Data Governance Best Practice Guidance

GS1 US NATIONAL DATA QUALITY PROGRAM

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GS1 US

THE GLOBAL LANGUAGE
OF BUSINESS

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NOTE: As with all GS1 Standards and solutions, the GS1 US National Data Quality Program 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.

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 the global information standards organization GS1, brings industry communities together to reduce supply-chain problems through the adoption and implementation of GS1 Standards. Nearly 300,000 businesses in 25 industries rely on GS1 US for trading-partner collaboration and for maximizing the cost effectiveness, speed, visibility, security and sustainability of their business processes. They achieve these benefits through solutions based on GS1 global unique numbering and identification systems, barcodes, Electronic Product Code (EPC®)-enabled RFID, data synchronization, and electronic information exchange. GS1 US also manages the United Nations Standard Products and Services Code® (UNSPSC®). www.GS1US.org.

DOCUMENT SUMMARY

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LOG OF CHANGES

ISSUE NO.	DATE OF CHANGE	CHANGED BY	SUMMARY OF CHANGE
R1.0	Apr 02 2015		Initial release.

GS1 US National Data Quality Program

GS1 US worked with a cross-industry workgroup (known as the GS1 US Data Quality Discussion Group) to establish a new approach to data quality and data governance through the development of the GS1 US National Data Quality Program.

The GS1 US National Data Quality Program addresses the need for complete and accurate product data by providing a common approach to data quality for organizations to adopt. This common approach will promote a level of trust about product information received or retrieved by trading partners and consumers alike.

The Program is based on a comprehensive approach to data quality that encompasses:

- *data governance within an organization to support the creation and maintenance of product data based on GS1 Standards*
- *education and training on GS1 Standards within an organization with regard to creating and maintaining accurate product data*
- *comparing product attributes to data being shared with trading partners to have confidence that the data shared is accurate, complete and timely*

With the GS1 US National Data Quality Program, organizations can further leverage their existing infrastructure with minimal cost, especially as it relates to the ultimate benefit – consumer satisfaction. Supply-side partners can use one framework leveraging current industry best practices to comply with data quality requirements across multiple industry sectors and trading partners. Demand-side partners will gain confidence in the data shared by their supply-side partners.

For additional information, visit:
http://www.gs1us.org/dataquality

1 INTRODUCTION

Companies rely on data to manage their order-to-cash business processes. Data can originate from several sources, including external vendors and internal departments. Without a proper understanding of how data is used by internal and external customers, errors can occur and the quality of the data can deteriorate as it flows through the supply chain. Prior to the Internet age, poor data quality was only visible to supply chain trading partners who often considered it simply a cost of doing business. However, this is no longer the case.

Consumer purchasing decisions today are heavily reliant on data. In fact, from a consumer's perspective, access to complete, accurate and timely product information is paramount to their shopping experience, whether brick-and-mortar or online. In this environment, poor data quality not only causes and exacerbates business inefficiencies, but also has significant repercussions all the way through to the consumer, including:

- Loss of brand loyalty and confidence due to inaccurate information shared with trading partners and consumers
- Sales reporting inaccuracies due to misidentification of products
- Truck capacity issues due to inaccurate product weights and measurements
- Warehouse issues due to inaccurate product measurement impacting capacity and automated material handling systems
- Regulatory issues due to out-of-date information

With shrinking margins and increased competition, industry has now reached a "tipping point" in which data quality is becoming a key performance indicator for supply-side and demand-side trading partners. As consumer demand and reliance on accurate information naturally progresses from transactional to aggregate data, having accurate data instantly becomes a strategic advantage - influencing purchasing decisions and brand loyalty alike. In order for industry to achieve accurate, aggregated data, we believe companies need to start by getting their transactional data correct, and then expand to additional attributes and processes.

As a result, many companies have started to examine data quality within their organizations, scrutinizing internal processes and education practices, and performing audits of information received from and shared with trading partners. To support that effort, this document provides best practices for data governance pursuant to the *GS1 US National Data Quality Program Framework*. It identifies the essential elements of data governance, and provides best practices for each.

