FOODSERVICE GS1 US STANDARDS INITIATIVE IMPLEMENTATION GUIDE

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Disclaimer

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All companies participating in the Foodservice GS1 US Standards Initiative as well as those companies not involved in the Initiative but who have made the independent business decision to adopt and implement GS1 Global Standards have done so voluntarily and worked with GS1 US to meet each company’s unique business needs. Participation in the Initiative is strictly voluntary and is not a prerequisite to a company’s adoption, implementation, and use of GS1 Standards.
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1. Introduction

1.1. Purpose of this Guide

This Implementation Guide is meant to assist participants in all parts of the US foodservice industry supply chain—manufacturers, distributors, and operators—in voluntarily implementing the GS1 Global standards and Global Data Synchronization Network (GDSN). It outlines the key tasks that most companies will find necessary for a successful implementation and data synchronization. It shares learnings and explains the processes and recommended processes established by other companies in their deployment of the GS1 System standards and GDSN. By following these steps, new users of GS1 Global standards and GDSN can quickly take advantage of all its benefits.

*This Guide will be updated periodically as new implementations are made available and additional lessons learned can be shared. The updated Guide will be located at [www.gs1us.org/library/foodservice](http://www.gs1us.org/library/foodservice).*

1.2. Who Should Use this Guide

This Guide is intended for use by any member of the US foodservice industry supply chain. It provides guidance on voluntary adoption of GS1 Global standards and the Global Data Synchronization Network (GDSN). Manufacturers, distributors, and operators alike may benefit from the recommendations contained within this Guide. It is written to address all US Foodservice product categories, both foods and non-foods. One of the greatest benefits of voluntarily adopting GS1 Global standards is the opportunity to maintain a common set of standards among individual trading partners and potentially across an entire industry. Implementation teams within your organization, data pool providers, and technology providers will benefit from the recommendations contained within the guidance. It outlines the fundamental tasks required for a foodservice company to voluntarily adopt GS1 Global standards and GDSN.

1.3. How to Use this Guide

The founding members of the Foodservice GS1 US Standards Initiative are at various stages of adoption of GS1 Standards and Global Data Synchronization. This Implementation Guide is intended to be a high-level resource to help guide foodservice supply chain members through the adoption of GS1 Standards and the Global Data Synchronization Network (GDSN). It provides sections for guidance for those just starting out with GS1 Global standards on the assignment of Global Trade Item Numbers (GTINs) and Global Location Numbers (GLNs). It also provides guidance for foodservice supply chain members who have already adopted GTINs and GLNs, but are just beginning to adopt Global Data Synchronization.

1.4. Structure of this Guide

This Foodservice Implementation Guide is structured to support voluntary GS1 Global standards adoption. It includes trading partner information (GLNs), adoption of standard item numbers (GTINs), and the global data synchronization of item attributes (GDSN). It includes guidance allowing one to leverage the GS1 Global standards in the exchange of transactional information.
The GS1 System of Standards is based on three main elements that improve supply chain efficiency: Identify, Capture and Share. These are clarified in the following paragraphs.

**Identify**
The GS1 System transforms items, services, locations, and organizations into numbers with standard formats. These structured numbering systems are important to the information systems that form the backbone of an efficient and safe supply chain. For example, GS1 Global Trade Item Numbers (GTINs) are used to identify consumer items, such as cans of food, or standard product groupings such as cartons, cases, and pallets.

GTINs can identify a specific type of product, such as all 16-ounce boxes of XYZ-brand beef patties, or they can be serialized to uniquely identify each box of those patties. Another example is GS1 Global Location Numbers (GLNs), which can be used to identify factories, processing plants, and even legal entities, such as corporations.

**Capture**
After identification numbers have been assigned, they are transformed by specialized software into data carriers such as barcodes. These carriers support the accurate and efficient capture of the unique identification numbers at various points as products move through the supply chain. The data is captured by scanners or it can be manually entered and stored in a company’s internal systems for a wide variety of additional uses like receiving a product into a distribution center or store location.

**Share**
In addition to use for internal business processes such as shipping, receiving, and inventory control, the captured data is also available to be shared with trading partners. This sharing of information is standardized through a Global Data Synchronization Network (GDSN) and e-Commerce transactions. An Advanced Ship Notice (ASN) is but one example of how shared information can be used to improve business processes between individual trading partners. The ASN precedes the physical flow of product to a trading partner, allowing for improved receiving efficiency, more accurate inventory control, and reduced costs.

Establishing standard identification for individual trading partners to consider using is the starting point for adoption of GS1 Global Standards. Therefore, this Guide addresses the Identify and Share elements of GS1 standards. For more guidance on data carriers and the Initiative’s recommendation, see the *Product and Location Identification Implementation Guide* from [http://www.gs1us.org/library/foodservice](http://www.gs1us.org/library/foodservice).
2. Overview of Foodservice GS1 US Standards Initiative

*Executive Summary*

There are many systems across the US foodservice industry that use and rely on information about products and trading partners, including sales and marketing, inventory replenishment and distribution systems, billing/accounts payable, barcode tracking and scanning systems, food safety traceability systems, performance reporting, etc. Unfortunately, in the many systems in existence today, there is generally no central, authoritative database that houses all of that information in a standardized format and ensures that it is accurate and up-to-date.

As a result, there is no method for ensuring that the information about products and trading partners 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 or party/location information, all of the disparate systems and databases that rely on that information must be updated individually. This sort of unreliable and inefficient data management in the US foodservice supply chain results in increased costs for manufacturers, distributors and operators.

The recently launched Foodservice GS1 US Standards Initiative focuses on encouraging voluntary individual company adoption and implementation of GS1 standards for complete and accurate data for product identification, location identification and data exchange in the $565 billion foodservice industry. The GS1 System is in use by over 2 million companies in 145 countries; it is the most widely-implemented supply chain standards system in the world.
The primary objectives of the Foodservi

 Reduce waste and inefficiencies in the foodservice supply chain,
 Improve product and marketing information for foodservice companies and restaurant patrons, hospital patients, students, and other end customers, and
 Establish a common foundation for food safety and traceability with more accurate company and product identification.

Achieving success will be driven by the competitive collaboration and leadership of manufacturers, distributors, operators, trade associations, and others in the foodservice community. GS1 US supports the Initiative by providing dedicated management and resources to lead the foodservice industry through education, reference material, business case development, working group sessions, marketing, and communication.

**Governance**

This Initiative is governed by the *Leadership Steering Committee* composed of senior executives from a representative cross-section of foodservice manufacturers, distributors, operators, trade associations, and GS1 US. The purpose of the *Leadership Steering Committee* is to manage the Initiative, monitor progress and results, and resolve issues and/or barriers to success.

Providing technical and functional expertise to the GS1 US Team for Foodservice are the *Working Groups*. The *Working Groups* are comprised of individuals from manufacturers, distributors, and operators. The key goals of the *Working Groups* are to develop and create the educational and implementation materials required to support the Initiative. The *Working Groups* are involved in promoting the Initiative to the industry and the development of business cases for voluntary adoption and use of GS1 standards on an individual company basis.

**Operations**

GS1 US established a dedicated *GS1 US team* for Foodservice to lead and support the Initiative. This staff provides experience and knowledge in GS1 Global Standards, including the Global Data Synchronization Network (GDSN), and works with industry communities in the implementation of these standards. The team is guided by the Initiative’s *Steering Committee*. It also leads and coordinates the efforts of the *Working Groups* and provides the direction and expertise necessary to develop and refine, as needed, the *Foodservice Industry Roadmap to Clean and Accurate Data*, referenced in *Appendix 9.1*.

