Going Beyond Data Mining

Using analytics to build strategic insight

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The retail industry has been a long-time champion and user of data and analytics. It understands the value of analytics and has leveraged it for decades to understand what, when and how much should be on retail shelves. Analytics has been used to fashion deals and offers to improve off-take. It has been used to determine where specific products should be placed in the store to improve sales. But the data and analytics scenario has changed dramatically. Has retail kept pace with the change? There is evidence to suggest it hasn’t – and there is room for considerable business gain from data and analytics.

Retail’s almost singular focus for data and analytics has been in understanding the customer. But now, never-before forces such as digitization and multi-channel retail that fragment the experience, are at work. Today’s competitive retail environment has introduced dynamic product pricing, adjusted several times a day, in retail aisles as well as on online channels. There are changes in retail promotions as well. