



# Business Intelligence for the Retail Industry:

Actionable Insights for Business Decision Makers

by Don Tapscott

## Executive Summary

**THE RETAIL SECTOR** was one of the first sectors to make significant investments in collecting and integrating customer data in data warehouses. Retailers have generally earned a significant return on their IT system investments by using business intelligence systems to analyze the data to improve business performance with a focus on reducing operating costs, without sacrificing the customer experience. The levers that a retailer can use to optimize performance include: price, promotion, markdown, assortment, space, allocation and replenishment. Data-driven decision making is key to successful decisions regarding all of these levers.

In the future, firms will need to continue to be cost effective but increasingly will need to focus on using data to drive revenue by better understanding their customers' needs. Increasingly, this understanding will come from supplementing internally collected data with the vast quantities of external data generated (or made accessible) by the Internet. Organizations need a new generation of business intelligence (BI) tools and applications to integrate this cross-enterprise, inter-enterprise and external data in order to achieve insight and transparency, across all channels. Enterprises that effectively harness the vast quantities of information that IT systems generate—both within the corporation and outside its walls—are poised to gain competitive advantage.

### 1.0 Value Proposition

Competition in the retail sector is becoming increasingly fierce as the complexities of global expansion, rapid product cycles, currency fluctuation and changing customer preferences continue to transform many segments. In 2006, convenience store sales were up 15% in the U.S. yet profits were down 23.5%.<sup>1</sup> The average supermarket makes less than 1% net on sales.<sup>2</sup> Price pressure from Wal-Mart and other “big box” retailers, and eBay's micro-retailers, be they from Chicago or Zhangzhou, have squeezed prices to where many survive by the thinnest of margins, in what, according to the stock market indexes, is the best of times.

Putting retailers further at risk are macroeconomic issues such as low rates of consumer's savings,<sup>3</sup> high oil prices and the faltering U.S. housing market. Each of these phenomena is putting pressure on consumers' purchasing

power and by extension on retailers' bottom-lines. In addition, disruptive new technologies are coming online that may inevitably commoditize retail sales even further. For example, today in Japan, having your smart phone take a picture of a UPC code on a product in one store may offer you a more competitive price in another.

The historical comfort of 100%+ markups and traditional assurances of profitability for this industry have long passed. In these maturing markets it is not enough for retailers to understand what customers want; they must anticipate customers' future needs in order to get in front of competitors with innovative, market-leading product assortments. Today, business intelligence is no longer limited to the traditional, narrow definition of “delivering reports to users.” BI now encompasses the use of data to derive insight and achieve competitive advantage by not only answering the question “what did customers want?” but by increasingly answering the questions “what do customers want now?” and “what will they want in the future?”

The potential to do so now increasingly depends on the effective use of business intelligence systems to utilize available data to help create value for customers. As it has for the last 30 years, a portion of the data will come from inside the firm in the form of customer databases that hold information culled from point of sale terminals, online activity, loyalty cards, credit and debit cards and other customer activity. Different geographic markets have different levels of sophistication in the use of this customer data but it is clear that these systems are going to be a baseline requirement in all global markets in the future. Increasingly, however, data will also come from outside the firm in exceptionally diverse forms that will have value in the future. For instance, retailers in Florida may want to track weather patterns off the coast of Africa in the autumn as they will potentially be predictive of hurricane activity several days later. A lead time of several days may provide for the stocking of products such as bottled water and generators that customers demand in the event of a hurricane actually happening.

Historically, inventories could be built to effectively respond to an upcoming marketing campaign but this is no longer always the case. Instant communications and the Internet are enabling consumers to find the “it” product of the day much more quickly and by extension increasing the speed at which items can be either “in” or “out.” The efforts to extract, scrub, transform, and load sales or customer data often occur too late and highlight

opportunities now lost, more than future opportunities to be found.

In this paper we discuss how technological advances are enabling improved decision making across three broad axes: simplicity and relevance, agility and integration.

