

“Suppliers can benefit by reducing the EDI errors that occur when customers attempt to order the incorrect product quantity or purchase a discontinued product. Errors in product data also lead to pricing errors. Reducing the number of pricing errors would be a significant benefit for the entire healthcare supply chain.”<sup>58</sup>

Paul Higday, VP Program Development at Owens & Minor, highlights the benefits of data synchronization to distributors. “As an organization that sits in the middle of the supply chain, accurate and timely product information is vital to our success. The better ‘synchronized’ data is between our customers and our suppliers and us, the lower our operating costs will be. Accurate product data helps us by reducing order processing time, decreasing invoice discrepancies, and ensuring that the correct product gets to the customer in a timely manner.”

But, perhaps even more significant than the cost savings are the patient safety impacts associated with lack of data synchronization. As Christine Vincent, Global Healthcare eBusiness Director for AGFA, notes, “Delivery of the right product at the right time and place is critical to the consumer and their health. This goes beyond the economic benefit of synchronized data. Correct data may also result in decreased liability for errors in identification and delivery of healthcare related products.”

We all acknowledge that, in the end, the collective responsibility of everyone in the healthcare supply chain boils down to taking care of the patient’s needs. As Steve Gundersen, Vice President, Corporate National Accounts, BD, points out, “Ultimately this all comes down to the end customer, the patient. Quality of healthcare and the cost of healthcare are the most important concerns.” Of course, the effectiveness, cost efficiency, and safety with which this industry is able to operate directly or indirectly affect every one of us.

Christine Vincent of AGFA emphasizes, “The cost savings are certainly important. But, the health of the ultimate consumer must be a consideration, as well. Reducing errant data can result in improved physical health. By eliminating errant invoices and the administrative effort it takes to fix those errors, staff members are allowed to focus on more productive activities. Reconciling invoices and rebates through the GPOs and contracting agencies is an unacceptable drain on resources.”

Mike Mahoney, CEO of Global Healthcare Exchange, emphasizes that “The nature of healthcare, however, creates even greater problems {than in retail} when buyer-seller product data is not synchronized. For example, when a product is not available, potentially life-threatening procedures may need to be rescheduled. Even postponing non-critical procedures can have a negative impact on the financial health of hospitals, which are under increasing financial pressures.”

But, there’s another aspect to patient safety that’s directly related to the accuracy and consistency of information throughout the healthcare community. For instance, “patient safety improvements can be had through better identification of products targeted for recall or items that have reached their expiration dates”.<sup>59</sup> In addition, the efforts to establish the electronic health record (EHR) have led to a growing realization that the data collected must go beyond mere clinical information to also reflect correct product utilization for specific patient needs. “National efforts around electronic health records will push the need for reliable information (including supply information about what a particular patient might have received during a hospital stay).”<sup>60</sup> “The electronic health record is clearly dependent on synchronized data.”<sup>61</sup>

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<sup>58</sup> Source: Dennis Black, Director eCommerce, BD

<sup>59</sup> Source: “The Case for Data Synchronization”; MHS Assistance; March, 2004

<sup>60</sup> Source: Joe Pleasant, CIO, Premier

<sup>61</sup> Source: Dennis Black, Director eCommerce, BD

EHR organizers are rapidly recognizing that this added intelligence is impossible without accurate product ids and synchronized data across the supply chain. Failure in this area hits at the very heart of every healthcare supply chain participant's ultimate concern (i.e., patient safety). Consider the following:<sup>62</sup>

- More than two million patients (1 in 20) contract infections in the U.S. annually (est. 103,000 die).
- Hospital infections add \$28 billion to the nation's health cost per year.
- Hospital infections are now the fourth leading cause of death in the U.S. behind heart disease, cancer, and stroke according to the Centers For Disease Control.
- An Institute Of Medicine report stated that "as many as 44,000-98,000 people die in hospitals each year as the result of medical errors".<sup>63</sup>

Consider just one example of the role that inaccurate information can play in keeping these numbers high. Inconsistent or inaccurate product information—from one healthcare provider to the next—can easily mask a pattern of negative interactions between products or between products and particular patient conditions. Such a pattern would easily go undetected if the providers supplying such evidence identified the products involved differently.

But, the problem is broader than just tracking unexpected interactions. The differences between sterile and non-sterile, latex versus non-latex, single versus multiple use, etc. have dire implications for patients. As such, inaccurate identification of products can lead to the unintended misapplication of those products in the healthcare process.

Clearly, decisions based on faulty data will yield mistakes... mistakes that can have life-threatening consequences for the patient.

The fact is that lack of consistent accurate information across the supply chain—and most critically in the hands of the provider—is pivotally positioned as a potentially lethal contributor to these otherwise preventable medical errors. Clearly, decisions based on faulty data will yield mistakes...mistakes that can have life-threatening consequences for the patient. And, as we've seen from the results of the DoD pilot, the quality of the data across the healthcare supply chain is worst at the provider level...precisely where it is most critical for patient safety!

Accurate—and, therefore, reliable—data throughout the supply chain (courtesy of data synchronization) is essential for tracking medical procedures and the products used. Failure to achieve data synchronization in healthcare prevents the ability to:

- Associate particular products to best patient outcomes
- Identify products that may contribute to infections or adverse events in certain circumstances
- Recall items in the most timely and complete manner
- Reliably track and link devices to patients (e.g., implants)
- Perform more timely surgeries (courtesy of product UPNs linked to physician preference cards and reduced ordering time from OR Management Systems through MMIS)

<sup>62</sup> Source: Materials Management In Health Care, May 2005 "The Dirt On Infections And Patient Falls" referenced in presentation at AHRMM by John Clarke, SAIC; titled "Department of Defense A Case for Data Synchronization and Product Data Utility (PDU)"; July, 2005

<sup>63</sup> Source: Journal of Healthcare Management, Vol. 18, No. 4

If only one of the estimated 44,000 to 98,000 people who die in hospitals each year as the result of medical errors does so as a result of inaccurate product identification, then the problem is well worth fixing. Of course, the likelihood is that it's much worse than that.

