



The Global Language of Business

Foodservice

Getting Started with the GS1 Global Data Synchronization Network (GDSN)

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About GS1

GS1® is a neutral, not-for-profit, global organization that develops and maintains the most widely-used supply chain standards system in the world. GS1 Standards improve the efficiency, safety, and visibility of supply chains across multiple sectors. With local Member Organizations in over 110 countries, GS1 engages with communities of trading partners, industry organizations, governments, and technology providers to understand and respond to their business needs through the adoption and implementation of global standards. GS1 is driven by over a million user companies, which execute more than six billion transactions daily in 150 countries using GS1 Standards.

About GS1 US

GS1 US®, a member of GS1 global, is a not-for-profit information standards organization that facilitates industry collaboration to help improve supply chain visibility and efficiency through the use of GS1 Standards, the most widely-used supply chain standards system in the world. Nearly 300,000 businesses in 25 industries rely on GS1 US for trading-partner collaboration that optimizes their supply chains, drives cost performance and revenue growth while also enabling regulatory compliance. They achieve these benefits through solutions based on GS1 global unique numbering and identification systems, barcodes, Electronic Product Code-based RFID, data synchronization, and electronic information exchange. GS1 US also manages the United Nations Standard Products and Services Code® (UNSPSC®).

About Foodservice GS1 US Standards Initiative

The Foodservice GS1 US Standards Initiative serves as a strategic effort in which industry trade associations and individual companies may choose to join on a voluntary basis to assist with their company's adoption and implementation of GS1 Standards. Nothing herein should be construed as constituting or implying an agreement among foodservice companies to adopt or implement GS1 Standards. Nothing herein should be construed as constituting or implying an agreement regarding any company's prices, output, markets, or dealings with customers and suppliers. Nothing herein is inconsistent with the proposition that each participating company must and will exercise its independent business judgment on all standards adoption.

1 Introduction

U.S. foodservice companies have many systems that use and rely on product information, including sales and marketing, inventory replenishment, distribution, billing/accounts payable, barcode tracking and scanning, food safety, traceability, performance reporting, etc. Unfortunately, there is often no central, authoritative database to house and manage all of that information. Instead, each system generally uses its own database. As a result, there is no method for assuring that the information about products being used in one system is the same as the information being used in another. Moreover, whenever a trading partner updates or changes any of its product information, all of the disparate systems and databases that rely on that information must be updated individually. This is an unreliable and inefficient approach to data management can increase cost for manufacturers, distributors and operators in the U.S. foodservice supply chain.

The GS1 Global Data Synchronization Network™ (GDSN®) can help foodservice companies address this problem. The GDSN is the GS1® solution for accurate product information within a company and across supply chains. With the GDSN, foodservice companies can establish one, authoritative source of product information to feed all of their systems with the same reliable, properly-formatted information used by their supply chain partners. In addition, the GDSN offers foodservice companies a highly-efficient, automated process for keeping the information in that central source reliable and up-to-date.

The Foodservice GS1 US Standards Initiative (“the Initiative”) began in 2009 to help the foodservice community respond to industry challenges through the adoption of GS1 Standards. The Initiative’s goals are to drive waste out of the foodservice supply chain, improve product information, and establish a foundation for food safety through better traceability. Complete and accurate product information is a key aspect of those goals. To that end, the Initiative and the foodservice industry have embraced the GDSN for exchanging standardized product data. To date, there are almost 5,000 foodservice companies exchanging data via the GDSN.



Important: As with all GS1 Standards and solutions, this guide is voluntary, not mandatory. It should be noted that use of the words “must” and “require” throughout this document relate exclusively to technical recommendations for the proper application of the standards to support the integrity of your implementation.

2 Document Information

2.1 Purpose of this Document

The purpose of this document is to provide a high-level resource to help foodservice supply chain members jumpstart their GDSN implementation efforts. To that end, this document outlines the key tasks that most companies will find necessary for a successful implementation, shares learnings, and explains the recommended processes established by other companies in their deployment of the GDSN.

2.2 Who Should Use this Document

This document is intended for use by any member of the U.S. foodservice industry supply chain, including manufacturers, distributors, and operators alike. It is applicable to all U.S. foodservice product categories, both foods and non-foods.

2.3 Roles Terminology

In referencing various parties, this document and the resource materials noted throughout use terminology related to supply chain roles, as well as terminology related to a party’s role in the GDSN.

To promote clarity, the tables below define the terminology used for supply chain roles as well as GDSN roles.

Table 2-1 Foodservice Supply Chain Roles Terminology

Role	Description
Manufacturer	Party that produces food and/or non-food products.
Distributor	Company that provides food and non-food products to locations such as restaurants, cafeterias, institutions, hospitals, nursing homes, schools, etc. Intermediary between manufacturers and foodservice operators.
Operator	Businesses, institutions, and companies responsible for any meal prepared outside the home. This includes locations such as restaurants, hospital cafeterias, catering operations, etc.
Brand Owner	<p>Organization that owns the specifications of the trade item, regardless of where and by whom it is manufactured. This is the trading partner responsible for the integrity of the brand name. This is usually the Manufacturer, but may be the Distributor or Operator.</p> <ul style="list-style-type: none"> Foodservice Best Practice is that the Brand Owner has their own GS1 Company Prefix, and assigns Global Trade Item Numbers (GTINs) under that prefix to the products they own or manage.

