INDUSTRY DATA SIMPLIFIED SYNCHRONIZATION

Roadmap for Data Synchronization with the Rough Plumbing Industry

1SYNC

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Table of Contents

Project Overview and Summary

In November, 2008 representatives from the Rough Plumbing Industry launched a data synchronization pilot project to determine if this technology could support their business environment. The group's defined objectives for the project included: testing and confirmation of data synchronization between trading partners, creation of a list of industry specific attributes to be added to the Global Data Synchronization Network (GDSN) Global Data Dictionary, and development of a roadmap that would assist and facilitate industry wide adoption. The group named the project Industry Data Simplified Synchronization (IDSS).

The executive sponsor of the project is Rex Martin, Chairman and CEO of NIBCO INC. NIBCO is a leading manufacturer of flow control products. In addition to NIBCO, participants in the pilot were Watts Water Technologies, Inc., Charlotte Pipe and Foundry Company, WinWholesale Inc., Coburn Supply Company, and Anvil International. 1SYNC was used as the GDSN certified data pool.

The pilot showed that Global Data Synchronization (GDS) supports the Rough Plumbing Industry. NIBCO, Watts Water Technologies, and Charlotte Pipe and Foundry synchronized their product data with distributors, WinWholesale and Coburn Supply. In addition to product data information, trading partners were able to synchronize images, and product and specification sheets through the GDSN. The distributors expressed the value of getting data from different manufacturers in a standard format and the value of automated notification for changes to item data.

After testing concluded, the IDSS team created a list of attributes deemed the most critical to assist with industry wide adoption. The list was submitted to the Global Standards Management Process for review and inclusion with the Global Data Dictionary (GDD). The team also submitted a change request for additions to the Global Product Classification (GPC). Both the GPC and the GDD are managed by GS1.

The pilot served as a great opportunity for learning and as a foundation for adoption of data synchronization in the Rough Plumbing Industry. Business processes were mapped, industry specific item attributes were pinpointed, and perceived benefits were identified. The roles of mechanical contractors and software providers, and the synergies with BIM (Building Information Models standards) were discussed. The support and involvement of these adjacent groups were identified as crucial factors moving forward. The IDSS team believes that accurate and timely data synchronization is a key step toward increased supply chain efficiencies with the GDSN being a primary mechanism for communicating product data.

What is Data Synchronization?

Data synchronization is the electronic transfer of standardized item and location information, and the continuous harmonization of that data over time between trading partners. It enables manufacturers, distributors, and potentially contractors to continuously update and share product data and attributes such as height, weight, material, images, and Global Trade Item Number (GTIN). Suppliers publish item information to a global network and that information is distributed to authorized recipients (i.e. distributors, contractors, trade catalog companies) in the network. Data synchronization allows for easy integration of product data throughout the supply chain. Transmission of data via this process can decrease the time required for new product introduction, improve shipping methods, and assist with reconciliation of data within organizations.

Multiple industries such as grocery, mass merchandise, hardlines, consumer electronics, and health and beauty have been using data synchronization for many years. Over 15,000 companies currently subscribe to the GDSN with connections in 50 countries. Data synchronization continues to expand outside of traditional retail markets with adoption increasing in areas such as healthcare and food service.

How Global Data Synchronization Works

The Global Data Synchronization Network (GDSN) is an internet based network of interconnected Data Pools and a global registry that provide companies all over the world the ability to exchange standardized supply chain data. Certified data pools collect and validate product information and register it with the GS1 Global Registry, and use industry approved standards to synchronize information in the GDSN. Data is registered in the registry via GS1 Business Message Standards using the widely accepted extensible markup language (XML) format. XML is also used to exchange item information with the requestor's data pool.

The GDSN operates on a publication/subscription model. For example, when a manufacturer wants to introduce a new product or revise an existing product, a distributor or contractor sends a request through their data pool which is then forwarded to the registry. The manufacturer, if they have not loaded their data via their data pool, would do so at this time. The registry would match the subscription request and the data transmission occurs over secure internet connectivity. A confirmation message (Accept, Review, Synchronize, or Reject) from the distributor or contractor is transmitted back to the manufacturer to complete the synchronization process.

Synchronization of images and other external files such as product specification sheets occurs in a similar process with a few differences. A manufacturer would create images of their products internally or via a 3rd party and assign a URL to the image. The URL is the information that is sent in the synchronization message. Manufacturers can also create and store images of their products in their own internal systems and use digital certifications with trading partners for accessing the images and completing synchronization.

An illustration:
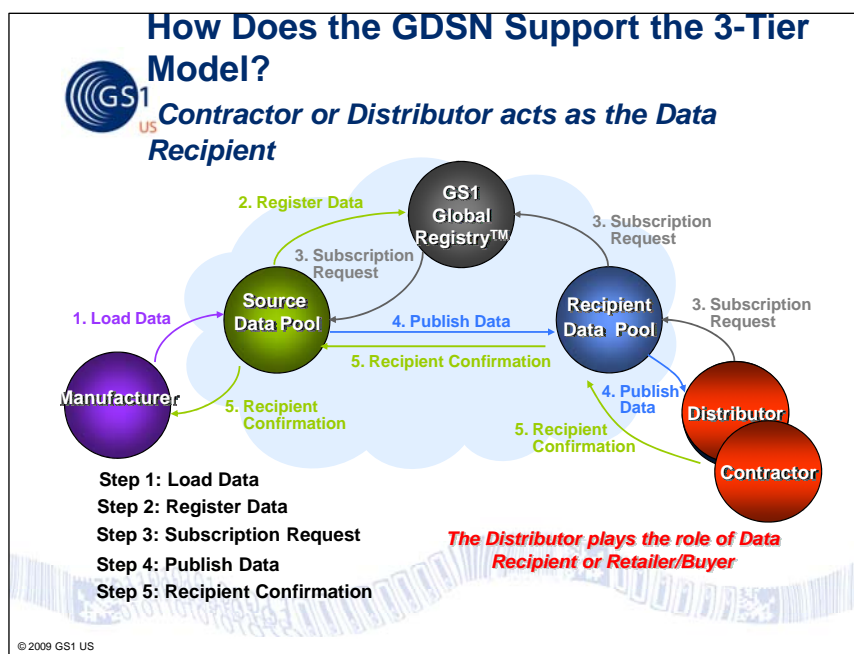
Roles for Each Group in the Industry

Each group in the industry has a role in the successful adoption of data synchronization. The roles for each group are listed below.

Manufacturers

Manufacturers will be the group to assign GTINs to their products, select a data pool, publish their items, update and maintain their item master files, and ensure the highest level of accuracy possible with their items. They will be active in the change request process for the adoption of attributes to the Global Data Dictionary and Global Product Classification Catalog.

Wholesalers

Wholesalers (distributors) will be the recipients of the item data received from the manufacturers via the GDSN. They will send confirmation messages on the subscriptions they receive and integrate GDSN data with their business processes. They will provide feedback and recommendations for assimilating standardized data with their current mechanisms with contractors. Along with the manufacturers, they will develop and execute communication programs for industry adoption.

Mechanical Contractors

As data synchronization increases its presence in the rough plumbing industry, the contractors will connect to the GDSN directly through a certified data pool or integrate the data they receive from wholesalers with the assistance of applications from third party software providers. They will determine how GDSN data can be integrated with their business processes and will participate in communication initiatives to the industry about the importance and value of standardized data. The feedback and support of the mechanical contractors was beneficial to this pilot. They played an important role in identifying industry specific attributes that will facilitate adoption.

Perceived Benefits

The perceived benefits of data synchronization in the rough plumbing industry can be fully evaluated after an industry wide implementation and adoption. The following categories of benefits were determined after discussions, onsite meetings with project participants, reviews of organizations' processes around item data, and work during the pilot. They represent best practices for reduction of risks around issues that may arise around common business processes in the industry. The categories were Order and Item Information, Operational Inefficiencies, and New Item Introduction.

Order & Item Information

Manufacturers, distributors, and contractors spend many hours collecting, clarifying, formatting and maintaining product information. They get multiple requests from many trading partners for similar information, creating additional inefficiencies. This information has two primary purposes:

1. Information that is necessary to move products through the supply chain

2. Information that is necessary to educate the contractor and sales support employees on the intended use (i.e. feature – function – benefit) of the product.

It is believed that many of the hours spent on this business process can be less redundant and reduced. Manufacturers should start with the time they decide to share information about a new product with trading partners and measure the amount of time they spend collecting, clarifying, and transmitting data. The hours should be broken into two areas, one for new items and one for existing items. Distributors should employ a similar process starting with the time they decide to bring in a new product into their sales and marketing systems and evaluate the comparable metrics.

Operational Inefficiencies (Cost of Product Data Inaccuracies)

As a result of the manual nature of the current product management business processes employed by both manufacturers and distributors, incorrect product information will sometimes be entered into operational systems. The result of having incorrect product information can lead to, for example, incorrectly shipped or mispriced products resulting in increased returns and customer dissatisfaction.

It is believed through application of GDSN, the risk of lost hours, resources, or customer dissatisfaction can be reduced. Manufacturers and distributors can use a standard correction of activities to measure this. This can be achieved by adding a "bucket" or indicator to check if inaccurate product information contributed to the production or customer service issue.

New Item Introduction

There appears to be a significant delay in the time it takes new products to be introduced by manufacturers and ready for sale by distributors. This can be attributed to the manual nature of the product introduction and setup processes currently being used in the industry.

The risk in the delay of launching new products can be mitigated through the use of GDSN. Manufacturers can measure the time that information for a new product is ready to be shared

with trading partners and calculating the number of days it takes to have the data in their operational systems. Distributors can measure the time a decision is made to carry new products and calculating the number of days it takes to move into the appropriate sales and marketing systems.

IDSS Adjacencies

IDSS to BIM

Building Information Modeling (BIM) is the process of generating and managing building data during its lifecycle. It covers the geometry, spatial relationships, geographic information, and the quantities & properties of building components. While BIM is not the official name for the trend, it is the most recognized. Other names for this concept include Virtual Building Environment (VBE), Virtual Building, BuildingSMART, Integrated Practice, and Virtual Design & Construction (VDC). The concept requires a cooperative effort of current accurate data exchange between architectural designers, contractors, distributors, and manufacturers.