**Marketing**

All marketing activities in support of the voluntary adoption of the GS1 Global Standards for Foodservice have been a joint effort among industry associations and interested trading partners at the manufacturer, distributor, and operator levels. This includes both planning and execution. All marketing and communication materials are co-branded with the lead foodservice associations – International Foodservice Distributors Association (IFDA), International Foodservice Manufacturers Association (IFMA), National Restaurant Association (NRA) – and GS1 US.

**Marketing Strategy and Community Development Program**

The target audience is all foodservice companies including, but not limited to, the foodservice companies that attended the July 2009 Leadership Forum, members of IFMA, IFDA, and NRA. Other key audiences include solution and service providers offering barcode and scanner services, the GDSN-certified data pools, foodservice firms not members of the associations cited above, government and other firms (e.g., foodservice equipment manufacturers, table top manufacturers, etc.) that serve the industry.
The audience is further expanded to address the needs and information requirements of both the more experienced firms (those familiar with GS1 Standards) and those that are new to GS1 Standards.

The Initiative is striving for 75 percent voluntary adoption of GS1 standards throughout the US Foodservice Industry (measured in terms of revenue) by 2015. The target audience includes all foodservice manufacturers, distributors, and operators, regardless of size. Through the collaborative efforts of GS1 US and the trade associations, special programs will be developed and offered for the smaller organizations to ensure continued access to and transparency in the Initiative.

3. **About GS1 Global Standards**

The GS1 System is an integrated suite of global standards that provides for accurate identification and communication of information regarding products, assets, services and locations. These standards provide unique identification globally.

3.1. **GS1 Company Prefix**

The first step is easy and simply involves identification of your company—i.e., the assignment of a GS1 company prefix which is provided by GS1 US or one of its sister organizations around the world. The company prefix should be obtained by any foodservice company who is a brand owner. A brand owner is the trading partner who is responsible for the integrity of the brand name (usually the manufacturer, but may be the distributor or operator). To purchase a company prefix, visit: [http://barcodes.gs1us.org/dnn_bcec/Default.aspx](http://barcodes.gs1us.org/dnn_bcec/Default.aspx) and complete a Partner Connections membership application. Partner Connections members are licensed a Company Prefix as a benefit of membership. Fee structures are based on sales revenue.

Once the GS1 company prefix is assigned, foodservice organizations should begin to implement GS1 standards. The company prefix is the foundation of the assignment of Global Location Numbers and Global Trade Item Numbers. The steps to create these unique identifiers will be discussed in Sections 4 and 5.

If your organization is not a brand owner responsible for GTIN assignment, but you do need to assign Global Location Numbers, GS1 has a program to acquire a GLN. Contact GS1 US to get more information.

The Company Prefix is a constant in every GS1 identification number structure, and forms the foundation of unique identification in the supply chain. Company Prefixes vary in length depending on the quantity of identification numbers that your company may need to create.

4. **Global Trade Item Number® (GTIN®)**

4.1. **About the Standard**

The Global Trade Item Number (GTIN) is the globally unique GS1 Identification Number used to identify “trade items” (i.e., products and services that may be priced, ordered or invoiced at any point in the supply chain). GTINs are assigned by the brand owner of the product, and are used to identify products as they move through the global supply chain from the
manufacturer to the distributor and operator. The GTIN uniquely identifies a product at each packaging level that can be ordered, shipped, or invoiced by any member of the supply chain.

In today's complex markets, supply chain lines are blurring and channels of distribution for various sectors are overlapping. Global standards that can be used by individual trading partners in the foodservice industry sector or location are fundamental in this environment. This is especially true of the foodservice industry where manufacturers of foodservice products often supply both grocery retailers and the foodservice channel. GTIN is the global standard that is to be used in the foodservice sector; in fact, GTINs are already being used across the foodservice sector today, from food items, to beverage items; and equipment, to supplies.

Once assigned, GTINs have two roles. They are used by trading partners to (1) identify products as they move through the supply chain, by reading the data carrier (barcode) and (2) to provide a link to the information pertaining to a product via electronic commerce.

Manufacturers and brand owners can enter GTINs into their computer systems, either by manual data entry such as typing, or automatically, by reading the data carrier (Scanning). The option of automatically entering a GTIN into an IT system via data carriers or scanning (as opposed to typing it in) enables users to record a GTIN with as minimal manual intervention as possible, increasing both speed and accuracy. This facilitates complete and accurate data in the supply chain, which forms a solid and reliable foundation for improving food safety and product traceability.

The GTIN not only identifies a specific trade item, but also provides the link to the information pertaining to it as outlined in Section 6.5. This enables trading partners to simply reference a GTIN in supply chain communications, as opposed to manually entering all of the necessary product information. Using a GTIN to reference trade item information promotes efficiency, precision, and accuracy in communicating and sharing product information. For this reason, a GTIN is required for those trading partners adopting GS1 Global Standards in certain circumstances and amid certain electronic commerce transactions. For instance, it is commonly used on purchase orders, as well as delivery and payment documents.

The benefits of adopting the Global Trade Item Number include:

- **Uniqueness**: The GTIN identifies an item uniquely. The rules for assigning GTINs ensure that every variation of an item (product or service) is allocated a single reference number that is globally unique.
- **Non-significance**: The GTIN numbering structure does not contain any meaningful information in itself. A GTIN is a simple pointer to database information that can be directly used in any company and in any country.
- **Multi-industry**: GTINs are unique across all business sectors. This means that a foodservice product, a healthcare product, a grocery product, and an apparel product are all identified in a compatible manner.
- **International**: GTINs are unique worldwide. A GTIN can be assigned anywhere in the world and can be used anywhere in the world.
- **Security**: Security of GTINs are provided through a combination of database look-up and the fixed length, numeric format that includes a standard check digit. This structure and check digit ensure the integrity of data passing through the system.
- **Source Numbering**: The GTIN is assigned by the brand owner of the product. Once assigned, all trading partners and internal users can use the GTIN throughout their processes.
- **Automatic Data Capture**: One of the key benefits of the GTIN is that it can be encoded in many automatic data capture symbologies (such as a barcodes). Machine reading allows the information flow to be linked to the physical flow of trade items through the supply chain efficiently.
4.2. GTIN Overview and Implementation

The Global Trade Item Number (GTIN) is the foundation of the GS1 System for uniquely identifying trade items, which includes both products and services that are sold, delivered, and invoiced at any point in the supply chain. GTINs provide unique identification worldwide. The GTIN supports supply chain transactions on cases and pallets of product in the flow of goods from the manufacturer to the distributor to the operator. GTINs can be encoded into various types of GS1 bar codes.

For more information about the Foodservice GS1 US Standards Initiative's recommendations and considerations for barcode adoption, please review the Product and Location Identification Implementation Guide from http://www.gs1us.org/library/foodservice.

There are three basic steps for creating a GTIN:

1. GS1 US assigns a GS1 Company Prefix to the brand owner (refer to Section 3). The GS1 Company Prefix is globally unique and provides the foundation for generating all GS1 Identification Numbers (e.g., GTIN, GLN, etc.).