Table 2-2 GDSN Roles Terminology

Role	Description
Data Pool	A repository of data where trading partners can obtain, maintain, validate and exchange product information in a standard format through electronic means.
GS1 Global Registry®	A directory for the registration of unique catalogue items and parties. It contains a limited data set and acts as a pointer to Source Data Pools where master data is housed. It also fulfils the role of matching subscriptions to registrations to facilitate the synchronization process.
Data Source	The entity that provides the GDSN with master data. The Data Source is the owner of this data and is responsible for updating it. The Data Source is typically a manufacturer or a distributor. The Data Source defines the trade item information and sends it to their Data Pool to be registered with the GS1 Global Registry. Through its data pool, the Data Source manages subscriptions and shares data with Data Recipients. The Data Source can publish their information either to specific supply chain partners or to an entire Target Market.
Source Data Pool (SDP)	A Source Data Pool is a data pool that is linked to a Data Source. It provides validation services to assure that the data entering the GDSN is standards-compliant. It collects trade item information from Data Sources to be registered with the GS1 Global Registry and uses standard GS1 XML Messages to register the catalogue item information with the GS1 Global Registry. It also uses standard GS1 XML Messages to exchange item information with Recipient Data Pools.
Data Recipient	A party which is authorized to view, use, and download a set of master data provided by a Data Source. A Data Recipient is typically an operator or a distributor. The Data Recipient requests subscription to trade item information to the GS1 Global Registry through their Data Pool. The Data Recipient receives any updates to trade items published to them.
Recipient Data Pool (RDP)	A Recipient Data Pool is a data pool that is linked to a Data Recipient. It notifies the GS1 Global Registry when its customer (a data recipient) wants to subscribe to trade item information. The Recipient Data Pool also receives new and updated trade item information from Source Data Pools and forwards it to the Data Recipient.

3 Introduction to the Global Data Synchronization Network (GDSN)

The GS1 Global Data Synchronization Network (GDSN) is a network of interoperable data pools connected by the GS1 Global Registry. GDSN-certified data pools store item information for their users, and the GS1 Global Registry connects those data pools together.

With this high level design, the GDSN offers a standards-based approach to:

1. storing item information,
2. validating that the information is properly defined and formatted, and
3. keeping that information up-to-date.

3.1 Components of the GDSN

3.1.1 GDSN-certified Data Pools

GDSN-certified data pools serve as standards-based repositories for item information. Certification assures that all data pools in the network are consistent and employ a common basic set of validation rules that support data integrity in the network. GDSN-certified data pools store supply chain information and provide users with a single point of entry for accessing the GDSN. (Please refer to the [GDSN website](#) for a full list of GDSN-certified data pools.) It should be emphasized that data pools are not specific to one type of supply chain partner or role (e.g., manufacturer, distributor, operator, supplier, buyer, etc.). In fact, GDSN-certified data pools can service any type of company or organization, and trading partners may actually find themselves using the same data pool (one as a source and one as a recipient).

3.1.2 GS1 Global Registry

The GS1 Global Registry is the GDSN's "yellow pages" that:

- Provides information for subscription sharing (information sharing permission)
- Holds the information about who has subscribed to trade item data
- Enables data pool interoperability (all data pool have same information)

Manufacturers, distributors, and operators access the GS1 Global Registry through their GDSN-certified data pool. No other access point to the GS1 Global Registry is needed.

Table 3-1 Components of the GDSN

GDSN Component	Description
GDSN-certified Data Pools	<ul style="list-style-type: none"> ■ GDSN-certified Data Pools are warehouses for GTIN® information. They store supply chain information and provide users with a single point of entry for accessing the GDSN. ■ In addition to storing information, GDSN-certified Data Pools also validate that all of the information is properly defined and formatted, and manage the on-going communication of information among trading partners.
GS1 Global Registry	<ul style="list-style-type: none"> ■ The GS1 Global Registry maintains the data pool location of each GTIN in the GDSN. This is how the GDSN knows where GTIN information can be found. ■ By maintaining the data pool location of each GTIN in the GDSN, the GS1 Global Registry serves as the "yellow pages" for the GDSN so that everyone can be connected regardless of where their information is stored.

3.2 The Foundation for GDSN Synchronization: GTINs, Attributes and GLNs

The GDSN uses GS1 identification and data standards as the common language for supply chain information. For identification, the GDSN uses the Global Trade Item Number® (GTIN®) for products and the Global Location Number (GLN) for supply chain parties and locations.

- **GTINs:** Brand owners assign GTINs to all of their products, and define the master data (“attributes”) to be associated with that product GTIN (e.g., size; color; brand information; etc.). GDSN standards define the universe of GTIN attributes available, as well as the specific format for attribute data.
- **GLNs:** The GDSN uses GLNs to identify parties in the network. GDSN participants need to assign at least one GLN to identify themselves in the network. Trading partners assign GLNs to their own locations and entities based on GS1 Standards.

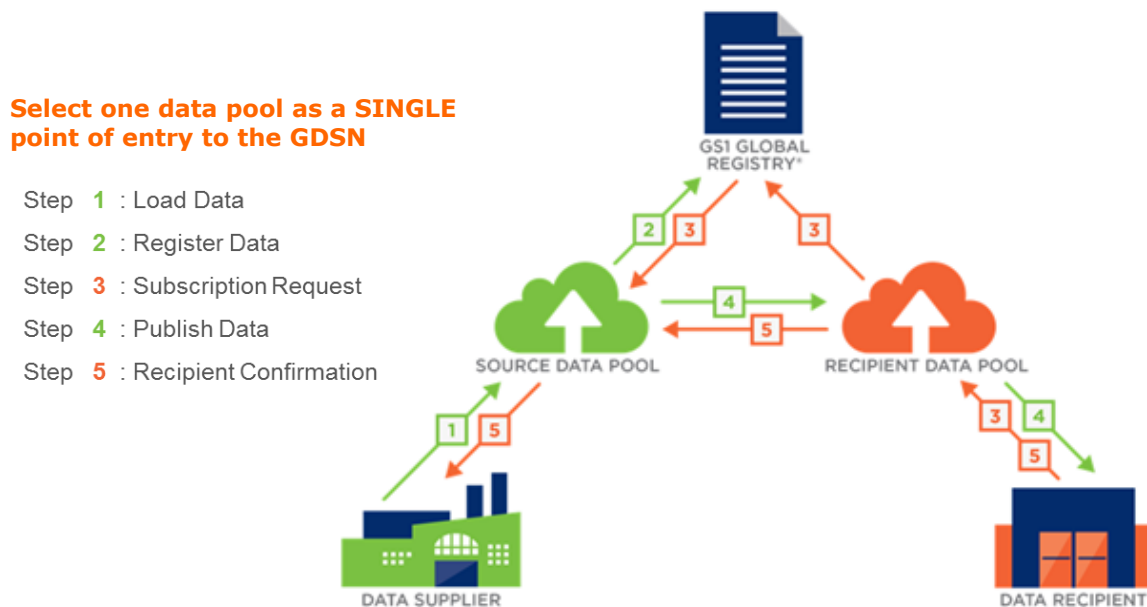
With these foundational elements in place, GTINs and their associated attributes can be stored in a GDSN-certified data pool and shared with authorized supply chain partners via the GDSN.

3.3 How Does the GDSN Work?

There are five basic steps involved the GDSN data synchronization process:

1. **Load Data:** The seller or brand owner loads GTIN product information into its data pool (i.e., the Source Data Pool).
2. **Register Data:** The Source Data Pool sends a small subset of this data to the GS1 Global Registry.
3. **Request Subscription:** The data recipient, through its own data pool (i.e., the Recipient Data Pool), subscribes to receive a brand owner’s product information.
4. **Publish Data:** The brand owner’s data pool publishes the requested product information to the data recipient’s data pool.
5. **Confirm & Inform:** The data recipient sends a confirmation to the seller via each company’s data pool, which informs the brand owner of the action taken by the data recipient using the information.

Figure 3-1 GDSN Data Flow



3.4 Value of Data Synchronization for Foodservice Industry

In general, the U.S. foodservice industry is a three-tiered supply chain consisting of the manufacturer, distributor and operator. Within that model, each company often has many systems that use and rely on product information, including procurement, inventory, distribution, billing/accounts payable, etc. It has been challenging for U.S. foodservice companies to assure that the product information being used in one system and by one trading partner is the same as the information being used in/by another. The GDSN can help foodservice companies address this problem.

The advantage of using the GDSN is that it offers foodservice supply chain members one point of connectivity (i.e., their GDSN-certified data pool), a common set of attributes, one common format, and a continuous, automated approach for keeping that data up-to-date.

- **Reliable Data:** The GDSN promotes reliable data through the use of authoritative data sources that help assure that product information is identical across IT systems and among trading partners.
- **Quality Data:** The GDSN enhances the quality of supply chain information by validating that the information is properly defined and formatted per GS1 Standards.
- **Current Data:** The GDSN utilizes a real-time, continuous approach to data synchronization that keeps data current and up-to-date.
- **Ease of Use:** Using an automated approach to data synchronization, the GDSN converts the complex and burdensome task of managing product information into a simple, efficient, behind-the-scenes process.
- **One Collaborative Network:** The GDSN is unique in that it allows all trading partners to work together using one set of standards and one network even if they are using competing data pools.

4 Analyzing the GDSN ROI for Your Individual Company

The GDSN offers foodservice companies a highly-efficient, automated process for keeping product information reliable, properly-formatted, and up-to-date. This lays the foundation for improved traceability, efficiency and effectiveness to help drive costs out of the supply chain and enhance food safety. The corresponding value and return on investment (ROI) can be demonstrated in various areas, including:

- Enhanced customer satisfaction
- Increased business process efficiencies
- Reduced waste
- Improved inventory tracking
- Expedited recalls

As with any important project, trading partners should establish a return on investment (ROI) for the use of GDSN. Indeed, demonstration of positive ROI for GDSN supports companies challenged daily by the allocation of scarce resources. This section provides guidance to help each individual trading partner determine its own return on investment based on individual needs and circumstances. It is intended as a starting point for any company wishing to pursue ROI analysis.

In order to support your ROI analysis, a list of ROI hot spots is provided below. Begin your ROI analysis by determining the amount of staff time and resources currently allocated to each of these functions. In addition, determine the amount of manual error corrections being done in each function. The potential areas for ROI are applicable to all foodservice supply chain roles (i.e., suppliers, distributors, and operators).

Table 4-1 Foodservice Metrics for GDSN ROI¹

Functional Area	Metric
Logistics & Distribution	<ul style="list-style-type: none"> ■ Optimize Inbound and Outbound Freight Costs (Transportation) ■ Productivity within Distribution Network (Distribution) ■ New Item Introduction ■ Speed to Market ■ Logistics Expenses ■ Warehouse Expenses and Productivity ■ Product Delivery Issues to Recipient ■ Order Can Not Fit on Truck (cube or weight too high) ■ Overpay for Shipping if Truck is Lighter than Previously Determined ■ Warehouse Scanning Errors and Storage Issues
Labor Management	<ul style="list-style-type: none"> ■ Time Spent Addressing Item Data Issues with Customers (Sales) ■ Productivity within Order & Item Administration (Order Administration) ■ Adjustments and Reconciliation (Accounting Administration)
Order Administration & Accounting	<ul style="list-style-type: none"> ■ Order Accuracy Issues ■ Invoice Errors ■ Incorrect or Inaccurate Orders Placed (delays) ■ Reconciliations ■ Deductions and Charge-Backs

5 GDSN and the Foodservice Industry

5.1 Foodservice Attributes

The Foodservice GS1 US Standards Initiative members developed a list of GDSN attributes to address the needs of the U.S. foodservice industry. You can download a full list of GDSN Attributes for foodservice at:

- [Foodservice GS1 US GDSN Attribute Guide](#)
- [GDSN Foodservice Attributes Interactive Spreadsheet Tool](#)

In addition, you can also use [GS1 US Attribute Explorer](#)[®], an intuitive, browser-based tool, to search and discover GDSN attribute standards, including GS1 Global Data Dictionary (GDD) definition, metadata, etc. Your GDSN-certified data pool can further explain GS1 Standards requirements for populating the different attributes using their tools and systems.