Now, it should be noted that because product information is so inconsistent and inaccurate throughout the healthcare supply chain, it's hard to quantify the degree to which data synchronization in healthcare will improve patient safety. But, it's safe to say that data synchronization will clearly have a positive impact on this area of critical concern. And, given the industry's stated commitment to quality patient care, it would seem that data synchronization is an area where the industry should voluntarily step forward and improve patient safety.

But, as important as safety is, it's not the only area where the patient is affected by bad data. As Mike Mahoney, CEO of Global Healthcare Exchange, points out, "When clinicians have difficulty finding the right product to order, they have less time to spend on patient care." Kathleen Stickane, President of the Association of Healthcare Value Analysis Professionals, emphasizes that when it comes to data synchronization, the biggest issue for her membership is that "Clinicians and purchasing agents speak different languages. This misunderstanding can result in the wrong product being delivered with a delay in receiving the product that's actually needed." Clearly, consistent accurate data made available to all pertinent personnel within and between organizations would alleviate this sort of disconnect and its negative impact on all concerned—including the patient.

So, bad data not only adds cost to all members of the healthcare supply chain and makes it impossible to reliably track clinical outcomes, it also unnecessarily taxes valuable limited medical resources that could otherwise be administering to their patients. Once again, we see that each of us ultimately pays the price for bad data in the healthcare supply chain through increased healthcare costs, increased taxes, undermined patient safety, and now, distractions from patient care.

In June 2005, the DoD, VA, and FDA met to discuss the critical importance of standardized and synchronized data throughout the supply chain. It was recognized that industry-wide data synchronization was a necessary precursor to successfully implementing RFID for devices and other information-based initiatives aimed at improving patient safety.

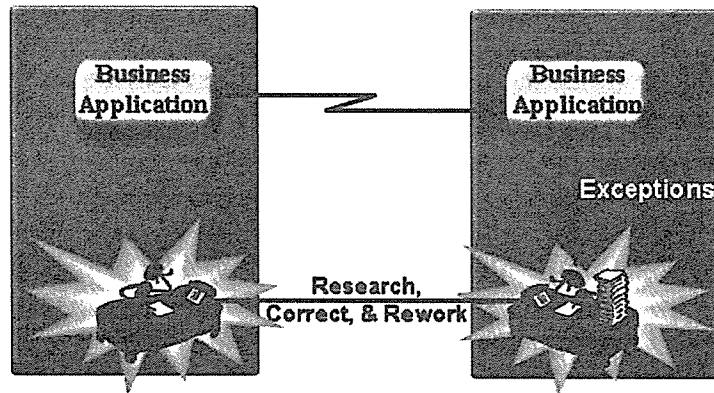
## **So, What Needs To Be Done?**

To begin with, we know that inaccurate information drives exceptions that, then, require manual intervention. But the impact of these exceptions is even worse for companies that have invested in external and internal integration (e.g., EDI, enterprise application integration or EAI<sup>64</sup>, etc.). Having invested the money and resources to remove key-entry and manual involvement from the process, these expenditures are rendered worthless every time there's bad data. The sports car is forced to downshift to creeper gear for the remainder of the process.

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<sup>64</sup> See Appendix for an explanation of EAI.

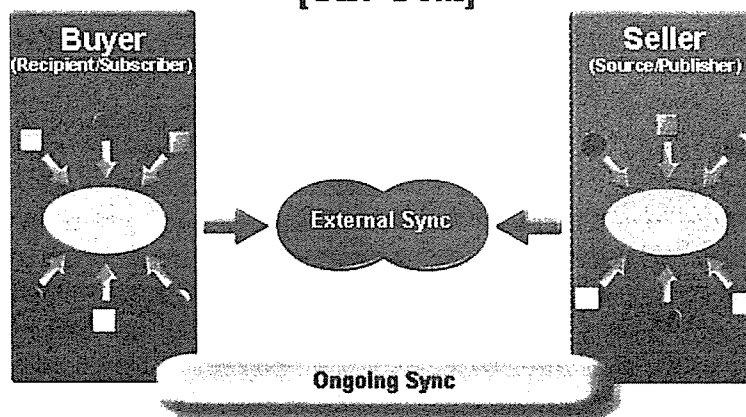
## Integration + Bad Data = Manual



Whether these information inconsistencies exist between systems or databases, departments, divisions, or companies, they are exceptions nonetheless and force manual intervention to address them. Therefore, successfully addressing data synchronization must include three phases (1) synchronizing your information with yourself (internal synchronization), (2) synchronizing your information with your trading partners to get on the same page with one another (external synchronization), and (3) establishing a process by which the two of you will *stay* in sync with yourselves and with each other as your data changes *over time* (ongoing synchronization).<sup>65</sup>

## Global Data Synchronization

[The Goal]



Internal synchronization ensures that item and partner data are consistent throughout the organization. It enables humans and business applications to access and act upon information that does not vary from system to system, database to database, department to department, division to division, and so on. Both you and your trading partners must complete internal synchronization before embarking upon external synchronization.

<sup>65</sup> See the Appendix for a more detailed description of each of the global data synchronization phases.

External synchronization ensures that the information in both your and your trading partners' companies is consistent. Synchronizing with just yourself—but not your partners—will not eradicate the parade of exceptions that are plaguing you and your partners. Indeed, the fact that information is not in sync across company boundaries is a key contributor to why today's businesses find themselves steeped in errors and inefficiencies. And, these processing exceptions and the resulting manual rework will continue to undermine effectiveness and bottom lines until they are addressed through cross-company data synchronization.

