Creating a Source of Truth in Healthcare: Testing the GDSN as a Platform for the Healthcare Product Data Utility

Results from DoD Healthcare GDSN Pilot Phase IIA

September 2007

DoD/VA Data Synchronization Program
Acknowledgements

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Executive Summary

The Department of Defense (DoD) authorized a pilot with the Global Data Synchronization Network (GDSN) as a follow-on to its initial Product Data Utility (PDU) pilot PH I to leverage already existing process systems. From the PDU pilot, DoD found:

- DoD efforts to generate synchronized item information internally netted considerable savings
- Item data collected from various DoD suppliers indicated significant data disconnects between Healthcare industry trading partners – including manufacturers, distributors and its own internal pricing/contract management applications
- Requesting “one-off” data feeds from partners is a resource burden on both parties
- Other industries were demonstrating that GDSN was working for them

The PH IIA pilot was designed to answer the following questions:

- Does the GDSN data set meet the needs of the healthcare industry for standardized data?
  - Can the GDSN be used as the “data standard definition” for healthcare?
  - Can healthcare specific fields be added in a timely manner?
- How difficult is it for manufacturers to load product data into GDSN?
- Will hospital MMIS, GPO and distributors be able to store and use GDSN provided data?

The chart below illustrates the key industry participants in the pilot and the overall data flow:

Healthcare GDSN Pilot Phase II A Execution & Participants

Figure 1: Department of Defense Healthcare GDSN Pilot PH IIA
Pilot Methodology

Data Sharing from Manufacturer to Hospital via Group Purchasing Organization (GPO)

Utilizing 1SYNC™ as the GDSN data pool and 1SYNC partner Ontuet® for onboarding sell-side services, product data for 10 items each was loaded to GDSN by two healthcare manufacturers, BD™ and Sage® Products Inc.. The data was recognized as valid by the GDSN systems and subscription requests for the data were then issued by GPO Premier™ Inc. utilizing the buy-side services of Ontuet. Premier converted the XML data files and moved the data onto a test copy of its internal product database. Subsequently, Premier issued its standard Supply Chain Advisor™ (SCA) product data file (enriched with the manufacturer provided data) to member Baptist Health South Florida®, who analyzed the manufacturer data against its Lawson® material management information system (MMIS) and contracting systems.

Data Fields Survey

In parallel to the data sharing pilot, Work Group participants and observers participated in a survey designed to get a better understanding of fields required by supply chain participants to manage product information in their home systems. Survey input was provided by a cross section of supply chain participants including manufacturers, a GPO, a distributor and providers. Commercial hospital contributors and a DoD hospital all gave demonstrations of their MMIS and the fields required to add a new item. A spreadsheet with the Work Group’s recommended data fields for an industry PDU was produced and has been submitted as the DoD’s response to the GS1 worldwide Healthcare User Group data fields survey.

Major conclusions

GDSN is capable of meeting the data needs of US healthcare

- Most of the fields required for healthcare are already in GDSN
- Industry specific fields can be added
  - “Sterile” and “Latex Free” attributes were added as part of the pilot
- The methodology for managing the GDSN schema is mature and scalable

Data loading is manageable by manufacturers

- Manufacturers found it easier to gather GDSN data than they originally thought
- Manufacturer systems contained nearly all the required data fields

GDSN data could be implemented today using existing business systems

- Today’s hospital MMIS require minimal fields to add new items
  - GDSN current field requirements far outweigh the current demands of healthcare
  - Current GDSN field requirements are retailer driven and could be trimmed back following established procedures to ease healthcare adoption
  - Hospital MMIS could be modified later to benefit from additional GDSN data
- GPO systems could intake GDSN data today with minimal development effort
  - Process and technology already exists at GPO for moving and storing item data
  - Adopting standard industry fields and data distribution processes will increase efficiency immediately by reducing manual and repetitive steps
- Technology partners already exist to assist participants in the GDSN process
  - GDSN upload and download processes occur using middleware solutions that insulate trading partner systems from making major changes to participate

The pilot should expand

- 10 items from 2 manufacturers provided a solid foundation for understanding the steps required to gather manufacturer data and populate GDSN
  - Additional data and participants will be necessary to test scalability
• Pilot participants were convinced that the GDSN “plumbing” functions adequately to manage the distribution of item data and messaging required to synchronize partners, but agree that additional supply chain partners and additional data should be added to the pilot to better understand the scalability of GDSN for US Healthcare

In April 2007, The Department of Defense and Veterans Administration authorized the expansion of the GDSN pilot.

Next Steps

The DoD/VA pilot is expanding the pilot to PH IIB which will further test GDSN with additional data and participants:

• Recruit one or more manufacturers to upload a critical mass of product data to GDSN so that pilot participants may test scalability using a bulk load of items
• Invite leading manufacturers to contribute product data to GDSN to extend manufacturer lessons learned from differing organizational perspectives
• Subscribe to items already in GDSN for retail purposes to analyze retail item vs. pilot healthcare item registrations
• Invite additional supply chain participants including GPOs, distributors and supply chain enablers to lend additional observations
• Outreach to hospitals and IDNs to gain additional provider experiences and/or new MMIS perspectives
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1 PURPOSE AND BACKGROUND

In an effort to increase efficiency in military purchasing practices, the U.S. Department of Defense (DoD) has been working with leading healthcare industry participants since 2002 to create a flow of product information into the Defense Supply Center in Philadelphia (DSCP) as a foundation for the synchronization of DoD hospital systems’ item data with DoD supplier item data files.