Gaining a full and comprehensive understanding of the attributes and how they will be utilized is key to a successful implementation. One of the first steps to be taken in implementation is to focus on educating your project team about the attributes. With that understanding, the project team should evaluate where those attributes are stored and used internally.

Performing a gap analysis will help you understand the scope of work to be completed to support implementation. As you review the attributes and their usage, it is important that data sources take the steps necessary to validate data accuracy. Dimensions and weights are key attributes to be validated for accuracy. It is also important that data recipients identify those attributes that may need to be reviewed and updated before loading into internal systems.

¹ *Synchronization - The Next Generation of Business Partnering: How Leading Companies are Delivering Actual Results*. Grocery Suppliers Association (GMA), Food Marketing Institute (FMI), Wegmans Food Markets, Accenture LLP and 1SYNC. © Copyright 2006.

5.2 Attribute Variations

Within the GDSN, the combination of three key elements (GTIN of the trade item, GLN of the information provider, and Target Market) are used to identify a unique set of values for GTIN attributes. This enables data sources to vary GTIN attribute values depending on information provider GLN and/or Target Market, and thereby control which attributes/value are communicated to data recipients.

When creating Target Market variations of a GTIN or an information provider instance of a GTIN, there are certain attribute values that should be consistent across every variation in order to promote data integrity to the network and trading partners.

5.3 GDSN Roles in Foodservice

The effort to implement GDSN varies depending on if you are a *data source* or a *data recipient*. A *data source* is the sender of the product attributes and is responsible for the accuracy of the attributes. A *data recipient* is a receiver of the product attributes and is responsible for the distribution of that information to its internal and external systems.

In the foodservice supply chain, a data recipient may also be a data source. For example, a foodservice distributor may be a data recipient of product information from manufacturers, and they may also be a data source to their downstream trading partners if they need to share additional or updated attributes. Likewise, a foodservice manufacturer may need to receive and use the item information provided by a brand owner, and thus operate as a data recipient in that scenario. Therefore, GDSN implementation efforts can also vary depending on your supply chain role. It is important that you understand your organization's role and requirements before implementing.

5.4 Private Label and Commodity (Packer) Label Products

Data synchronization helps companies to exchange and manage static product information (i.e., master data). In today's commerce, foodservice trading partners also depend on a certain amount of dynamic product information to conduct business. For example, there are certain product categories that are procured and sold today where the manufacturer of the product may vary depending on the decision to purchase. This occurs predominately with *private label products* and *commodity (packer) label products*.

- *Private label products* are defined as those products where the brand does not belong to the manufacturer.
- *Commodity or packer label products* are those generic products where the product specification is the same, and a distributor purchases product based on that specification from multiple manufacturers (who assign their own GTIN to their product). In these instances, the distributor usually assigns one item code to be used when selling these products to operators. Although the distributor sells these products to operators under the same distributor item code, there may be multiple manufacturer GTINs associated with the single distributor item code.

In these scenarios, the manufacturer name may change from invoice to invoice. Therefore, this information is usually made available through transactional data exchanged between the distributor and operator based on the business requirements of the trading partners. Implementation of the GDSN need not affect this arrangement. Trading partners can continue using the same transactional documents to communicate the manufacturer name for product received by the operator.

The [Foodservice GS1 US GDSN Attribute Guide](#) provides the following guidance for how to manage manufacturer GLN and name attributes in the GDSN for these two product categories:

- The Brand Owner should make the decision on how to populate these attributes. Options include listing any and all physical manufacturers or listing the Brand Owner as the manufacturer.
- The manufacturer is the organization which is responsible for the manufacturing process whether they actually produce the product or not. This party controls the specifications for the product. This field can be repeated as necessary in conjunction with the name of manufacturer.

Based on this guidance, the attribute for manufacturer name may not be a static attribute for these two business scenarios. The Foodservice GS1 US Standards Initiative GDSN guidelines only address static attributes. Therefore, it should be emphasized that the Initiative's GDSN guidelines are not intended to replace any dynamic data exchanged between foodservice trading partners today.

6 General Guidance for Implementing GDSN

In order to begin using the GDSN, data sources will need to have GTINs assigned to their products and GLNs assigned to their publishing locations, and data recipients will need GLNs assigned to their subscription locations. If your company has already assigned or begun to assign GTINs to its products, it is already well on its way to implementing the GDSN. It is also possible that a division of your company is already utilizing the GDSN, particularly if it sells some of its products to large retailers and/or retail pharmacies. If this is the case, then much of the work necessary to begin using the GDSN may have already been completed. Therefore, it is important to investigate whether the GDSN has been implemented anywhere in your company prior to commencing the implementation steps in the following chapters.

Implementing GDSN is not just a technology project. It is a business process change. It is important that you understand your organization's role and requirements before implementing. Timelines to complete your implementation may vary depending on your role within the supply chain and the complexity of your product categories. Nonetheless, laying a solid foundation and using a focused, phased approach to implementation are essential to successful deployment.

The effort to implement GDSN varies depending on if you are a data source or a data recipient. Therefore, this document provides a separate implementation chapter for each role (i.e., *GDSN Implementation for a Data Source* and *GDSN Implementation for a Data Recipient*). Each chapter provides step-by-step guidance for implementing the GDSN. Key efforts include building organizational readiness, preparing systems for GDSN attributes, and building business processes to support data synchronization.

