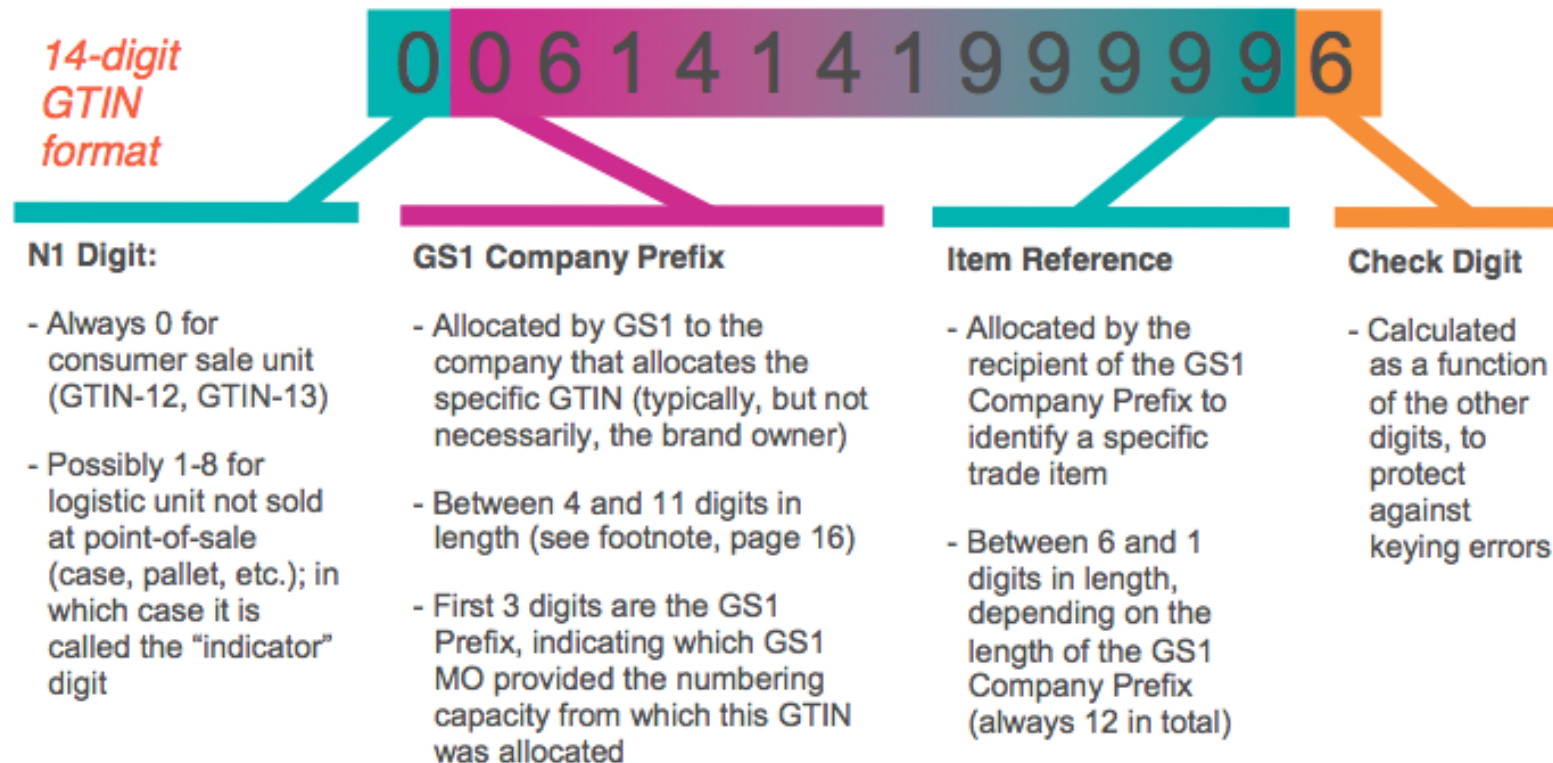


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GS1 Fundamentals

- It all starts with the GS1 Company Prefix



GS1 Fundamentals



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 breakdown

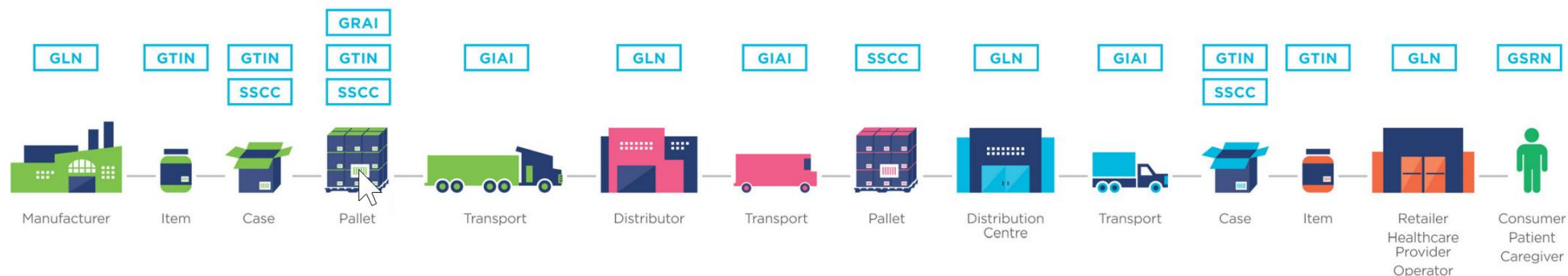


FROM Premier Supplier 1234 Niagara St. Buffalo, NY 44556		TO Primo Retailer Store 1528 1254 Montgomery Ave. Alamagordo, NM 45458	