2. The brand owner (usually the manufacturer) assigns the Indicator value to be used for the hierarchical level of the item and also assigns the Item Reference Number. Please review the GS1 US Foodservice Initiative's Product and Location Identification Implementation Guide from http://www.gs1us.org/library/foodservice and the GS1 US An Introduction to Global Trade Item Number (GTIN) from http://barcodes.gs1us.org/dnn_bcec/Standards/IdentificationNumbers.

3. The last number of the GTIN is called a data check digit. This is calculated from the combination of company prefix and item reference numbers. Usually your bar code software will calculate this for you; however, GS1 US has a check digit calculator on their website, www.gs1us.org/checkdig.
5. Global Location Numbers (GLNs)

5.1. About the Standard

Using GS1 Identification Numbers, organizations around the world are able to uniquely identify physical things like trade items, assets, logistic units and physical locations, as well as logical things like corporations or a service relationship between provider and recipient. When this powerful identification system is combined with the Global Data Synchronization Network (GDSN), the connection is made between these physical or logical things and the information the supply chain needs about them.

The Global Location Number (GLN) makes the unique and unambiguous identification of physical locations and legal entities possible. The Foodservice GS1 US Initiative Roadmap recommends that foodservice supply chain members assign a GLN at the organization’s headquarter level; this is a minimum recommendation and ensures that you are in alignment with agreed upon milestones in the Foodservice GS1US Standards Initiative. It also is recommended that a company who wishes to take advantage of additional benefits of the GS1 System may also wish to assign GLNs to a variety of locations beyond their corporate headquarters, including manufacturing sites, warehouses distribution centers or operator locations. This would be a best practice.

Participants are encouraged to consider their individual company’s organization strategies, current recommendations and one-on-one trading partner contractual requirements that may be in place or contemplated when developing a GLN strategy. This should be a consideration when fulfilling a specific GLN request from a trading partner, where information such as: ship to locations, ship from location, or pay to locations may be desired.

The GLN is designed to improve the efficiency and add value to communication with trading partners. Any company can design its own internal identification system and code structure to identify all the locations covering its operating requirements. Although an internal solution might seem to be the easiest and fastest way forward, when information is exchanged between computers of distinct companies this may present several problems, such as:

- **Duplication**: two or more trading partners may use the same code to identify their locations;
- **Complexity**: internal codes will have a variety of structures and formats, making application programming more complex and application changes costly;
- **Significance**: location codes that contain information related to the location in the code structure itself will become difficult to handle as the coding structure evolves to incorporate new meanings.

The use of GLNs provides companies with a method of identifying locations, within and outside their company that are:

- **Unique**: with a simple structure, facilitating the processing and transmission of data;
- **Multi-industry**: the lack of intelligence in the code structure of the GLN allows any location to be identified and consequently any business regardless of its activity;
- **International**: location numbers are unique worldwide.

### 5.2. GLN Overview and Implementation

The Global Location Number (GLN) is the globally unique GS1 Identification Number for locations and trading partners. To get started, simply assign a GLN for your corporate entity to support the Foodservice GS1 US Standards Initiative. Beyond this, foodservice supply chain members may expand the assignment of GLNs based on their internal business requirements and individual trading partner requirements.

The GLN can be used to identify a *functional entity* (like a foodservice operator kitchen or a distributor accounting department), a *physical entity* (like a warehouse or dock door), or a *legal entity* (like a foodservice manufacturer corporation). The attributes defined for each GLN (e.g., name, address, location type such as ship to or bill to or deliver to, etc.) help users to ensure that each GLN is specific to one unique location within the world.

For example:

- Ship To GLNs can identify a variety of locations within a facility allowing drivers to deliver the right product to the right dock.
- Pay To GLNs can be used to identify different PO boxes for customer’s to submit payments.

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Figure 3 - Simple Foodservice GLN Hierarchy

```
Simple Foodservice GLN Hierarchy

Supplier Corporate Headquarters
GLN: 0061414000017

Distributor A Headquarters
GLN: 0012345000024

Operator 123 Headquarters
GLN: 0011111000031
```
The way you create a GLN is similar to the way you create a GTIN. In terms of data structure, GLNs are 13-digit numbers comprised of 3 basic elements:

1. **The GS1 Company Prefix:** The globally unique number assigned to a company by GS1 US. The GS1 Company Prefix is part of the data structure for all GS1 Identifiers (e.g., GLN, GTIN, etc.) and provides the foundation for generating all GS1 Identification Numbers.

   *For those foodservice distributors and operators who are not a brand owner and do not have a GS1 Company Prefix but need to assign GLNs within their organization, contact GS1 US. GS1 has a program to provide you with a GLN so that all trading partners within the supply chain may be uniquely identified.*

2. **The Location Reference:** This is a number assigned by a company for each location, functional entity or the legal entity itself. The number of GLNs a company assigns is a company-specific decision. For purposes of these Implementation Guidelines, however, at least one must be assigned, (i.e. at the headquarter level). We recommend that you assign the Location references sequentially, and not build in any intelligence into the number.

3. **The last number of the GLN is called a data check digit.** This is calculated from the combination of company prefix and item reference numbers. Usually your bar code software will calculate this for you; however, GS1 US has a check digit calculator on their website, [www.gs1us.org/checkdig](http://www.gs1us.org/checkdig).
Global Location Number

13 digit data structure is used
- GS1 Company Prefix (varies in length)
- Location Reference (varies in length)
- Check Digit


6. Global Data Synchronization Network (GDSN)

6.1. About the Standard

The GS1 Global Data Synchronization Network (GDSN) connects distributors, operators, and manufacturers via their selected GDSN-certified data pools, to the GS1 Global Registry®. GS1 certified data pools are electronic catalogues of standardized item data. The GS1 Global Data Synchronization Network, is an automated, standards-based environment that enables secure and continuous data synchronization through a subscription and publication process. This allows all foodservice trading partners to have consistent item data in their systems, and at the same time, available to their individual trading partners on a permission-controlled basis.

The GS1 Global Registry® is the GDSN’s “yellow pages” that:

- Provides information for subscription sharing (Information sharing permission),
- Enables data pool interoperability (All data pool providers have same information),
- Guarantees uniqueness of the registered items and parties,
- Ensures that all data pools in the network are consistent and form a common basic set of validation rules that support data integrity in the system and
- Holds the information about who has subscribed to trade item or party data.
6.2. What is the GDSN

The GDSN is a network of interoperable data pool providers connected by the GS1 Global Registry®. The GDSN-certified data pool providers store and item information for their users, and the GS1 Global Registry® connects those data pools together.

The exchange of standard and proprietary information can only be achieved if all data pools and the GS1 Global Registry® conform rigorously to certification standards for technological and operational performance so that the reliability and security of the entire network is commercially credible.

As a result, there are certain criteria that the data pools and the GS1 Global Registry® have to meet in order to be GDSN-certified and, therefore, allowed to join the network. These criteria include conformity to GS1 System Standards, confidentiality, and integrity. For more details review Appendix 9.2.

Within the GDSN, trade items are identified using the unique combination of the GTINs and GLNs of the data source (the manufacturer, distributor, or operator,) and target market (the country in which the trade item or service is intended for sale), while parties (all trading partners) are identified using a GLN.

Manufacturers, distributors, and operators access the GS1 Global Registry®, via any individually chosen GDSN certified data pool providers. No other access point to the GS1 Global Registry® is needed. A key benefit of the GDSN is that a foodservice supply chain member has one point of connectivity, one common format, and a common set of attributes.