The order in which implementation steps are presented in each chapter is a recommendation developed by foodservice industry participants. However, each company's implementation will be unique to its needs, and the preferable order for individual organizations may differ. For example, manufacturers that are already using GDSN for their retail customers may already have executive sponsorship and a GDSN-certified data pool, and may be able to start their foodservice implementation with the data readiness and attribute population steps based on guidance from their retail counterparts. Moreover, manufacturers with multiple and unrelated ERP systems may want to drive implementation at the division level, requiring executive leadership at multiple levels with multiple tracks to overall implementation. Thus, the order in which the implementation steps are presented in the following chapters should be used as a guideline.

7 GDSN Implementation for a Data Source

What exactly does it take to begin using the GDSN in your company as a data source? What are the steps and who is involved? This section provides insight for these questions with step-by-step guidance for implementing the GDSN. These steps include essential efforts like establishing executive support, forming cross-functional teams, developing an implementation plan, assessing data quality and systems requirements, creating internal and external communication strategies, engaging trading partners, and establishing standard operating procedures.

7.1 Build Organizational Readiness

Success factors for building organizational readiness and preparing for a successful implementation are identified in the table below.

Table 7-1 Building Organizational Readiness

Success Factor	Tasks
Support and Engagement	<ul style="list-style-type: none"> ■ Engage a visible and supportive executive sponsor ■ Assess the benefits of joining the Foodservice GS1 US Standards Initiative to aid in the implementation process ■ Benchmark and network to learn from others
Education and Benchmarking	<ul style="list-style-type: none"> ■ Leverage implementation resources available on the GS1 US Foodservice website ■ Attend GS1 US Foodservice Webinars ■ Encourage representatives to participate in on-going Initiative meetings
Networking and Sharing Lessons Learned	<ul style="list-style-type: none"> ■ Attend Initiative meetings ■ Join GDSN working groups ■ Participate in GS1 Connect Conferences
Communication	<ul style="list-style-type: none"> ■ Create internal and external communication plans that share project status and timelines ■ Develop FAQ tools to assist with internal and external inquiries
Scope of Implementation and Business Impact	<ul style="list-style-type: none"> ■ Understand your internal data quality management process <ul style="list-style-type: none"> ■ Perform sample audit for data accuracy and consistency with GDSN formatting ■ Validate data accuracy management process (for post-synchronization dispute resolution) ■ Cleanse attributes as needed ■ Understand your internal data publication capabilities and requirements relative to your trading partner requirements (e.g., publication of full catalog versus publication of products sold) ■ Identify New Product Introduction and item change management process and all business implications (e.g., logistics, features and benefits, nutritionals, marketing, sales, etc.)

7.2 Build Your Team

- Form a cross-functional team specific to your organizational make-up, including members from the areas most impacted by implementation such as those with responsibility for the following activities:
 - Supply Chain
 - Information Technology
 - Quality Assurance
 - Operations
 - Product Management
 - Sales/Sales Operations
 - Customer Service
 - Legal/Public Relations
 - Specs & Labeling
 - R & D, Packaging, and Product Development
- Define roles and responsibilities for the Executive Sponsor, project team, and process owners.

7.3 Build Your Implementation Plan

- Perform readiness assessment and develop an implementation plan incorporating the key efforts identified throughout this chapter.
- Resources may include GS1 US, GDSN-certified data pools, and/or solution providers.
- Key actions to consider when developing the implementation plan:
 - Define milestones like determining alignment, resources, timing, etc.
 - Review GS1 US foodservice [educational documents](#) and [webinars](#).
 - Review the GS1 US [foodservice manufacturer implementation checklist](#).

7.4 Build Systems to Support Data Synchronization

7.4.1 Assess GTIN Readiness

- Your databases may already contain many GTINs; however, at this point you will need to verify that they are correctly formatted and accurately assigned. Therefore, coordinate with your company's internal item team to gather all of the GTINs for your products.
- Assess the GTINs you may already have allocated for omissions or mis-assignments, and then determine if there are any additional GTINs that need to be allocated.
 - When reviewing your current GTIN assignments, it is recommended that you compare the GS1 Company Prefix of the GTIN to the GS1 Company Prefix for the brand owner. You may find that the GTIN has been assigned not by the brand owner, but by the manufacturer. In such cases, you will need to work with the brand owner to agree on the correct GTIN and coordinate the change from the original GTIN to the correct GTIN assigned by the brand owner if necessary.
- Clearly define your organization's GTIN product hierarchy and packaging levels. This is a critical step in the implementation process.
 - Recognize the levels of the product hierarchy (i.e., packaging levels) that your GTIN numbering system needs to accommodate to support operations and trading partners. Be sure to consider rebate, field compensation, and chargeback processes as they apply to your company.
- Confirm that all products and needed packaging levels have been assigned a GTIN, that each GTIN has been properly assigned using the correct GS1 Company Prefix, and that all GTIN product attributes have been properly defined by the brand owner.
- Conduct random sample testing to validate that currently-assigned GTINs match what is on the corresponding item label and/or barcode.
- Coordinate with your customers to verify a successful match of GTIN to current item identification codes.

7.4.2 Select Your GDSN-certified Data Pool

- Select a GDSN-certified data pool and work with the data pool to prepare and on-board your GTIN information. Note that all GDSN-certified data pools have access to the same information in the GDSN and are all able to communicate with each other. Therefore, it is NOT necessary to choose the same data pool as any particular trading partner.
- Have your IT team evaluate the various technological options for loading data into the data pool.
- Select which GLN you want to use for publishing. This will be the level at which you will register your GTINs within the GS1 Global Registry. It is also the level at which your trading partners will submit their requests for subscription.
 - It is recommended to review your current GLN assignments and identify your strategy for publishing. Some data sources publish at the corporate GLN while others may elect to publish at the brand level. Discussions with your trading partners may aid in the determination of the GLN level to be used.
- Consult [GS1 US resources about GDSN-certified data pools](#).

