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Executive Summary

The partnership between retailers and their suppliers has always been crucial to the successful retail operation. Retailers do not manufacture the goods and services they sell to the public. These must be procured through supplier partners who can be counted on to deliver a sufficient quantity of quality goods to meet customer demand. Suppliers and manufacturers of consumer goods do not normally sell directly to the public. They depend on the retailer to provide an outlet for the goods that they manufacture. While the relationship between retailers and their supplier partners has undergone significant changes during the evolution of retailing, this relationship remains a crucial link in the retail supply chain.

Steady growth in consumer spending for retail goods and services has provided abundant opportunities for both retailers and their supplier partners. But the rise in spending has also resulted in a fiercely competitive retail environment. Retail giants such as Target™ and Wal-Mart™ sell many of the same products and compete for many of the same customers. The thousands of suppliers that provide goods to big-box retailers must compete with one another for shelf space at thousands of locations. The “retail revolution” has resulted in an explosion in the availability of retail products: retailers select products from a world-wide network of manufacturers and suppliers and make a vast array of goods and services available to the buying public.

Despite the protracted expansion in retail spending, the economic upheaval of 2008 - 2009 has revealed the limits on growth in consumer spending. Demand for goods and services initially fell sharply in the Fall of 2008 because of a drastic decline in consumer confidence and high levels of unemployment, resulting in a dismal holiday season. While the economy in the USA and elsewhere is now showing signs of improvement, a “jobless recovery”, tightening of consumer credit, higher saving rates, and continuing lack of consumer confidence all suggest that a return to pre-recessionary growth rates in consumer spending is unlikely in the near future. Consumers are returning to stores for the 2009 holiday season, but they are spending less and expecting more for their retail dollars. Competition is likely to intensify in an already hyper-competitive retail market as retailers struggle to retain customers and maintain profit margins.

The new realities and challenges in the retail environment are forcing the retail giants to scrutinize their operations for ways to improve the efficiency of supply chains and retain market share. Slower growth or contraction is likely for even the largest retailers, as they struggle to reduce costs and remain profitable. Additional scrutiny of all aspects of the business will force suppliers to defend their shelf space from encroachment by competitors and demonstrate the profitability of their products and services to their retail clients.

Information is the key asset in today’s highly competitive retail environment. The vast amount of information generated by a retail operation is the basis for the business insights used to gauge consumer demand and improve the efficiency of the retail supply chain. Suppliers who are constantly monitored and evaluated by their retail partners need information to defend their shelf space and make the case for new products. This paper briefly describes how retailers leverage information assets in the running of their

businesses and how this affects the operations of their supplier partners. It explains why information is crucial for suppliers wishing to build healthy and profitable relationships with their retail customers and the ways in which this information can be acquired and employed as a business asset. Finally, it examines the several options available to suppliers for obtaining the insights that they need to run their businesses.

Retail Business Intelligence

Mega-retail chains consisting of hundreds of locations and superstores stocking thousands of items and selling to millions of customers are by nature information driven businesses. As little as fifty years ago, retailing was dominated by privately owned “mom and pop” shops and independently-owned department stores. Business insights required for operating and planning were provided by knowledgeable owners and employees who knew their products and their customers. In today’s retail environment information has taken the place of intuition. Big-box and specialty retailers have invested enormous sums in information systems that provide business insight to executives, store managers, corporate analysts and others who are responsible for running the business and making it profitable. These systems generate the information that is needed to measure the company’s performance and formulate strategies for meeting its business goals. The process of collecting information for use in business analysis and decision making is generally referred to as *retail business intelligence* (BI).

Retail business intelligence is the set of processes and tools that retailers use to collect, organize, and distribute information throughout the organization. The information provided by business intelligence systems is the basis for day-to-day decisions and future planning. These systems carefully scrutinize every aspect of the business, including vendors and other business partners, and provide the insights needed to improve performance and increase efficiency throughout the retail organization.