First, new interfaces and approaches to business intelligence are empowering more decision makers by providing relevant data in a user friendly interface. Second, new technology advancements such as in-memory BI are providing new levels of performance and helping users gain real-time insights into their data. Finally, BI needs to be integrated within business processes and more widely distributed to functional business units such as merchandising, warehousing and store operations, so decisions can be made at the point of impact.

## 2.0 Simplicity and Relevance

Effective business intelligence systems are simple to use. Simplicity allows a large number of disparate users to access the information through an interactive, user friendly interface, regardless of the type or source of information. In addition, effective business intelligence systems are relevant in a world that is swamped with data. They allow access to accurate relevant data in a timely manner for all users. There should be no question that the “single version of the truth” is accurate and as all encompassing as possible.

### 2.1 Simplicity

One of the key success factors in harnessing the data to provide simple and effective input to decision makers is to ensure the information is delivered to the right user in the right form. In other words, the goal is to empower decision makers with precisely the information they require for their immediate decisions. For executives this may mean simple dashboard data, for merchandisers or the finance department it may mean powerful interactive tools and for front line workers it must mean easy to use interfaces that require little training. Although many will benefit from access to relevant information, few managers or front line workers need to be (or want to be) BI “power users.” Additionally, the retail industry has also had a proportionately higher employee turnover rate (especially at the store level) than other industries increasing the importance of easy to use systems that require little training.

One simple to use, next generation tool is Polestar, available from Business Objects, an SAP company. Whereas new reporting solutions once were only suitable for technically-savvy software developers, Polestar enables business users to explore data without prior knowledge of data structures or content. Polestar brings together the simplicity and speed of search capabilities with the trust and analytical power of BI tools, giving immediate answers to business questions. Users employ familiar keyword searches to find information hidden in data sources, and then navigate and explore directly on data—no existing reports and metrics are necessary. By increasing self-service BI and maintaining IT control, this technology empowers business users to create their content thereby reducing IT report creation backlog. It reuses existing security, metadata, and other services from Business Objects Enterprise, meaning it’s easy to administer and quick to deploy, often in a matter of days, thereby abbreviating time to market and expediting decision making.

#### Breakout Case Study: Reliance Retail

Reliance Retail is a newly formed subsidiary of the Reliance Group of companies in India. Reliance is gearing up to revolutionize the retailing industry in India. Towards this end, Reliance is aggressively working on introducing a pan-India network of retail outlets in multiple formats. The project will boast a seamless supply chain infrastructure supporting multiple formats and a wide range of categories; Reliance is aiming to touch almost every Indian customer and supplier. In India today retail is still largely a “mom and pop” sector (essentially a nation of shopkeepers) with only 4% of all retail happening through professionally managed, company-owned entities.

Reliance has to date opened roughly 300 stores with a goal of reaching 5,000 within the next three years. To meet this growth goal, Reliance has built a world-class IT infrastructure from scratch with the goal of optimizing value to customers by providing the right assortment at the right price. For business intelligence, Reliance Retail chose SAP NetWeaver and there are already 2,500 users using their business intelligence system productively after only 9 months. Reliance has chosen an iterative process to deploy business intelligence, beginning with a push strategy of delivering reports to users on a regular basis, which varies depending on their particular role. This was chosen as a simple way to get up and running but they put in place a system from day one that will enable more interactive “what if” analysis as users get more sophisticated. In other words, they are meeting the needs of different users, at different times with one integrated NetWeaver-driven underlying infrastructure.

## 2.2 Relevance

Retail employees at all levels of the company are surrounded by large quantities of data—sometimes to the point where the pure quantity makes it difficult to act. Data can come from customer transactions through any one of the retailers' channels, loyalty programs, marketing program response rates or new vehicles such as online browsing histories or RFID tags. The key to insight and competitive advantage is not the quantity of data, but its relevance—and because the retailer owns the direct relationship with the customer they have access to the most relevant data.

One way to increase the relevance of data is by utilizing “best practice” templates to help bridge the gap between IT professionals and the business units they serve. These templates include pre-defined data models, queries and metrics while incorporating industry best practices into the implementation process, which not only saves time, but also helps the BI initiative deliver on business needs.