Having realized significant savings from the alignment of trading partner item files on its own, the DoD has participated with healthcare industry trade organizations in the research and definition of best practices for item synchronization in healthcare. DoD believes that the formation of an industry Product Data Utility (PDU) of manufacturer product information available for electronic sharing with all levels of the supply chain would provide significant benefits to all trading partners.

After researching best practices in other industries where data synchronization has taken hold (including retail, grocery, electrical and others), the DoD launched a pilot in December 2006 to test the leading global data synchronization platform – the Global Data Synchronization Network™ (GDSN) – as a potential resource to enable a PDU in healthcare. GS1 is the governing system of the GDSN and the global standards serving supply chains in multiple sectors and industries. The relationships are illustrated in Figure 2.

![Global Data Synchronization Network (GDSN) Process Flow](image)

Figure 2: Global Data Synchronization Network (GDSN) Process Flow

Many studies have been conducted and much has been written and presented about the savings opportunities available to healthcare from data synchronization. Myriad reports and presentations are readily available in downloadable formats and some are referenced in the appendix herein. This report will not attempt to re-present or summarize previous findings. Rather, it will illustrate the process followed in the pilot and illustrate the findings of the participants.
2 PLANNING

Some pilot participants evaluated resource requirements for participation. Many of the considerations are common in preparations for any new project to be undertaken, pilot or otherwise.

- Initial evaluation of DoD request to participate
  - Approvals
  - Resource assignments
- Research implications of participation
  - Short-term Pilot resources requirements
  - Business value
  - Process changes required
  - Global implications
  - Existing relationships affected
  - Potential savings
- Hours invested (minimal or intensive)
  - Direct time with DoD consultants
  - Indirect time reviewing data mappings, derived/consultative values and recommendations, validation resolutions
  - Project planning
- Next steps
  - Cost/methodology to implement next 1,000 items
  - Internal business process requirements to maintain currency
    - New product introductions, product updates, new packaging, etc…
  - Verification that customer data requirements are satisfied by a GDSN feed
3 METHODOLOGY

The desired outcome of this effort is a proof of concept that standardized healthcare product data can be exchanged throughout the supply chain using best practices of a synchronization process offered by a Product Data Utility (PDU) that serves other industries. This PDU is known as the Global Data Synchronization Network (GDSN).

This network is in fact being used for healthcare data synchronization in other countries. The GDSN fully utilizes the Global Location Number (GLN), the Global Trade Identification Number (GTIN) and a Global Product Classification (UNSPSC).

The GDSN pilot builds on the Defense Supply Center, Philadelphia’s (DSCP) data synchronization efforts for a proof of principle with the goal to encourage the US medical surgical industry to create an industry-wide Product Data Utility (PDU). DoD research reveals that the GDSN has the potential to serve the healthcare supply chain as an industry PDU option. This pilot was conducted to prove whether GDSN can meet the requirements of the healthcare industry as it has for multiple other industries in the United States and worldwide. The GDSN Pilot followed the receipt and processing of the output transactions using manufacturer data from the GDSN. The pilot required only one data pool, as all participants were US based, allowing 1SYNC to act as both the Source Data Pool and the Recipient Data Pool.

The pilot process began with data education, sourcing, collection, formatting, validation, and then the successful transmission of manufacturer product data:

- From originating upload transaction utilizing a healthcare data pool and a standards and Web-based network environment,  
- Through a group purchasing organization (GPO) and/or a distributor,  
- Through the supply chain to the ultimate service providers.

In this first pilot phase, the following sequence of events occurred, utilizing the Test Registry of the GDSN platform:

- Sample sets of manufacturer data were uploaded to GDSN
  - BD and Sage  
  - Manufacturer data was downloaded by a GPO in GDSN standard format  
    - Premier  
  - A data file, formatted similarly to previously provided GPO data files, was passed from GPO to hospital now containing manufacturer-supplied data  
    - Premier Supply Chain Advisor (SCA) file to Baptist Healthcare  
  - Manufacturer data was analyzed for import to hospital MMIS  
    - Baptist’s Lawson system

The DoD GDSN Pilot charter defined success as:

- Achieving visibility into and an understanding of the 1SYNC data pool, GDSN data and process requirements,  
- Testing the resulting manufacturer data successfully loaded into 1SYNC via dissemination through a group purchasing organization or a distributor to a service provider, and  
- Identifying the challenges to the implementation process and capturing the lessons learned that the participants could communicate to the industry.
4 TEST DATA

1. Attributes:

The DoD team conducted a field survey of industry leaders regarding desired healthcare data attributes, and used the Product Information Components Standards (PICS) – GDSN template developed by the CHeS PDU Organizing Committee’s Technical Advisory Group (TAG). The team recommended that the pilot test the GDSN mandatory fields and three or four select healthcare-specific data attributes as identified by the survey results. The pilot participants’ survey results recommended, and the final pilot data field list included UNSPSC, sterility, latex-free, and product URL attributes to represent product information of interest to the healthcare industry. In addition, the team recommended certain mandatory attributes more suited to retail sales be made optional for healthcare distribution.

![Figure 3: Healthcare Product Recommended Attributes](image)

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<td>Item Description (1000)</td>
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</table>

2. Representative Product Data:

The DoD team developed a list of potential items for the pilot representing the top 10 items purchased by the DoD from BD and from Sage Products, and the manufacturers were requested to prepare the product data records for processing through the GDSN.

3. Test Process – Onboarding:

Before the onboarding process to GDSN can take place, key information must be available in source records: the data source must obtain a Global Location Number (GLN) and a Global Trade Identification Number (GTIN) for each item must be assigned. In the pilot case, the
authoritative data source was established as the manufacturer. In GDSN, the GLN/GTIN/Target Market Country Code is the key combination to unique identification of a product in the global marketplace. Each manufacturer had to determine who in the organization had ownership of the product data. If a manufacturer is a small business, this may not be an issue. However, most large-business manufacturers are organized in complex hierarchies, because of multiple product lines and global locations, such as retail versus healthcare, and international divisions spanning all continents. Thus, the first decision is a business decision to be made by the corporation: which division, and/or which country, is responsible for the product registration, and consequently, to which certified data pool within the GS1 Registry system will the item data be published?

After business determinations are reached, technical considerations come into play: how many information systems contain the product data, and are the data attributes the same, or synchronized throughout the organization? The manufacturer must define which system(s) is (are) regarded as the authoritative item master(s) if the information is not standardized across all corporate databases. The DoD pilot support team provided consultation and data management assistance to the Pilot manufacturers to accomplish this.

After internal investigation and evaluation, the manufacturers must conduct an external assessment of GDSN participation requirements. In the pilot, the manufacturers engaged with the 1SYNC certified data pool through agreements that defined the parameters of data use and services. If the product data source does not yet have a GLN and product GTINs, they must work with GS1 to have these assigned. The Data Synchronization team was available to assist the pilot participants with the onboarding process, and Ontuet, a 1SYNC technology solution partner, provided training and the onboarding services for the pilot. See http://www.gs1.org/productssolutions/gdsn/technical/index.html for GDSN Validation Rules, Implementation Guides, and standards applied during the pilot.

4. Test Process – Data Management Systems:

All pilot participants familiarized themselves with the data attribute requirements. The DoD pilot support team conducted meetings with each pilot participant to review existing information systems that housed product data and/or served as an organization’s Item Master. Each participant designed data maps to link data fields in its existing information system(s) to the pilot GDSN data map for both GDSN mandatory and healthcare-specific data attributes. All participants established a test environment to accept or pass the data as required to simulate a production process.

5. Test Process – GDSN Messaging:

DoD pilot support team managed the GDSN subscription request, publishing approval, and data acceptance messages for the pilot participants.
5 ONBOARDING

After training comes the implementation step, which for supply side users means data collection, verification and data entry. The implementation pilot took somewhat longer for supply side participants simply due to time constraints, limited because of the voluntary nature of the project. Demand side participants in the trial were able to receive data shortly after attending the web training, because of the simplicity of the data reception process.

There is always a concern regarding the unknown at the beginning of a pilot, but participants learned very quickly that supply-side and demand-side organizations in healthcare face the same issues, concerns and questions that organizations in any other industry face. Aside from a few key item attributes that are unique to healthcare, the implementations tracked according to GDSN defined processes with no exceptions to report.

5.1 Issues and challenges regarding the standardization and synchronization (PDU) onboarding process:

The most difficult loading issues arise when native healthcare supplier data is not formatted to GDSN standards. Many of the required fields for GDSN are not currently found in manufacturer business systems. There are required fields in GDSN that must be populated with company ID information and categorization schema that are specific to the retail community and likely will not be required after healthcare attributes are formally adopted by the industry. In a production environment, manufacturers would likely choose to add some of these fields to their base ERP systems and other values will be made available from profile information stored in their data extraction tools.

Derived fields included:

- GLN and target market (GDSN specific relationship codes)
- UNSPSC and GPC taxonomies (evolving product category schema)
- Consumer unit dimensions and weight (necessary for retail)
- Orderable and invoicable flags
- Publication and availability dates (load date was used as default)
- GTIN hierarchy (parent and child relationships assigned between packaging levels)

5.2 Lessons Learned

The following are comments by the Data Synchronization Support team regarding the onboarding process:

- Take an incremental approach to training
  - Understand your Data Management Program Plan before you train with the on-boarding partner
  - Understand your internal data scenario before you train on fulfilling your customer needs
  - Select your on-boarding partner and data pool before you train for either
- Know your data
  - Have your GLN and GTINS ready and waiting
  - Reach out for potential existing internal data initiatives
- Leverage available support
• Existing GDSN core attributes and functionality meet the critical needs for healthcare trading partners
• Although requirements are coming in from all around the world, GDSN should resist demands to increase the number of mandatory attributes for healthcare trading partners due to the significant effort required for the industry to make the transition to supplying existing mandatory GDSN attributes
• Some mandatory GDSN attributes should not be mandatory for healthcare
• New GDSN attributes for healthcare should be optional

5.3 Conclusion
Onboarding partners for GDSN exist in the commercial marketplace and can provide the requisite validations for manufacturers’ healthcare data.
6 MANUFACTURERS

The healthcare manufacturing industry has many product data issues in common with other industries as well as with other supply chain partners, regardless of large or small business status. With the growth and maturation of information technologies, data is now generated and made available from multiple data sources and in multiple formats and applications. With this increased volume of data, a data management strategy constitutes a foundation and underlying business requirement for success and profitability going forward.

6.1 Lessons Learned - General

Pilot manufacturers agree more work is required in data management:

- Some do not have a corporate global master data management (MDM) strategy for product information
- Multiple resources in their companies are focused on this issue in some way
  - Many experience ad hoc requests for product data and these are fulfilled differently depending on who gets asked for the data
  - If manufacturers can get a critical mass of item data requests streamlined they will save time and money
  - Consolidating to a single global standard will be less expensive and certainly less confusing internally and externally
- Manufacturers have the required data; however, it is not in one place
  - ERP systems will need some new fields to support GDSN in production
- Item data on manufacturer websites is often significantly different than the item data in their ERP systems
- UNSPSC needs development/expansion to meet Healthcare needs
- Some of the GDSN data requirements are not necessary for Healthcare
  - “Additional fields” (e.g. attribute value pair, or AVP) process worked in GDSN, but the industry will need more fields

6.2 BD

BD’s current situation replicates a classic business dilemma: multiple departments within the organization are “pulling” and sharing product information. BD receives many ad hoc requests for product data today that are fulfilled differently depending on the individual fielding the request. This is understandable because every customer, GPO or distributor has different product data requirements. Since data standards are lacking in healthcare, the data being shared may not meet the customer’s expectations or needs. Once the product data leaves BD, the data loses integrity because intermediaries often share BD product data with their customers. At times, intermediaries will modify product information to fit a specific need and unknowingly compromise data integrity. Despite BD’s current efforts and investments, the supply chain still has inaccurate product data on BD products due to lack of infrastructure, process and standards. BD believes inaccurate product data leads to waste, additional costs and errors throughout the supply chain.

6.2.1 Lessons Learned regarding pilot resource requirements:

- Many product attributes were available in BD’s ERP and/or e-Catalog systems
- BD’s experience with Wal-Mart and with GDSN in Australia minimized the educational cycle regarding the general standards and synchronization concepts and terminology
- Actual hours invested in the GDSN pilot were minimal:
- DoD consultants did much of the data submission work with the onboarding partner
- Earlier industry data pilot helped create internal understanding and process validation
- BD anticipates additional efforts to automate data processes once industry requirements are adopted

6.2.2 Lessons Learned regarding data:

- Need to develop the correct data requirements
  - Some of the existing GDSN data requirements are not suitable for Healthcare
  - The US Healthcare supply chain needs to gain complete agreement on necessary data requirements
  - US Healthcare has different product data needs than the supply chains in other countries
  - The industry needs to evolve – cannot expect to provide/receive every desired data field as it gets started
  - If the industry fails to develop consensus on the optimal data standards, BD and the industry as a whole will not realize the anticipated benefits.

- Need for an industry-wide product data strategy:
  - Developing and maintaining new product attribute fields is time consuming (manufacturers will not have an appetite for continually modifying and creating new attributes)
  - A long-term product data roadmap will be necessary for all participants to “grow into”
  - The US Healthcare industry will need to align some product data standards with international markets to achieve optimal efficiencies and sustainability.

- Need for an internal product data strategy:
  - Until data requirements are agreed upon and standardized across markets and nations, BD cannot have a meaningful corporate global master data management (MDM) strategy for product information
  - Current MDM market is evolving and hinders ability to support strategy with ideal tools
  - Some BD internal data values required transformation to meet GDSN requirements. Over time, and with solid industry standards in place, BD may choose to convert internal systems and/or data standards to more closely reflect industry standards

6.2.3 Issues and challenges regarding the standardization and synchronization (PDU) process:

- Product attributes, processes and expectations for US Healthcare, Australian Healthcare and US Retail are not entirely synchronized today

- The industry needs to make sure that the Global Data Synchronization Network (GDSN) is in fact Global and Synchronized

- Existing taxonomy standards (UNSPSC, UDEX and GPC) do not appear to support healthcare’s current needs

- Attempting to force fit or require perfect execution on a taxonomy will slow product data synchronization efforts
• An industry-wide process roadmap needs to be created to ensure optimal processes are created and adhered to

• There will be a need for agreement on the discontinuation process and synchronization of status codes.

• Manufacturers with inconsistent data quality or a lack of internal standardization may face significant costs associated with aligning their data to industry standards

6.2.4 Pilot outcomes characterized as positive:

• Healthcare providers that participated in the pilot had product data needs that BD can meet today

• Many of the necessary GDSN fields were readily available in BD systems

• It is evident that a migration to the use of GTINs will eliminate the major source of existing data errors, such as the different unit of measure designations, e.g. SP vs BX vs PK

• The pilot participants are developing tremendous knowledge and experience on this topic

• With modifications, this process seems viable

BD documented questions remaining after the first data upload. Because the DoD pilot support team did much of the onboarding work during the pilot, BD did not have direct involvement in some steps. In follow-on pilot phases, BD determined it will focus on learning more about:

– the on-boarding process
– the product information flow all of the way through to the end user
– how data requests are received and validated
– how to publish to specific partners
– the process for new product introductions, modifications and deletions
– what a new data request looks like
– the data resolution process
– which levels of packaging are carried by intermediaries
– how a manufacturer provides a subset of products to a trading partner.