BI allows members at all levels of a retail organization to find the answers to many important business questions such as:

What items are most profitable in a particular category? How do sales for these items compare to last year? How do we compare to the competition in this category?

Approximately how many sales are lost due to stock outs? Would additional investment in inventory increase sales and improve customer satisfaction?

Is sell through percent tracking within an acceptable range?

What is the effect on sales of manufacturer rebates and promotions?

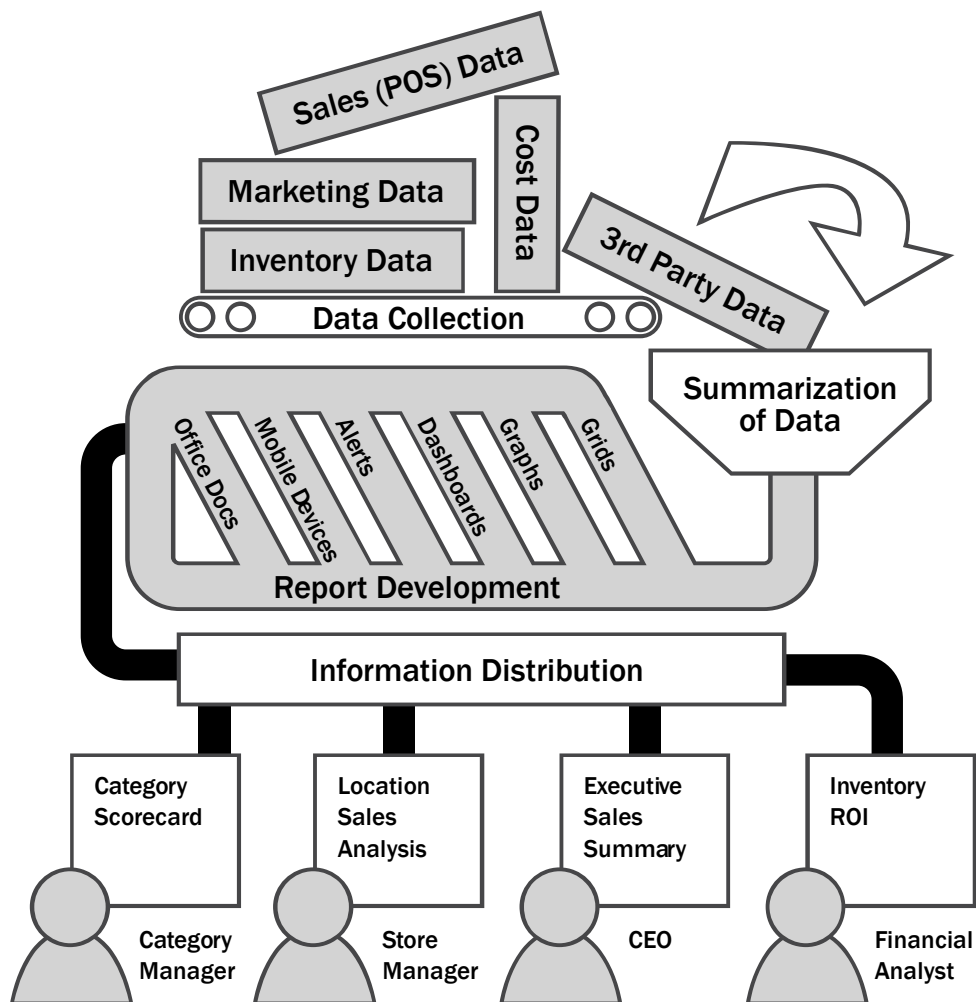
What does the competition charge for an item?

Who are our best customers? What can we do to keep them coming back to our store?

What pack sizes do customers prefer?

The mission of a BI system is to provide the *right data* to the *right person* at the *right time*, so that an *intelligent decision* can be made. BI systems make scrutiny of every aspect of business operations possible and assist the organization in finding new ways to reduce costs, improve relationships with customers and business partners, and make the operation more profitable.

BI systems must perform a variety of complex functions to make information available throughout the retail organization. The following diagram illustrates how information flows through a retail organization and a few of the many roles and business activities supported by a retail business intelligence system.



The Role of Business Partners

Mega-retailers depend upon thousands of supplier partners to provide the right products in sufficient quantities to meet customer demand and at a cost that is profitable to the

seller. In the fiercely competitive environment of modern retailers, retailers constantly evaluate the performance of suppliers. Failure to deliver quality products at the right time results in empty shelves, lost sales, customer dissatisfaction and defection to competitors.

The importance of the partnership between the retailer and the supplier ensures that suppliers are subjected to constant scrutiny. Retail business intelligence systems deliver a constant stream of information about the performance of supplier partners and the items they supply. Key metrics assess the supplier's reliability and the sales performance of their items. Retailers cannot afford to retain partners who are unreliable or products that perform poorly. The partnership between retailers and suppliers remains as important as ever, but the dynamics of the relationship have changed dramatically with the evolution of retailing over the past several decades. While retailers once competed for the attention of manufacturers, they now most often dominate the partnership. Suppliers have become largely role players who are expected to support the strategies and business objectives of their retailer customers. Suppliers who fail to measure up to the standards established by the large retailers can expect to be placed on probationary status or replaced by their competitors. The following diagram illustrates a few of the many measurements used by retailers to evaluate the performance of their suppliers.

Sample Measurements

- **Item / Category Sales Analysis**
- **Sales Rank (Top & Bottom)**
- **Delivery Accuracy & Timeliness**
- **Actual vs Forecast Demand**
- **In Stock %**
- **Promotion Efficiency**

Exception Processing in Retail Business Intelligence

The size of today's mega-retailers means that BI systems must monitor an enormous volume of business activity. Buyers and category managers in the retail organization are often responsible for managing thousands of items provided by hundreds of suppliers and manufacturers. It is impractical for these individuals to review the vast information generated by the BI system on a routine basis. To address this problem, retail business intelligence is largely an *exception management* system. The role of the analyst is to identify opportunities for improvement in the operation of the business. The BI system supports this role by monitoring the voluminous data generated by business operations and alerting the analyst when some unexpected or abnormal condition in the data is detected. The nature of business intelligence is to identify areas in the business where actual or potential problems exist that require the attention of an analyst. It does this by scanning the available data in search of specific conditions that indicate something that is unexpected or in need of attention. An inventory out-of-stock condition is an excellent example of an exception, where inventory has been reduced to zero or falls below a predetermined minimum quantity. In this case, the BI system compares the actual amount of stock available for an item to a pre-determined minimum quantity. An alert is issued in a report or other medium for items that are below the threshold. Alerting the right person to the problem can result in action that prevents lost sales and increases customer satisfaction.

As a general rule, exceptions occur when the data indicate a deviation from a predetermined standard, or a change is detected that has not been anticipated. In other words, measurements are taken against a standard or threshold and an exception occurs when something is above or below the threshold or outside the boundaries of a prescribed standard. By definition, anything that meets the standard can be safely ignored as nothing undesirable or unexpected appears to be taking place. The following table shows some typical examples of exception conditions flagged by a BI system.

Measurement	Description
Sales Trending	Sales values are tracked over time. An exception is generated when values show a significant decrease or change over time (e.g., Sales Value shows a significant decline from same period last year or other like-for-like comparison).
Out of Stock	An exception is generated when inventory quantity on-hand at a location is zero or reduced below the minimum quantity. In Stock % can then be calculated based on the number of exceptions that occur within a certain period.
On Order Past Due	An exception is generated for units on order where ETA occurred one week ago or longer.
Sell Thru %	Inventory calculations like this one are often turned into exception conditions when they fall outside of a certain predetermined range of values.
Forecasted Sales	An exception is generated when the forecasted sales quantity for an item misses actual sales by a certain percentage above or below.

Retail business intelligence strives for constant improvement through exception management.