The Construction Specifications Institute (CSI) is playing an important and expanding role in the development of data structures and standards for the BIM movement. IDSS project leadership discussed the Industry Data Simplified Standardization (IDSS) project at different times with CSI representatives to confirm our data base work was complimentary with their BIM framework development. While the initial work of the IDSS project falls short in providing all the data BIM users want to utilize today, it does lay the foundation for a subsequent phase where this same database can be naturally expanded to better support the more detailed technical data that is desired for BIM.

IDSS Link to Trade Related Software & Catalog Services

The timely and simplified synchronization of data by a manufacturer through the Global Standards Data Network (GDSN) offers trade related software companies and catalog service providers access to more accurate data as potential subscribers to the network. As manufacturing adoption grows, making more electronic product data readily available, the data maintenance efforts by these service groups should be reduced and data quality improved through the automatic notification mechanism built into the GDSN where revised electronic product data entered by the manufacturer is pushed out automatically to anyone who subscribes. Legacy product data updates as well as obsolescence will generate notifications to the subscribers, while electronic data for newly released products can be pushed out just as easily as the manufacturer can enter the data. This access should greatly increase the quality and productivity of the tools provided to contractors through these service organizations.

Getting Started

1. Obtain as much education as possible. Visit the GS1 website and under the products and services tab, and select GDSN. Attend web seminars, documentation, and any industry wide meetings on the topic. http://www.gs1.org/gdsn.

2. Obtain senior level support and involve all key departments in your company that have touch points around the communication of product data with your trading partners. This project typically involves input from data management, sales, marketing, merchandising, and information technology. It is not just an information technology project.

3. Research and select your company's data pool provider. A list of certified data pools is available at www.gs1.org in the GDSN section; if your business has a retail division, check with them for references. The retail segment of the hard-lines industry has implemented data synchronization for several years.

    a. Evaluate and determine how you want to connect and implement GDSN. Options include a web-hosted solution, behind the firewall applications, or connections via ASII protocol.

    b. Common questions and items to review when evaluating data pools and providers include: implementation experience, connection options, training, support, and commitment to standards. The GS1 website provides statistical data on the performance of all data pools in GDSN. That can be found at http://www.gs1.org/gdsn

4. Ensure your data is accurate. Data pools and GS1 member organizations offer data accuracy programs that include consulting engagements, education, and product measurement services. Implementing and increasing business processes that support getting data accurate and maintaining its accuracy is critical for adoption. Most organizations have found a need to put in policies that state who can change certain attributes, get appropriate authorizations, and send out notifications.

5. Manufacturers should communicate with all trading partners to confirm that you understand their data requirements. For demand side subscribers (distributors and contractors), make sure that your requirements are clear and easily understood.

6. Communicate your data synchronization strategy and implementation to all internal members of your organization's supply chain that have touch points around product data.

7. Publish the data to your data pool and respond to subscription requests from distributors or contractors. Distributors send confirmations on item publications.

8. All parties update product data information as needed.

Proposed Timelines and Milestones for Adoption

Timeline	Key Milestone
Q4' 2009	Change Request (CR) for Attributes to the (Global Standard Management Process (GSMP) via Attribute Value Pair (AVP) is completed. Change Request for additions to the Global Product Classification (GPC) is completed.
	Pilot report is presented to the industry.
Q1'2010 – Q3'2010	Distributors/Contractors obtain and assign Global Location Numbers through GS1 US
	Distributors/Contractors, select GDSN certified data pool, complete education and connectivity.
	Distributors/Contractors determine workflows and business process integrations of GDSN.
Q1 2010 –Q3 2010	Manufacturers obtain company prefixes if needed.
	Manufacturers assign GTIN's to their products
	Manufacturers collect and store any product attribute information and complete any Data Quality work to ensure the highest accuracy.
	Manufacturers select a GDSN certified data pool, complete education and connectivity.
Q3'2010 – Q2'2011	Manufacturers begin to communicate GTIN and GLN information via the GDSN.
Q2'2011 – Q4' 2012	Change Request for attributes is added to the Global Data Dictionary
	KPI's, workflows, and process changes are reviewed.

Conclusion

Data Synchronization supports the rough plumbing industry. The technology provides the value of automation of item changes. Global Data Synchronization fits seamlessly with industries that operate as a three tier distribution and supply chain model. The identification and addition of industry specific attributes will facilitate adoption as all groups will have standards for identification and location of product data throughout the supply chain. The support and feedback of the mechanical contractors, software providers, and catalog service companies can also benefit from Global Data Synchronization by using globally created standards to communicate product data. As adoption continues, benefits, roadblocks, and education will be identified with the appropriate solutions executed.

Thank you

The IDSS team would like to thank the following organizations for their contributions to this project:

- Quote Express
- Waldinger
- CTO, Inc.
- UMEC
- Fitzgerald Contractors
- Ferguson Enterprises

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For any questions or additional information, please feel free to contact any of the companies from the IDSS Team listed below:

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