

The Enterprise DSR Foundation

The Business Dilemma

Retailers are becoming more and more demanding of their vendors. As one vendor starts providing new and more valuable insights to their buyers, retailer's expectations become increasingly more difficult to meet. What was once considered a luxury, is now a necessity.

In addition, internal management has a need for fast access to accurate information in order to manage their businesses better. Management has a need to see sales across all retail and e-commerce customers. They also need to understand sales based on your internal vernacular and on your internal calendar. Therefore, integration of POS data with internal master data is required. In addition, without an automated way of integrating POS data, there is no way to accurately measure things like trade promotion ROI, shipments versus consumption, etc.

The larger issue is the complexity of managing disparate retailer data and ensuring it is consistent and reliable for easy access by business users. This management process is not only very prone to human error, it wastes valuable time forcing data analysts and data scientists to cobble together information, only to find it doesn't match their peers data. It is estimated that 90% of an analysts time is spent cleaning, gathering, validating, harmonizing, re-entering and justifying information. The talents of these individuals are not properly leveraged without an automated means of performing these tasks.

One misconception is that the mass retailers always send clean data. This simply is not the true. The cleansing and validation of the data is critical. Invalid data will give you invalid results. Retailers often send incomplete data. They also send duplicate data. In addition, they tend to "recast" previously sent data. Syndicated data providers apply their own measures and roll up sales and average sales. We address common POS issues in the section below.

The POS Dilemma

From small companies to mega brands, the difficulties in integrating POS data remain a struggle across all consumer goods companies. Whether you sell through distributors, wholesalers or direct, the complexities associated with POS data is vast. Every company that sells consumer products, from packaged goods such as cosmetics and food items to tire companies has the same issues with POS. Any product that is sold to the consumer, deals with POS complexities that just aren't seen in other industries.

In most cases, the data comes in from so many different sources that it's impossible to get the full value out of it without an enterprise DSR solution. Most companies use POS data and syndicated data, just to produce the reports they absolutely must have for their buyers. They just don't have the time or the bandwidth to create new insights even though the data is there. Cobbling together data is a waste of time and very prone to human error. Yet most companies don't have an integrated solution and are therefore stuck wrangling together data.

Analysts have to go to dozens of sources to gather information needed for reports. Inevitably, even when they've spent the time to cobble together the data, there are discrepancies in reports from one analysts to another. This isn't necessarily because someone did something wrong. It's usually because they didn't have the same business rules or means of gathering the data. The bottom line is they are then stuck spending more time trying to figure out where the numbers came from. Not only is this a very tedious task but when people's numbers don't match, there is a lack of confidence in the data and rightfully so. It wastes the analyst's time, makes for less productive meetings and leads to poor morale when numbers are constantly challenged. Inaccurate information could, and do, lead to costly and incorrect decisions.

So what makes POS data so difficult to work with? The reasons are many. Below are the most common reasons we run into. They are issues that Business Analysts and Data Scientists are forced to deal with on a daily basis. They are time consuming and they are the reasons why reports can take hours, days or even weeks to create.

1. Every Retailer Provides Different Data Elements - Business Analysts in the Consumer Goods Industry have the added complexity of integrating internal data with that from outside sources. For example, Walmart gives thousands of data elements anytime via Retail Link. Dollar General only gives me sales units. Nielsen might give you weekly data on a monthly basis, but it's scrubbed to fit their algorithm. Cross-retailer reports require manual data gathering from every source. Aligning varying elements with report requirements can take days and even longer if data is recast or inaccurate.
2. Different Sources? Different Data Reliability – Data that is supposed to come in, might not come in. Maybe Walmart's RetailLink is down. Now a retailer like Kroger, wants you to get your data from Market 6. Another retailer might send you EDI files, but they

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forget to upload the file. Maybe Target's EDI file comes in 4 hours late. You might discover Costco sent you files with missing data. In addition, you might be buying data like weather trends or TD Linx data and there may be an issue with those file feeds. How do you get reports started when you are working with incomplete data sets?