Manufacturers, distributors, and operators who want to synchronize item and location information with each other should perform the following five steps:

1. **Load Data:**
   The seller or brand owner registers product and company information in its data pool.

2. **Register Data:**
   A small subset of this data is sent to the GS1 Global Registry®.

3. **Request Subscription:**
   The data recipient, through its own data pool, subscribes to receive a brand owner’s information.
4. **Publish Data:**
The brand owner’s data pool publishes the requested 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.

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**Figure 7 - Global Data Synchronization Network**

With this high level design, the GDSN offers a standards-based approach to (1) storing item information, (2) ensuring that the information is properly defined and formatted, and (3) keeping that information up-to-date.

It should be emphasized that data pools are not specific to one type of supply chain partner. In fact, data pools can service any type of company or organization, and trading partners may actually find themselves using the same data pool as a source and recipient data pool provider. The functionality and operation of the GDSN are the same regardless.

GDSN-certified data pools serve as standards-based repositories for item and party/location information. A list of all GDSN-certified data pools in the U.S. is provided in the Appendix of this document. Please refer to the GDSN website for a full list of GDSN-certified data pools ([www.gs1.org/gdsn](http://www.gs1.org/gdsn)). Some key advantages of the GDSN include:
Reliable Data: The GDSN promotes reliable data by providing authoritative data sources that ensure that product and supply chain partner 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 and supply chain partner 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.

This Tool Kit is intended to introduce the GDSN to the foodservice industry at a high level. Think of the GDSN as the tool for ensuring that the information in a foodservice company’s systems is accurate, properly formatted and up-to-date. For those interested in more information about how the GDSN works, this section provides a few more details. However, trading partners are encouraged to not get distracted by the details of how the GDSN works. Most of the operational processes introduced in this section are taken care of for you behind the scenes by your GDSN-certified data pool and the GS1 Global Registry.

6.3. How Does the GDSN Work?

The GDSN uses the GS1 identification and data standards as the common language for product information, such as supply chain information and sales and marketing information. Specifically, the GDSN uses the Global Location Number (GLN) for information about trading partners, and the Global Trade Item Number (GTIN) for information about products.

Brand owners assign GTINs to all of their products. Foodservice brand owners may be a manufacturer, distributor, or operator. Once a GTIN is assigned, the information about the product (known as attributes) is defined (e.g. description, size, pack, dimensions). The attributes that are defined for the GTIN, as well as the specific format for that information, are prescribed by the GS1 standards.

Manufacturers, distributors, and operators assign their own GLNs which are required for those companies using the GDSN. As with GTINS, attributes are defined for the GLN such as name, address, and contact information. GS1 Global standards require that a minimum of one headquarter level GLN be assigned by a foodservice company. Item information within the GDSN will be sent to the level of the GLN that a company uses for the process. Accordingly, if you need item information to be sent to your corporate location, you should use a corporate assigned 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.

Once the identifiers and attributes are defined, GDSN users store their identifiers with the corresponding information in a GDSN-certified data pool (known as uploading or on-boarding data). The GDSN-certified data pool checks all information to ensure it is properly defined and formatted per GS1 standards (known as validation), and then registers the corresponding GTINs and GLNs with the GS1 Global Registry® (known as registration).

This information is obtained by the GDSN-certified data pool through a process known as subscription. Through their GDSN-certified data pools, the data recipients submit a “subscription request” for a brand owner’s GTINs and GLNs. The brand owner “authorizes” its data pool to publish the information to that customer. GDSN-certified data pools manage subscriptions for their users, and process the exchange of
information among their respective data pools using the GS1 Global Registry® to obtain the necessary data pool information.

⚠️ A list of all of the GTIN attributes for foodservice products is provided in Section 6.5. In addition, there is also a downloadable spreadsheet and guidance online at the GS1 US Foodservice Community Room. The spreadsheet has several useful tabs. Navigation among the tabs is set up to be user friendly. In addition, your GDSN-certified data pool can further explain GS1 Global standards requirements for populating the different data fields. For the link to the GTIN attributes for Foodservice products spreadsheet, please refer to the References section of this Guide.

6.4. The Value of Data Synchronization for the Foodservice Industry

The Foodservice Industry has a supply chain involving a three-tiered network consisting of the manufacturer, distributor, and operator. GS1 identifiers can be used throughout the whole supply chain. A globally unique and non-overlapping numbering system based on clear master data is important for transparent, cost-efficient processes.

Every company has a database filled with information about the products they make, sell or buy. These databases act very much like a catalogue that customers can use to place orders and manage manufacturers.

When one company changes or adds information in their database, their trading partners’ catalogue is no longer current. This problem can be solved by data synchronization. The Global Data Synchronization Network (GDSN) provides a process to keep data synchronized, while driving costs out of the supply chain, providing complete and accurate product data, and providing a foundation for improved traceability.

The activities cover the development of a standard with product-specific attributes and a classification system for the Foodservice Industry to use the GDSN. This will enable more complete product data to be sent electronically without utilizing proprietary, non-standard methods of communication between trading partners.

6.5. Foodservice Attributes

This GDSN model works off a basic principle. The entire set of data attributes assigned to a Global Trade Item Number (GTIN) may vary depending on who provides the information, and in which target market the data is relevant.

Within the global data synchronization environment, the combination of three key attributes, Global Location Number (GLN) of information provider, GTIN of the trade item, and the Target Market identifies a unique set of values for the trade items’ attributes. This combination can also affect which attributes are communicated. The values of attributes can vary for a GTIN when GLN of information provider or Target market are changed.

When creating a Target Market variations of a GTIN or an information provider instance of a GTIN there are certain attribute values that should be consistent with every variation. The consistency is to provide data integrity to the network and the trading partners. The following is a list of attributes that should contain the same value (or have “global” values”) for a GTIN with multiple variations:

- GTIN
- GPC
- Brand Owner
- EAN.UCC code
- EAN.UCC type
- pack (quantity of next lower level children)
Attribute Implementation Guidance

The Foodservice GS1 US Standards Initiative founding members have developed a roadmap for voluntary GDSN adoption which entails a Phase I and Phase II grouping of attributes. This roadmap and the milestones may be downloaded from: [http://www.gs1us.org/foodservice](http://www.gs1us.org/foodservice). The Phase I attributes incorporate the core GDSN attributes required for the standard GDSN message set and additional attributes which provide value to the foodservice supply chain. Phase II attributes address the more complex attributes which provide value in the sales and marketing of products.

The Foodservice GS1 US Standards Initiative recommends the crawl, walk run approach in implementing the Phase I and Phase II attributes. Focus on completing adoption of the Phase I attributes prior to implementing Phase II attributes. Both the Phase I and Phase II attributes and their guidance may be found at: [http://www.gs1us.org/foodservice](http://www.gs1us.org/foodservice).

The chart below provides the full set of attributes for the foodservice companies to utilize in concert with Phase I and II of their voluntary adoption and implementation of GS1 Global standards. Guidance on definitions and usage may be found in the GS1 US link listed above. 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.