Discount retailers, operating in a fiercely competitive business environment, strive for constant improvements in the efficiency of the supply chain and the level of customer satisfaction. They believe, with good reason, that survival in the retail marketplace depends upon exploiting every opportunity to improve their business practices. Business intelligence systems are designed to identify and flag areas in need of attention, making constant improvement its primary goal and function. By its nature, exception management takes an “if it isn’t broken, we don’t need to fix it” approach, often ignoring those aspects of the business that meet expectations and directing attention to those that do not. The reality is that suppliers don’t generally receive much attention for meeting the expectations of their retail clients. It is far more likely that suppliers will hear from buyers or analysts when some problem has occurred such as a recurring stock out or a sudden decline in sales.

Aligning Your Business with Your Customer

Suppliers can avoid unwanted attention by carefully monitoring the performance of the products they provide. Alerting clients to potential problems before they occur builds credibility with your customer and may lead to new business opportunities. Taking an active role in the partnership with the retailer means knowing as much as you can about

- The role that your products play in the business strategy and objectives of the retailer.
- Customer demand based on sales history and other factors and your expert knowledge of your products.
- Current or future factors that affect demand for your items.

When you act as a true business partner with the retailer, you are *aligning your business with your customer’s business* because you

- Make your customer’s problems your problems.
- Become an information provider for your customer whose job depends upon reliable and current information.
- Enable collaboration between you and your customer on issues that affect the interests of both parties.

Achieving these goals requires access to information that is current, accurate and complete. Discount retailers provide their business partners an opportunity to obtain valuable information directly from the source through services such as Target’s Partners On-Line™ and Wal-Mart’s Retail Link™. These information services offer several distinct advantages to business partners including

- Access to detailed and reliable information at minimal cost that would be difficult or impossible to obtain elsewhere. This information provides real-world insights into the products that you supply.
- Access to much of the same data that your business analyst uses to evaluate the products that you provide and your performance as a supplier. This data is trusted by buyers and analysts because it is generated and audited by their organization. When you need to make a case for increasing orders to avoid stock-outs, you are not likely to encounter objections based on the quality or accuracy of the data.
- Credibility with your customer when your business decisions are data-driven, because this is how they run their business.

The following examples illustrate how information benefits you in addressing day-to-day issues and demand forecasting.

Example 1: Sales Trend Reporting indicates lagging sales for an item or item group (or a decline in sales rank)

The sample trending report indicates a general decline in sales in the past few months with interspersed spikes in sales. Downward trends in sales that can't be explained by seasonal adjustments or other predictable factors always require investigation because they can occur for several reasons. There may be declining demand for an item because of consumer preference for a newer competitive product, or because the item is frequently unavailable in stores. Information is the key to uncovering the reason when there are several possible explanations for a phenomenon.

You investigate the problem by testing several hypotheses against the data available for the product. Let's imagine that you discover in the course of your inquiry that In Stock % for the item is low, suggesting that sales are hampered by frequent occurrences of inventory levels falling to zero or below the required minimum.

The data suggests that lagging demand is due to inventory unavailability rather than changes in consumer's purchasing behavior, which likely means that potential sales are being lost. Now you take the matter to your business analyst with a recommendation to increase the number or size of orders. If the business analyst accepts your argument, it is likely to result in ordering more items, which is obviously good for your business. Problem solved.

If the business analyst chooses to reject your suggestion, you now have a historical record to refer to in the future if this is necessary. If the trend continues (and you will know this because you are keeping track) you are likely to sway your customer at some point in the future. You can't control the outcome because the decision is out of your hands, but you can influence it and defend your position because your conclusions and recommendations are supported by the data.

Example 2: Demand Forecasting

Forecasting is generally a collaborative effort between the retail business analyst and the supplier. Forecasting the demand for an item or item group is a challenging but essential part of any retail operation. There are several different forecasting methods, ranging from simply averaging sales for the past five weeks to highly sophisticated systems that employ complex algorithms using a large number of variables.