SHIP TO POSTAL CODE (420) 45458 		CARRIER Best Freight PRO: 2895769860 B/L: 853930	
PO: 345-896779 - 0 DEPT: 092784			
SHIP TO LOC (410) 52 12345 01528 0 		Prod: 78256-123 Cust: 75123-45-34 Order: 78562 Zone: 4 Skid: 3	
SSCC-18 (00) 0 0123456 0000000001 8 			

Identify people, places and things

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

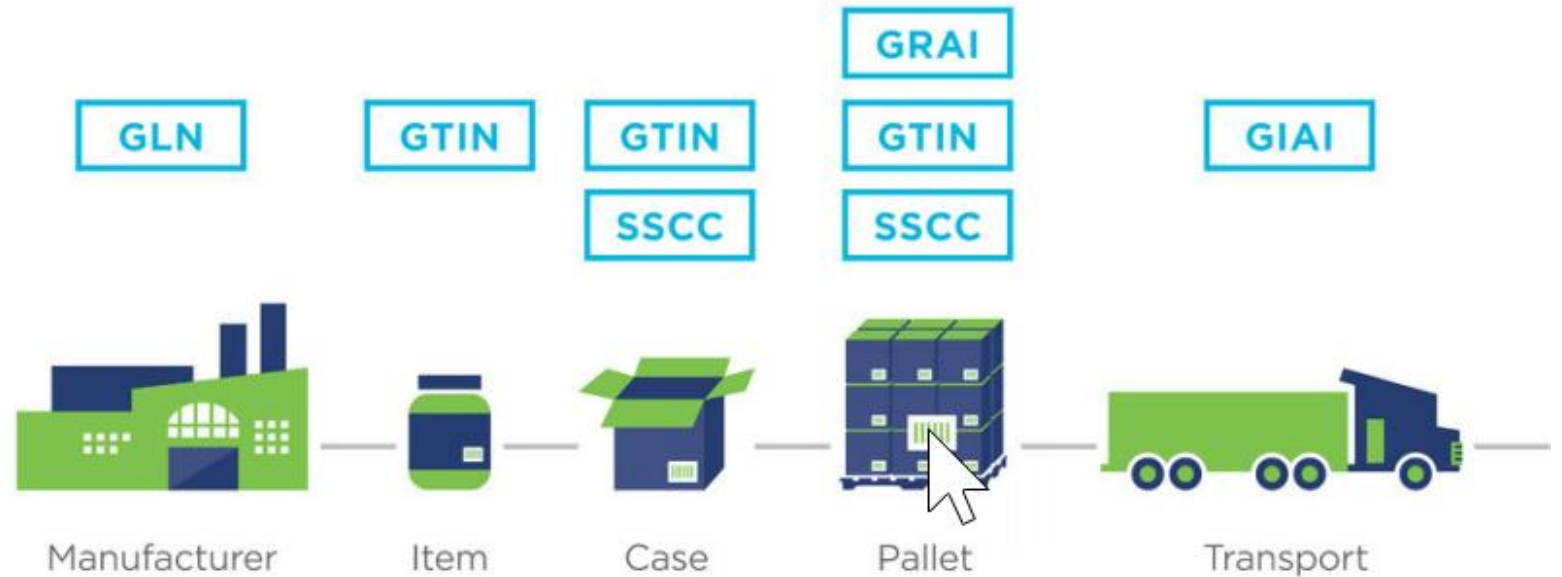


POWERED BY POSSIBILITIES.

GS1 Fundamentals

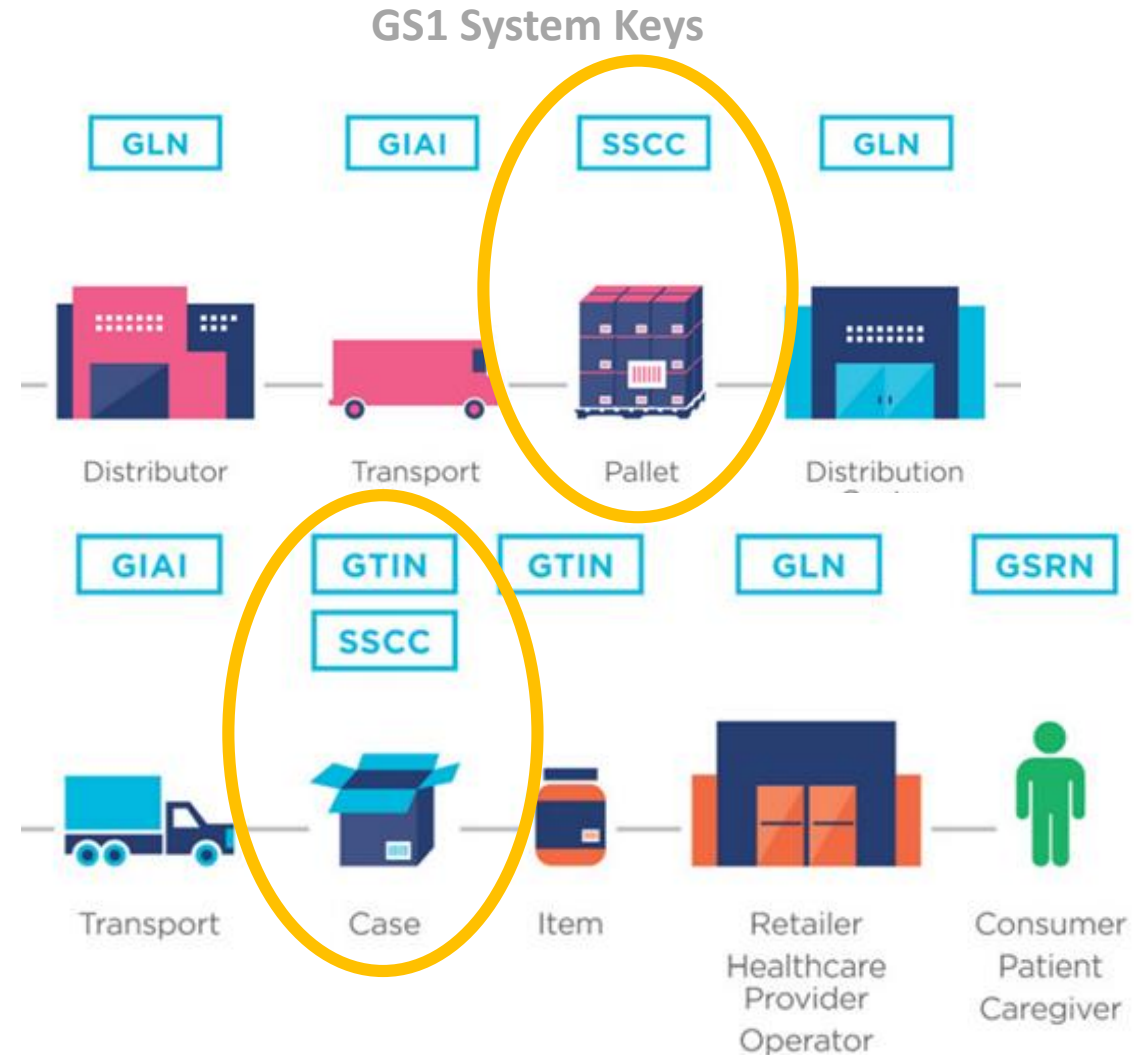
- Global Location Number
- GTIN
- Serialized Shipping Container Code
- Global Returnable Asset Identifier
- Global Individual Asset Identifier