2 DATA QUALITY WITHIN AN ORGANIZATION

Data quality reaches far beyond accurate data -- encompassing an overall program within an organization that includes components such as executive leadership and support, commitment to standards-based data, and processes to help ensure that consistent, complete, accurate and timely information is being captured and utilized for both internal processes and external sharing. Data quality provides the foundation for an efficient supply chain and enables trading partner collaboration.

2.1 GUIDING PRINCIPLES

Organizations with successful data quality programs embrace the following guiding principles:

- Information is an asset and should be viewed and managed as such.
- Quality data is achieved by applying management processes, methods, tools and best practices.
- Data governance is a shared responsibility.
- Data governance is a business process, not a project.

2.2 FIVE POINT BEST PRACTICE

Companies that have strong data quality programs consistently follow industry best practices for continuity and consistency. These companies have documented processes that are shared throughout the organization. Five points (referred to as the *Five Point Best Practice******) can summarize the industry best practices for data quality:

1. Adhere to GS1 Standards and rules for initial attributes in internal set-up.
2. Assign data owners throughout the organization.
3. Appoint one entity/department/individual as the sole owner of product data.
4. Audit all new items produced in a sustainable production environment ready for shipment (i.e., finished goods).
5. Execute communication of initial attributes and package measurements, both internally and externally.

***** The "Five Point Best Practices" are provided courtesy of and with the permission of 1WorldSync Inc.

The Five Point Best Practice for data quality, along with the organizational philosophy embedded in the guiding principles, provide the foundation for successful data governance.

3 DATA GOVERNANCE

Data governance programs manage the actions, methods, timing and responsibilities for supporting master data within an organization. Data governance programs serve an important function within an enterprise: setting the parameters for data management and usage, creating processes for resolving data issues, and enabling business users to make decisions based on high-quality data. A solid data governance program formalizes accountability for data management across the organization and ensures that the appropriate people are involved in the process.

The remainder of this document presents best practices for data governance based on the guiding principles and the *Five Point Best Practice* for data quality described above. For clarity, the best practices provided in this document are divided into two main sections:

Best Practices for Data Governance Programs: this chapter introduces the key aspects of an effective data governance program, and provides best practices related to the comprehensive program.

Best Practices for Data Governance Processes: this chapter introduces essential processes that are an integral part of a data governance program, and provide best practices for each. Those data governance processes are:

- Global Trade Item Number® (GTIN®) Management
- Product Measurement
- New Item Set-up
- On-going Product Maintenance
- Data Sharing

These guidelines have been developed with input and participation from all segments of industry through a collaborative process. Adoption of the guidance offered in this document is voluntary and will be determined by trading partner relationships.

4 BEST PRACTICES FOR DATA GOVERNANCE PROGRAMS

An organization needs to create and document processes and procedures with clearly defined roles and responsibilities. The documentation should utilize process diagrams to define all of the critical steps, processes, and handoff points to establish accountability for master data quality. Examples include:

- A data governance program with clearly defined owners of attribute data from initial set-up through the lifecycle of the product.
- A process to capture and share the attributes identified as Key Performance Indicators (KPI) within the GS1 US National Data Quality Program, as well as any additional attributes requested by your trading partners. (The KPI attributes identified in the *GS1 US National Data Quality Program Framework* are: Brand Name, Declared Net Content/Unit of Measure, Pack Quantity, GTIN, Linear Dimensions, Gross Weight/Unit of Measure, TI/HI, and Country of Origin).
- An identification strategy ensuring products are uniquely identified at all levels of the hierarchy.
- Processes to ensure the communication of changes to attributes for products during the innovation stage* and through the lifecycle of the product in accordance to GS1 Standards. Communication of changes in a timely fashion is essential. *(* Attribute information will need to be captured and shared*

during the innovation stage of a product creating the need for processes to capture and share the information as changes occur.)

- On-going audits of attribute information, whether conducted internally or through a third party.

This chapter provides best practices for a data governance program. The next chapter identifies five essential data governance processes and provides best practices for each.

4.1 EXECUTIVE BUY-IN

Data governance programs require change, which organizations often resist. Executive buy-in that current business practices need to change is critical for obtaining support across the organization. Moreover, executive leadership is essential for obtaining resources needed to establish a cross-functional data governance team comprised of key stakeholders from both business and technical teams.