The ultimate goal for any retailer is to match inventory investment to actual demand, thereby minimizing cost and maximizing sales and profit. Retailers do not want to lose sales to competitors, or risk the possibility of customer dissatisfaction because of an empty shelf—especially during the holidays or other periods where sales volume is high. At the same time, excess inventory means reduced margins as many items are placed on clearance. Over-investment in inventory due primarily to inaccurate forecasting for the 2008 holiday season turned a bad season into a disaster for many retailers, resulting in extreme cases in bankruptcy and store closings. As a result, retailers placed high priority on accurate forecasting for the 2009 holiday season in an effort to avoid losses resulting from excess inventory.

Accurate forecasting minimizes risk to your business, just as to your customer. You want to forecast changes in demand as accurately as possible to avoid losing sales due to underestimates or getting stuck with the cost of excess stock because of over-estimates.

Diligent and accurate forecasts are one of the best ways to build credibility with your retail customer. You probably know the factors that affect demand for your products as well as anyone. While you cannot predict the future with complete accuracy, relying on sales history and other information (such as third-party market data) is the surest path to making a good guess. In addition, you can consistently improve your forecasts by comparing forecasts to actual numbers and uncovering the reasons when discrepancies exist. Improved accuracy and consistency in forecasting will build credibility with the business analyst and allow you to influence the outcome of decisions that affect your business. Again, you will probably not win every battle, but your case is immeasurably strengthened when it is backed by the actual data and a history of reliable forecasts.

Even though you won't win every argument with your retail partner, you can build credibility by making your arguments based on data and backing them up with information. You will be taken seriously once you have established yourself as someone who argues from the facts. Needless to say, there are always alternative explanations for something, but any interpretation is inestimably strengthened when it is supported by reliable and undeniable facts.

Choosing a BI Solution

Suppliers have no less a need for business information than their retailer partners. While suppliers can expect significant business benefits from retail business intelligence, generating and distributing information throughout a business organization, even a small one, is a major undertaking that requires planning and careful allocation of limited resources. Mega-retailers invest enormous sums in the infrastructure required to generate sophisticated business intelligence, including computer hardware and software and development and administrative staff. Suppliers must find ways to meet their information needs that do not exceed the resources that are available in their smaller businesses.

The purpose of a business intelligence system is to provide the right information to right person at the right time. The functional requirements of a BI system for suppliers do not differ substantially from retailers, although on a smaller scale. These requirements are briefly described in the following table.

Functional Requirement	Description
Data Acquisition	Downloads sales, product and other data from the retailer site or a third-party provider into a historical database or document, making it available for reporting.
Reporting	Retrieves the data from the database or document into a presentable format (e.g., reports, graphs, dashboards or other documents).
Data Distribution	Distributes the data throughout the supplier organization according to business role.

Many suppliers employ a manual process in which the data are copied from the retailer's site and pasted into a Microsoft ExcelTM spreadsheet or other application on the user's desktop. The "cut and paste" approach is attractive because it meets the most basic information requirements and requires little or no investment or technical expertise.

While the manual solution undoubtedly requires the least investment, this must be weighed against the hidden costs associated with a tedious and repetitive process that consumes valuable resources, delays access to the data, and inhibits effective information retrieval and distribution. Manual extraction requires a minimum of several hours of work on a weekly basis and possibly much longer depending upon the volume of the data and other factors. The individual responsible for the task, who might be someone with a significant amount of responsibility and a large workload, is unavailable for other tasks during the time required to complete the process. Moreover, information that is essential for such activities as making forecasts or order recommendations is not available until the manual process is complete. Manual data acquisition can also be delayed if the responsible individual is not available. Delays can have a serious impact on business operations if, for example, orders must be placed by mid-week and data are not available for one or two working days. In addition to these problems, manual processing makes sharing of data among internal teams or collaboration with business partners difficult. Spreadsheets must often be transferred via email or other manual processes.