6.2.5 Requirements for success:

• GDSN needs to be truly Global and Synchronized
• An understanding of the on-boarding and data sharing processes
• Only the GTIN owner can create and add information on a product
• Intermediaries should not “filter” or “help” manufacturers without their explicit permission
• Need to have clarity on data requirements
• Need for a consistent attribute list
• Need to start with basic data and grow over time using a common roadmap
• Data recipients and data providers will need to compromise on data requirements and modify their systems over time

6.2.6 Next Steps:

BD is aware it needs to develop internal policies for international requirements in order to determine corporate or divisional responsible points of contact for data synchronization activities. It also will need to decide if the same onboarding partner will be used throughout the corporation, or if divisions will have the flexibility to choose onboarding partners that are most familiar with
healthcare data pool. Other choices BD must make involve GLNs: after the brand owner GLN is established, BD may need to assign different GLNs as information providers (e.g. retail vs. healthcare information provider GLN. Additionally, it cannot have a different GLN published under more than 1 brand owner GLN, as a single product can only have one brand owner; the GLN would have to be the same regardless of target market/country code. It sees the potential for another attribute support within the Catalog Item Notification (CIN) – BO across the board, if the target market, e.g. Canada, where the manufacturer GLN could be different.

The important lesson is the need to start somewhere. Rather than making no decision to implement an industry PDU because the idea of having to implement one all at once is overwhelming and unacceptable in some cases, BD recommends that an incremental approach would be suited for most organizations in the healthcare industry. For example, supply side participants could meet demand side requests for data utilizing an incremental approach including critical product line and/or high dollar items and a manageable set of attributes for each. Interim service solutions would develop to fill gaps in current system functionalities, so the large amount of work to define and record data may be aided by new middleware and/or communications networks designed specifically to get data from point A to point B. Economies of scale will be realized as a manufacturer introduces additional product lines.

BD anticipates gaining valuable experience using product data standards, product data synchronization, and new data processes as part of the pilot. If put into production, BD believes these efforts have the potential to provide a significant ROI by consolidating product data syndication work. BD expects it could replace manual efforts with an automated process leading to greater accuracy and efficiencies. The pilot confirmed for BD that it can administer product introductions and deletions faster with the use of a central product data utility (PDU), as well as realize a reduction in product ordering errors and EDI errors through a standards-based system such as GDSN.

BD also sees its customers benefiting from the use of standardized product data. The implementation of a type of GDSN solution can provide accurate information for clinical decisions and throughout the healthcare supply chain. BD believes its trading partners would require less time to clean their data and experience fewer pricing errors. Another benefit would be the ability to use GTINs in bar coding applications.

6.3 SAGE PRODUCTS

Sage Products reported its observations as it progressed through the pilot process. Sage does have some GDSN experience from a retail mandate that it completed back in 2004 but no updates have been needed since the initial upload.

Sage had realized in the data gathering process that most of the product information was located within its ERP system. An additional file was created on the ERP system to store any data that was missing or that resided on another system (Web Site, Servers, etc.). As a result of this pilot, Sage will research some third party tools (PIM, XML, AS2) to help reduce the manual process.

6.3.1 Lessons Learned:

• Keeping non-ERP data current will be a manual process until tools are in place
• Identified some GDSN fields not present in the Sage ERP system; as noted, a physical file was created on the ERP system to consolidate all the information in one location for loading the missing fields
  – GLN was assigned, but not stored in a system
  – GTINs were created from existing barcodes
  – URL’s were stored on web site
  – Packaging levels were not in format needed, but embedded in the bill and materials file
• Educate key managers to understand and support the benefits of the GDSN process

6.4 Manufacturer Summary:
Both BD and Sage confirmed that the data required to populate the GDSN is available from their internal systems, and both agreed that the internal need for a product data strategy is made more obvious when participating in initiatives such as this pilot. BD confirmed that there are many processes supported for fulfilling customer requests for product data and that a standardized process for sharing its product data from a single repository would increase the efficiency of their customer-facing personnel, including sales and service representatives.

While working on this pilot, BD corporate was contacted by its Australian division requesting assistance in meeting the needs of customers that are implementing GDSN in Australia with an aggressive timeline. BD observed that for global organizations, local decisions around item data management may one day have global impacts. BD believes that global implications should be considered in product data management strategy sessions.

Both BD and Sage serve retail markets and have had some corporate exposure to GDSN in their consumer divisions. Having researched their internal disciplines for satisfying retailer requirements, the following lessons were mutually shared:
• Healthcare needs an industry-wide product data strategy
• Hospital business system capabilities regarding item data attributes are significantly less than retailer system counterparts. Fewer data fields should be necessary for the healthcare industry to realize meaningful benefits.
7 PREMIER, INC.

Premier currently gathers and cleanses product information from third party providers. It updates its internal systems with new and changed products as they are added to existing contracts, and with new contracts and products as they are awarded. The management of product data performed is a semi-automated process and requires some manual intervention to ensure the data is of a useable quality for Premier and Premier’s membership.