4.2 DEFINED ROLES AND RESPONSIBILITIES

Data governance is a shared responsibility. A cross-functional data governance team comprised of key stakeholders and members from both business and technical teams should be established. Responsible owners need to be identified based upon a review of both business and technical activities that involve master data management. Companies may choose to have a single source of data governance or they may choose to have a committee that manages the integrity of the data, depending on an organization's philosophy, resources, and their Enterprise Resource Planning (ERP) approach to security and access.

Data governance is not purely a technical initiative. Business needs to partner with technology to be successful. Good data governance is a strategy shared among the managers of business and technology.

4.3 CENTRALIZED POINT OF CONTROL

Data is cross-functional in nature, and several departments might claim responsibility for certain data. A centralized point of control is needed to divide responsibilities and resolve conflicts. (This does not mean that one individual is responsible for data governance, but that there is a centralized control point that is held accountable for the program.) This is usually performed by a data governance body. The data governance body promotes the importance of data as an asset, and ensures that there are continued controls and measures in place for gathering data. This group is also responsible for centralized control over the assignment, allocation, and management of GTINs across the organization. Primary responsibilities include:

- Accountability for gathering data (ensuring control mechanisms are followed) and submitting product data
- Accountability for understanding trading partner requirements and ensuring that accurate data is gathered, adhering to industry standards

The data governance body may be separate from the data stewards in that their function is to oversee the data collection and ensure it is aligned and integrated within the various repositories. However, they are connected to the data stewards in a way that provides continuity in item data. The data governance body determines overall data stewardship policies (i.e., the organizational authority and accountability of the stewards), establishes priorities, and supports the data stewards in the performance of their duties.

Within the Master Data Governance entity, there is a Data Governance Director who is responsible for the day-to-day management of enterprise data governance. The Director has decision-making authority and is the ultimate decision maker. The primary responsibilities of the Director are:

- Providing guidance and oversight
- Approving data governance policies and procedures
- Resolving data integrity issues across stakeholders
- Reviewing proposals for data governance practices and processes
- Obtaining support at the Executive Level
- Negotiating quality service level agreements with external data suppliers

4.4 DATA STEWARDS

Data stewardship is the management and oversight of an organization's data assets to help provide business users with high quality data that is easily accessible in a consistent manner. Data stewards are key contacts within the various functional departments of an organization who are responsible for generating and maintaining product attributes for their specific area of responsibility. They often act as a liaison between IT departments responsible for providing an information management infrastructure, and information users looking for relevant and high-quality business data for effective business analytics and decision-making. A data steward is typically the “go to” person within the business group for all of the queries/issues related to data. Co-workers and managers approach data stewards when they need to answer a business question, or if they need to validate the accuracy, completeness or validity of data within a business context.

Data stewards are primarily responsible for:

- Creating and maintaining consistent reference data and master data definitions.
- Publishing relevant data to appropriate users in an organization, and monitoring the published data sources for usage, relevance, and quality.
- Creating and managing published data sources to ensure that data is easily discoverable, and meaningful.

Data stewards can reside in several departments (e.g., operations, supply chain, research and development (R&D), package design, marketing, etc.) and have responsibility for a specific set of attributes. As the item’s data elements are added by the various data stewards within an organization, each data steward is held accountable for the accuracy and the maintenance of those attributes. Depending on the organization, the role of the data steward may be formally defined, or informally recognized by the business. In many companies data stewards are identified, along with their individual processes for accountability, and practices toward accurate data. In organizations with well-defined information management programs, data stewardship may be a formal job role. However, many organizations simply include data stewardship tasks as part of the responsibilities of other roles.

4.5 EDUCATION

A documented education and training policy is essential to ensure that resources remain current as internal data governance processes and personnel change, and as GS1 Standards evolve. The key focus areas for education about GS1 Standards are:

- GTIN Allocation
- Product Measurement
- Data Synchronization

4.6 METRICS

An organization can't manage what it can't measure. Therefore, data quality should be measured on its completeness, timeliness and accuracy. An organization should have clearly defined metrics that are measurable and communicated throughout the organization. In addition, an organization needs to determine what constitutes a valid range for each metric for both the first time measuring as well as on-going monitoring.

