

MATERIALS

MANAGEMENT IN HEALTH CARE

Research at a local grocery store helped David Zimba of West Penn Allegheny Health System devise a more efficient supply chain.

Cost-cutting basics from top execs

Cleaner data mean better results

IT implementation solutions

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Cleaner data, better business

Using lessons from other industries to move forward

BY SANJAY AGARWAL

QUICK TAKE>>>

It's no secret that the health care industry suffers from unclean data. But it doesn't stand alone. This problem indiscriminately plagues all industries—the only difference is how leaders deal with the problem. Solutions exist, but first you must understand the importance of clean data and how you can make it work for your organization. Cleaning data is only part of the solution. To maintain data quality, it's imperative to implement a maintenance plan, which includes assigning one person to oversee, i.e., "own," all organizational data.

In 1996, manufacturers, distributors, and providers in the health care industry conducted a study of ways to make the health care supply chain process more efficient. The study, Efficient Health-care Consumer Response (EHCR)—Improving the Efficiency of the Health care Supply Chain, was sponsored by the American Hospital Association, the Health Industry Business Communications Council, the National Wholesale Druggists Association, the Health Industry Distributors Association, and the Uniform Code Council. The EHCR initiative determined that there was \$11 billion of "avoidable process costs" in the health care supply chain in inefficiencies at manufacturing, distribution and provider organizations.

The model for the study was a similar study called the Efficient Consumer Response (ECR) study conducted more than 10 years earlier by grocery industry representatives. The grocery industry began the extensive use of bar codes and EDI applications after the ECR study identified needed process improvements and quantified related benefits.

Today, grocers, retailers, and many other industries enjoy extensive use of bar codes and EDI applications; a highly efficient infrastructure that has benefited consumers by bringing down costs, improving time-to-market, and increasing profits. Fast forward to 2006 and one must ask if the health care supply chain is any

better. Although the ECR study was a catalyst for change in the grocery industry, the EHCR study has not had a comparable impact on the health care industry. Unlike much of the health care industry, leading organizations in other industries view supply chain management as a key strategic activity and even as a source of competitive advantage that has resulted in measurable financial and market share gains.

Companies with the most advanced supply chain models, and those reaping the greatest returns, succeed at achieving collaboration and integration of activities not only within their own organizations, but also across multiple trading partners.

In other industries, there are globally accepted standards, including universal product number (UPN) bar codes and product taxonomies that support efforts of buyers and suppliers to manage their inventories and ensure that the right products arrive at the right place, at the right time and for the right price. Because the health care industry struggles to accurately identify the items and correct costly mistakes in its supply chain, millions of dollars are lost each year in the med-surg supply chain.

Benchmarking, total quality management and re-engineering are concepts understood and practiced by innovative health care institutions, but more progress needs to be made.

Driving quality data

The ability of an enterprise to drive efficiencies in the supply chain is singularly dependent on the quality of data and information available. To understand is the first step, for which you need information. To get information you must have clean, rich data so executives can plan, improve and monitor the supply chain. The multiple number of “touch” points at which data is created, modified and deployed can and do introduce problems in the data.

This presents a limited ability or inability to manage costs, increase distribution

efficiency or improve ROI in the supply chain. The ability of the enterprise to gather business intelligence about its supply chains is limited by the following issues with the data:

- **Accuracy:** Is the information about the item accurate in all aspects from the initial source of this information?
- **Consistency:** Is the information consistent at each point of the supply chain?
- **Completeness:** Is the information about the item complete?
- **Depth of data:** Is the item information rich enough to allow smarter sourcing?

While the tangible costs are measurable in lost dollars, the intangible costs in terms of poor customer satisfaction and litigation exposure can be equally large.

It is important to note that besides “Product/Item Information” other key pieces of information such as “Customer Records,” “Vendor Records,” or “Ordering Information” are also critical.

Health care is not alone

Data problems aren’t just the domain of the health care industry. A few years ago, a report prepared by the consulting firm A.T. Kearny showed the inefficiencies in the grocery industry and found that:

- Companies lose approximately \$40 billion, or 3.5 percent of sales, each year because of supply chain information inefficiencies.

- Nearly 30 percent of the item data in catalogs used by retailers and manufacturers is incorrect. Correcting those errors costs between \$60 and \$80 per item.

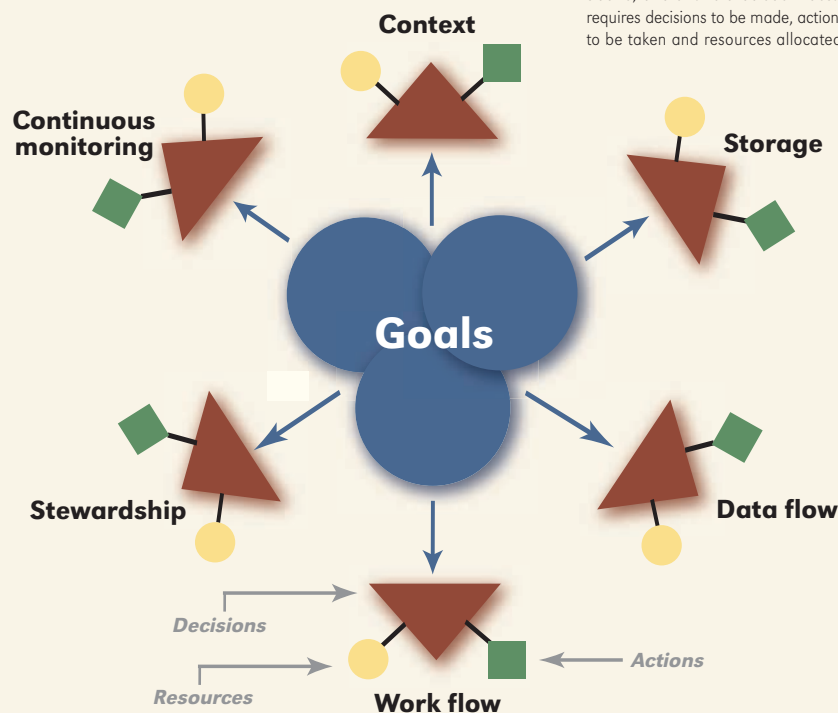
- Companies spend an average of 25 minutes per SKU per year manually cleansing out-of-sync item information.

- Nearly 60 percent of all invoices generated have errors; each invoice error costs \$40 to \$400 to reconcile.

- Forty-three percent of all invoices result in some form of deduction.

- New-product rollouts take an average of four weeks, in large part because of the inefficient and error-prone approaches for exchanging and updating the new item’s information in the buyer’s and seller’s systems. What makes this report particularly interesting is that the situation exists despite grocery items having a standardized part numbering system (UPC Code). In other words, the lack of a standardized part numbering system (though it does not solve the overall problem) significantly exacerbates the problem in the health care materials supply chain. Problems with large enterprises in industrial supply and consumer packaged goods companies are akin to the broad level problems faced by any health care

Strategy to ensure data quality



When creating a data quality strategy, the following six factors of an organization’s operations must be considered:

- **Context**—The type of data being cleansed and the purposes for which it is used
- **Storage**—Where the data resides
- **Data flow**—How the data enters and moves through the organization
- **Work flow**—How work activities interact with and use the data
- **Stewardship**—People responsible for managing the data
- **Continuous monitoring**—Processes for regularly validating the data

Source: ByteManagers Inc., 2006

FEATURE 2 [supply chain]

materials executive. Take for example a consumer packaged goods company that wanted to consolidate and rationalize spending across all of its factories in the United States. A study of the database across its 60 factories found that of the more than 300,000 items purchased, only 30,000 items were unique. It should have been a simple process of merging the purchasing database and searching for duplicate item numbers, but it wasn't. Each factory created its own version of the supplier name or changed the item numbers by adding suffixes or prefixes to customize them for local use. Moreover, the prob-

inate the ROI of technology investments. To address data issues in the supply chain, organizations should do the following:

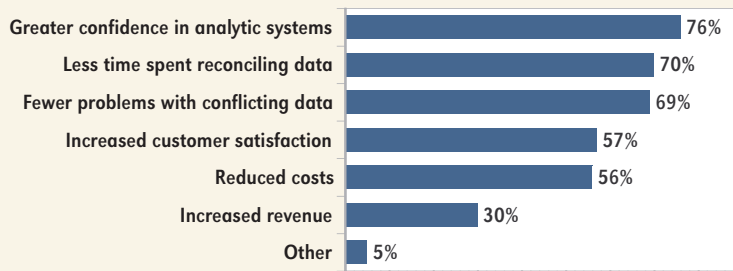
Change the culture: Successful companies in other industries recognize that data is an asset that drives competitive advantage and ROI. CEOs and CIOs have laid down corporate mandates that govern the management of this core enterprise asset. This is a key requirement to drive a culture that focuses on creating and maintaining high-quality data. It also creates requirements of external suppliers and vendors to participate in an overall data quality program. The success of

- Standardized names lists (suppliers, vendors, etc.)
- Creation of additional fields as necessary to fill existing gaps.

Governance strategy: This involves identifying all the data touch points and assigning an "owner" for each department of the enterprise involved in the supply chain. The owner ensures the health of the data and controls who, how, and when data is entered into the system. A director of content should oversee the data across the enterprise with the various departmental owners reporting to this person. The success of data governance

The value of quality data to an organization

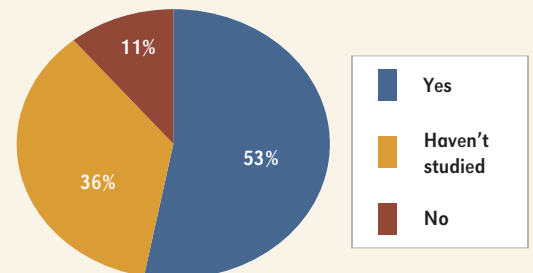
What benefits has your organization derived from rich, high-quality enterprise data?



Source: Data Warehouse Institute Survey, 2005

Database debacles

Has your organization suffered losses, problems or additional costs because of poor-quality data?



(Survey respondents included 750 corporate IT professionals, consultants and vendors.)

lem was compounded because data also came from myriad distributors and each factory was using inconsistent data for the same supplier item.

Most items had old legacy descriptions with unreadable abbreviations. Few descriptions had enough information to clearly identify the item. Finally, the company also wanted to compare similar items and procure items that were functionally equivalent but cheaper. Without a complete and usable description and key attributes of each item, neither of these goals could be met. As the study shows, unclean data creates huge costs and missed opportunities, regardless of the industry.

While technology is a key piece of the puzzle, successful companies in other industries have begun to realize that bad data can significantly reduce or even elim-

inate the mandate is driven by a well established program with funding and necessary resources that "own" the data asset within the organization.

Content standards: These establish the criteria by which the quality and completeness of data can be measured at any given time in an organization. Otherwise known as the definition phase, this step establishes:

- Definition for each piece of data (fields) in every database in the supply chain
- Rules that define type of data that may reside in these fields
- Standards that establish a completeness criteria
- Required accuracy levels
- Lists of allowed standardized abbreviations

relies on empowerment from senior management, control of all data touch points, clear ownership and strict adherence to the content standards.

Data toxicity diagnostic: The first step is to thoroughly diagnose the data against the content standards established by the enterprise. A well run data toxicity diagnostic identifies the magnitude of the issues and pinpoints databases and fields that require work to make them compliant to content standards. It also creates clear rule sets for information sources outside the enterprise systems such as suppliers and vendors.

A data diagnostic is typically custom designed based on the existing legacy databases, the company's goals and data standards. As a general rule, the data diagnostic is designed around accuracy,

consistency, completeness and depth of data in relationship to the supply chain.

Parts of the process

This often is a large-scale exercise involving technology, significant manual intervention (i.e., people), and focuses on the following key aspects:

Data cleansing: This involves removing errors in the existing data, identifying and removing duplicate items, and removing spelling errors. It ensures that the final database has a list of unique items and is free of basic errors.

Categorize, standardize and normalize: The first step in this process is to categorize the data to a hierarchy/taxonomy. Enterprises either create an internal, customized categorization standard or use industry standards such as the United Nations Standard Products and Services Code. Many enterprises are choosing to categorize their data both ways because the former allows the company to customize data to their way of doing business, while the latter allows better integration with the trading partners.

The scope of standardization and normalizing requirements is determined in the data toxicity diagnostic. The idea is to organize and represent the data in a consistent form. This can involve all or some of the following processes: standardize naming of the items (e.g., noun, modifier), normalize and cleanse all supplier names, remove nonstandard abbreviations, normalize existing attributes, etc.

Upon completion of this exercise the enterprise should have databases that have

consistent, unique items that are categorized and key existing information about the items is harmonized across databases. The organization should then be able to conduct sophisticated spend management analysis, determine optimal procurement mix, negotiate volume deals with suppliers and reduce inventory. This is the kind of information that immediately drives significant efficiencies in the supply chain.

Enrich and enhance: This next step entails developing a detailed attribute schema, populating rich attributes and enhancing the database with product images.

Once a database has been enriched, procurement becomes significantly more efficient, for example:

- Procurement managers have detailed information, including images of the purchased product, so order accuracy increases significantly
- Rich attributes allow comparison of products and identification of less expensive substitutes
- Data also allows you to search for alternative materials and suppliers, reducing costs and time to market.

About maintenance

Without ongoing maintenance, data within an enterprise rapidly becomes dirty. Some of the primary reasons companies fail with data maintenance are:

- Data maintenance isn't a priority
- Lack of data services expertise
- Not enough people to do the job right
- Lack of proper tools.

A focused approach driven by the data governance program can ensure that data entered into the system strictly adheres to the content standards, and ongoing diagnostics ensure the quality of the data asset.

Organizations that choose to conduct data cleansing projects in-house do so for a variety of reasons including control, internal data knowledge and confidentiality. However, this also significantly increases the ROI time for their technology investments. Typically, people are assigned temporarily to such projects and it is seldom their main job. Alternately, if the people are full-time, it places additional stress on the department assigned to run the program.

Working with thousands of records can take months, and in some cases years, unless a large number of people are dedicated to the project. Using an experienced data services company offers scale and therefore a more rapid ROI. However, an organization needs to keep control of the standards and processes to ensure expected results. It is also critical that all data owners and users are involved in the process and are given the ability to review and accept delivered data. Lack of this involvement is the most common cause of project failures.

No matter what path to data cleansing a health care professional chooses, no time should be wasted. By learning from other industries, inventories and supply delivery can be better managed while saving millions of dollars lost each year in the med-surg supply chain. **MMHC**

SANJAY AGARWAL IS PRESIDENT AND CEO OF BYTEMANAGERS INC., BASED IN CHICAGO.