To appreciate the impact that external synchronization can have, consider the results reported by Proctor and Gamble. They reported having saved an estimated \$25 million since they began uploading item, location, and trading partner information.<sup>66</sup>

It's important to recognize that internal and external synchronization do not mean getting just one department on either side of the relationship in sync—purchasing and order processing, for instance. If either party leaves one or more portions of its company out of the synchronization “loop”, exceptions will remain when dealing with that area.

Imagine, for instance, that a purchaser has internally synchronized its purchasing, inventory management, and accounts payable areas and their supplier has internally and externally synchronized their order processing, inventory management, and shipping areas—but *not* accounts receivable. Both the buyer and seller would most certainly realize and benefit from a marked improvement in the accuracy of order processing. The reduction in exceptions would minimize manual intervention and drive improved fill rates, reduced order cycle time, etc.

However, with the accounts receivable area of the seller still being out-of-sync with other areas in their own company—as well as, those of their customer—the invoice/pay process would still be laden with errors, delays, exception research and correction, etc.

Of course, without ongoing synchronization—a process by which the source and the recipient can remain in sync as information changes—all the effort to get in sync to begin with will be undermined and eventually eradicated as the information decays over time and the two organizations gradually fall back out of sync with one another (and themselves).

This three-legged process of (1) getting in sync with yourself, (2) getting your and your partners' data in agreement, and (3) staying in sync internally and between organizations is the essence of what generates all the benefits from global data synchronization. It ensures that exceptions are minimized and integration and automation investment returns maximized. It's the “secret sauce” in your recipe for process improvement and supply chain efficiency.

## Summary

The impact of “out-of-sync” item information is felt everywhere that information is used in your and your trading partners' businesses (e.g., contracts, orders, invoices, shipments, payments, rebates, advertising, promotions, product use analysis, inventory management, market intelligence, etc.). Whenever there's a discrepancy between the information your company has on file and the related information held by a trading partner elsewhere in the supply chain, an exception occurs.

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<sup>66</sup> “Time for a Change”; Jennifer S. Kuhel; Supply Chain Technology News; July/August 2002

Exceptions can be purely information-based (e.g., incorrect price on an order or invoice). Or, they can be physical (e.g., the incorrect product shipped to the customer or an incorrect bar code printed for a product). Regardless of the category, each exception requires manual intervention and creates delays...which increase the cost of doing business and undermine the quality of the trading relationship. As Michael Stanley, Director SCIS Content & Business Process for Trinity Health, puts it, "Throughout this industry, we have expensive people doing repetitive things just to make up for mistakes generated by the bad data."

The fact is, the problems of information inaccuracies in the U.S. healthcare community are extensive. Most every one in the industry secretly admits it, and in the past publicly downplayed it. But, that's changing. There's a growing admission that this supply chain-wide information disconnect directly contributes to higher costs, lowers service levels, and ultimately affects every citizen, their employer, and the government. As Mr. Stanley puts it, "The lack of accurate information throughout the healthcare supply chain is a tremendous cost burden across the industry." And, there's a growing appetite to address the problem. As Dennis Byer, Senior Director of IT for Consorta, puts it, "This isn't really the next 'killer app'. It's more just common sense. We should have fixed this years ago."

The good news is that this is, in fact, an eminently fixable problem, and the mechanisms to address the problem for the *entire* industry are well within reach. Data synchronization standards are in widespread use in a variety of industries and the technology of the Internet has made it possible for even the smallest organizations to participate. If one year from now healthcare has still not addressed this problem, the members of the industry will need only to look into a mirror to see who to blame.

But, solving this problem will require proactive participation on the part of all industry segments. Neither providers, GPOs, distributors, or manufacturers can sit on the sidelines and still expect the problem to be resolved.

It is incumbent on the leaders from each of the key segments in the industry to work together to demonstrate to the rest of the healthcare community how it can and should be done. Collaboration among the key stakeholders is critical to define mutually beneficial processes that will maximize the ROI for all concerned.

Think about it. If the most competitive buy- and sell-side companies in the retail sector can successfully work together to rollout an industry-wide data synchronization initiative, the healthcare community certainly can, as well. Citizens, payors, etc. continue to wonder what the industry will do about rising healthcare costs and when they will become proactive about it. Dennis Byer, Senior Director of IT for Consorta, observes that, "Either the healthcare industry does this on its own or it will be mandated by the government because the issues of patient safety are too severe not to act." When it comes to data accuracy and consistency across the supply chain, our advice to the healthcare community is, "Physician, heal *thyself*."

**For those interested in finding out more about the current state of data synchronization standards in the healthcare industry—and those wanting to help mold those standards—go to [www.chestandards.org](http://www.chestandards.org)**

## APPENDIX 1 – GLOSSARY OF TERMS

TERM	DEFINITION
EC	Electronic commerce. The strategic application of technology to facilitate internal and/or external business processes to achieve organizational objectives.
Business Application	Computer software that automates one or more business functions. (Examples include order processing, accounting, inventory management, logistics, contract management, and other applications.)
Integration	The automated exchange of information between business applications without requiring key-entry or manual intervention.
EAI	Enterprise application integration. The integration of internal business applications and the automation of pre-processing steps that facilitate that interaction (internal electronic commerce).
B2B	Business-to-business. The electronic interaction between to companies (external electronic commerce).
EDI	Electronic data interchange. The electronic exchange of time- and content-critical business information between the business applications of the sender and the receiver. The information is formatted in a standardized format. (Examples of domestic and international EDI standards include ANSI X12, UN/EDIFACT, ODETTE, CII.)
VMI	Vendor managed inventory. The use of point-of-sale/use data and customer replenishment algorithms to allow a supplier to automatically trigger the shipment of product to the customer without first requiring the receipt of a purchase order.
ERS	Evaluated receipt settlement. The use of receiving information and pre-negotiated pricing and payment terms by the customer to allow for payment without requiring an invoice.
CPFR	Collaborative planning, forecast, and replenishment. A collection of processes that enhance supply chain efficiency by facilitating buyer/seller interaction through improved information visibility and utilization. Most steps precede the actual purchase step.
SBT	Scan-based trading. The use of point-of-sale/use data to (1) determine what is owed by the retailer to the supplier and (2) drive the payment process. It also includes improvement in various point-of-purchase operations to reduce cycle time and speed product flow.
EFT	Electronic funds transfer. The electronic transaction and exchange of value (money) between two or more financial institutions. EFT is also used to describe the electronic triggering of funds movement by the payor (company paying the money) to their financial institution. It may also include the exchange of remittance information between the payor and the payee (company receiving the payment).

## APPENDIX 2 - RESULTS OF DOD PILOT—PROBLEMS FOUND

Type of Problem	Mfr	Dist	GPO	Provider
Missing Middle Pkging Levels	15-20%	1-4%	20-25%	15-25%
Hard "Pkging Quantity" Errors	1%	1%	2%	2-5%
Unit of Measure Confusion/Misuse	2-6%	1-3%	2-5%	Unknown
Missing Packaging—not middle level	3-8%	3-8%	3-7%	5%
Manufacturer Name Problems	n/a	2-5%	1-4%	30%
Obsolete Products	1-4%	2-5%	1-8%	5-15%
Missing Product Brand Names	2-5%	5-10%	5-10%	20-25%
Incomplete Item Descriptions	5-15%	3-12%	5-15%	10-20%
Wrong Customer Unit Prices	Unknown	1-2%	n/a	1-2%
Customer Paid More Than Lowest Contract Price	n/a	Unknown	n/a	3-6%



## APPENDIX 3 - DATA SYNC IMPLEMENTATION OVERVIEW

Global data synchronization (GDS) focuses on achieving consistency of target information values within and between organizations. Of course, such synchronization cannot be accomplished without the foundation of standards to clearly define (1) the information to be synchronized and (2) the processes by which such synchronization will be carried out. With such standards in place, synchronization is executed in three stages, internal synchronization, external synchronization, and ongoing synchronization—performed in that order.

**Internal synchronization** ensures that each of the target information elements that will be synchronized (e.g., item number, price, description, etc.) is consistent throughout your organization. Said differently, when internal synchronization is successful, anytime a given information element is accessed anywhere within your company, it will have the same value wherever else it is used in the organization.

**External synchronization** ensures that the target information elements will be consistent between any two participating organizations—most often a buy-side and a sell-side trading pair. The core players in external synchronization are the source (the seller of the product) and the recipient (the buyer of the product).

**Ongoing synchronization** establishes a process by which participating organizations can stay in sync with themselves and with their data sync partners. It ensures accurate, consistent information within and between organizations even as that information changes and/or new items are introduced.

External and ongoing synchronization typically include the use of a central registry—sometimes called a product data utility (PDU)—and/or one or more service providers acting as onramps to that registry. The registry or PDU provides a central repository for all item and participant (called “party”) IDs. It verifies that each item or party ID is globally unique (e.g., a particular ID points to one and only one entity). The central registry and onboarding service providers enforce the standards that the industry defines in order to ensure that each industry participant adheres to those rules.

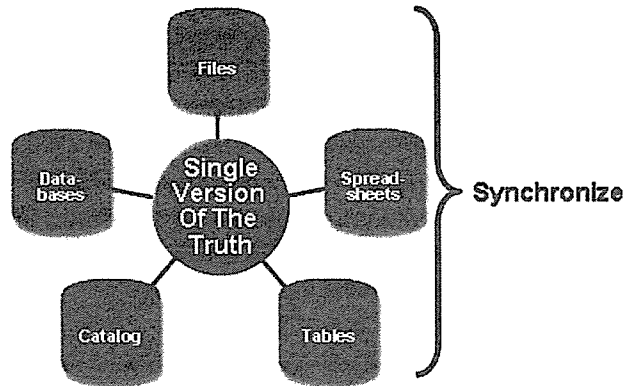
Typically, the central registry houses the least possible amount of the information about an item or party. It provides a pointer to the entity that controls that information. The “source” of the information (also called the “publisher”) controls which “recipients” (also called “subscribers”) will have access to see what information. In this way, a manufacturer—as the source of product or party information, for instance—can control what Customer A sees and what Customer B sees. Furthermore, the source of product information can provide different information to Customer A than Customer B where business requirements warrant.

### Internal Synchronization

**Step One:** Internal synchronization begins with the identification of all internal storage locations (e.g., files, databases, desktop spreadsheets, cross-reference and look-up tables, catalogs, etc.) where the target information elements can be found. The end goal of internal synchronization is to make sure that these internal data stores remain in sync with one another on an ongoing basis after the launch of the data sync project.

# Internal Synchronization

## Internal Data Stores



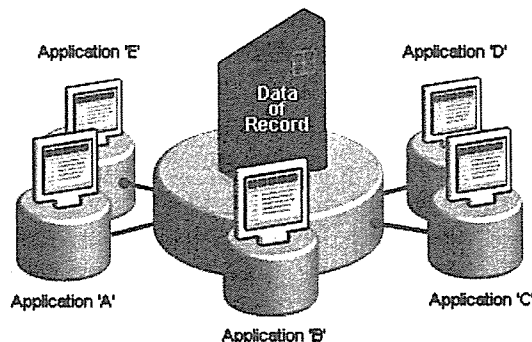
**Step Two:** The second step of internal synchronization is to identify (1) every business application that uses any of the target information elements and (2) every point where any of the target information elements can be modified. Whether it's initial input, value changes, or deletions, it's essential to leave no stone unturned when determining (1) who or what might alter a particular element's value and (2) where that modification might occur.

Having identified who uses the target information and where that information can be modified, you are now prepared to determine how you will control change access to the information and coordinate updates throughout your organization as information values change. In this step you will select one of three likely approaches.

1. In the first option, all applications will be modified to interact with a central data store that houses the data of record for the organization. In many instances this is highly impractical or difficult given the potential lack of flexibility in the existing business applications.

# Internal Synchronization

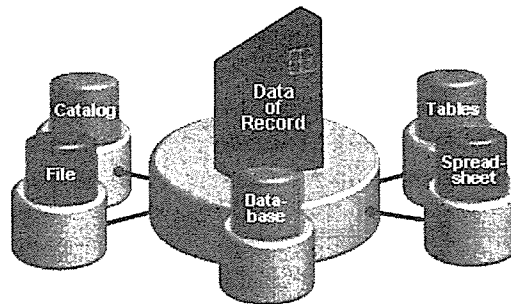
## Data Use: Option One



2. The second option is to change nothing about the files or databases accessed by your business applications. Instead, this option elects to keep the organization's various internal data stores in sync

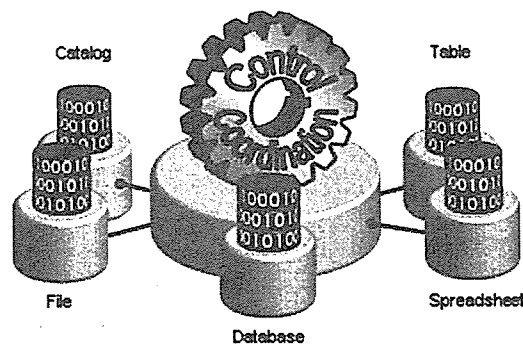
with a central data of record. This approach requires an internal sync engine to keep the organization's many data repositories in sync with one another via the central data of record repository. This can be accomplished in many ways, but most often includes the use of a catalog or product information management tool.

## Internal Synchronization Data Use: Option Two



3. The third option is to keep existing files or databases in place and change nothing about where your business applications go to access information. However, this option elects to establish a virtual data of record. It selects one location per information type (e.g., product ID, description, dimension, etc.) where changes will be allowed. Change access for all other instances of that same information type will be prohibited. Like the second option, when a change takes place in the location of record for a given information type, all other satellite locations for that same data attribute are updated.

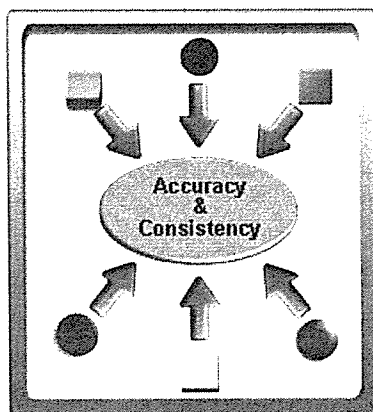
## Internal Synchronization Data Use: Option Three



**Step Three:** Now that you've (1) located all instances of the target information to be synchronized, (2) controlled who or what can modify the information, and (3) established a coordination mechanism that ensures that all instances of the information will be updated whenever a change occurs, you're prepared for the final step of internal

synchronization. In the third step, you will cleanse the data. When this step is completed, two conditions will be true. First, every instance of the target information will be accurate. Second, where multiple instances of the same piece of information exist throughout your organization, every occurrence of that particular information element will have a consistent meaning across all occurrences.

## Internal Synchronization Data Cleansing



## External Synchronization

Once you're confident that you can keep all of the target information elements in sync *internally*, it's time to embark upon *external* synchronization. Once both the buy- and sell-sides of the relationship have synchronized internally with themselves, they must reach agreement on the correct values for each of the information elements (typically called attributes) they wish to keep in sync. There's a high likelihood that the two companies will find a number of discrepancies with the values that each believes to be "the truth". [These, of course, have been the culprits behind the parade of exceptions you and your partner have been experiencing all along.]

For each information element that is found to be "out of sync" between the two companies, you and your partner must each agree on what the correct value should be. There are four categories of information elements. An item information element that is:

1. Globally true for all subscribers (buyers)
2. True for all subscribers in a particular industry or trading community
3. True for all subscribers in a particular target market (e.g., geographic area)
4. Variable for each relationship (i.e., from partner to partner).

For information that is not different for each partner, the seller (source) usually establishes what the "truth" should be—since the seller is the source of the item. For information that is partner specific (e.g., price, saleable unit, allowances or charges, etc.), the values that are agreed upon are often negotiated, as necessary. While this can

certainly be a rather pedestrian process, it is a one-time effort that nets an ongoing return in every area that previously had to research and correct information discrepancies.

## Ongoing Synchronization

Once external synchronization is complete, the final phase of data synchronization, ongoing synchronization, is put in motion. This phase involves the ongoing process of the seller (the source) (1) notifying the buyer (the recipient) that there has been a change to one or more of the information elements that the parties are trying to keep in sync, (2) conveying the updated information, and (3) ensuring that the recipient understands, agrees with, and has implemented the change.

The mechanisms by which this source/recipient interchange takes place vary by industry sector implementation. They range from direct information exchange between sources and recipients to the use of a global registry for ID and standards policing. They may or may not include one or more intermediary service providers and allow for several of the internal functions to be handled in a hosted (versus in-house) setting.