7.4.3 Prepare Your Systems for GDSN Attributes

- Use the GS1 US Foodservice Attribute Resources (which include industry definitions and examples) to learn about GDSN foodservice attributes and how to define them.
 - Resources include:
 - [Foodservice GS1 US GDSN Attribute Guide](#)

- [GDSN Foodservice Attributes Interactive Spreadsheet Tool](#)
- [GS1 US Attribute Explorer](#)
- [GS1 US Guidance for Sharing Product Attributes via GDSN in Foodservice](#)
- If needed, your GDSN-certified data pool may be able to provide additional support and guidance for GTIN and GLN assignment processes including the creation and maintenance of attributes.
- Not all trading partners require every foodservice attribute. Obtain the GDSN attribute requirements of your trading partners (i.e., which attributes they require you to send them). Their requirements plus your own comprise the universe of attributes you need to define for your products.
 - Trading partners often post their attribute requirements on their data pool’s website, and/or GS1 US Attribute Explorer.
- Identify your source databases/tables for GDSN attributes. Develop your mapping plan to pull data from the system of record as opposed to a system of reference.
- Perform data analysis to assess and baseline existing data, compare GDSN requirements to internal data elements to verify alignment, and analyze data output for accuracy and consistency.
- If an independent gap analysis uncovers missing attributes, your data pool/solution provider may be able to assist in finding a solution. For example, they may be able to aid in identifying attributes that can be derived rather than creating additional fields.
- Provide feedback to internal teams and adjust output as necessary.

7.5 Build Business Processes to Support Data Synchronization

7.5.1 Implement Data Quality Measures

- Implementation of data quality measures typically requires close coordination with your company’s internal product team.
- Decide on overall GDSN accountability within your organization (e.g., Who owns the data? Who is responsible for physically updating the data?)
 - Establish and clearly communicate the process and controls for entering and updating data.
 - Allowing too many people access to data change capabilities can cause confusion and errors.
- Define data governance processes to maintain the GTIN and GDSN attribute quality you established in preparation for GDSN implementation (see above), and to verify that all products are assigned a GTIN and all data/attributes are properly defined going forward.
- Leverage the data quality tools and resources available from the [GS1 US National Data Quality Program](#).
- Develop scorecards for tracking progress and establish a process to maintain data quality and identify those responsible for maintaining this process. Leverage the [GS1 US Foodservice Data Quality Scorecard](#).

7.5.2 Conduct a GDSN Pilot and/or Testing with Trading Partners

- At this point, you are ready to conduct tests with your customers. The testing process will provide validation of information system capabilities and operational impact.
- Consult with your GDSN-certified data pool for its recommended testing criteria and procedures.

- In addition, follow your normal testing protocol/practices for the introduction of new technologies between partners.
- A phased or incremental approach to loading, publishing and synchronizing data with customers is recommended during testing.
- Aim to successfully exchange data with customers using the GDSN (i.e., have customers subscribe to several of your GTINs). These tests should also include the response messaging associated with GDSN.
- Document critical success factors.
- Make adjustments as necessary to your implementation plans.

7.5.3 Develop Formal Standard Operating Procedures

- Determine process owners.
- Provide training.
- Establish on-going governance and maintenance.
- Leverage the data quality tools and resources available from the [GS1 US National Data Quality Program](#).

8 GDSN Implementation for a Data Recipient

What exactly does it take to begin using the GDSN in your company as a data recipient? What are the steps and who is involved? This section provides insight for these questions with step-by-step guidance for implementing the GDSN. These steps involve essential efforts such as establishing executive support, forming cross-functional teams, creating internal and external communication strategies, initiating customer and supplier involvement, establishing standard operating procedures, and achieving your business case objectives.

8.1 Build Organizational Readiness

Success factors for building organizational readiness and preparing for a successful implementation are identified in the table below.

Table 8-1 Building Organizational Readiness

Success Factor	Tasks
Support and Engagement	<ul style="list-style-type: none"> ■ Engage a visible and supportive executive sponsor ■ Assess the benefits of joining the Foodservice GS1 US Standards Initiative to aid in the implementation process ■ Benchmark and network to learn from others
Education and Benchmarking	<ul style="list-style-type: none"> ■ Leverage implementation resources available on the GS1 US Foodservice website ■ Attend GS1 US Foodservice Webinars ■ Encourage representatives to participate in on-going GS1 US Foodservice meetings
Networking and Sharing Lessons Learned	<ul style="list-style-type: none"> ■ Attend Initiative meetings ■ Join GDSN working groups ■ Participate in GS1 Connect Conferences
Communication	<ul style="list-style-type: none"> ■ Create internal and external communication plans that share project status and timelines ■ Develop FAQ tools to assist with internal and external inquiries
Scope of Implementation and Business Impact	<ul style="list-style-type: none"> ■ Understand your internal data quality management process ■ Identify all business implications (e.g., shipping, receiving, marketing, sales, etc.)

8.2 Build Your Team

- Form a cross-functional team specific to your organizational make-up, including members from the areas most impacted by implementation such as those with responsibility for the following activities:
 - Supply Chain
 - Information Technology
 - Quality Assurance
 - Operations
 - Product Management
 - Sales/Sales Operations
 - Customer Service
 - Purchasing
 - Legal/Public Relations
- Define roles and responsibilities for the Executive Sponsor, project team, and process owners.

