Suggested questions to ask your Traceability Solution Provider partners

Following are suggested questions that will help traceability system users communicate their needs for GS1 standards-based solutions and learn more about current solution provider capabilities.
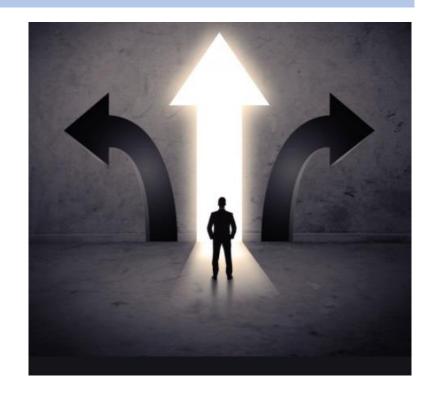
This guideline will not cover every possible implementation scenario. It provides a framework and foundation for traceability solution users, and they can formulate additional questions to fit their needs. Key questions are highlighted in **bold**.

Our focus is on what GS1 Standards are being used and how. Not every question is relevant to a particular implementation; therefore, questions should be selected based on the users' needs. Please refer to the use case matrix provided for common use-cases.

For example, when considering symbology to use for on-pack coding, questions relating to GS1 standards such as: *"Does the traceability system have the capability to maintain GS1 Identification Keys along with the ability to encode Attribute Data (e.g. Serial numbers, Best-Before dates, Batch or Lot Numbers)"* are important.

However, other considerations for solution selection, not related to GS1 standards, might include questions such as *'How are identifiers applied to the traceable item?'* is not within the scope of this document.

We included a few questions that would seem sensible in most/many cases. For example, how long has the solution providers been trading? Are there existing solutions in market, cases studies, paying clients or reference sites that can be contacted for testimony etc. These questions are not exhaustive and provided as a common-sense guide only.

We hope the guiding questions are helpful.

Identify   Capture   Share   Use

GS1 Standards-based questions to ask

<table>
<tr>
<td colspan="3">IDENTIFY - Use and application of key GS1 Identifiers, e.g. Products, Locations, Logistic Units, Shipments, Consignments, Assets, Service Relationships, Documents</td>
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<tr>
<th>Capability</th>
<th>Relevance</th>
<th>Questions to Consider Asking</th>
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<tr>
<td>Product identification</td>
<td>Globally unique identifiers (numbers) for products define the 'what' and are important for external (between business) tracking and effective trade.</td>
<td>

Does the solution use Global Trade Item Numbers (GTIN) for Product Identification?
Does the traceability system have the capability to maintain GTIN along with the ability to encode attribute data (e.g. Serial numbers, Best-Before dates, Batch or Lot Numbers?
As necessary, can the system currently create GTINs in addition to storing these?
Does the software use the GTIN as the primary means or product identification – or via linked data?
Is the GTIN field searchable?
Does the solution support the allocation and application of unique GTINs for all levels of packaging hierarchy for a product?

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<tr>
<td>Legal entity, physical location, function and digital location identification</td>
<td>Ability to define 'who' (the business) and 'where' (locations) is important for traceability incl. farms, warehouses, factories, markets and stores.</td>
<td>

Does the solution use Global Location Numbers (GLN) for the identification of physical places, business entities and/or their parts?
Can GLNs currently be created and natively stored in the system, then used as appropriate?
Depending upon the function of the software, can GLNs currently be related to GTINs (for identification of product storage or use in a location. Eg. a hospital, supermarket, distribution centre, factory or farm)?

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<td>Logistic unit, shipment and consignment identification</td>
<td>Logistic units include cartons and pallets that move through the supply chain. These may also be considered the 'what' to ensure end to end traceability.</td>
<td>

Does the solution have the capability to auto-generate Serial Shipping Container Codes (SSCC) based on a valid/allocated GS1 Company Prefix?
Does the system check for duplicate SSCCs within a 12-month period?
Do you maintain a register of sequential/next available SSCC?
Is the SSCC number searchable?
Does the solution have the capability to auto-generate Global Shipment Identification Numbers (GSIN) based on an allocated GS1 Company Prefix?
Does the solution have the capability to auto-generate Global Identification Number for Consignments (GINC) based on an allocated GS1 Company Prefix?

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IDENTIFY - Use and application of key GS1 Identifiers, e.g. Products, Locations, Logistic Units, Shipments, Consignments, Assets, Service Relationships, Documents		
Capability	Relevance	Questions to Consider Asking
Asset identification	Assets can be assigned a unique number. This is usually used for internal items such as capital equipment or returnable items such as crates and pallets.	➤ **Is the construct of Global Individual Asset Identifiers (GIAI) based on an allocated GS1 Company Prefix?** ➤ Does the system check for duplicate GIAIs? ➤ If the system is used to track/manage assets, can the GIAI be stored in the system, and depending on the function of the software, be related to GTIN (for identification of product), processing (assets used for processing), staff (assets used by staff), and GLN (location of asset)? ➤ Does the system have the capability to auto-generate GS1 Global Returnable Asset Identifiers (GRAI) based on an allocated GS1 Company Prefix and Asset Type equalling n..13?
Service provider and recipient relationship identification	Service provider and recipient relationships can also be uniquely identified. More commonly used in hospitals to identify doctors, nurses, patients etc.	➤ **Does the system have the capability to auto-generate Global Service Relation Numbers (GSRN) based on an allocated GS1 Company Prefix?** ➤ If the system is used as part of a clinical process for staff identification, can the GS1 GSRN + Service Relation Instance Number (SRIN) currently be stored and have GTIN as well as relevant staff ID information associated with this? ➤ Is the GSRN number searchable?
Document Identification	Documents can also be assigned unique identifiers that allow the user to identify the type (e.g. a certificate) and authenticate it as a specific issuance	➤ **Does the system have the capability to auto-generate Global Document Type Identifiers (GDTI)?** ➤ Is the GDTI number searchable?

Capability	Relevance	Questions to Consider Asking
Barcode Printing/ Tagging/ Marking	This relates to the physical barcoding of items and assets. A range of options exist	➢ **Does your solution have the capability to generate physical data carriers (e.g., barcode labels, swing tags, EPC/RFID tags) and/or direct part marking?** ➢ **If EPC/RFID is used, does this conform to the current EPC Gen2 standards?** ➢ Does the data carrier (symbology, tag or electronic circuit) have the capability to encode GS1 identifiers including encoded attribute data (e.g. Serial numbers, Best-Before dates, Batch or Lot Numbers) ➢ Does your solution support and print GS1 barcode types/symbols in line with GS1 General Specifications and any relevant local & regional guidelines? ➢ Does your solution print concatenated barcodes that include the relevant GS1 identification key(s) and relevant attributes (by using GS1 Application Identifiers (AIs))?
Barcode Scanners	Scanning is key to unlocking the information that is encoded into a barcode.	➢ **Can scanners natively decode all GS1 keys and associated attributes encoded GS1 barcode symbols and/or RFID tags, in line with the GS1 General Specifications (e.g., GTIN, batch/lot number, serial number and; expiry date encoded in a GS1 DataMatrix or GS1-128 barcode) in all conditions?** ➢ In with the above, can the scanner currently decode the GS1 barcodes in all conditions?
GS1 Digital Link	GS1 Digital Link is a web-based syntax that enables connections to all types of business-to-business and business-to-consumer information	➢ Does your solution support the **GS1 Digital Link** standard?

SHARE - Information exchange and interoperability		
Capability	**Relevance**	**Questions to Consider Asking**
Global Data Registry Access	Connecting to global data registries ensures common information is used through chain	➤ **Can required Global Data Synchronisation Network GDSN-compliant master data be mapped into the software and when stored, be associated with each level of product packaging?** ➤ Does your solution have the capability to share product master data and location/party information electronically? ➤ Are EDI messages exchanged in accordance with the GS1 GDSN specifications?
Electronic Data Interchange	Data exchange is critical for interoperability and to avoid data becoming locked in one part of the supply chain	➤ **Can the EDI solution use the GTIN, GLN, SSCC and other associated data, as defined in the GS1 Identification Keys in GS1 EDI messages Guideline?** ➤ Is the format and structure of the EDI messages generated and received currently in line with the relevant GS1 EDI Implementation Guidelines?
Interoperability	Ensuring the solution can integrate with other systems is critical for effective technical ecosystems to evolve – supporting old and new (yet to be created) capabilities.	➤ Does your solution have the capability to interconnect with other solutions, platforms, and networks? ➤ Does your solution provide traceability data exchange using open data exchange standards? ➤ Does your solution have the electronic messaging capabilities to exchange essential business information? ➤ **Does the solution have APIs and if so what ecosystems or other solutions do they current support?**

USE – Streamlining Business Processes - Critical Tracking Events and Key Data Elements		
Capability	**Relevance**	**Questions to Consider Asking**
CTEs and KDEs	Critical Tracking Events like 'store' or 'transport' help industry define the Key Data Requirements in ways that enable external traceability.	➢ **Does your solution define the essential information that must be collected, recorded, and shared to ensure "one step up, one step down" traceability?** ➢ Does your system allow you to define Traceability Events (manufacturing, processing, handling and distribution)? ➢ Does your system allow you to define Critical Tracking Events (creation, transformation, transportation, depletion)? ➢ When capturing transaction and event data, is product-related traceability information (e.g. batch/lot number, serial number, production date, expiry date) recorded for all hierarchy levels (e.g. base unit, case, logistics unit, container)? ➢ Does the system link the product, business transaction data and visibility event data together with subsequent stages, locations and parties?
Supply Chain Events	Defining 'why' something happens in a supply chain eg. a creation, aggregation or observation provides business intelligence and enable process automation – including regulatory efficiency.	➢ Is transaction data shared between trading partners based on GS1 EDI standards? ➢ **Is event data shared between trading partners based on GS1 EPCIS and Core Business Vocabulary (CBV) standards?**