Regardless of how the source and the recipient connect with one another to keep their data stores in sync, each must complete the internal, external, and ongoing synchronization stages described. With mechanisms in place to ensure that all internal data stores remain in sync (1) within each organization and (2) between each organization, the interchange approach can be initiated.

It should be noted that any data synchronization approaches that do not utilize some sort of central repository or product data utility (PDU) rely solely on the willingness of all participants to voluntarily follow the standards established for that community. This "honor system" approach has typically met with varying degrees of failure compared to approaches that rely on a single central registry to enforce adherence to agreed-upon standards.

In addition, using more than one organization as certified "onramps" to access (1) the registry and (2) all participants using the registry has traditionally proven more effective than having only one onramp. This avoids concerns over potential monopolistic conditions, keeps competition alive, and generally ensures higher quality, lower prices, and freedom of choice for all concerned.

Regardless of the number of onramps to the registry, there can only be one central repository. As soon as there is more than one registry, you introduce the added challenge of trying to keep the multiple registries in sync with one another. Historically, this has proven to be an undesirable and less effective approach.

## APPENDIX 4 - SAVINGS CALCULATION OVERVIEW

What could global data synchronization mean to your organization? Here is a high-level outline to help you identify what it is costing your organization to manually handle item exceptions in your orders and invoices. [NOTE: This is by no means the only area of savings that you can expect to accrue from successful data synchronization.]

Manual intervention is costly not only in terms of the literal cost of human resources involved, but also in terms of the opportunity cost of the missed work that that resource would have otherwise been able to do—had he or she not been interrupted to address the exception. By reducing item exceptions, we liberate expensive human resources to be applied to other, higher return tasks.

The following questions are designed to arrive at a rough estimate of the value of synchronizing core information elements between a buyer and a seller. These savings come from reducing item exceptions between the four interacting departments of the buyer and seller: purchasing, order processing, accounts receivable, and accounts payable. Additional administrative savings will be realized in areas such as contract management, rebate reconciliation, shipping/receiving, etc.

### Sell-Side Company

#### Questions to be posed to the head of order processing for a sell-side company:

- If we could remove inaccuracies in the base item information—by synchronizing with our customers—would it make a noticeable difference in your exception handling?
- On average, what percent of our inbound orders kick out with exceptions caused by discrepancies in one or more of these base item elements? [Example: item number, partner IDs, or price discrepancies]
- Approximately what percentage of time—per staff member—is spent researching and resolving these exceptions? How many of your staff members are affected?

#### Questions to be posed to the head of accounts receivable for a sell-side company:

- If we could remove inaccuracies in the base item information—by synchronizing with our customers—would it make a noticeable difference in your exception handling?
- On average, for what percent of our outbound invoices do our customers call with exceptions caused by discrepancies in one or more of these base item elements? [Example: item number, partner IDs, or price discrepancies]
- Approximately what percentage of time—per staff member—is spent researching and resolving these exceptions? How many of your staff members are affected?

### Buy-Side Company

#### Questions to be posed to the head of purchasing for a buy-side company:

- If we could remove inaccuracies in the base item information—by synchronizing with our vendors—would it make a noticeable difference in the exceptions found in our orders?

- On average, what percent of our outbound orders kick out—on the vendor's side—with exceptions caused by discrepancies in one or more of these base item elements? [Example: item number, partner IDs, or price discrepancies]
- Approximately what percentage of a buyer's time is spent researching and resolving these exceptions? How many buyers are affected?

**Questions to be posed to the head of accounts payable for a buy-side company:**

- If we could remove inaccuracies in the base item information—by synchronizing with our vendors—would it make a noticeable difference in your exception handling?
- On average, for what percent of our inbound invoices do we have to call our vendors with exceptions caused by discrepancies in one or more of these base item elements? [Example: item number, partner IDs, or price discrepancies]
- Approximately what percentage of time—per staff member—is spent researching and resolving these exceptions? How many of your staff members are affected?

Knowing (1) the percentage of orders or invoices that are affected by these discrepancies, (2) the percentage of an average staff member's time spent resolving the discrepancies, and (3) the number of staff involved, we can calculate a rough estimate of the value of avoiding the discrepancies.

## Estimating Per Partner Value

Separately calculate the following for purchase orders and invoices. Then combine the results to determine the total value of converting a particular partner to item synchronization.

**# Of Documents w/ Errors =**  
 [Total # Docs] x [Average % of Docs w/ Errors]

**Total Employee Hours per Year\* =**  
 [40 hours/week] x [50 weeks]

\* Note: Adjustments may have to be made for (1) normal work hours/week or (2) average total workweeks available per year.

**Total Staff Hours Spent on Errors =**  
 [# Of Staff Involved] x  
 [Avg. % of Time Spent on Errors per Staff Member] x

[Total Employee Hours per Year]

**Staff Member Cost per Hour =**  
 [Annual Fully Loaded Cost per Employee\*\*]/[Total Employee Hours per Year]

\*\* Note: The fully loaded cost per employee varies from company to company. Numbers typically used range from \$80,000 to \$120,000 per year per employee.

**Total Cost of Errors\*\*\* =**  
 [Total Staff Hours Spent on Errors] x [Staff Member Cost per Hour]

**\*\*\* Note: This is only the cost of the time of the staff involved in the research and resolution. There are other costs not considered here.**

**Average Error Cost per Document =**  
[Total Cost of Errors]/[# of Documents w/ Errors]

## **Purchase Orders And Invoices:**

**Annual Value of Converting a Particular Partner to Item Synchronization =**  
([Avg. Error Cost per PO] x [Avg. % of POs w/ Errors] x [Avg. # of POs per Year]) +  
([Avg. Error Cost per Invoice] x [Avg. % of Invoices w/ Errors] x [Avg. # of Invoices per Year])

It should be noted that there are additional savings that can be realized from item synchronization that are not considered here. These additional savings can include the impact of order delays, incorrect shipments, late payments, etc.



