



The Global Language of Business

Topic 1: The appropriate data carrier in Healthcare

GS1 DataMatrix, RFID, GS1 QR code, GS1 Databar. What information is needed in a barcode – from pill to carton – GTIN plus application identifier (AI's), packaging level

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Welcome and Introduction



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This is what we need to avoid



- Multiple bar codes on one package – which one to scan?
- Different types of bar codes – **inconsistency; incompatibility**
- No bar code – need to barcode; re-package; re-label

The GS1 system of standards



Identify: GS1 Standards for Identification



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



EPC HF Gen 2



EPC UHF Gen 2



GS1 EPC/RFID

Share: GS1 Standards for Data Exchange

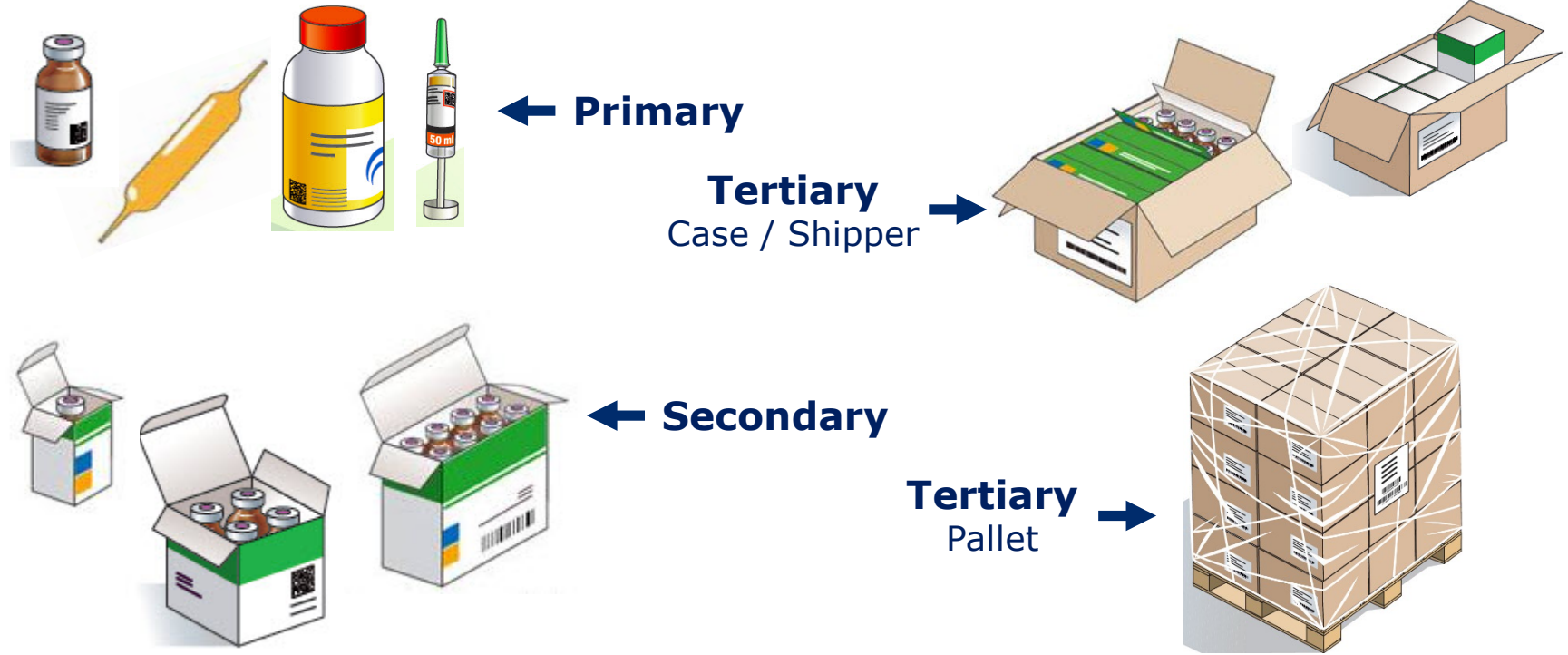
Master Data Global Data Synchronisation Network (GDSN)