Automating this process using database software and report development tools requires significant investment, but offers many advantages over manual processing:

- Automated data retrieval from the retail site or third party provider.
- Robust reporting and business insights tailored to meet the needs of specific business roles.
- Integration with third-party data and additional metrics designed to provide new business insights and identify opportunities.
- Retention of data for historical and comparative reporting for up to five years.
- Customized alerts and thresholds that allow you to recognize and rectify potential problem areas.
- Sharing of information throughout the organization with consistently formatted reporting.

The following table compares manual processing of information to an automated BI system.

Function or Component	Manual System	Automated BI System
Data Acquisition (from retailer site or third-party).	Cut and paste into Excel or other Microsoft Office™ document.	Data are automatically downloaded from the retailer or a third-party provider to a local database such as Access, SQL Server, Oracle. The information is available for use as soon as the automated process is complete.
Report Development	Reports must be copied from the retailer site or manually formatted in Excel or another document type.	Reports are developed using a BI tool such as COGNOS™, Business Objects™, MicroStrategy™, or Microsoft Analysis Services™). These tools allow multiple views of the data customized for specific users and business roles. Reports are regularly refreshed from the database and available to users on demand.
Report Distribution	Data resides only in the documents where it has been pasted and access is limited to individuals with access to the media. Distribution of information is limited to emails or other manual processes.	Data are stored in a central database and displayed to users throughout the organization on demand as reports, graphs, dashboards or other formats created with the reporting tool.
Data Storage and Security	User authentication and report level security is normally not available.	Data are securely stored in the local database. User authentication is required for access to the database. User access can be limited to specific data.
Data Retention	Data must be retained in Excel or other documents and is subject to the maximum storage	Data are retained subject only to the storage capacity of the database (generally very high).

Function or Component	Manual System	Automated BI System
	capacity of these documents.	
Data Distribution to mobile devices or Office documents.	Not available.	Available with some BI tools at additional cost for hardware and software.

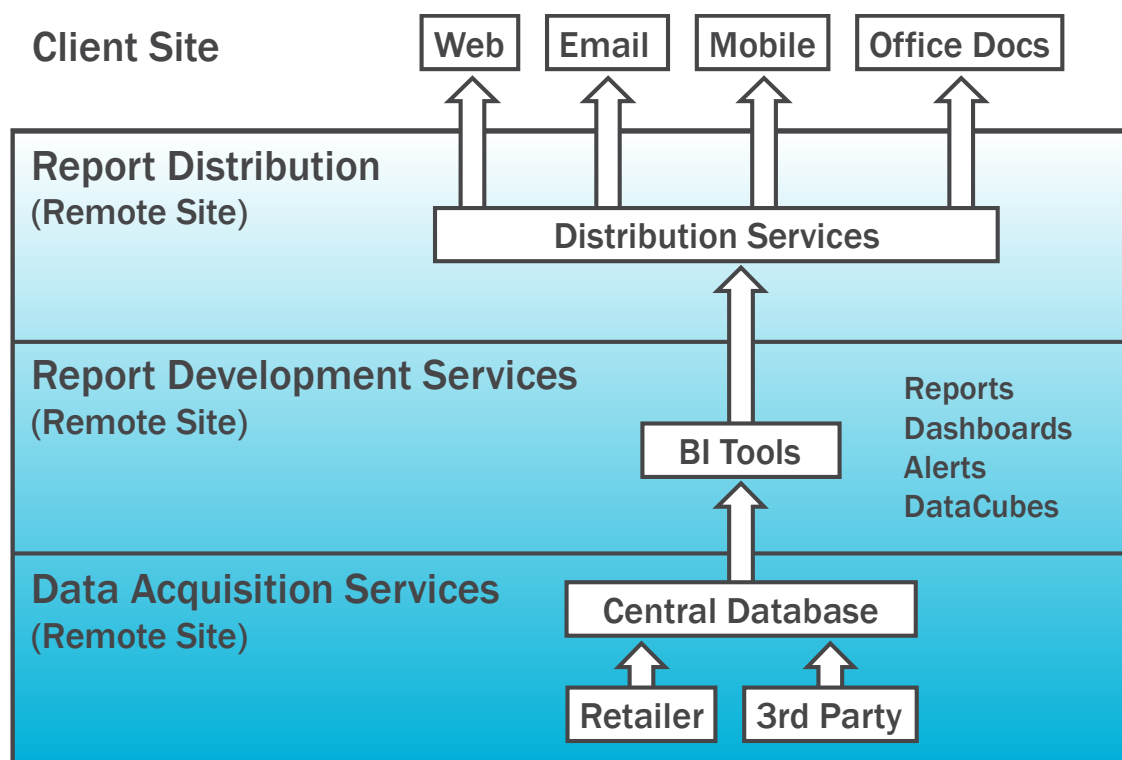
While the business benefits of a home-grown BI system are considerable, the cost of ownership may be prohibitive for many small to medium-size companies. Robust BI development tools are not only expensive, but also require knowledgeable and experienced staff to create and administer reporting applications. In addition, an in-house BI system requires purchase or allocation of resources for the database platform and general maintenance and support. In addition to the high cost of ownership, the time required to install software and hardware components and create applications presents a further obstacle.