GS1 System Keys



GS1 Fundamentals

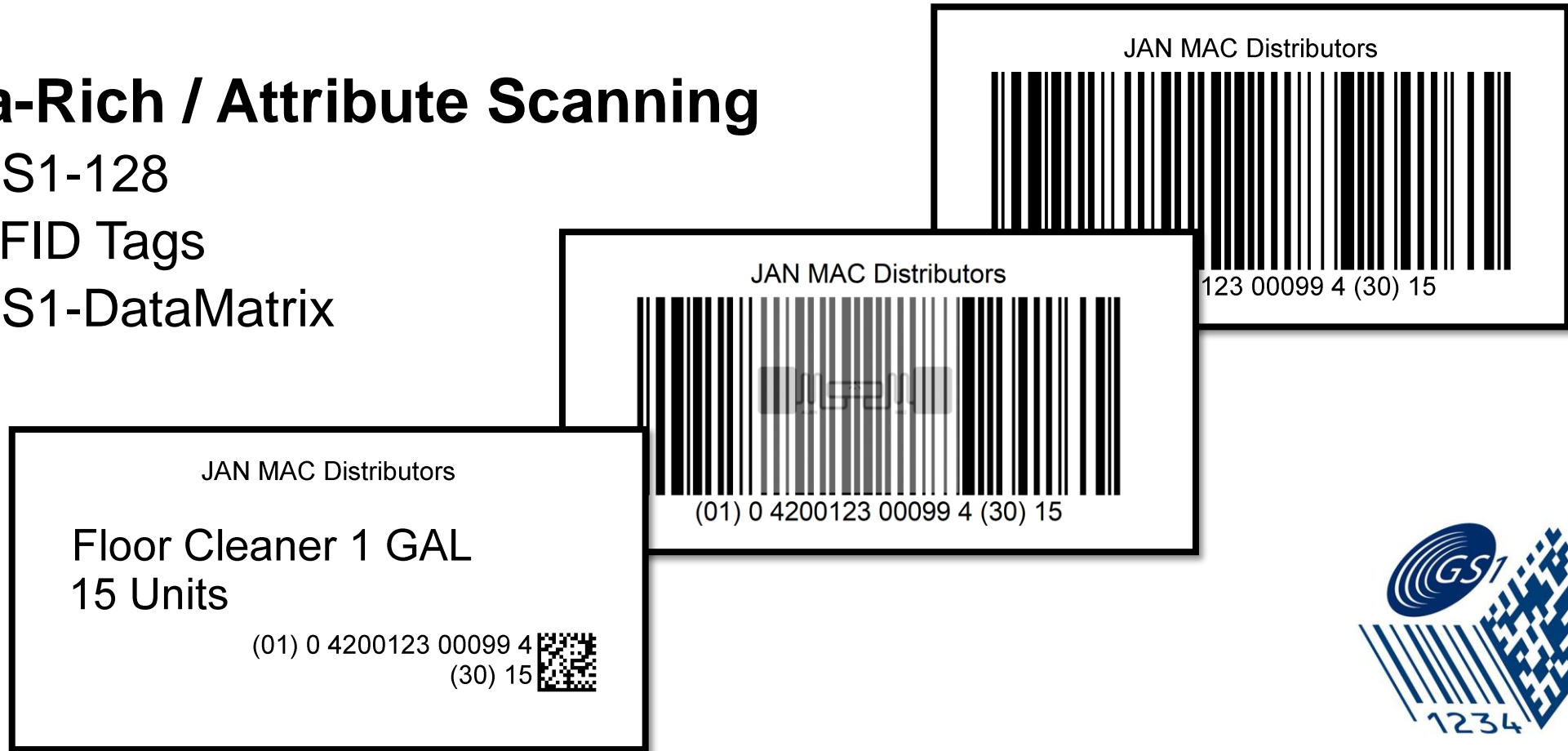
- Global Location Number
- GTIN
- Serialized Shipping Container Code
- Global Individual Asset Identifier
- Global Service Relationship Number



Beyond the U.P.C.