3. Everyone wants to look at results differently. Examples of this are: Walmart has a different hierarchy than we have internally, CVS has a different drill down than Walgreens, How do we create our own hierarchy to support our internal reporting requirements while still supporting the retailer's individual reporting requirements?, Our Marketing Manager wants her own hierarchies. Our Category Managers have their own store groupings that they need to support. We had a change in our corporate hierarchies that now needs to be reflected in our reports!
4. The uncertainty of where they are going to get the data from. Is the data going to come from the retailer portal? Will we use EDI? Will we use data from a syndicated data provider? Examples of where data might come from include RetailLink, E-Commerce Sites, EDI 852, Polk, SPIN, Market 6, Dunnhumby, IRI, Rsi, NPD, Weather Trends, Nielsen, Spectra, Info-Retriever, TDlinx, Partners On-Line, Amazon, internal data sources or even Social Media. These are only a few data sources that require report creation.
5. Analysts are subject to constantly changing conditions. Many factors, both internal and external play a role in making an analyst's job more complex. Integrating POS data changes with virtually every condition. Even in those rare cases where an analyst was able to create a macro to automate something, chances are, that macro will need to change soon. The type of data you get and how you will align it with internal data changes any time any of these factors change. Companies need to have a solid infrastructure that is designed to handle all these constant changes in order to be effective. Examples of changes that effect the way you look at data include: New Competitors, New Retailers, Trends, New Laws, Acquisition of a Company, Economy, Management Direction, National Conditions, Natural Disasters, New Corporate Direction, Retailers Partners, your Company Switches Data Providers, The company adds a new data source, Retailer Contracts, a New CEO that changes the corporate direction or category focus, etc.
6. Analysts are also subject to any of the decisions that the retailers make. Retailers make decisions based on their company, not yours. As a result, you are subject to those changing conditions. Anytime a rule changes or they acquire another retailer or change their focus, CPG companies need to react and accommodate those changes. The only way to do that effectively is to have an enterprise architecture in place, designed to manage those on-going changes. Examples of these changes include new POS sources, the acquisition or merger of retailers, POS contract changes and restrictions, Pay On Scan

decisions, they start sending new data elements such as inventory, the category focus changes, they make policy changes, they change their portal, hire new buyers, open new stores, etc.

7. POS comes in many different formats. Those formats all need to be transformed into a common data type in order to report off that data. An enterprise architecture needs to be able to extract data, transform the various formats into the same data type and load the data into a format that is easily accessible. Depending on the database you select for analysis, formats of sources could be EDI, text, csv, AS2, retailer portals, SQL, Oracle, etc. Those all need to conform to one single data format before they can be reported upon. In that process, data needs to be mapped, hierarchies need to be aligned, and calendars need to be addressed.
8. External data comes from various sources at different frequency rates. You might get POS data from a syndicated data provider every week, but it might be last month's data. You might get EDI coming in daily from one retailer, weekly from another or never from others. Demographic changes might be quarterly. Zip code changes might happen annually. Currency conversion is daily. When data comes in from multiple sources at different times, there need to be business rules and processes in place to manage the data and properly align it to make sense.
9. End Users Requests Change. The nature of data analysis is that users' requests change. In addition, data that is available changes. Anytime there are changes to the source or from the users, you are subject to the issues related to that change. A user wants to compare things differently. Your company changes ERP systems. You add a new manufacturing application. You start buying new data. Management wants to see sales compared with your internal regions with the ability to drill down to the sales rep. You want to push OOS info to handhelds. Cross retailer reports need to be updated in a dashboard each night. Every change requested needs to be manageable and if new data sources are required, it's necessary to have a solution in place that handles accommodates those new changes & sources.
10. Lack of a True, Enterprise Demand Signal Management - The lack of an integrated, enterprise demand signal management process is the reason it's so difficult to work with point of sale & syndicated data. With a truly open, flexible and manageable process in place, new data, new retailers, changing data elements, various data types, and so forth, all become much more manageable & valuable. An enterprise demand management process should integrate with your existing data warehouse to leverage value that already exists. With a sound architecture, CPG companies will realize a fast ROI. This infrastructure in place that will address today's reporting and analytics needs, as well as on-going insight requirements. Demand Signal Management is a process, not

a database or set of reports. It's a foundation that leverages an open architecture & provides insights and value to the business.

Building a POS reporting system is not an easy task. Most IT departments of large companies are accustomed to building a data warehouse from internal data such as orders, shipments and finance. Since these are known systems, it is typically a much more straight forward implementation. You still need people who know data warehouse architectures and understand the needs of the business. Building one for POS data is completely different. With POS, you are dealing with 3rd party data that you have little to no control over. It keeps coming in every day, week, months, etc. Lots of data, from many retailers, in many different formats, at varying times, supporting different feature sets. How do you consolidate it all, automate the process and build it so that it is both scalable and flexible so that you don't outgrow it in a couple years.

Don't get confused between elements of a Demand Signal Management Solution, and the foundation itself - Many vendors call themselves a DSR or demand solution without actually understanding underlying architectures. An enterprise solution includes data sources, data extraction, transformation, harmonization & integration processes. It includes the data model, business rules, database, analytics & visualization. It includes management processes and supports the ongoing evolution of sources and business needs. These are sources & components of Demand Signal Management. They are not the entire solution. A true enterprise DSR or Demand Signal Management solution should be an open, flexible foundation that supports any database, can be in the cloud or behind your firewall, and can leverage any business intelligence tool even if it includes one.

Relational Solutions has 20 years of background in developing data warehouse and business intelligence solutions. We have built over 200 data warehouses across industries. In 2000 we started developing processes to tackle the everyday issues associated with cleansing POS and syndicated data and aligning it with internal data. Today we focus our attention on consumer goods manufacturers because of the value add we have to offer as it pertains to POS and syndicated data. We thank you for reading our whitepaper and hope you found it valuable. If we can be of assistance to you, please contact us at 440-899-3296 or visit our website at www.relationalsolutions.com