Low-end reporting solutions may provide a less costly alternative in some cases. These solutions generally consist of pre-fabricated report sets that are difficult to customize to the specific information needs of users, or require users to create their own reports. As might be expected, these less costly solutions do not employ the sophisticated features that are available with high-end BI tools running on sophisticated database platforms. Companies that depend on the availability of information are likely to outgrow the limited capabilities of these tools very quickly, forcing them to resume the search for a BI solution that meets their needs but is not cost-prohibitive.

The Software-as-a-Service (SaaS) alternative

The Software-as-a-Service (SaaS) model offers all of the advantages of an in-house BI system at a cost that is affordable for the small to medium-size business. In the SaaS environment, all of the functions required for implementing a BI system are performed remotely by a third-party, resulting in a high-end BI solution that is far less costly and much easier to implement. The SaaS solution is price competitive with low-end solutions, while providing the robust solution that is only available with high-end BI tools running on sophisticated database platforms. The SaaS alternative has many advantages over other options, including:

- A significant reduction in investment by eliminating the high in-house cost of data acquisition, report and application development, and information distribution.
- Easier and quicker deployment and implementation, allowing the organization to leverage information assets almost immediately.
- Advanced features only available with state-of-the-art BI tools such as sophisticated “slicing and dicing” of data, dashboards, and alerts via the Web or mobile devices.



A SaaS solution is a set of services that is purchased from an outside information provider. Data acquisition, report development, and information distribution are managed by a provider at a central location. Report services are provided to users via the Web so that a desktop browser is the only requirement. SaaS can also provide cost-effective access to specialized services such as alerts to mobile devices or automatic distribution of data to MS Office documents. Enabling these services in an in-house BI system generally requires the purchase of specialized software and hardware as well as additional programming and maintenance.

The SaaS model replaces the high cost of developing and maintaining an in-house BI system with a modest fee for enabling the service and monthly subscription fee for the services provided. SaaS generally spreads the cost of BI more evenly over the life cycle of the service. Companies are not locked-in to a solution by a substantial investment in infrastructure and development tools. Rather, they purchase only the services that are required to meet their information needs. The flexibility of the SaaS solution allows additions or modifications to service levels at any time to meet changing needs.

The fully-hosted and Web-enabled solution made possible by SaaS is the appropriate choice for the majority of small to medium size companies that provide vendor services to large discount retailers such as Target™ or Wal-Mart™. SaaS provides the robust business intelligence solution required to effectively manage partnerships between suppliers and their retail partners at a fraction of the cost of an in-house system.

The following table compares the SaaS and in-house BI solutions in several key areas.