- **Data-Rich / Attribute Scanning**

- GS1-128
- RFID Tags
- GS1-DataMatrix



GS1 Fundamentals

- RFID EPC codes and SGTINS



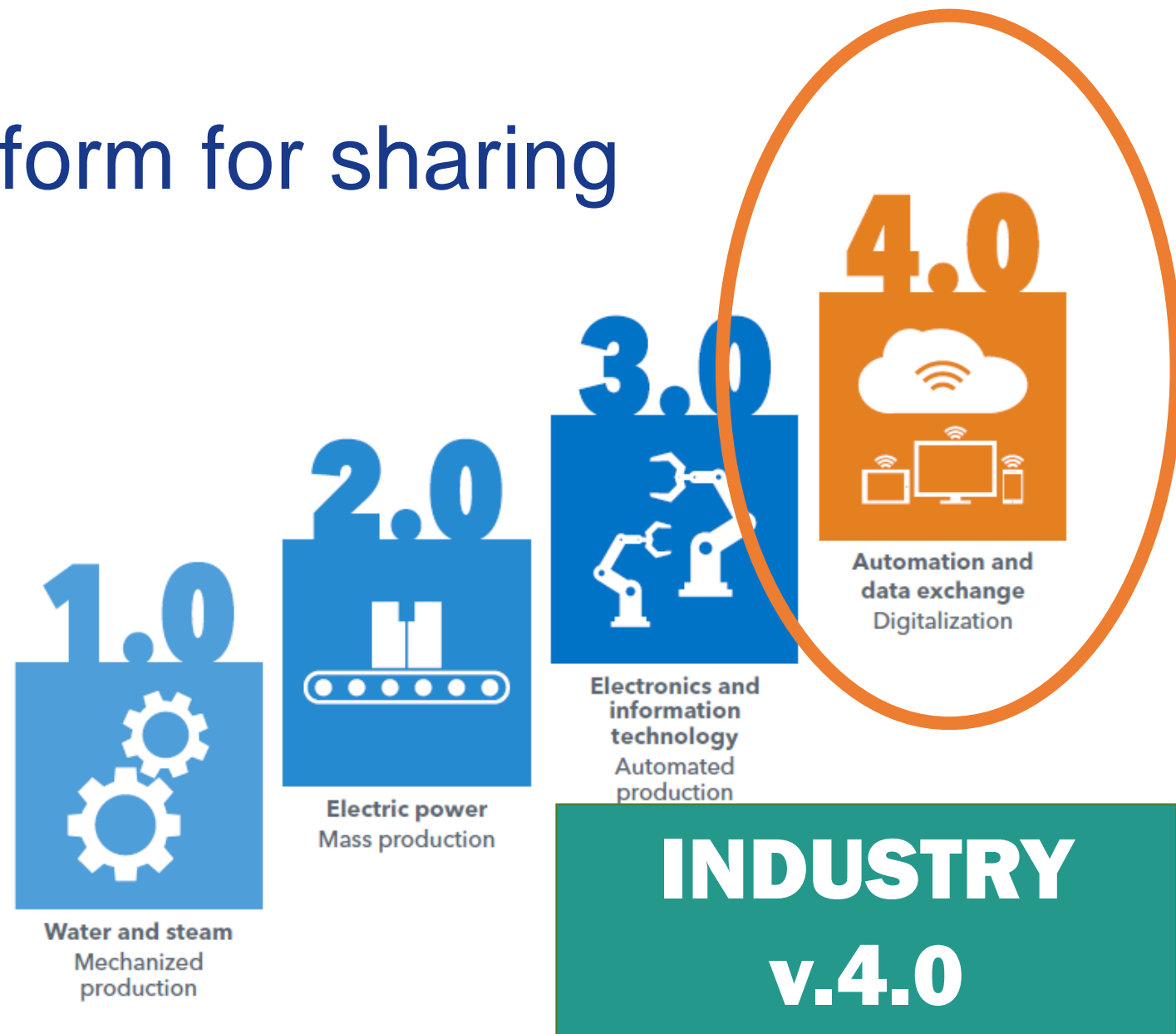
Example: GTIN (01) 0401234577772 | Serial number (21) 123