Product information is highly integrated in all of Premier’s software products, including Spend Advisor, Contract and Item Catalogs and Internal Analytics.

![Figure 4: Premier, Inc. DoD Healthcare GDSN Pilot Process Flow](image)

At the onset of the pilot, Premier reported that it already had product data on the selected pilot items. It managed the pilot as a medium priority project and experienced minimal time and resource conflicts.

Premier’s objective was to determine the best technology approach for the pilot from an internal system and business process perspectives. It trained on the Ontuet application and mapped GS1 data from Ontuet’s XML file to its internal format. Premier processed the data through its internal systems utilizing a data translation tool (EAI). Premier employed its current product catalog and delivery system, Supply Chain Advisor (SCA), to transmit the test file to Baptist for integration into its Lawson system.

Premier anticipates both the GPO and the member hospital can derive direct benefits using this process:

- **Spend Analytics:** The presence of the GTIN on all incoming data will enable Premier to match product information faster and with more accuracy. This will enable Premier to rapidly analyze and turn around customer and prospect data.
The rapid availability of this data will help our customers and potential customers save money and make crucial decisions in a timely manner, such as when they should move to another tier to realize additional savings.

The customer experience for reviewing and analyzing price and product information will become more efficient and minimize the need to contact Premier for help and clarification.

Today the members may have to wait as long as two weeks to see the 10 percent of the items we cannot match right away. (Premier currently has a match rate of 90 percent) Determining this 10 percent reflects about 60 percent of the effort in the spend area.

Match rate and errors when processing PO are reduced when the member uses the GTIN and GLN standards.

- Market Basket Analysis: The availability of the GTIN on product information improves Premier’s ability to recruit new members. The GTIN will enable the market basket team to rapidly bounce a prospective client’s product and price information against Premier’s contract to determine if we can in fact provide a competitive offering.
  - The presence of the GTIN in a market basket analysis would reduce the turn around from one week to one day in most cases and reduce the workload by 25% on the market basket team.

- Contract Administration: The presence of the GTIN on supplier sale reports will decrease the time and effort required to collect and process administration fees. This will improve Premier’s ability to return more dollars faster to its membership.
  - Effort will be reduced by one FTE
  - The GDSN will make the products available before they come in as part of a contract amendment. Today there is a 24-48 hour delay in processing contracts due to this problem. It also involves at least two manual steps, which provide the opportunity for errors and consumes time of the individuals processing the data. The GDSN would eliminate this 24-48 hour delay.
  - Time efficiency when processing an 832, since the GPO will already have the product from the GDSN
  - More accurate reporting of Sales Data for suppliers submitted based on GTIN and GLN standards

- Error reduction with bringing product to the Product Information Management Operational Data Store (PIMODS) : There is strong potential for eliminating duplicate entries if GTIN were a required field, but need suppliers to adopt this as well
- Minimize need to engage 3rd party data cleansing services
- Generally Improved Software and Product Deliverables

Premier has the capability today to take advantage of product content in the GDSN.

7.1 Lessons Learned:

- Premier found it already had the tools in place to take advantage of the data coming from GS1/Ontuet. It was able to leverage its existing infrastructure and did not have to make any significant technology changes.
- Premier expects it can consume GDSN data with minor changes to current system.
• Minor enhancements are required to deliver GDSN data using the Premier delivery system.
• Premier is well positioned to provide standards based integration approaches beyond its current delivery mechanism.

7.2 Issues and challenges regarding the standardization and synchronization (PDU) process:
• In order for this process to work, ALL must agree and adopt the common standard of the GTIN.
• How quickly will Suppliers and Distributors adopt the use of the GDSN?

7.3 Premier, Inc. Conclusion:
• The value of the GDSN is the ability to standardize on a common numbering scheme (GTIN) between all the players in the Supply Chain. The GDSN is just the technology mechanism to make this standardization feasible.
• Technology is NOT the problem but adoption of a standard is the obstacle to overcome.
• The value of a common shared standard as proven in other industries should be self evident at this point.
• Premier has the capability today to take advantage of product content in the GDSN.
Lawson Software provided commentary with regards to considerations in reviewing software systems. From an internal requirements perspective, Lawson recommends data managers:

- Assess the sources of standard product information
- Match data to existing fields within your system to identify fit
- Understand how standardized data can be used
- Determine best mechanism for loading data – can you use existing processes or are new processes required?

Lawson also advises active data stewardship to manage and evaluate ongoing business process requirements:

- Who is going to provide standardized product information?
- How do your trading partners use this data? Which trading partners can accept which data element?
- How does this impact external documents, particularly EDI?

### 8.1 Lessons Learned

- Internal business systems have many of the fields, technology and processes to get started with data synchronization
  - Majority of standard GDSN fields can be mapped to existing fields in an ERP or materials management system.
  - Standardized data can be incorporated into existing processes for keeping product and contract data up to date.
  - However, some business processes still need to be updated or adjusted to maximize the use of GLN or GTIN in standard transactions and EDI documents.
- Long term, internal business systems will need to be further adapted for new processes as the industry adopts the GDSN
  - For example, once a standard and a process for data synchronization is endorsed, new or modified interface programs will likely be required to optimize the exchange of data
- Finally, not every trading partner will be ready at the same time. A transition period will likely be required before the GLN and GTIN are accepted by all trading partners and this needs to be factored into any adoption of the GDSN.