<table>
<thead>
<tr>
<th>Phase I Attributes</th>
<th>Phase II Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are non-sold items returnable?</td>
<td>Benefits</td>
</tr>
<tr>
<td>Brand Name</td>
<td>For More Information</td>
</tr>
<tr>
<td>Catch Weight</td>
<td>(Contact Information)</td>
</tr>
<tr>
<td>Company Name</td>
<td>Manufacturer Expanded</td>
</tr>
<tr>
<td>Country of Origin</td>
<td>Product Description</td>
</tr>
<tr>
<td>Cube with UoM</td>
<td>Nutrition Fact Serving Size</td>
</tr>
<tr>
<td>Depth with UoM</td>
<td>&amp; UOM</td>
</tr>
<tr>
<td>Global Product Classification (GPC)</td>
<td>Ingredients English (&amp; Spanish optional)</td>
</tr>
<tr>
<td>GTIN of Next Higher Package Level</td>
<td>Kosher Certification</td>
</tr>
<tr>
<td>GTIN of Next Lower Package Level</td>
<td>Links to websites, Images, Documents, Video, and Audio Files</td>
</tr>
<tr>
<td>Individual Unit Measures</td>
<td>Nutrient Label contents and measures (Calories, Proteins, Fats, Sugars, etc.)</td>
</tr>
<tr>
<td>Inner Pack Quantity (No GTIN Assigned)</td>
<td>Serving Size Text</td>
</tr>
<tr>
<td>Is Item the Base Unit (Lowest Packaging Level)</td>
<td>Servings of the Trade Item</td>
</tr>
<tr>
<td>Is Packaging marked as</td>
<td></td>
</tr>
</tbody>
</table>

January 7, 2011
6.6. Dynamic Product Information for the Foodservice Industry

Data synchronization in the foodservice industry would provide static product attributes used to conduct business. In today’s commerce, foodservice trading partners also depend on a certain amount of dynamic product attributes needed to conduct business.

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 the distributor assigns one item code, but there may be multiple manufacturer GTINs associated with the distributor item code. In these instances the distributor typically purchases the product from multiple manufacturers and sells these products to operators as the same distributor item code.

Because the manufacturer name value may change from invoice to invoice, this information is made available today through transactional data exchanged between the distributor and operator. This business requirement between individual trading partners and the process to communicate the manufacturer name for product received by the operator will not be affected by a foodservice company’s voluntary adoption of the GDSN. The same transactional documents would continue to be used in order to provide the dynamic information.

The Implementation Guidelines recommend the Manufacturer GLN and Name to be provided in the GDSN process for these two product categories is as follows:

- **The Brand Owner should make a 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**
Based on this guidance, the attribute for Manufacturer Name may not be a static attribute for these two business scenarios. The GS1 US Foodservice Initiative guidelines only address those static attributes and are not intended to replace any dynamic data exchanged between trading partners today.

6.7. Analyzing the GDSN ROI for Your Individual Company

As with any important project, trading partners need to 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. This guidance is provided as a starting point for any company wishing to pursue ROI analysis.

It is good to note that beyond the analysis provided in this section for the ROI of GDSN alone, additional benefits and ROI can be found in the implementation of GDSN as part of the implementation of the full GS1 System of standards, including Global Trade Item Numbers (GTIN) and Global Location Numbers (GLN). (For more information about GTINs and GLNs, please refer to the Foodservice Industry Tool Kits on those topics.) Moreover, most “early adopter” companies have realized additional value in unanticipated areas like process improvement and infrastructure development. And, many have noted the value of a new “business philosophy” or way of doing business which places the company in an advantageous position to address some of the upcoming challenges anticipated in foodservice over the next few years.

There are various functions and business processes which will be directly impacted and improved through the use of GDSN. These functions and business processes serve as “hot spots” for capturing return on investment of GDSN implementation. There are various functions and business processes which will be directly impacted and improved through the use of GDSN. For example, a joint Accenture study for the retail sector in 2006 identified spot metrics and explained how these targeted metrics could be different for each user of the GDSN. That portion of that study has been adapted and recreated in below.

<table>
<thead>
<tr>
<th>Source of Benefits</th>
<th>% Improvement Over Current State</th>
<th>Value Impact</th>
<th>Functional Impact</th>
<th>Performance Metrics (Process Area)</th>
<th>Retailer</th>
<th>Supplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce Costs (Improve Operations)</td>
<td></td>
<td>Value Chain</td>
<td>Reduced inbound &amp;</td>
<td>Reduced inbound &amp; outbound freight costs (Transportation)</td>
<td>6.5%</td>
<td>2 - 8%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Improved productivity within distribution network (distribution)</td>
<td>1%</td>
<td>64%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Improved DSD receiving capabilities (Store Operations)</td>
<td>9%</td>
<td>Not Available</td>
<td></td>
</tr>
<tr>
<td>Administration</td>
<td></td>
<td></td>
<td>Improved productivity within order and item administration (Order Administration)</td>
<td>50%</td>
<td>2 - 67%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Reduced out-of-period adjustments &amp; reconciliation of invoice &amp; coupon discrepancies (Accounting Administration)</td>
<td>8%</td>
<td>Not Available</td>
<td></td>
</tr>
<tr>
<td>Increase New Item</td>
<td></td>
<td>Reduced time from order</td>
<td>23%</td>
<td>67%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
“Research identified so many specific “spot” successes that they appear to represent the “tip of the iceberg” of what is possible with [global data synchronization]. Additional organizational savings and revenue growth are sure to follow. Indeed, a key insight of the research is that while benefits from data synchronization are concentrated on the cost side, [global data synchronization] also delivers opportunities to increase revenue…[T]he success with data synchronization touch multiple functional areas throughout an organization.”


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 consistent across the entire foodservice supply chain (suppliers, distributors, and operators).

**Logistics & Distribution**

- 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

- In terms of labor management, consider the following before and after GDSN implementation:
  - Time Spent Addressing Item Data Issues with Customers (Sales)
  - Productivity within Order & Item Administration (Order Administration)
  - Adjustments and Reconciliation (Accounting Administration)

Order Administration & Accounting

- Order Accuracy Issues
- Invoice Errors
- Incorrect or Inaccurate Orders Placed (delays)
- Reconciliations
- Deductions and Charge-Backs

6.8. Implementing GDSN within your Company

Implementing GDSN is not a technology project. It is a business process change. Depending on your role within the foodservice supply chain, your organization’s adoption of the GDSN may vary. Each segment will be addressed based on whether 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 the receiver of the product attributes and is responsible for the distribution of that information to both internal and external systems.

A data recipient may also be a data source in the foodservice supply chain. And a data source may be a data recipient in the foodservice supply chain. Foodservice distributors (as a data recipient) may need to provide additional or updated attributes for item information they receive from a data source and share that information with their trading partners. A Foodservice manufacturer may be a data recipient and need to receive and use the item information provided by the brand owner. The Foodservice GS1 US Standards Initiative will be providing guidance on the recommended workflows and data flows for the
exchange of item information. It is important that you understand your organization’s role and requirements before implementing.

The approach taken is to understand the steps based on whether you will be publishing (a data source) or be a recipient of the information (data recipient).

Timelines to complete your implementation may vary as well depending on your role within the supply chain and the complexity of your product categories. However, keep in mind that laying a solid foundation is the backbone for a successful deployment.

In order to begin using the GDSN, individual trading partners will need to have GTINs assigned to their products and GLNs assigned to their publishing locations. If your company has already assigned or begun to assign GTINs to its products, it is already well on its way to implementation of 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 a large retailer such as Wal-Mart, Home Depot, Lowe’s, and retail pharmacies such as CVS, Walgreens and Rite-aid, among other retailers. 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 below.