Once defined, metrics should be assessed to establish a baseline. The baseline will provide valuable insight into initial data quality, and facilitate the tracking of progress.

4.7 VERIFICATION

Often, verification is perceived as encompassing only the physical audit of products compared against a core set of attributes. In reality, it is much more. Verification in an effective data governance program encompasses:

- Regularly scheduled audits of the master data file to ensure that there are no duplicate GTINs, that the proper hierarchy structure is being maintained, and that inactive GTINs are flagged.
- Regularly scheduled reviews of all data governance processes, procedures, and training to ensure on-going conformance.
- Physical audits of the product on a regularly scheduled basis to ensure that the attribute information used internally and shared externally (whether with trading partners or consumers) is and remains accurate throughout the lifecycle of the product. This can be accomplished through internal resources or a certified third party. Verification of barcode quality needs to occur as a part of the physical audit.

NOTE: Verification is especially important for more mature products. History has shown that new items have a higher degree of data accuracy, and that data accuracy deteriorates over time. The verification process should be designed to select a sampling of all products, not simply a sampling of *new* products as they transition from innovation to production.

4.8 MAINTENANCE

Business requirements and the use of data change over time (often for purposes beyond the scope of initial expectations). The data governance program needs to develop and document on-going processes that govern change management activities in order to maintain data integrity as changes take place.

In addition, the data governance program itself will evolve over time due to internal infrastructure changes (such as the implementation of a new ERP system), as well as external factors (such as e-commerce). Success is achieved when people, processes, and technology are flexible. A successful data governance program therefore needs an inherent process to ensure it is sustainable and flexible in order to incorporate the inevitable change that will come.

4.9 COMMUNICATION

The need for strong communication cannot be stressed enough. Executive leadership needs to define and communicate the vision for the data governance program. A communication plan needs to be developed and executed to launch the program and to ensure awareness and commitment across the organization. And, communication does not stop with the launch of the program. Regular updates about the program (including the metrics) should be communicated throughout the organization. Internal e-mails from executive leaders posting the metrics across the organization are a commonly-used tool.

5 BEST PRACTICES FOR DATA GOVERNANCE PROCESSES

Data governance processes are a series of documented, periodically-reviewed procedures implemented within an organization to maintain and support the production of good quality data. Five essential processes within a data governance program are:

- Global Trade Item Number (GTIN) Management
- Product Measurement
- New Item Set-up
- On-going Item Maintenance
- Data Synchronization

5.1 GTIN MANAGEMENT

A 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 used to identify individual trade item units (*like a box of 15 Brand X tissues*), as well as all of their different packaging configurations (*like a carton of six boxes of Brand X tissues*). The GS1 System provides clear, structured data standards and allocation rules that brand owners follow when allocating GTINs in order to ensure that their GTINs are globally unique and in a consistent format.

A separate, unique GTIN is required whenever any of the pre-defined characteristics of an item are different in any way that is relevant to the trading process. The GS1 GTIN Allocation Rules prescribe which changes to product attributes drive the need for the assignment of a new GTIN. In addition, the *GS1 General Specifications* provide the standards for GTIN data formats, product hierarchies, barcodes and application identifiers.

Best Practices:

- **Create a GTIN for every level of the item hierarchy.**
  - Identify inner packs with a GTIN even if they are not marked with a barcode. Distributors and retailers may use inner packs as their distribution units.
  - Many trading partners are requesting pallet-level GTINs for products that are shipped as a standard product configuration. If a supplier has more than one pallet configuration within a Target Market, assign a unique pallet-level GTIN for each configuration so that accurate TI and HI attributes are communicated.

- **Document your organization's processes for creating, assigning, and managing GTINs.**
  - In order to ensure that GTINs are globally unique and in a consistent format, each organization should have a documented process for creating, assigning, and managing GTINs, as well as institutional knowledge of the same.
  - It is recommended that all GTINs be stored in a central repository. This is especially important for companies that use the same GS1 Company Prefix across multiple business lines.