Requirement	In-House BI System	SaaS Solution
Database	In-house database platform (e.g., Microsoft Access*, SQL Server, Oracle, or DB2)	Remote database serviced and maintained by SaaS hosting company.
Report Development	BI tool (e.g., Business Objects, COGNOS, MicroStrategy, Microsoft Analysis Services) or a report writer required to create and format reports.	Standardized Reports are developed at host site and delivered to users via the Web. Customization of reports can be done at user site as needed using the web-based tools available with most BI products.
Data Acquisition (from retailer site or third-party)	Initiated by user and automatically downloaded to in-house database on a workstation or server. Processing errors normally require assistance from IT or the database vendor.	Initiated by user and automatically downloaded to a remote database administered and maintained by hosting company. Processing errors are addressed at the remote site by dedicated resources.

Requirement	In-House BI System	SaaS Solution
Report Distribution	Limited to users with access to the local network where the database is installed. Sharing data outside the network requires emailing documents or other manual processes. Delivering reports via the company intranet generally requires additional investment in hardware and software.*	Reports are available to any user with appropriate logon credentials via the Internet.
Data Storage and Security	Data is securely stored in the local database. User authentication is required for access to the database.** Backup of local database required.	Data securely stored on remote database. User authentication is required for access to the database. Backups performed automatically by host company.
Data Retention	Historical data retained in database for 2 to 5 years.***	Historical data retained in database for up to five years.
Data Distribution to mobile devices or Office documents.	Available with the purchase of additional hardware and software.	Available as a service with licensing per user.
Cost/ Return on Investment	Requires significant up-front investment for the application software and monthly fee for support and maintenance. Requires additional investment for database hardware and software and specialized services such as distribution to mobile devices.	Low up-front fee to initiate service. Monthly fee for service over the life cycle of the product.
Hidden/Intangible Costs	Cost of staff training, network administration, and periodic fees for hardware/software maintenance and upgrades.	Not applicable.
Implementation	Requires time for acquisition of hardware and software, staff training, and development.	All components of the BI system are purchased as services from a third-party, generally resulting in a dramatic reduction in the time required for acquisition and implementation.

*If a Microsoft Access database is used, file sharing may be difficult or result in data corruption according to the manufacturer.

** User authentication may not be available if Microsoft Access is used.

*** If a Microsoft Access database is used, the volume of historical data may exceed maximum file size recommended by the manufacturer. Check manufacturer recommendations on file size.

Business Intelligence in the New Retail Economy

Retailing has become increasingly competitive in the last three decades as huge discount retailers, selling many of the same or similar products and located in close proximity to one another, compete for the same customers. In fact, the rise and increasing sophistication of business intelligence systems during this period has been largely due to this increasingly competitive environment among the big discount retailers.

The recent downturn in retail spending has already resulted in the closing of a large number of retail outlets and, in some cases, a reduction in the number of SKUs kept in stock. SKU reduction was already a trend as retailers considered the cost of retaining marginal products and customers complained about too much variety. Projections suggest that the retail marketplace is still “over-stored” and “over-SKUed.” If so, this can only result in further reductions in the next few years.

Information that is accurate and reliable is the key to business success in this increasingly competitive environment. We have seen the pivotal role that business intelligence plays in the business of your customers. Discount retailers, such as Target™ or Wal-Mart™, regard information as a key asset, spending millions of dollars each year to monitor the performance of every aspect of the business. As retailers compete for fewer consumer dollars, the role of information provided by business intelligence will play an even greater role in meeting performance goals.

Business intelligence is no less important in your business. It allows you to anticipate problems before they are spotlighted by your customer and propose solutions that serve the best interests of your business. Information is the actionable intelligence that guides your business, allowing you to anticipate the needs of your customer and measure performance against your own goals and standards. While business intelligence was once a novel concept, it is no longer an option for your customer, or for you, in the fiercely competitive retail environment. Without the insight that business intelligence provides, you run the risk of falling behind your competitors—placing your business at a distinct competitive disadvantage.

While suppliers have a real need for the business insights and guidance provided by BI, the cost of building and maintaining these systems remains a serious obstacle for smaller businesses. The Software-as-a-Service model provides a robust BI solution that is affordable and cost-effective for the retail supplier.