Business Objects customers that exploit the power of user focused tools can also access “business blueprint” templates. These data models and templates solutions include a bundle of technology and industry knowledge that leverages SAP's and Business Object's substantial business knowledge, which was developed over many years while delivering software solutions to the world's largest companies. By leveraging these “packaged” industry best practices, customers increase the likelihood of a successful BI deployment. At the same time, they shorten development cycles and lower costs. The business blueprint templates can act as a foundational solution that individual organizations can extend to meet their specific requirements. Specific components of business blueprint templates include: pre-defined “extractors,” large quantities of pre-defined data models, master data objects, authorization roles, query views and reports—all of which are delivered in the software.

The simplicity of business user oriented tools like Polestar and the enhanced relevance enabled by bundles such as business blueprint templates are enabling solutions for competitive advantage. The ease of use and enhanced relevance of these solutions build on the capabilities of existing BI systems, thus increasing their value to the organization.

## 3.0 Agility

In order to drive retail performance in the future, a key requirement will be business intelligence systems that can gather and distill the mountains of information from across the supply chain, exchange it between parties in real-time, enable collaboration based on the most current data, and support business decisions regarding inventory, promotion or pricing. The good news is that this data is increasingly available. The bad news is that the quantity of data is growing so rapidly that it is often outstripping firms' capacity to effectively utilize it.

Analyzing product movement, seasonal and promotional, margins, placement, and product affinity (products typically co-purchased) by, among other things, location is indeed complex. The amounts of data gathered can be staggering. Understanding it all is difficult. Who has time for multiple 30-minute queries through a 10 terabyte database, looking for an insight that may, or may not, be uncovered? Rapid response rates (i.e. less than a few seconds) on queries of millions of entries can provide significant competitive advantage for two key reasons. The first reason is the potential insight that comes from data-driven decision making. The second reason is that employees will actually use them!

Recent developments in hardware and software technology are now capable of delivering real-time decision support through a technology called “in-memory business intelligence.” Traditional business intelligence systems rely on modeling (or guessing) about end user requirements and then optimizing systems to meet those requirements. But technologies such as in-memory business intelligence solutions help solve this problem: with more (and cheaper) memory now available, today's BI solutions can process reports on the fly by loading complete data sets into memory, and eliminate some of the old bottlenecks.

In-memory technologies provide two significant benefits. For the management team, instant response rates (i.e. less than a few seconds) on queries of millions of entries can provide significant competitive advantage; especially in retail where having the right inventory in store at the right time is the primary profit driver. Additionally, for the IT team, using in-memory technology reduces the need to design, build and maintain intermediary data sets. If the in-memory approach works with the complete original data, that creates a simplified

architecture and allows the IT organization to focus on providing more value-added services.

New Paradigm believes that organizations will increasingly load detailed data into memory as the primary method to optimized BI application performance. This trend is a response to the continuing and accelerating pace of technological change and represents a wholesale change in how business intelligence and performance management will occur in the future.

One example of a firm utilizing in-memory BI systems is SPAR Austria. SPAR is a unique voluntary chain in which wholesalers and retailers work together in over 34 countries under one name. This means that nearly 15,160 stores under the SPAR brand are serving 8 million customers a day worldwide! In 2006, SPAR worldwide had retail sales of €27 billion and was one of the world's largest retail food store chains. Each country operates as an independent business within the SPAR voluntary chain system. This winning concept is strengthened by the knowledge sharing between the SPAR countries, coordinated by International SPAR.

SPAR Austria has implemented SAP NetWeaver and their in-memory enhancement called BI Accelerator (BIA) to support roughly 600 users. Before the implementation of the BI accelerator, employees were complaining about wait times when they utilized their BI tools. In one specific example using conventional technology to analyze 900 million data records it took several minutes. Subsequent to deploying the BI Accelerator the response time dropped to 9 seconds.<sup>4</sup> In fact, some members of the marketing and purchasing departments indicated that things had changed so much that using BI tools changed their analysis work from something that they had to do as part of the job to something that was “just fun.”

## 4.0 Integration

A significant piece of the business intelligence puzzle is related to how solutions are integrated into daily business operations and processes, and ultimately, how the data is gathered and structured. With effective systems, retailers can react quickly to increased customer demand, out-of-stocks and changing competitor offerings.

Additionally, in today's networked retail economy, many of the processes and data sources such as inventory availability that will drive competitive advantage will not

live inside the boundaries of a single firm. This means business and IT architects should design process-driven BI and MDM solutions for an environment where business processes stretch across multi-company business webs and global supply chains.

The simple definition of a “transaction” can reveal significant discrepancies across departments and users. By the time a particular transaction is completed, so many deductions, rebates, discounts and other trade spending has occurred that it is almost impossible to specifically identify profit centers at a granular level (i.e. by customer, by product, by channel). And without this level of detail, planning for profitable volume growth is no more than an educated guess. The challenge lies in the insight, not in the availability of the raw data.

As business intelligence is integrated with business processes, there is also an opportunity to revisit the existing processes and ensure they are representative of best practices. After all, accurately documenting and measuring an ineffective process is doing nothing to improve the business. Most effective business intelligence solutions will provide industry-specific resources, in the form of expertise (e.g. consultants) or specific technical resources (e.g. templates, queries).

The previous sections address the quality of the insight needed and the importance of linking with business processes. The processes by which data is collected, processed and stored has an immense impact on the quality and the value of business intelligence tools (i.e. the “garbage in, garbage out” maxim applies). For this reason, master data management (MDM), which describes how data is managed from initial collection to final use, is a critical underpinning of successful BI implementations. Combined with tools for data quality management, this provides the trusted information foundation that companies base their analytics on.

The concept of MDM is fairly straightforward: without clean and properly aligned data across the organization, it's difficult to answer key business questions. And although it might appear just as straightforward to solve it, the level of complexity of today's IT organizations poses a real challenge. Globalization of supply and demand networks is a large contributor to this pressure to implement MDM. Until recently, when a large global retail chain wanted to see a report of all the products in a specific category that all suppliers had provided, they struggled to piece together all the various customer

numbers and products numbers used by different vendors. The implementation of MDM programs is helping to eliminate this issue.

## 5.0 The Payoff

The challenges faced by the retail industry will only grow with time. Trends such as skeptical consumers, increased data volume, business globalization, social and regulatory compliance and complexity are here to stay. To maintain competitive advantage, organizations must leverage internal and external information into an accessible, usable medium and provide business intelligence to a larger number of employees. Business intelligence solutions will continue to evolve as exciting new capabilities such as in-memory arrive and are adopted broadly in the market.

Organizations that enable business intelligence solutions built on the tenets of simplicity and relevance, agility and integration have the potential to sustain competitive advantage in world where change is the only constant. Simple and relevant BI tools can empower employees to make effective decisions with increasing speed and agility. By integrating real-time decision making with mission

critical business processes smart retailers can keep up with and even excel in the innovation-driven world of the 21<sup>st</sup> century.

Retailers have been at the leading edge of the business intelligence wave and those that have executed well have derived significant advantage from their efforts. In the future however, the bar has been raised and evolving to the next generation solutions represents a giant step forward. Corporations will face a choice: execute these best practices or fall by the wayside. The leaders will see empowered employees, rapid execution and adjustments to plan, resulting in both top-line and bottom-line growth.

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**DON TAPSCOTT**, one of the world's leading authorities on business strategy, is the founder and chairman of international think tank New Paradigm. Established in 1993, New Paradigm produces ground-breaking research on the role of technology in innovation, competitiveness and society. The company was acquired by BSG Alliance in November of 2007, and is expanding its syndicated research programs globally. Currently four multi million dollar efforts—The Enterprise 2.0, Talent 2.0, Marketing 2.0 and Government 2.0—investigate strategies for winning through next generation enterprises.