### 8.2 Issues and challenges regarding the standardization and synchronization (PDU) process:

- The pilot is a starting point that proves that you don’t have to wait. But, it also helps illuminate what else needs to happen within the industry to fully implement all aspects of a PDU and required standards.
9 BAPTIST HEALTH SOUTH FLORIDA

The Supply Chain Advisor (SCA) feed that Baptist currently pulls includes only items on Premier contract. Baptist analyzed a sample GDSN output file, as well as the actual test files received from Premier’s SCA feed for the pilot.

In addition to price verification from the manufacturer through Premier, Baptist uses an internally developed validation process using Access to ensure the accuracy of the contract item information from Premier that is used to populate the Lawson contract management module with information on the contracted items. This validation further supports the 4-way match process between Purchase Order, Receipt, Invoice/810, and the price on the agreement line of the Lawson contract management module, which Baptist has also implemented, to ensure payment accuracy. If one of the 4 does not match, the invoice will not be approved for payment.

Baptist uses the manufacturer ID as the key field to conduct product data comparisons, which fields often do not match between files. Baptist anticipates that this price validation process can be expedited through the use of GTINs.

Corporate Purchasing oversees IDN purchasing for Pharmacy, Engineering and Construction, Dietary, and Gift Shop, in addition to Medical/Surgical. Baptist’s corporate purchasing would gain efficiencies in contract reconciliation from GDSN data in these other product lines as well.

Baptist noted that Premier’s SCA file it receives provides all pricing tiers for updating contracts, but only one tier is used. A pricing group must identify which tier they are at for each vendor on each contract, and is currently using a spreadsheet. A requirements document would include a functionality to confirm for which level the organization is eligible on the GPO contract.

9.1 Lessons Learned

- Data integrity remained intact. The data uploaded as validated data by the manufacturer was the same data received at Baptist.
- The Lawson system works on an internally generated item identification number which is not a Premier or a GDSN attribute.
  - Baptist has no standard Lawson interface for a universal code number, e.g. for the GTIN, and a contracting interface would be required to reference the internal Lawson Item Master Number for each item
  - The Lawson program could be customized to provide a way to update “valid” internal items, based on Vendor Item received on GDSN file to Lawson, to enable a review. This could then become the source to populate the Vendor Agreement.
  - The Lawson system can be worked with some modifications to use a catalog number as a key, e.g. the GTIN. GDSN key attribute is the manufacturer’s GTIN, which is to be used in mapping to internal systems.
  - The software needs to be able to update item master where GTIN would reside, possibly in the UNSPSC code, which is not being used right now. (in Lawson, called the UPN1 code)
- Baptist believes that it can use synchronized data from the GDSN for spend analyses
- The pilot demonstrated that having consistent data synchronization via a product data utility will streamline internal data synchronization efforts
- Baptist projects significant savings in reconciliation of GPO and distributor item files
9.2 Issues and challenges regarding the standardization and synchronization (PDU) process:

- The Lawson description accommodates a 30 character field. An increase in the field length would exploit the GDSN description field length and facilitate the review of rejected items.
- Interfaces with existing material management systems and processes will be required at the hospital level to use GDSN data. Given that the majority of hospitals receive product data from and through upstream partners today, it makes sense that these partners (e.g. GPOs and software providers) be involved in the development of these interfaces in order to standardize processes for the industry, as opposed to each hospital recreating stovepipe proprietary workaround programs.

Next steps: Baptist needs to decide which of the 70+ attributes to bring into its Lawson system. In the next phase, Baptist may consider developing an interface where it provides the greatest opportunity for improved efficiencies and/or reduced labor costs.

9.3 Baptist Health South Florida Conclusion:

- Software functionality is key to improving business processes, reducing labor costs, and increasing data management efficiencies. The current MMIS system does not utilize the GTIN as a key field, but if it did, the Baptist reconciliation processes would be made easier using GDSN provided item data.
- 260 manhours a year can be saved in item master data entry, conservatively, using standardized data that is synchronized throughout the supply chain (2 Staff, 5 minutes per new item entry and 2-3 minutes per item correction/revision, 50-100 items per week: 100 items x 3 minutes = 5 hours/week; 260 hours/year).
- An increase of 37.5% in productivity can be realized by automating the import of data into material management systems (2 staff, 3 hrs / 8 hrs a day = 37.5% labor cost avoidance)

In addition, Baptist anticipates realizing the qualitative benefits and efficiencies that more accurate data represents for its operations, as well as patient safety.
10 CONCLUSIONS

GDSN works in other industries and this initial pilot offers evidence that GDSN could work for the healthcare industry as well. GDSN presents a solid structure and process for data synchronization utilizing standards, governing bodies, validation rules, secure data transfer and implementation guidelines.