8.3 Build Your Implementation Plan

- Perform readiness assessment and develop an implementation plan incorporating the key efforts identified throughout this chapter.
- Identify which of your data sources have adopted GS1 Standards and their readiness to participate in GDSN, and document contact information for those data sources.
- Implementation should be based on a crawl – walk -- run approach in order to build a solid foundation for future expansion of usage and additional attributes.
- Resources may include GS1 US, GDSN-certified data pools, and/or solution providers.
- Key actions to consider when developing the implementation plan:
 - Define milestones like determining alignment, resources, timing, etc.
 - Review GS1 US foodservice [educational documents](#) and [webinars](#).
- Review GS1 US foodservice implementation checklists:
 - [Foodservice Distributor Implementation Checklist](#)
 - [Foodservice Operator Implementation Checklist](#)

8.4 Build Systems to Support Data Synchronization

8.4.1 Select Your GDSN-certified Data Pool

- Select a GDSN-certified data pool and work with the data pool to prepare for synchronization. Note that all GDSN-certified data pools have access to the same information in the GDSN and are all able to communicate with each other. Therefore, it is NOT necessary to choose the same data pool as any particular trading partner.
- Select which GLN you want to use for subscribing. Item information within the GDSN will be sent to the level of the GLN that a company uses for the subscription process. Accordingly, if you need item information to be sent to your corporate location, you should use a corporate GLN. If you need item information to be sent to your local or branch locations, you should use a GLN that is assigned to those locations. Coordinate with your company's internal item team.
- Your GDSN-certified data pool can provide guidance for your implementation plan, education, and project management.
- For more information on selecting a GDSN-certified data pool, please see the [GS1 US resources about GDSN-certified data pools](#).

8.4.2 Define Your GDSN Attribute Requirements

- Generate a list of all of your suppliers. You may want to prioritize this list based on the number of products each vendor supplies to your organization.
 - Contact manufacturers, distributors, and/or suppliers for their GLNs, and to communicate your commitment to implement the GDSN to your supplier community.
- Work with your product team and your suppliers to identify all of the products used/purchased at your company from each supplier.
 - Use this list as you work with your data pool to assure that you subscribe to all of those GTINs.
- Use the GS1 US Foodservice Attribute Resources (which include industry definitions and examples) to learn about GDSN foodservice attributes:
 - [Foodservice GS1 US GDSN Attribute Guide](#)
 - [GDSN Foodservice Attributes Interactive Spreadsheet Tool](#)
 - [GS1 US Attribute Explorer](#)
 - [GS1 US Guidance for Sharing Product Attributes via GDSN in Foodservice](#)
- Review your systems to identify all of the product data elements needed to support your business processes (e.g., purchasing, sales and marketing, replenishment, recall, e-business, rebates and chargebacks, inventory management, transportation, etc.).
 - This should produce a list of product data elements needed to drive your internal requirements and meet the needs of your trading partners.
- Identify the GDSN foodservice attribute associated with each data element.
 - Map the GDSN attribute values/definitions to existing field names in your systems and databases. (If needed, your GDSN-certified data pool may be able to provide additional support and guidance.)
 - If an independent gap analysis uncovers missing data elements, your GDSN-certified data pool /solution provider may be able to assist in finding a solution. For example, they may be able to aid in identifying data elements that can be derived from existing attributes.
 - The end product should be the list of GDSN attributes you require from your data sources.
- Communicate your GDSN attribute requirements to your trading partners. (Data recipients often post their attribute requirements on their GDSN-certified data pool's website, and/or GS1 US Attribute Explorer. Consult with your data pool for assistance.)

8.4.3 Prepare Your Systems for GDSN Attributes

- Understand your internal needs.
- Establish a data storage strategy referencing the GTINs.
 - A cross-reference between internal item numbers and GTINs is essential.
- Review and update any business processes and internal product data set-up processes that may need to change as a result of implementing data synchronization.
- Identify your source databases/tables for GDSN attributes. Develop your mapping plan to pull data from the system of record as opposed to a system of reference.

8.4.4 Note for Data Recipients Who Are Also Data Sources

Some data recipients also serve as data sources for some of their trading partners (i.e., companies that have private label or spec items, or need to change certain attribute values before publishing to

downstream partners). The bullets below highlight key efforts for you as a data source. (Refer to the [data source chapter](#) for further guidance about the implementation effort for data sources.)

- Select which GLN you want to use for publishing. This will be the level at which you will register your GTINs within the GS1 Global Registry. It is also the level at which your trading partners will submit their requests for subscription.
- Identify those attributes that you may receive from your data sources, but that you would need to modify before publishing to your customers (if applicable).
- For any private label or spec items:
 - Assess GTIN readiness. Your databases may already contain many GTINs; however, at this point you will need to assure that they are correct and accurate. Therefore, this effort will encompass assessing the GTINs you may already have allocated for omissions or mis-assignments, and then determining if there are any additional GTINs that need to be allocated. Conduct random sample testing to verify GTINs currently assigned match that reflected on the item label or barcode.
 - Work with your data pool to register your GTIN information. As part of this effort, the IT team should evaluate the various technological options for loading data into a data pool, and then advise the Team on their findings.

8.5 Build Business Processes to Support Data Synchronization

8.5.1 Implement Data Quality Measures

- Decide on overall GDSN accountability within your organization (e.g., Who owns the data? Who is responsible for physically updating the data?)
 - This can vary from organization to organization, but it is critical to establish accountability and information flow in order to implement successfully.
 - Groups involved in this process may include:
 - PIM
 - IT
 - Marketing
 - R&D
 - Logistics
 - Regulatory
 - Operations
 - Cross-Functional Business teams
- Establish and clearly communicate the process and controls for entering and updating data. Allowing too many people access to data change capabilities can cause confusion and errors.
- Leverage the data quality tools and resources available from the [GS1 US National Data Quality Program](#).
- Develop scorecards or other measures for tracking and monitoring your company's internal progress, establish a process to maintain data quality and identify those responsible for maintaining this process. Leverage the [GS1 US Foodservice Data Quality Scorecard](#).

8.5.2 Conduct a GDSN Pilot and/or Testing with Data Sources

- At this point, you are ready to conduct tests with your individual trading partners. The testing process will provide validation of information system capabilities and operational impact.
- Consult with your GDSN-certified data pool for its recommended testing criteria and procedures.
 - In addition, follow your normal testing protocol/practices for the introduction of new technologies between partners.

- A phased or incremental approach to synchronizing and confirming data with individual trading partners is recommended during testing. Aim to successfully exchange data with data sources using the GDSN.
- Send a request for subscription to your individual trading partner's GLN for several of their GTINs.
- Document critical success factors.
- Make adjustments as necessary to your implementation plans.

8.5.3 Develop Formal Standard Operating Procedures

- Determine process owners.
- Provide training.
- Establish on-going governance and maintenance.
- Leverage the data quality tools and resources available from the [GS1 US National Data Quality Program](#).

9 GS1 US Attribute Explorer

[GS1 US Attribute Explorer](#) is an intuitive, browser-based search and discovery tool for GDSN attribute standards, including definition, metadata, etc. In addition, it offers a centralized location where Data Recipients can post their data attribute requirements, and where Data Sources can search and discover trading partner requirements and review the associated attribute standards.

GS1 US Attribute Explorer is a centralized, web-based repository designed to:

- Help industry trading partners search and discover GDSN attribute standards in order to aid users in understanding the breadth and depth of all available/standardized attributes
- Familiarize industry participants with the attribute standards found in both the GS1 Global Data Dictionary (GDD) and within GS1 US Retail Grocery, Foodservice, Healthcare, and Apparel/General Merchandise industry guidelines
- Provide a centralized location where Data Recipients can post their data attribute requirements, and where Data Sources can search and discover them

10 Lessons Learned & Recommendations

- As you begin GDSN implementation, it is recommended that you first pick a few items to synchronize with trading partners as a pilot. As you become more seasoned, you can synchronize entire catalogs (if necessary).
- If you are a data recipient, it is recommended that you give your trading partners timelines for synchronizing.
- It is also important to set up Key Performance Indicators (KPIs) to measure your implementation progress. Some suggestions for initial KPIs could include:
 - Number of items with complete data
 - Number of items synchronized
 - Number of trading partners synchronizing
- One key area to understand clearly when implementing GDSN is attributes definitions. It is important to fully grasp the global definitions of attributes and compare them to your internal field

definitions within your systems and databases. You should also review attribute standards for field size and type to align your company's existing system requirements.

- Guidelines for dimensions within the GDSN are specific to the packaging level of the GTINs, and the [GSDN Package Measurement Rules](#) clearly define how to measure and record package/product dimensions. Because trading partners may have created their own methods for measuring and storing dimensions prior to adopting GDSN, it is important to understand and properly implement the GSDN Package Measurement Rules before sharing or receiving product information via GDSN.
- Another key learning from early adopters in the foodservice industry is the importance of determining which and how many levels of the GTIN hierarchy and their attributes are important for your organization to store. Most foodservice trading partners only use the case-level GTIN for trade. But as information about higher and lower levels of the product become available, develop processes and systems to support the multiple levels of information.
- Before beginning any internal integration of the information with your current systems, share product information with your trading partners and identify those areas of your organization and systems where the attributes add value. Clearly defining your roadmap for use of the information helps reduce the need for re-work.
- Audit and align the product attributes to current values in your systems before integrating as well. You may have put processes and programs in place to "lock-down" values depending on the information that was formerly available from your trading partners. With GDSN implementation, these processes and programs may no longer be needed with the GDSN's continuous, real-time flow of product information among your individual trading partners.
- Finally, compare your GTINs to assure you have agreement with the brand owner as to the correct GTIN assignment. Because we as an industry are evolving into the adoption of GS1 Standards for product identification, there may be mis-alignments in your existing product information. Cleanse your product information internally and across trading partners to address any issues that may exist.
- Consult [GS1 US foodservice case studies](#) which illustrate lessons learned and recommendations for GDSN implementation.

11 Resources

- [*Foodservice GS1 US GDSN Attribute Guide*](#)
- [*GDSN Foodservice Attributes Interactive Spreadsheet Tool*](#)
- [*GS1 US Attribute Explorer*](#)
- [*GS1 US Guidance for Sharing Product Attributes via GDSN in Foodservice*](#)
- [*Foodservice GS1 US Standards Initiative*](#)
- [*GS1 US Foodservice website*](#)
- [*GS1 US Foodservice Webinars*](#)
- [*Foodservice Manufacturer Implementation Checklist*](#)
- [*Foodservice Distributor Implementation Checklist*](#)
- [*Foodservice Operator Implementation Checklist*](#)
- [*GS1 US resources about GDSN-certified data pools*](#)
- [*GS1 US National Data Quality Program*](#)
- [*GS1 US Foodservice Data Quality Scorecard*](#)
- [*GS1 US foodservice case studies*](#)
- [*GSDN Package Measurement Rules*](#)
- [*GS1 XML Release Technical User Guide*](#) (technical guidelines for the structure and design of GS1 XML)
- [*GDSN Operations Manual*](#) (user operations manual for the GDSN)
- [*GS1 Global Data Dictionary \(GDD\)*](#) (a repository of core component and business definitions and their equivalent representations in targeted standards)
- For more information on GDSN standards and implementation, please refer to the GDSN website at: [*http://www.gs1.org/gdsn*](http://www.gs1.org/gdsn)

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