![GS1 Australia logo]

Suggested Questions for Traceability Solution Providers

Generic (non-standards based) questions to consider		
Capability	**Description**	**Questions to Consider Asking**
Solution Maturity	Knowing how long a solution has been in market helps define risk	➢ How long has the solution provider been in business? ➢ How long has the traceability solution been in market? ➢ What is your current presence in this country?
Technical Support	Understanding how support is provided is usually important	➢ Is the solution cloud based or desktop based? ➢ In which country is the cloud-based service or solution housed? ➢ If I needed support how would this be delivered?
References and Case studies	Obtaining references may assist to qualify capabilities and value	➢ Do you have case studies demonstrating business benefits and value proposition of your solution? ➢ Is there a reference site/implementation that we can contact?
Fitness for purpose	It may be helpful to know if the solution is generic, customisable or industry specific	➢ Is the solution industry agnostic? ➢ If not, what industry sectors does your solution support?
Value for Money	Setting expectations re cost and understanding investment return	➢ What is the cost of the solution and are there ongoing subscriptions fees charges? ➢ Who owns the data and how is data privacy managed?

The above questions are provided as a guide only. The relevance of each will depend on the user requirements and the business case. In addition to using these questions, traceability solution users are encouraged to search the national traceability solutions register and check on the status of traceability solution provider claims about GS1 standards use.

A supporting generic Technical Specification (TS) is provided to assist Traceability Solution users in defining requirements and preparing Requests for Proposal (RFP) or Requests for Quotation documents.

Guidance notes are provided below for common business use cases.

For further information please contact GS1 Australia at traceability@gs1au.org

Guidance on Traceability Requirements for Common Business Use

For typical business use cases, recommended treatment of functional capabilities supported by GS1 Standards are summarised below. 'Mandatory' capabilities defined are those we recommend are critical for standards-based traceability. Issues and capabilities flagged as 'preferable' with 'nice to have' are optional.

Capability and Key Issues to Consider		Internal Tracking only	(External) Supply Chain Efficiency	Fraud and counterfeiting	Customer Engagement	Patient or Public Safety	Product safety and Recall	Regulatory Compliance
Identify GS1 standard identifiers	Products	Preferable	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory
	Locations and Entities	Preferable	Mandatory	Preferable	Preferable	Mandatory	Mandatory	Mandatory
	Logistics Units & Shipping	Preferable	Mandatory	Preferable	Nice to have	Mandatory	Mandatory	Mandatory
	Assets	Nice to have	Preferable	Nice to have	Nice to have	Mandatory	Nice to have	Nice tp have
	Service/agents	Nice to have	Preferable	Preferable	Nice to have	Mandatory	Preferable	Preferable
	Documents/certificates	Nice to have	Preferable	Preferable	Nice to have	Mandatory	Preferable	Preferable
Capture Data carriers, barcode printing and scanning	Barcodes /Tags/Marks	Preferable	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory
	Barcode Scanners	Preferable	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory
	GS1 Digital Link	Preferable	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory
Share Information exchange and interoperability	Master and global data registry data sharing	Nice to have	Preferable	Preferable	Preferable	Mandatory	Mandatory	Mandatory
	Electronic Data Exchange	Nice to have	Preferable	Preferable	Preferable	Mandatory	Mandatory	Mandatory
	Interoperability	Nice to have	Mandatory	Preferable	Preferable	Mandatory	Mandatory	Mandatory
Use Streamlining business processes	Critical Tracking Events and Key Data Elements	Nice to have	Preferable	Preferable	Preferable	Mandatory	Mandatory	Mandatory
	EPCIS – defining the why	Nice to have	Preferable	Preferable	Nice to have	Mandatory	Mandatory	Mandatory
Solution Claims **Validation**	Has the solution been validated by GS1?	Optional	Recommended	Recommended	Recommended	Strongly Recommended	Strongly Recommended	Strongly Recommended

GS1 standards are open and available to all industries on a royalty-free basis. Industry decision support tools and resources are continually being updated to support GS1 Members and broader industry and government initiatives to improve the efficiency, effectiveness and safety of global supply chains. Please visit www.gs1au.org and traceability pages at https://www.gs1au.org/what-we-do/standards/traceability