The pilot participants experienced the GDSN process in a hands-on manner and found that,

- The GDSN process is not that difficult to use
- Synchronization requires the adoption of standard data fields for describing items
  - The Global Trade Identification Number (GTIN) is the foundation for GDSN item identification and is already in use by healthcare manufacturers that serve retail
- The data that was submitted to GDSN by participating manufacturers BD and Sage was received by their trading partners intact and unchanged

Pilot participants and observers have expressed the desire to streamline the supply chain by bringing the efficiencies that have been realized in other industries to bear in healthcare. The next phase of this pilot will further test if GDSN is a viable solution by expanding the number of items available for testing and the number of participants and supply chain partners testing them.

Pilot participants do not minimize the expense that will be involved in the implementation of an industry PDU. In the long term, all parties will require some system upgrades or process reengineering, but they believe that costs to standardize processes are no more expensive than the way trading partners are exchanging product data today.

Pilot Conclusions

The pilot showed:

**GDSN is capable of meeting the data needs of US healthcare**
- Most of the fields required for healthcare are already in GDSN
  - GDSN already meets many of healthcare’s current data needs in terms of providing the foundation for clean, consistent and standardized product data.
- Industry specific fields can be added
  - “Sterile” and “Latex Free” attributes were added as part of the pilot
- The methodology for managing the GDSN schema is mature and scalable

**Data loading is manageable by manufacturers**
- Manufacturers found it easier to gather GDSN data than they originally thought
- Manufacturer systems contained nearly all the required data fields

**GDSN data could be implemented today using existing business systems**
- Today’s hospital MMIS require minimal fields to add new items
  - GDSN current field requirements far outweigh the current demands of healthcare
  - Current GDSN field requirements are retailer driven and could be trimmed back following established procedures to ease healthcare adoption
  - Hospital MMIS could be modified later to benefit from additional GDSN data
- GPO systems could intake GDSN data today with minimal development effort
  - Process and technology already exists at GPO for moving and storing item data
  - Adopting standard industry fields and data distribution processes will increase efficiency immediately by reducing manual and repetitive steps
- Technology partners already exist to assist participants in the GDSN process
  - GDSN upload and download processes occur using middleware solutions that insulate trading partner systems from making major changes to participate
GDSN may satisfy global requirements

- Global manufacturers are currently facing mandates from international customers for supplying standardized product information
- Manufacturers desire a PDU solution that is global in nature in order to reduce data sharing requirements and redundancy
- Although global functionality was not tested in this pilot, the GS1/GDSN global vision appears to meet impending international requirements

The current method for gathering and managing product data is cumbersome

- All parties in the supply chain, from the manufacturer to GPO and hospital, currently struggle with one-off data standards and processes
- All parties agree that consistent and synchronized data would bring great benefit to them as individual entities as well as to healthcare overall

The pilot should expand

- 10 items from 2 manufacturers provided a solid foundation for understanding the steps required to gather manufacturer data and populate GDSN
  - Additional data and participants will be necessary to test scalability
- Pilot participants were convinced that the GDSN “plumbing” functions adequately to manage the distribution of item data and messaging required to synchronize partners, but agree that additional supply chain partners and additional data should be added to the pilot to better understand the scalability of GDSN for US Healthcare

As the pilot expands with more participants in upcoming phases, it continues to demonstrate the power of collaboration, both within the federal government and between the federal government and private industry. With shared goals of becoming more efficient, reducing costs and improving patient safety, it is becoming clearer that all parties in the healthcare supply chain will benefit with an operational industry PDU.
APPENDIX A: PILOT PARTICIPANTS

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Falls Church, VA 22042-4513
www.generaldynamics.com
APPENDIX B: REFERENCES

Global Trade Identification Number Information
http://www.gtin.info/

GLN Registry for Healthcare®
http://healthcareportal.gs1us.org/glnregistry/Home/tabid/36/Default.aspx

GDSN Validation and implementation guides (guidelines)
http://www.gs1.org/productssolutions/gdsn/implementation/index.html

  GDSN Glossary (pdf)
  http://www.gs1.org/docs/gdsn/gdsn_glossary.pdf

  Healthcare GTIN Allocation Rules (pdf)
  http://www.gs1.org/docs/gsmp/HUG/HUG_GTIN_Allocation_i4.6.pdf

  GTIN Implementation Guide (GS1 pdf)
  http://www.gs1us.org/ean_ucc_system/pdf/GTIN.pdf

  GLN Implementation Guide (GS1 pdf)
  http://www.uc-council.org/ean_ucc_system/pdf/GLN.pdf

  GDSN Validation Rules
  http://www.gs1.org/docs/gsmp/gdsn/GDSN_Validation_Rules.xls

Resource Links

  1SYNC Partners
  http://www.1sync.org/partnerships_search.html

  UNSPSC FAQ
  http://www.unspsc.org/FAQs.asp

  CHes GLN Initiative
  http://ches.amg-hq.net/gln/glnmain.htm
ABOUT THE DOD/VA DATA SYNCHRONIZATION PROGRAM

The DoD launched a product data synchronization program in 2003 to improve its healthcare supply chain, reduce costs and ultimately to better support the warfighter. The Department of Veterans Affairs has since joined these data synchronization efforts through DoD/VA Joint Incentive Funding. For more information, visit https://dmmonline.dscp.dla.mil/datasynchronization/datasync.asp or contact Kathleen Garvin, Program Manager of the DoD/VA Data Synchronization Program at Kathleen.Garvin@dlao.mil.