Unit-level Traceability | AI(21) = S/N

urn:epc:id:sgtin:4012345.077777.123

GS1: A platform for sharing

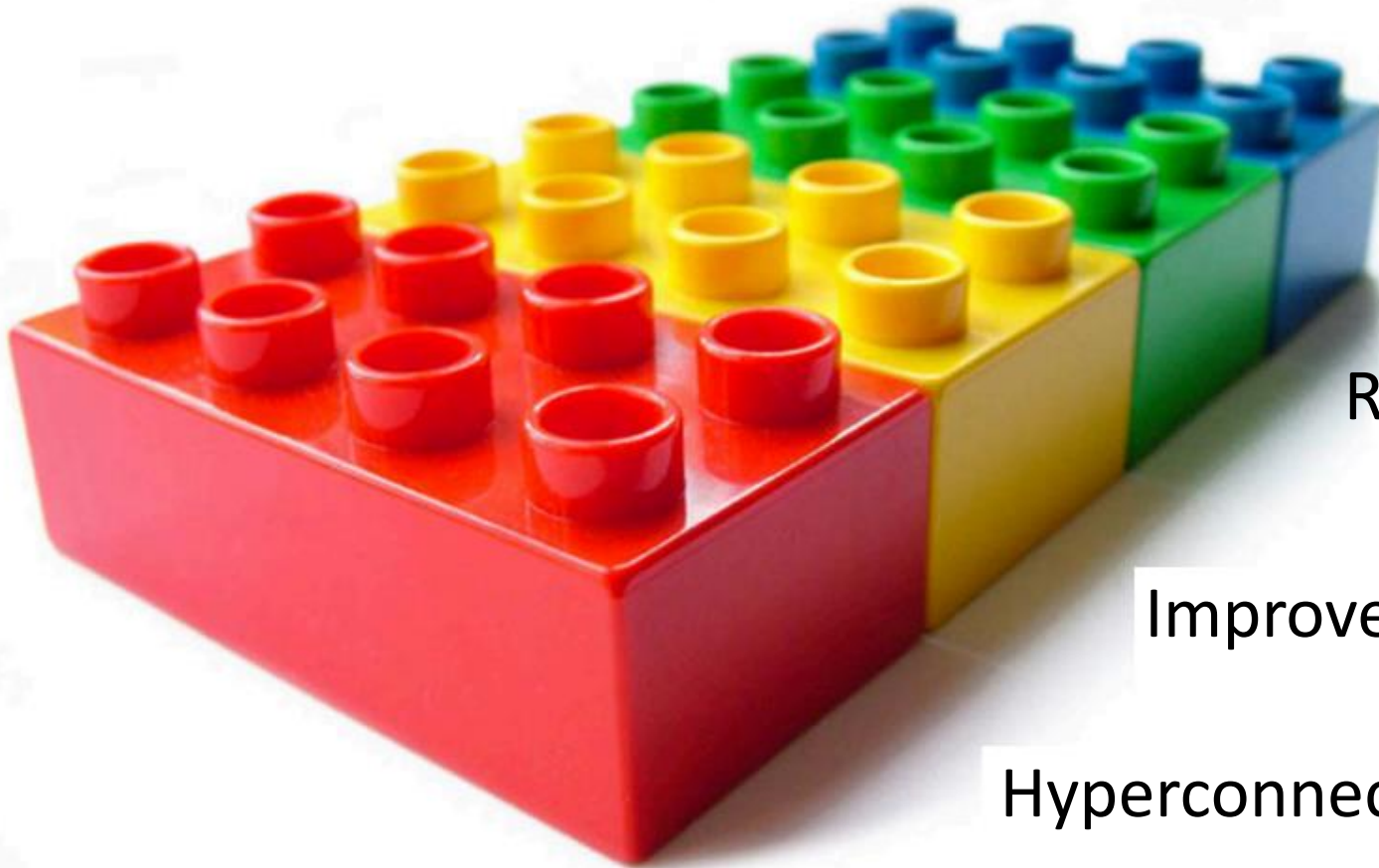


POWERED BY POSSIBILITIES.

Enabling Technologies are like building blocks



They are stronger in combination



Machine Intelligence

Relevant Data + GS1 Standards

Improved Sensors and Monitoring

Hyperconnectivity and Cloud

POWERED BY POSSIBILITIES.

EVERY INNOVATION BECOMES INFRASTRUCTURE

INTERNET OF THINGS, INDUSTRY 4.0, SMART FACTORY, AUTOMATION, ROBOTICS

HYPERCONNECTIVITY: 4G TO 5G, LPWAN, SENSOR NETWORKS, CUBESATS

CLOUD EVOLUTION: PUBLIC, PRIVATE, HYBRID, MULTI, VIRTUALIZATION, EDGE

MOBILE INTERNET: MOBILE BROADBAND, SMARTPHONE AND LOCATION, GS1

INTERNET PROTOCOL, WORLD WIDE WEB, MICROPROCESSORS, NETWORKS

Thank You!



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Peter Zalinski
Barcoding, Inc.



powered by  MHI

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Or visit MODEX Booth # 4615