The order of the implementation steps in this section is a recommendation developed by foodservice industry participants. Each data source’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 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. As a result, the order in which the implementation steps are presented below should be used as a guideline.

6.8.1. Implementation: 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 answers these questions with step by step instructions for implementing GS1 Standards. These steps involve critical areas such as 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.

6.8.1.1. Build Organizational Readiness

Critical factors for organizing & preparing for a successful implementation:

- Support & engagement:
  - Ensure 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
  • Leverage archived Foodservice GS1 US Webinars and materials available on the GS1 US Foodservice website
  • Encourage representatives to participate in on-going GS1 US Foodservice conferences, meetings, and webinars

- Networking and Share Lessons Learned
  • Attend Initiative conferences & meetings
  • Join GDSN working groups
  • Participate in GS1 UConnect Conferences

- Communication:
  • Create internal and external communication plan that shares project status and timelines
  • Develop FAQ tools to assist with internal and external inquiries

- Scope of Implementation and Business Impact

- Understand your internal data quality management process
  • 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)

6.8.1.2. **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
Define roles & responsibilities – for Executive Sponsor, project team, and process owners.

6.8.1.3. Build Your Implementation Plan

- Perform readiness assessment and develop an implementation plan. Resources may include: GS1US, GDSN-certified data pool providers or solution providers.

- Key actions to consider when developing the implementation plan include:
  - Key milestones to consider include determining alignment, resources, timing, and a project plan
  - See sample project plan for reference at http://www.gs1us.org/sectors/foodservice

6.8.1.4. Build Your Business Processes & Systems to Support Data Synchronization

- Select your data pool provider: Select a GDSN-certified data pool and work with the data pool to register your GTIN and GLN information. As part of this effort, the IT team should evaluate the various technological options for loading data into a data pool. Your data pool provider can provide guidance for your GTIN and GLN assignment processes including the creation and maintenance of their attributes.

  - Your databases may already contain many GTINs; however, at this point you will need to ensure that they are correctly formatted and accurately assigned. 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 that GTINs currently assigned match that reflected on the item label or barcode.

- It is recommended to review your current GTIN assignments and compare the brand owner for the GTIN to the GS1 Company Prefix for that brand owner. You may find that your GTIN has been assigned not by the brand owner, but by the manufacturer. If this is the case, you will need to work with the brand owner to agree to the correct GTIN and coordinate the change from the original GTIN to the correct GTIN assigned by the brand owner if necessary.

  - Recognize the levels of the product hierarchy (i.e., packaging level) that your GTIN numbering system accommodates to support operations and trading partners. The establishment of your organization’s GTIN packaging level is a critical step in the implementation process. In addition, discussion of rebate, field compensation, and charge back processes as they apply to your company is also critical.
Identify your source databases/tables for GTINs and your attributes. Develop your mapping plan to pull from system of record versus system of reference.

Ensure data accuracy: This typically requires close coordination with your company's internal product and party/location team to ensure that all products have been assigned a GTIN and all locations have been assigned a GLN, and all data/attributes have been properly defined.

If an independent gap analysis uncovers missing attributes your data pool provider/solution provider may be able to assist in finding a solution. For example, they can aid in identifying attributes that can be derived rather than creating additional fields.

Select which GLN you want to use for publishing. This will be the level at which you will register your GTINs and GLNs within the GS1 Global Registry®. It is also the level at which your trading partners will submit their requests for publication.

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.

Reference the GS1 US Foodservice Attribute file with industry definitions and examples for assistance defining attributes at [http://www.gs1us.org/foodservice](http://www.gs1us.org/foodservice). Coordinate with your company's internal item team to gather all of the GTINs for your products. Confirm that all products have been assigned a GTIN; confirm the GTIN stored has been properly assigned the correct GS1 company prefix; and that all GTIN product attributes have been properly defined by the brand owner.

Perform data analysis: assess and baseline existing data; identify single ‘source of truth’ for data; compare GDSN requirements to internal data elements to ensure alignment; analyze data output for accuracy and consistency.

Provide feedback to internal teams and adjust output as necessary.

Develop scorecards for tracking progress and establish a process to maintain data quality and identify those responsible for maintaining this process.

Meet data requirements of recipient and identify items that are to be sent to desired recipients.

Initiate the GDSN relationship.

Plan and conduct a GDSN pilot and/or testing with trading partners.

Aim to successfully exchange data with customers using the GDSN (e.g., have customers subscribe to your GLN(s) and several of your GTINs). At this point, you are ready to conduct tests with your customers. You will be consulting with your GDSN-certified data pool for its recommended testing criteria and procedures. The testing process will provide validation of information system capabilities and operational impact. A phased or incremental approach to loading, publishing and synchronizing data with customers is recommended during testing. These tests should also include the response messaging associated with GDSN. Beyond this, manufacturers should follow their normal testing protocol/practices for the introduction of new technologies between partners.
- Conduct transactional pilots and/or testing with your customers. You will aim to successfully conduct electronic transactions or share electronic reporting with customer using GTINs and/or GLNs. The testing process will provide validation of information system capabilities and operational impact, and may include your MMIS, EDI transactions, contracts, etc.

- Coordinate with your customers to ensure a successful match of GTIN and/or GLN to current item or customer identification codes

- Document critical success factors

- Make adjustments as necessary to your implementation plans

- Develop formal Standard Operating Procedures, determine process owners, train and hand-off for ongoing governance and maintenance.

6.8.2. Implementation: 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 answers these questions with step by step instructions for implementing GDSN. These steps involve critical areas 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.

6.8.2.1. Build Organizational Readiness

Critical factors for organizing & preparing for a successful implementation:

- Support & engagement:
  - Ensure 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
  - Leverage archived Foodservice GS1 US Webinars and materials available on the GS1 US Foodservice website
  - Encourage representatives to participate in on-going GS1 US Foodservice conferences, meetings, and webinars

- Networking and Share Lessons Learned
  - Attend Initiative conferences & meetings
  - Join GDSN working groups
  - Participate in GS1 UConnect Conferences

- Communication:
  - Create internal and external communication plan that shares project status and timelines
• Develop FAQ tools to assist with internal and external inquiries

Scope of Implementation and Business Impact

■ Understand your internal data quality management process
  • 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)

6.8.2.2. 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
  • Specs & Labeling
  • R & D, Packaging, and Product Development

■ Define roles & responsibilities – for Executive Sponsor, project team, and process owners.

6.8.2.3. Build Your Implementation Plan

■ Perform readiness assessment and develop an implementation plan. Resources may include: GS1US, GDSN-certified data pool providers or solution providers.

■ Key actions to consider when developing the implementation plan include:
• Key milestones to consider include determining alignment, resources, timing and a project plan
• See sample project plan for reference at http://www.gs1us.org/sectors/foodservice.

6.8.2.4. Understand Your Internal Needs

■ Identify which data sources have adopted GS1 standards and their readiness to participate in GDSN. Document data source contact information for those data sources who have adopted GS1 Standards or GDSN.

■ Review and update any business processes and internal reviews of your product data set up processes that may need to change as a result of adopting the data synchronization process.

■ Review and understand the Foodservice Phase I and Phase II attributes to understand what attributes are needed to drive your internal requirements and meet the needs of your trading partners. It is important to also relate the Phase I and Phase II attribute values’ definitions to existing field names in your systems and databases. You should also identify those attributes that you may receive from your data sources, but that you would need to modify before publishing to your customers during the review of the attributes.

6.8.2.5. Implementation

■ Select your data pool provider: Select a GDSN-certified data pool and work with the data pool to register your GTIN and GLN information. As part of this effort, the IT team should evaluate the various technological options for loading Ensure data into a data pool, and then advise the Team on their findings. Your data pool provider can provide guidance for your GTIN assignment and GDSN implementation plan, education, and project management.

■ Your databases may already contain many GTINs; however, at this point you will need to ensure that they are correct and accurate. Therefore, this effort will encompass assessing the GTINs you may already have allocated for omissions or miss-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.

! It is recommended that each company review its current GTIN assignments and compare the brand owner for the GTIN to the GS1 Company prefix for that brand owner. You may find that your GTINs have been assigned not by the brand owner, but by the manufacturer. If this is the case, you will need to work with the brand owner to obtain the correctly assigned GTINs and coordinate the change from the original GTIN to the correct GTIN assigned by the brand owner.

■ Decide which tables/databases in your company’s IT systems should contain GTINs. The question that should be asked is: where are proprietary numbers used today that should be replaced with GTINs? Some of the tables/databases the project team should consider are: purchasing, sales and marketing, replenishment, recall, e-business, rebates and charge backs, classification [i.e., United Nations Standard Products and Services Code (UNSPSC)], inventory management, transportation,
payer systems, etc. A cross-reference between the internal item number and the GTIN is critical. Establish a data storage referencing the GTINs.

- Your databases may already contain many of the Foodservice Phase I and Phase II attributes. As part of your initial product data loading processes, you may need to compare and adjust attributes within your systems. Identify any downstream impact due to these changes before updating your systems.

- 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. Begin with Phase I attributes adoption and once completed, move on to Phase II attributes.

- Select which GLN you want to use for subscribing. Coordinate with your company’s internal item team.

- Reference the GS1 US Foodservice Attribute file with industry definitions and examples for assistance in understanding attributes at the GS1 US Resource Library: [http://www.gs1us.org/sectors/foodservice](http://www.gs1us.org/sectors/foodservice).

- Develop scorecards or other measures for tracking and monitoring your company’s internal progress and establish a process to maintain data quality and identify those responsible for maintaining this process.

- Meet data requirements of individual trading partners and identify items that are to be sent to desired

- Conduct GDSN pilot and/or testing with data sources.

- Aim to successfully exchange data with data sources using the GDSN (e.g., send a request for subscription to your individual trading partners’ GLNs and several of their several of their GTINs). At this point, you are ready to conduct tests with your individual trading partners. You will be consulting with your GDSN-certified data pool for its recommended testing criteria and procedures.

- The testing process will provide validation of information system capabilities and operational impact. A phased or incremental approach to synchronizing and confirming data with individual trading partners is recommended during testing. Coordinate with your trading partners to ensure a successful match of GTIN and/or GLN to current item or trading partner identification codes. Beyond this, follow your normal testing protocol/practices for the introduction of new technologies between partners:

- Provide feedback to internal teams and adjust output as necessary.

- Document critical success factors

- Make adjustments as necessary to your implementation plans
Develop formal Standard Operating Procedures, determine process owners, train and hand-off for ongoing governance and maintenance.

6.8.3. Lessons Learned & Recommendations

Some of the key areas to clearly understand when implementing GDSN are definitions around the attributes. It is important to fully grasp the global definitions of attributes and compare them to your internal definitions of fields within your systems and databases. You should also review attribute field size and type to ensure compliance with your company’s existing system requirements.

Guidelines for dimensions within the GDSN are specific to the packaging level of the GTINs. Often, they are not consistent with how most trading partners measure and store values. It is recommended to reference the GSDN Packaging Measurement Rules for clearly defining the dimensions before sharing or receiving product information. These may be reviewed at: http://www.gs1.org/docs/gsmp/gdsn/GDSN_Package_Measurement_Rules.pdf.

Another of the early learnings and recommendations from early adopters in the foodservice industry is the determination of 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.

Share product information with your trading partners and identify those areas of your organization and systems where the attributes add value before you begin any internal integration of the information with your current systems. 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 adoption these processes and programs may not need to exist with the continuous, real-time flow of product information among your individual trading partners.

And finally, compare your GTINs to ensure you have agreement with the brand owner as to the correct assignment of the GTIN. Because we as an industry are evolving into the adoption of GS1 Standards for product identification, there may be miss-alignments in your existing product information. Cleanse your product information internally and across your trading partners to address any issues that may exist.

The following case study illustrates lessons learned and recommendations for GDSN implementation. Documents can be found in the GS1 US Foodservice Document Library. (Visit http://www.gs1us.org/foodservice.)
In summary, the key steps for implementation from a data source and data recipient perspective are to have senior leadership and support, to validate data accuracy and usage, and to establish on-going processes to ensure accountability and ownership. Taking a focused, phased approach to data synchronization has been shown to provide the most successful implementations.

7. Summary

This Guide introduces the GS1 standards promoted by the Foodservice GS1 US Standards Initiative. It provides guidance intended to help all foodservice trading partners get started. There are many additional and more detailed tools available on the GS1 US Foodservice website that provide additional details about implementation of GS1 Standards and the Global Data Synchronization Network.

To view and download these materials, visit: http://www.gs1us.org/foodservice.
## 8. Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Brand Owner</td>
<td>The party that is responsible for allocating GS1 System numbering and bar code symbols on a given trade item. The administrator of a GS1 Company Prefix.</td>
</tr>
<tr>
<td>Carrier</td>
<td>The party that provides freight transportation services or a physical or electronic mechanism that carries data.</td>
</tr>
<tr>
<td>Customer</td>
<td>The party that receives, buys, or consumes an item or service.</td>
</tr>
</tbody>
</table>
| Catalogue Item Notification (CIN)              | A message standard that refers to electronic communication from the Data Recipient to the Data Source indicating what action has been taken by the Data Recipient on the item. The confirmation process occurs in the recipient’s data pool. Confirmation is not mandatory. When used, it provides for the following outcomes:  
  - **Synchronised**: data is integrated, in synch and added to the synchronisation list.  
  - **Accepted**: data is added to the synchronisation list and will be in synch.  
  - **Rejected**: data will no longer be synchronized or updates will no longer be provided.  
  - **Review**: a request to the data source to “review” their data because the data recipient has received discrepant data, which they cannot synchronise. |
| Common Value to all Product Hierarchy          | Common value condition indicates when the value for the attribute is equal for all levels of a hierarchy.  
  - **Example** – “orderingLeadTime” is common across all levels of the product hierarchy; common value = Yes  
  - **Example** – “grossWeight” is not common from each to case to pallet; Common value = No |
<p>| Food &amp; Beverage Industry                      | Sector that includes trading partners in both the Food Service as well as the Food Retail                                              |
| Global Location Number (GLN)                  | The GS1 Identification Key comprising a GS1 Company Prefix, Location Reference, and Check Digit used to identify physical locations or legal entities. |
| Global Data Synchronisation Network (GDSN)     | The GDSN is an Internet-based, interconnected network of interoperable data pools and a Global Registry, the GS1 Global Registry, that enables companies around the world to exchange standardised and synchronised supply chain data with their trading partners. |
| Source Data Pool (SDP)                        | A Source data pool is the data pool that is linked to the data source. It provides Validation Services to ensure the data entering the GDSN is valid. It collects trade item information from data sources to be registered with the GS1 Global Registry and uses GS1 Standard XML Messages to register the catalogue item information with the GS1 Global Registry. It also uses GS1 Standard XML Messages to exchange item information with the Recipient data pool. |
| Global Trade Item Numbers (GTINs)             | The GS1 Identification Key for trade items.                                                                                                                                                        |
| GS1 Global Product Classification             | A component of GS1 GDSN. It provides the required global framework for trade item categorisation supporting global data synchronisation.                                                        |
| GS1 Global Registry                            | A component of GS1 GDSN. It acts as a pointer (directory for the registration) to source data pools where catalogue item and party master data is housed. It also fulfils the role of matching subscriptions to registrations to facilitate the synchronisation process. |</p>
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td>GS1 Global Standards Management Process</td>
<td>A component of GS1 Services. It is offered as an integral part of GS1’s standards development and maintenance process. It allows for user members’ active involvement.</td>
</tr>
<tr>
<td>GS1 Identification Key</td>
<td>A numeric or alphanumeric field managed by GS1 to ensure the global, unambiguous uniqueness of the identifier in the open demand or supply chain.</td>
</tr>
<tr>
<td>GS1 Identification Keys</td>
<td>A globally managed system of numbering used by all GS1 Business Units to identify trade items, logistic units, locations, legal entities, assets, service relationships, and more. The Keys are built by combining GS1 member company identifiers (GS1 Company Prefix) with standards based rules for allocating reference numbers.</td>
</tr>
<tr>
<td>GS1 Member Organisation</td>
<td>A member of GS1 that is responsible for administering the GS1 System in its country (or assigned area). This task includes, but is not restricted to, ensuring user companies make correct use of the GS1 System, have access to education, training, promotion and implementation support and have access to play an active role in GSMP.</td>
</tr>
<tr>
<td>GS1 Prefix</td>
<td>A number with two or more digits, administered by the GS1 global Office that is allocated to GS1 Member Organisations or for Restricted Circulation Numbers.</td>
</tr>
<tr>
<td>GS1 System</td>
<td>The specifications, standards, and guidelines administered by GS1.</td>
</tr>
<tr>
<td>GS1 XML</td>
<td>A component of GS1 eCom. It represents the GS1 standard for Extensible Markup Language schemas providing users with a global business messaging language of e-business to conduct efficient Internet-based electronic commerce.</td>
</tr>
<tr>
<td>Net Content</td>
<td>The total amount of the trade item contained by a package, usually as claimed on the label. For example if a trade item is a 6 pack of 4oz. applesauce the net content of this trade item s 24 oz.</td>
</tr>
<tr>
<td>Party</td>
<td>A Party (or) Location is any legal, functional or physical entity involved at any point in any supply chain and upon which there is a need to retrieve pre-defined information.</td>
</tr>
<tr>
<td>Product Hierarchy Reference Level</td>
<td>This condition is used to indicate at what level of the product hierarchy each attribute is relevant. For some attributes, business requirements are such that the attribute only needs to be provided at a specific level. Example – “netContent” this field is only required at the consumer unit level. For most attributes, a value must be entered for all attribute levels.</td>
</tr>
<tr>
<td>Recipient Data Pool (RDP)</td>
<td>A Recipient data pool is the data pool that is linked to the data recipient. It notifies the GS1 Global Registry when its customer (data recipient) wants to subscribe to trade item information. The RDP receives new and updated trade item information from the Source data pool and forwards it to the data recipient.</td>
</tr>
<tr>
<td>Registry Catalogue Item Registry (RCIR)</td>
<td>A business message used to register basic Catalogue item information from the Data Source to the GS1 Global Registry via the Source Data Pool within the GDSN (Global Data Synchronisation Network).</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>The party that produces, provides, or furnishes an item or service.</td>
</tr>
<tr>
<td>Target Market</td>
<td>Target Market is a geographical area where the catalogue item is intended to be sold. The Target Market is a region based on geographical boundaries sanctioned by the United Nations. In GDSN, the list of the geographical regions is defined by the ISO-3166-* code system.</td>
</tr>
<tr>
<td>TI/HI</td>
<td>Ti/Hi is a concept used to describe how product is stacked on a pallet. The “TI” is the number of outer cartons on one layer, and the &quot;HI&quot; is the number of layers of cartons on a pallet.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
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<td>-----------------------------</td>
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</tr>
<tr>
<td>Trade Item</td>
<td>Any item (product or service) upon which there is a need to retrieve pre-defined information and that may be priced, or ordered, or invoiced at any point in any supply chain.</td>
</tr>
<tr>
<td>Variable Measure Trade Item</td>
<td>An item always produced in the same pre-defined version (e.g., type, design, packaging) that may be sold at any point in the supply chain, which either may vary in weight/size by its nature or which may be traded without a pre-defined weight/size/length.</td>
</tr>
</tbody>
</table>

9. Appendix

9.1. Foodservice Industry Roadmap to Clean and Accurate Data
http://www.gs1us.org/library/foodservice

9.2. Global Validation Rules, the Global Search functionality, and GDSN Certification Criteria
http://www.gs1.org/gdsn

9.3. US GDSN-Certified Data Pool Providers

<table>
<thead>
<tr>
<th>COMPANY</th>
<th>CONTACTS</th>
<th>ADDRESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSYNC</td>
<td>Scott Brown Director, Global Standards Phone: +1.609.620.4661 <a href="mailto:sbrown2@gs1us.org">sbrown2@gs1us.org</a></td>
<td>10 S. Riverside Plaza, Suite 2000 Chicago, IL 60606 USA&lt;br&gt;1009 Lenox Drive, Suite 115 Lawrenceville NJ 08648 USA</td>
</tr>
<tr>
<td>Big Hammer Data</td>
<td>Jay S. Yanko Director – Global Data Synchronization&lt;br&gt;Phone: +1.262.953.8102 <a href="mailto:jyanko@bighammer.com">jyanko@bighammer.com</a>&lt;br&gt;Website:  <a href="http://www.bighammer.com">www.bighammer.com</a></td>
<td>N16 W23233 Stone Ridge Dr. Suite 270&lt;br&gt;Waukesha WI 53188 USA</td>
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<tr>
<td>FSE Inc.</td>
<td>Keilt Moore&lt;br&gt;Vice President of Business Development&lt;br&gt;Phone: +1.617.340.3930&lt;br&gt;<a href="mailto:keilt@fsenet.com">keilt@fsenet.com</a>&lt;br&gt;Hugh McBride&lt;br&gt;Chief Operating Officer&lt;br&gt;Phone: +1.617.340.2068&lt;br&gt;<a href="mailto:hugh@fsenet.com">hugh@fsenet.com</a></td>
<td>77 Rumford Ave&lt;br&gt;Suite 3,&lt;br&gt;Waltham, MA 02453 USA</td>
</tr>
<tr>
<td>iTradeNetwork, Inc.</td>
<td>Itn Global Services&lt;br&gt;<a href="mailto:sales@itradenetwork.com">sales@itradenetwork.com</a>&lt;br&gt;Phone: +1.925.660.1112</td>
<td>5959 W. Las Positas Blvd&lt;br&gt;Pleasanton CA 94588 USA</td>
</tr>
</tbody>
</table>
9.4. Related Documents

The following documents provide additional background and relevant information:


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).