## ABOUT THE AUTHORS

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### **WILLIAM L. ROSENFELD**

William Rosenfeld is Vice President of Retail Practices for Sterling Commerce. He has over 30 years of systems experience. He has spent the last 6 six years fully engaged in implementing data synchronization. As a solution provider, he managed the development of the core UCCnet system and is listed by the US Patent Office as one of three inventors of the "Commercial Data Registry System". For the last several years he has provided technical direction for the teams that created Sterling's data synchronization products. He currently serves as a voting member of the Global Data Synchronization Network (GDSN) Task Force that directs the international standards efforts in this area.

Earlier, he managed and provided technical direction to AppNet's Business Intelligence practice. For 18 years he focused on management reporting, warehousing, planning, and decision support applications for a wide variety of large companies and functional areas. He has particular expertise in Consumer Package Goods industries and the Sales and Finance functions within corporations.

Prior to joining AppNet's predecessor company (Research & Planning), Mr. Rosenfeld worked for Shawmut Bank. There he managed the bank's initial Automated Teller Machine implementation and was responsible for coordinating the numerous impacted organizations. He also managed a team of programmers and analysts responsible for the bank's checking and savings systems, among others. Earlier, he worked for SofTech, where he became experienced in analyzing and designing massive systems. One such large project was the redesign of all financial systems for the Federal Government's Energy and Research Development Administration (predecessor to the Department of Energy).

### **JOHN L. STELZER**

John Stelzer is Director of Industry Development for Sterling Commerce. Since 1984, he has been providing education and consulting on electronic data interchange, electronic commerce, and e-business—to date, educating more than 27,000 professionals from over 16,000 companies.

Since 1998, Stelzer has been extensively involved in global data synchronization, serving on a number of data synchronization standards committees. He's authored several executive primers on the topic. He writes a monthly data synchronization column for Frontline Solutions. His article on "An Executive's Eye View Of Global Data Synchronization" was published as the cover article for Business Integration Journal. He's a Certified UCCnet Implementation Consultant. He has created and conducts a full-day course on "How To Implement Global Data Synchronization". To date, he's conducted dozens of Webcasts and delivered more than 100 presentations on the topic.

Stelzer is also widely recognized as an expert on supply chain integration and collaboration in the retail sector—having worked in that area since 1984. He is widely interviewed on the topic, writes a monthly CIO column for ebizQ's Executive Corner, pens a bi-monthly column for the AHMA Eagle, and contributes ad hoc articles to a variety of other publications.



### AIDC Serialisation Work Team References

Frequency Weekly

Day Thursdays

Time 08:30 – 09:30 EST  
14:30 – 15:30 CET  
Please check you local time!

#### Phone Numbers

US 877-864-7187  
International +1-720-348-8446  
Pass Code \*1527657\*

1



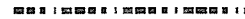
### Objective Serialisation Work Team

Serialisation: (definition to be added later)

Serial Number:

- 1) A code, numeric or alphanumeric, assigned to an individual instance of an entity for its lifetime. Example: Product model AC-2 with serial number 1234568 and product model AC-2 with serial number 1234569. A unique individual item may be identified with the combined Global Trade Item Number (GTIN) and serial number.
- (2) Specific instance of the Object Class being tagged.

2



### Objective Serialisation Work Team

To determine the global healthcare industries size and structural requirements for specific data elements (e.g., lot numbers, serial numbers) to support patient safety and product authentication for regulated products.

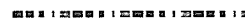


### Objective Serialisation Work Team

- Vaccines
- Biologics
- Therapeutic nutritional products
- Pharmaceuticals
- Medical Devices
- Instruments
- Implants

(GS1 HUG™ categories of products)

3



4



### Scope Serialisation Work Team's Scope

The Serialisation WT will review and document business and regulatory requirements for serialisation by:

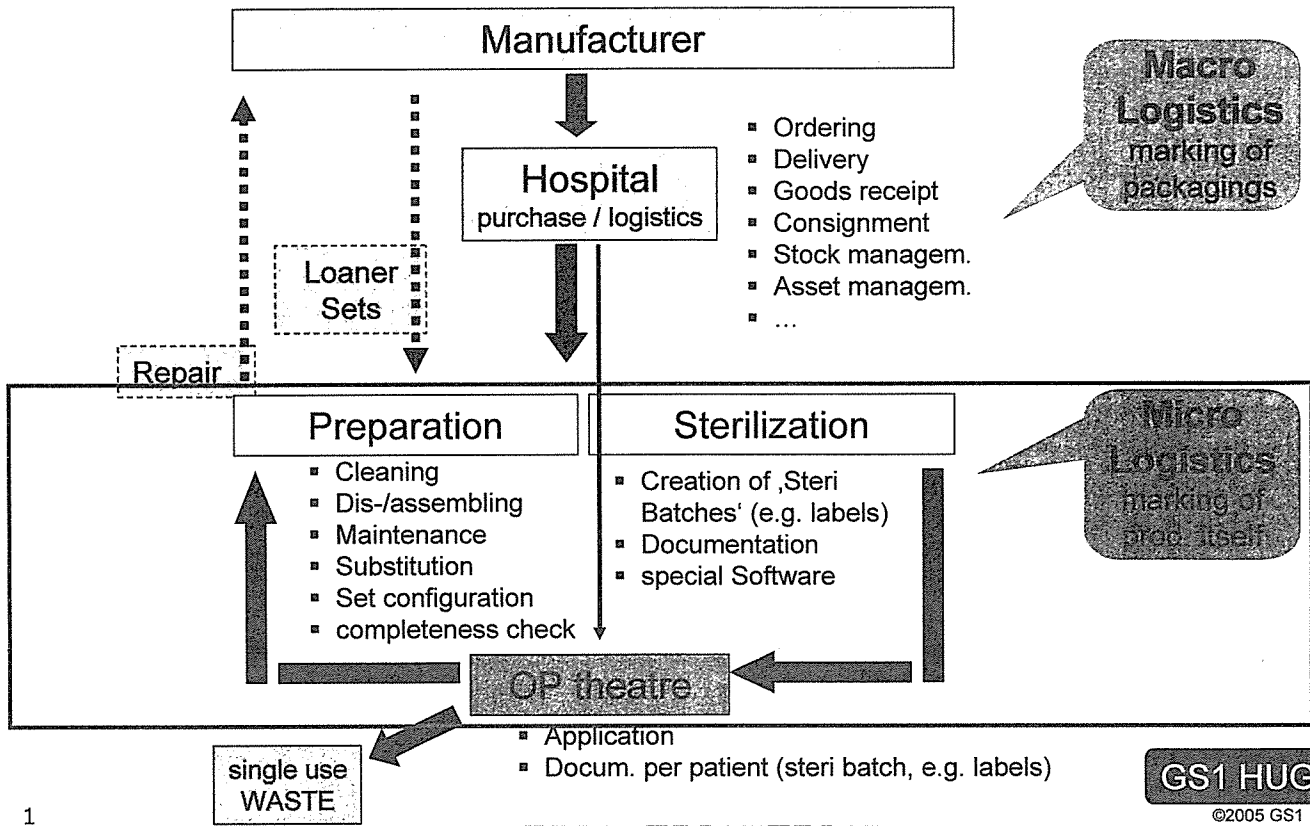
- Size (capacity needed)
  - All Healthcare
  - By product
  - By product (GTIN)
  - By lot
  - By serial number
- Meaningful numbers versus randomization & affect on capacity
- Decentralization/centralization of allocation & affect on capacity
- Structure
  - Numeric length
  - Alpha-numeric length

5



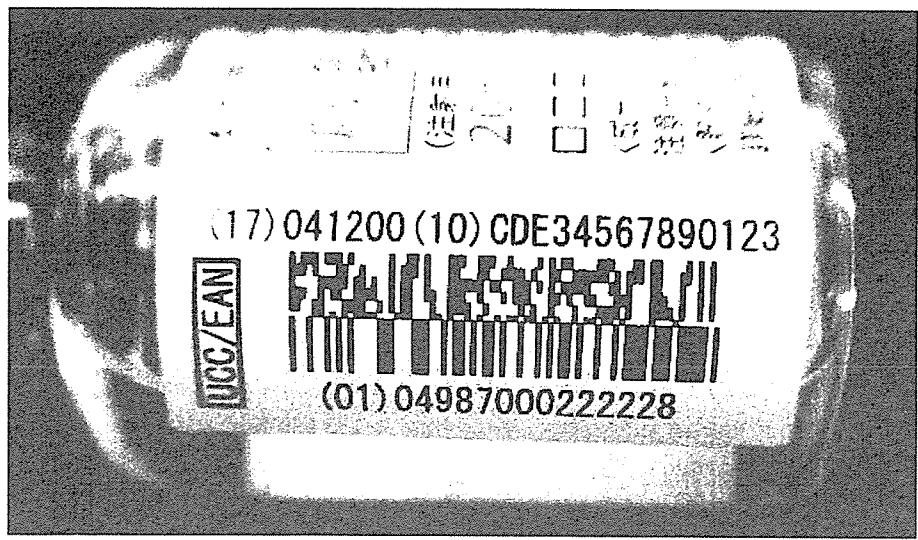


# Instruments Cycle



1

GS1 HUG ©2005 GS1



## GS1 Antitrust Caution

Many of the user companies of the GS1 System compete with each other. The competition is both horizontal and vertical. This means that every activity of GS1 must be measured against the prevailing anti-trust laws, which proscribe combinations and conspiracies in restraint of trade, monopolies and attempts to monopolize, and unfair or deceptive acts or practices. These are very broad. Violations of the anti-trust laws can result in injunctions, treble damage judgments, heavy fines, and even imprisonment.

Strict compliance with the anti-trust laws is and always has been the policy of the GS1. GS1 exercises extreme care to avoid not only violation, but anything that might raise even a suspicion of possible violation.

An action, seemingly innocent when taken by itself, may be viewed by anti-trust enforcers as part of a pattern of activity which constitutes an anti-trust violation. Therefore, participants on GS1 committees, task forces, work groups, task groups, or other similar bodies, must always remember the purpose of the committee, task force, or work group is to enhance the ability of all industry members to compete more efficiently and effectively to provide better value to the consumer or end user. However, because GS1 activity almost always involves the cooperation of competitors, great care must be taken to assure compliance with the anti-trust laws.

This means:

- Participation must be voluntary, and failure to participate shall not be used to penalize any company.
- There shall be no discussion of prices, allocation of customers or products, boycotts, refusals to deal, or market share.
- If any participant believes the group is drifting toward impermissible discussion, the topic shall be tabled until the opinion of counsel can be obtained.
- Meetings shall be governed by an agenda prepared in advance, and recorded by minutes prepared promptly after the meeting. Agendas, where appropriate, and minutes are to be reviewed by counsel before they are circulated.
- Tests or data collection shall be governed by protocols developed in consultation with and monitored by counsel.
- The recommendations coming out of a GS1 committee, task force, work group or task group are just that. Individual companies remain free to make independent, competitive decisions.
- Any standards developed must be voluntary standards.