Tapscott is the author of 11 widely read books about information technology in business and society, including *Paradigm Shift*, *The Digital Economy*, *Growing Up Digital* and *The Naked Corporation*. His most recent book, *Wikinomics: How Mass Collaboration Changes Everything* is an international best seller in 20 languages. It was a finalist for the prestigious *Financial Times*/Goldman Sachs Best Business Book award and has been chosen by many publications including *The Economist* as one of the best books of the year. He is also adjunct professor of management at the Joseph L. Rotman School of Management, University of Toronto. His clients include top executives of many of the world's largest corporations, and government leaders from many countries. He holds a master's degree in Research Methodology and two Doctor of Laws (Hon).

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## Endnotes

<sup>1</sup> [www.nacsonline.com/](http://www.nacsonline.com/).

<sup>2</sup> [www.itbusinessedge.com/item/?ci=30040&nr=1](http://www.itbusinessedge.com/item/?ci=30040&nr=1).

<sup>3</sup> <http://politics.guardian.co.uk/economics/story/0,,2115420,00.html>.

<sup>4</sup> Interview with Thomas Thalhamer of SPAR Austria, conducted by New Paradigm, October 10, 2007.

## Enabling Better Business Intelligence More strategic IT through the intelligent use of information



Today's competitive environment is fast and fierce, marked by complex supply networks and increased consumer power. In order to succeed, retail companies need to fully leverage the power of information to their advantage. No longer is it enough to leave information access to a select few; every business person needs to be empowered to access, analyze and act on trusted information, wherever and whenever needed, and in the context of the relevant business activities.

That is why leading retail companies worldwide rely on solutions from Business Objects and SAP to provide end-to-end solutions for better business intelligence. The business user is in the focal point, with an intuitive and system-agnostic solution set that delivers on even the most demanding needs. Embedded into the context of business activities and work environments, information is immediately relevant and actionable. At the same time, IT can focus on being an enabler of innovation, rather than just working overtime to just "keep the lights" on.

With solutions from Business Objects and SAP, retail companies get:

- **More effective business decision making.** Simple and intuitive user interfaces foster broad adoption, while reducing IT backlog. Business users quickly access any type of information, regardless of its source. And with BI accelerator technology, response times are consistently fast, independent of data volumes analyzed or question asked, allowing IT to meet the increasing demand for real-time BI embedded into business operations.
- **More efficient IT, freeing up resources for innovation.** The broadest solution set in the industry, combined with best-in-class capabilities, dramatically reduces the need to deal with multiple vendors. Due to inter-operability with any systems, applications or databases, investments are protected and don't require expensive custom-integration. And by providing the right level of controls with an agile infrastructure, IT can focus on managing service levels, and does not need to manage individual users.
- **Faster realization of value from IT investments.** Out-of-the box content and templates, across both SAP- and non-SAP data sources fosters accelerated deployments of BI solutions while significantly increasing the chance to "get it right" from the beginning, as compared to pure custom-built approaches. And alternative delivery models (e.g. on-demand, appliances) provide drastically reduced setup time and lower maintenance.

The result is that IT is better able to meet the information needs of business users thus becoming a strategic partner to the business.

To learn more about how solutions from SAP and Business Objects can help you empower your employees to make the best-informed business decisions, visit [www.sap.com/businessobjects](http://www.sap.com/businessobjects).

SAP and Intel not only understand the challenges businesses face in today's volatile global marketplace, but since 1994 they have worked together to offer a powerful set of optimized solutions on innovative platforms that help companies quickly adapt their strategies and execution. Today, more than 74 percent of all new SAP installations are deployed on proven Intel platforms, enabling IT to become more efficient and responsive with breakthrough performance, energy efficiency, reliability needed for virtualization and business-critical applications.

With Intel solutions, companies can be more responsive, efficient and dependable using innovative, highly reliable and compatible Intel Xeon and Itanium@2 platforms that help them optimize their IT infrastructure and scale with confidence. They can benefit from:

- **Performance and flexibility:** Build their business on scalable, flexible infrastructure that can grow with shifting enterprise demands using Intel's market-leading multi-core processing technology. This is achieved with second generation quad-core technology based on Intel® Core™ microarchitecture and 64-bit virtualization capabilities.
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- **Reliability:** Intel-based servers are the foundation of a dependable IT infrastructure with built-in reliability features, uptime, virtualization and software optimization and enabling investment.