Transactional Data eCom (EDI)

Event Data EPC Information Services (EPCIS)

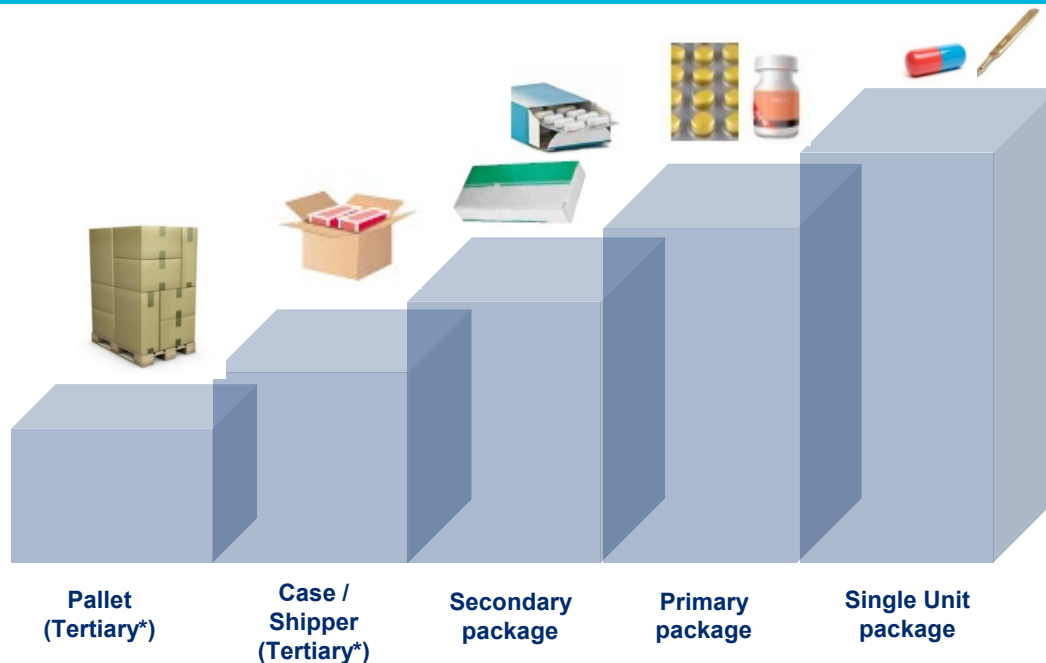


Packaging level examples...



Packaging level hierarchies

Identification at all levels



NOTE: * There is no globally standardized definition of “tertiary package”...

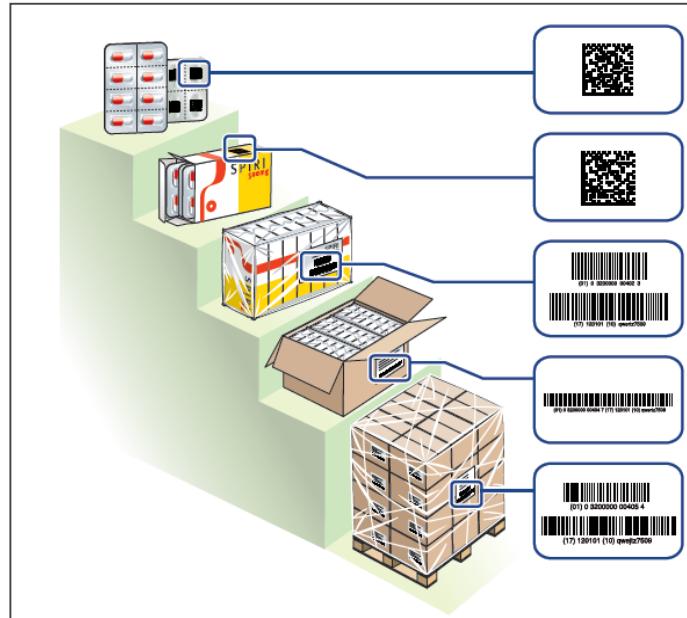
GS1 Barcodes in a healthcare hierarchy



- Every item in the hierarchy needs to have a **unique identifier**

With

- The **appropriate GS1 barcode** (i.e. GS1 linear or DataMatrix)

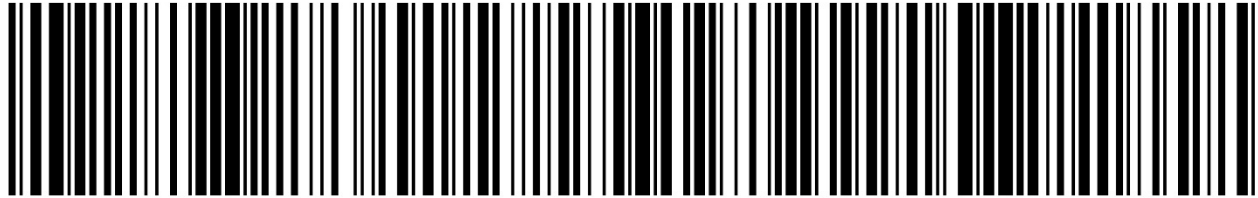


GTIN A (GTIN-14)	Check Digit ↓ <u>29504000059273</u>
GTIN B (GTIN-13)	<u>9504000059279</u>
GTIN C (GTIN-14)	<u>49504000059277</u>
GTIN D (GTIN-14)	<u>69504000059271</u>
GTIN E (pallet as a Trade Item) (GTIN-14)	<u>89504000059275</u>

A need to capture the GTIN & more...



GS1-128 Barcode



(01)19506000117843(17)141120(10)NYFUL01(21)192837



GTIN-14

(01)19506000117843

(17)141120

(10)NYFUL01

(21)192837

Expiry Date

Batch Number

Serial Number

A GS1 Application Identifier (AI) is an element string that carries dynamic or “production identification” data that... in conjunction with the GS1 “Key”... they provide more granular information about the items identified at the point of data acquisition (scanning).

GS1 DataMatrix Barcode



GS1 Application Identifiers (AIs)...



The GS1 Gen Specs include 100+ "AI's" for various use cases & sectors

..however **relying on Master Data as well as limiting & staging** the Application Identifiers **commonly used** in Healthcare helps:

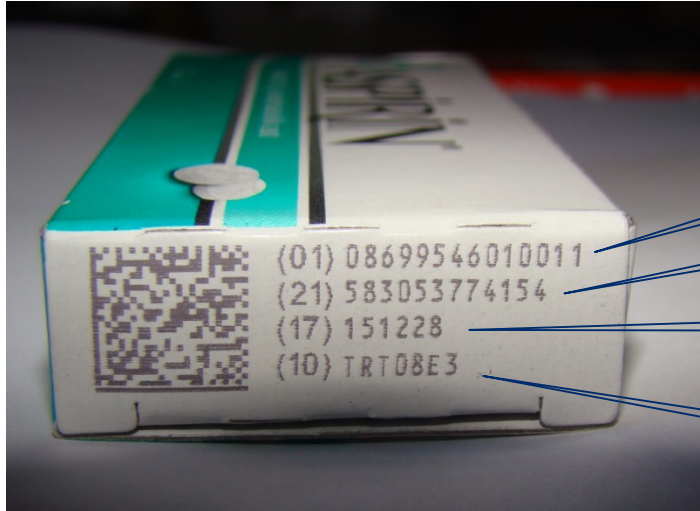
- ...to reduce implementation complexity
- ...maximize use of existing systems
- ...potentially minimize cost implications

01	GTIN (Global Trade Item Number) – 14 digit numeric
10	Batch / Lot – up to 20 characters, alphanumeric
17	Expiry Date – 6 digit numeric, YYMMDD format
21	Serial Number – up to 20 characters, alphanumeric

Note – Other than certain efficiency recommendations within the GS1 General Specifications, the order of AI's is *not significant and should not be mandated*.

Note – GTIN and serial number makes a product truly unique – serial numbers can be repeated with other GTIN's. Randomisation is today state of the art although not part of GS1 Gen Specs.

GS1 DataMatrix: The favored 2D carrier for pharmaceuticals



Product Identifier (GTIN)

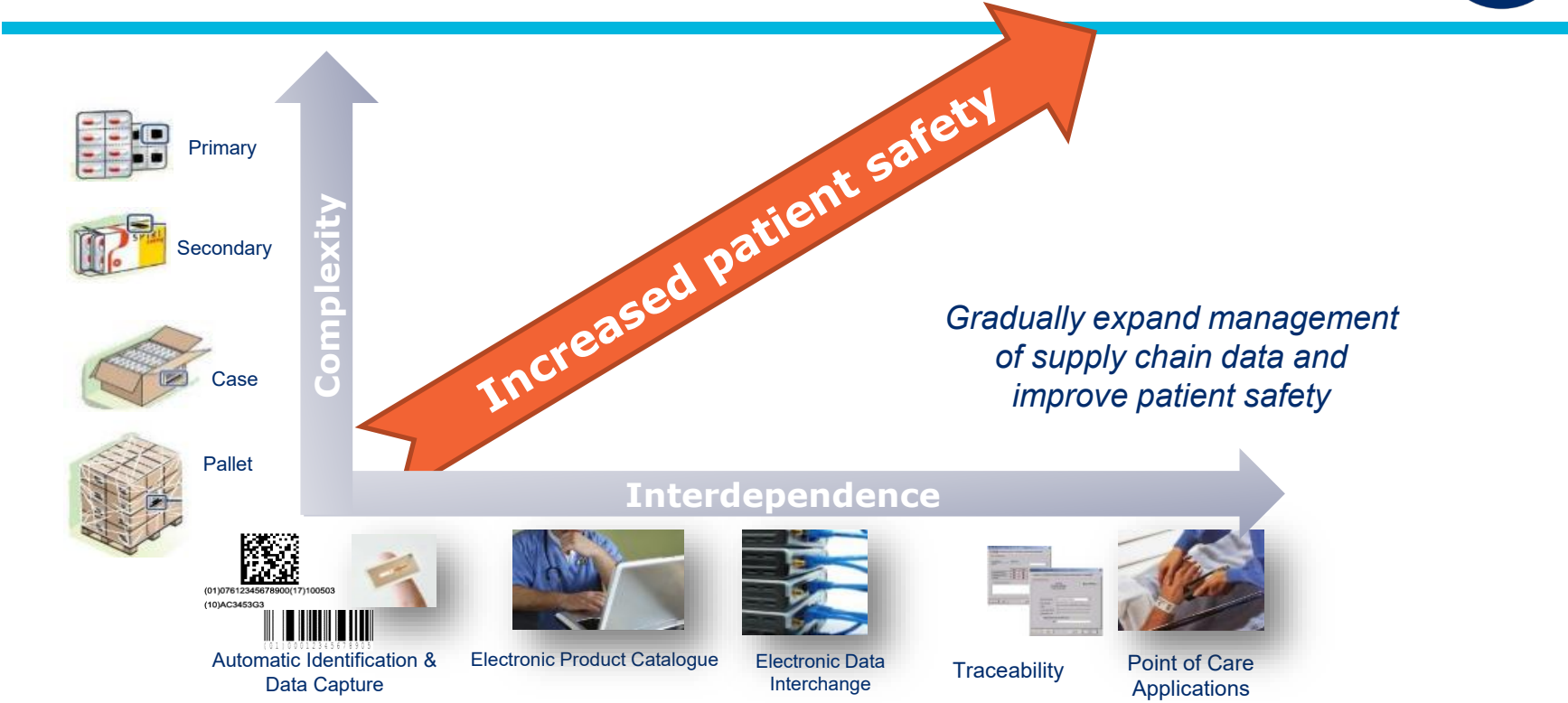
Serial Number

Expiry date

Lot/Batch number

Note: These are the four data elements supported by regulators

For a secure healthcare supply chain



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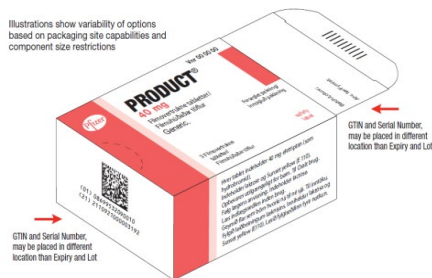


GS1 Standards Application

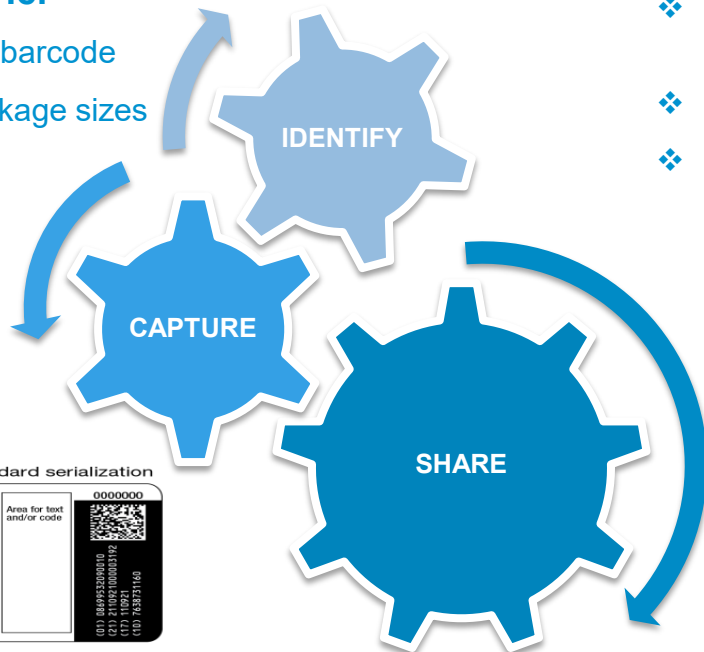
GS1 DataMatrix as Data Carrier

- ❖ High-density and smallest size barcode
- ❖ Small footprint fits on most package sizes

Illustrations show variability of options based on packaging site capabilities and component size restrictions



Label for square bottle with standard serialization



Key Data Elements / Application Identifiers:

- ❖ GTIN (01) / Serial Number (21) / Expiry Date (17) / Lot Number (10)
- ❖ Unique identification of a unit
- ❖ Regulated by most worldwide mandates

GTIN (01) 00300694210304
SN (21) 100009876543
EXP (17) YYMMDD
LOT (10) L102034

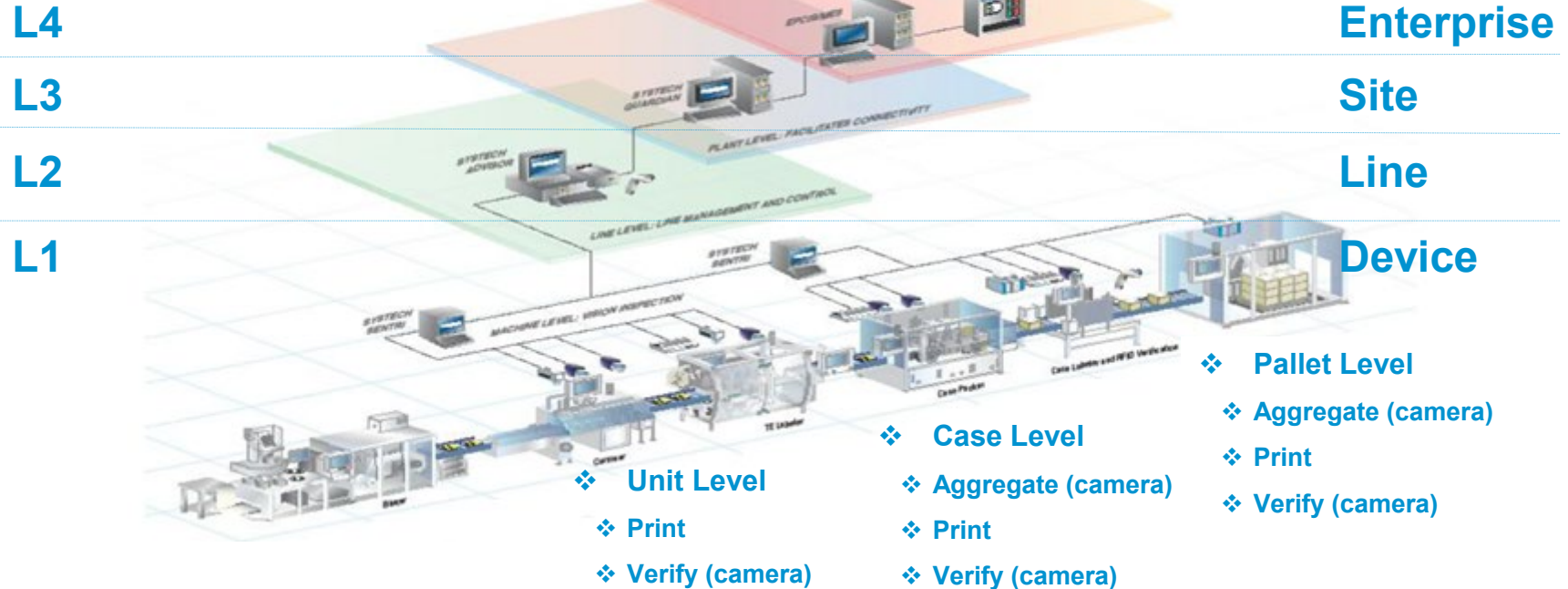


Interoperability

1. GDSN for master data
 2. EDI for transaction data
 3. EPCIS for event data
- ❖ Common language between partners



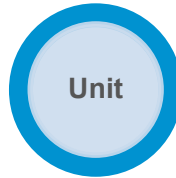
Site Server/Line Management Systems



Data Carriers at Different Levels

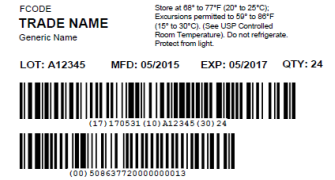
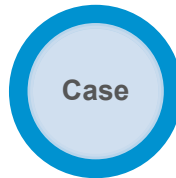
❖ One (1) GS1-DataMatrix barcode

- ❖ GTIN (01)
- ❖ Serial Number (21)
- ❖ Expiry Date (17)
- ❖ Lot Number (10)



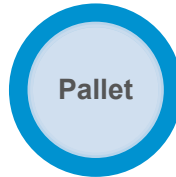
❖ Two (2) GS1-128 barcodes

- ❖ Expiry Date (17) + Lot Number (10) + Quantity (30)
- ❖ SSCC / sGTIN



❖ One (1) GS1-128 barcode

- ❖ SSCC (Serialized Shipping Container Code)



SERIALIZED PALLET LABEL
SITE & LINE



Challenges and Opportunities



Serialization regulations and requirements vary among countries.



Global harmonization on data content and carriers removing obstacles on cross border trading.



Cross industry stakeholders in healthcare supply chain collaborate to improve operational efficiency.

thank you!



Discussion



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