- **Develop and maintain institutional knowledge of GS1 Standards, including:**
  - GTIN Allocation Rules
  - packaging hierarchies
  - which barcode to use for various applications
  - Application Identifiers

- **Knowledge of the GS1 GTIN Allocation Rules is important.**
  - The GTIN Allocation Rules provide guidance about which differences in product attributes drive the need to assign a separate, unique GTIN to each product.
  - The GTIN Allocation Rules provide guidance about which changes to a product's attributes drive the need to assign a new GTIN.
  - It is not uncommon for the data governance entity (individual or team) to be responsible for determining when the assignment of a new GTIN is necessary.

- **Keep up-to-date with any changes to the GTIN Allocation Rules, and develop a process to communicate any changes to the GTIN Allocation Rules throughout the organization.**
- **As an on-going practice, periodically audit GTIN information to ensure that the data remains correct throughout the product lifecycle.**

5.2 PRODUCT MEASUREMENT PROCESS

Product measurement process refers to a centralized control over the physical measurement of linear dimensions and gross weight of products in accordance with the GS1 Package Measurement Rules.

Accurate weights and dimensions add stability to the supply chain by improving logistics, warehouse management, space management, outbound shipping, new item introduction, financial processes, and customer satisfaction. The GS1 Package Measurement Rules establish a globally accepted methodology to

facilitate the measurement of linear dimensions and weights for retail and non-retail products, from the consumer unit to the non-consumer level and all intermediate packaging levels in between.

Best practices:

- **Measure every level of the hierarchy and every product (GTIN) separately.**
- **Do not aggregate weights and measures.**
  - Aggregating weights and measures (instead of measuring every level of the hierarchy and every product (GTIN/SKU) separately) records inaccurate data at various levels of the hierarchy which is then passed through the supply chain.
  - Common examples of aggregating data that should be avoided include:
    - An item having several varieties packaged the same. The item is measured and the dimensions are applied to all of the varieties of the same size.
    - An item is measured at the lowest level (ex. item) and the subsequent levels are calculated based upon the number of items at each level throughout the hierarchy.
- **Product measurement can be done internally or contracted to a certified third party.**
- **If product measurement is performed by a third party, establish a process for communicating the measurements back into your organization and updating the product data in a timely manner.**
- **Create a process for following up on trading partner feedback regarding the accuracy of measurement data.**
  - Trading partners may perform package measurement audits and provide feedback regarding the accuracy of the data they recorded versus the data you provided.
  - Whenever you receive such feedback, follow a process for validating the feedback, providing follow-up communication, and remediating any issues (i.e., correcting errors, highlighting possible training or process issues requiring change, etc.). This helps to ensure that not only is the immediate issue resolved, but the root cause of the problem is also addressed.
- **The sample of the product to be assessed during the audit process needs to be representative of the different packaging types within the product portfolio (often by category).**
  - However, the sample size does not need to be cumbersome to provide directional information to the level of accuracy of the data.
  - Detail regarding sample sizes can be found in the *GS1 US National Data Quality Program Framework*.
- **Capture and share linear dimensions and gross weight for all levels of the hierarchy <u>throughout the innovation stage</u>.**
  - This can be difficult because the product design is often simply a concept.
  - To be able to share this information in the timeframe requested may require the use of spec data.
  - This is acceptable as long as the data is updated throughout the evolution of the product and once again after first production.
  - The data will need to adhere to GS1 Package Measurement Rules and GS1 GTIN Allocation Rules throughout the process.

- **For weights and measures for packaging types with inherent variability (e.g., flexible packaging, liquids, very small items, items with variable weight, etc.), measure and weigh a sample of five and communicate the average.**

For more information on the GS1 Global Data Synchronization Network™ (GDSN®) Package Measurement Rules, visit: www.gs1us.org/resources/standards/package-measurement-standards

5.3 NEW ITEM SET-UP & MANAGEMENT

Within the *GS1 US National Data Quality Program Framework*, there are four "foundational attributes" and four "fundamental attributes":

Foundational Attributes	Fundamental Attributes
• Brand Name	• Linear Dimensions (Height, Width, Depth)
• Declared Net Content	• Gross Weight
• Pack Quantity	• TI-HI
• GTIN	• Country of Origin

Best Practices:

- **Adhere to GS1 Standards and Rules for initial attributes in internal set-up.**
- **Foundational attribute data should not be considered preliminary or changeable once shared with trading partners.**
  - Once shared, any change to foundational attributes during innovation of a new item should adhere to the GS1 GTIN Allocation Rules.
  - In this context, "share" is defined as any method by which this information is communicated, such as GDSN, product catalogs, portals, sales sheets, etc.
  - Refer to the *GS1 US National Data Quality Program Framework* for the definition and measurement for the foundational attributes.
- **Fundamental attribute data may be changed during the innovation process without being subject to the GS1 GTIN Allocation Rules.**
  - However, these attributes are subject to the GTIN Allocation Rules once the product is in production to its demand-side partners.
  - Refer to the *GS1 US National Data Quality Program Framework* for the definition and measurement for the fundamental attributes.
- **Audit all new items produced in a sustainable production environment ready for shipment (finished goods).**
  - Once a product is produced in a sustainable production environment, validation must occur for trusted quality data to be used and exchanged within the trading community.
  - Physical audits must be completed at all levels of the product hierarchy, by trained personnel, in adherence to the GS1 Package Measurement Rules.

  - The audit process should include a feedback loop to the data stewards, and the data governance body to update any previously recorded data.

- **Execute communication of attributes, both internally and externally.**
  - Upon validation of the initial attributes (with accurate data at every level of the hierarchy), the data is ready to be leveraged internally as well as throughout the supply chain (including trading partners and consumers).

- **Alignment to the single authoritative data source within your data governance body (also known as the Master Data Management System (MDMS) is crucial to sharing the same accurate data across the value chain.**

- **Although methods for communication vary, extraction of the data for any type of internal or external communication should come from a single source and follow the same business rules.**

- **Trading partner requirements for timing, format, and specific attributes can vary widely. However, standardized processes should be developed to ensure consistent data capture, maintenance and communication of attributes.**
  - Methods for external data sharing/communication include, but are not limited to: GDSN, EDI, Electronic Catalogs, web portals, sales sheets, etc.

- **When the data associated with an attribute is changed, care must be taken to update the MDMS as well as within the various sharing mechanisms.**
  - Otherwise, the information being shared can be overwritten with inaccurate data from the MDMS.

5.4 ITEM MAINTENANCE: ADDING, CHANGING, OR DELETING ATTRIBUTES

Item Maintenance involves three key processes: item launch (add), item update (change), and item obsolete (delete). Maintenance includes the processes to pull changes and additions into the MDMS, and to distribute the cleansed data to the required places.

Best Practices:

- **Document the process with control mechanisms.**

- **Implement a workflow to collect attributes and obtain proper approvals for the update of information.**

- **Integrate all systems from data collection to the data repository.**

- **Automate edits to help ensure the integrity of data.**

- **Adhere to the GS1 GTIN Allocation Rules and be sure that they are integrated into the maintenance process.**

- **Communicate plans and the process throughout all involved departments.**

- **All data must have a data steward who is responsible for ensuring data quality.**
  - The data steward can recognize incorrect data and has the knowledge and authority to correct the issues.
- **The data governance infrastructure should include tools that help the data steward recognize issues and simplify corrections.**
  - A good data-stewardship tool should point out questionable matches (e.g., two levels of a hierarchy with the same GTIN).
  - An organization needs business rules to govern when items are no longer considered "new" so that data stewards can flag "new items" that exceed the threshold to be considered as such.
  - The data steward should review the history of changes made to the data, to isolate the source of errors and undo incorrect changes.
- **A data governance program should include a process to audit changes to the master data.**
  - Data stewardship and compliance requirements often include a mechanism to determine who made each change and when it was made.
  - The entire organization should have a clear understanding of the new item introduction and item maintenance processes so they understand the impact of their role, responsibilities and actions on the quality of their data within their organization.
- **Ensure that management of all involved departments support the (i.e., understand when a new GTIN needs to be assigned and be willing to do so).**

5.5 DATA SHARING

Depending upon the business sector, companies may have different methods (or multiple methods) of sharing data. All of the methods listed below are acceptable practices for sharing data:

- EDI
- GS1 Global Data Synchronization Network (GDSN) *
- Price List
- Product Catalog
- Sales Sheets
- Web Portals

Regardless of the method, the data sharing process should include all necessary provisions to ensure that communication is based upon the most recent version of the product. Data sharing does not replace the interaction between the sales team and their trading partner. It is intended to reduce the administrative burden.

* The GS1 Global Data Synchronization Network (GDSN) enables the sharing of accurate and up-to-date standardized product information among trading partners, and the continuous synchronization of that information over time. The GDSN ensures that all partners have access to the same, accurate information, and that any changes are automatically and immediately communicated to trading partners.

Best Practices:

- **Obtain executive sponsorship for the data sharing initiative from both business and technical leadership.**
- **Incorporate data sharing as an on-going business process within the organization that supports both the new item introduction and item maintenance processes.**
  - Data sharing is not a one-time initiative and should not be viewed as a project to be completed.
  - Resources must be available from both the business and technical teams to monitor and maintain the program.
- **Design your data sharing process so that the data output produced by the MDMS complies with trading partner requirements for data sharing.**
  - Put a process in place to keep the organization up-to-date regarding trading partner requirements.
- **Document your data sharing process thoroughly so that new staff can support the process without interruption whenever staff transitions occur within the organization.**
- **Establish ownership within the organization for the accuracy of each data attribute that is exchanged.**
  - This is generally done as part of data governance. But, if you do not have a formal data governance program, then this should be done as part of the launch of a data synchronization program.
  - It is critical to know what department to go to when there is a data discrepancy.
- **An initial step in launching data sharing is to cleanse the item data to insure that it is accurate before it is shared with trading partners. Too often organizations focus on meeting a trading partner mandate and then discover that they have published inaccurate data.**
- **Automate the extraction of data from back-end systems and the mapping of the data to your GDSN-certified data pool or third party provider to eliminate manual keying errors as new items are added or changes to existing items occur.**

GDSN-specific Best Practices:

- **Have a clear understanding of internal technology that may be leveraged to support your data synchronization program.**
- **Identify what tools and services your GDSN-certified data pool offers before deciding to purchase any additional tools or services to assist you with your data synchronization effort.**
- **As new items are created, load the items into the organization's GDSN-certified data pool so the items are ready for publication to trading partners.**
  - Some trading partners require items to be published prior to the sales team presenting the products. Other trading partners expect publications for the products they select shortly after the sales presentation. Loading item data into the GDSN-certified data pool as new items are created will enable an organization to meet any of these trading partner requirements.

- **Whenever new trading partners request to synchronize data, review their attribute and implementation requirements.**
  - A new trading partner may have additional attributes that they require.
- **Develop processes to review message exceptions (errors) sent from the GDSN-certified data pool as well as the Catalogue Item Confirmation (CIC) sent from trading partners.**
  - Errors need to be addressed quickly so that item synchronization can be completed.
- **Automate changes to GTIN attributes made through the GDSN wherever possible.**
  - NOTE: A change to the *Pack Quantity* does require a more specific process that includes a withdrawal of the existing Item Hierarchy, communication with the Trading Partners, followed by publication of the new hierarchy. Specific information on this process can be obtained from your GDSN-certified data pool or third party provider.

For additional information regarding the GDSN, visit: http://www.gs1.org/gdsn

6 ADDITIONAL RESOURCES

GS1 US National Data Quality Program
http://www.gs1us.org/dataquality

GS1 US National Data Quality Program Framework
http://www.gs1us.org/dataquality/framework

GS1 US Advisory Services
http://www.gs1us.org/resources/services/advisory-services

GS1 General Specifications
http://www.gs1us.org/DesktopModules/Bring2mind/DMX/Download.aspx?Command=Core_Download&EntryId=618&PortalId=0&TabId=785

GS1 Package Measurement Rules
http://www.gs1us.org/gs1-us-library?Command=Core_Download&EntryId=157

GS1 US Product Measurement Services
http://www.gs1us.org/resources/services/product-measurement-services

GS1 GTIN Allocation Rules
http://www.gs1.org/1/gtinrules/

GS1 US Barcode Chart
http://www.gs1us.org/gs1-us-library?Command=Core_Download&EntryId=365

GS1 US Barcode Verification Services
http://www.gs1us.org/resources/services/barcode-verification-services

GS1 Global Data Synchronization Network
http://www.gs1.org/gdsn

GDSN-certified Data Pools
http://www.gs1.org/docs/gdsn/gdsn_certified_data_pools.pdf

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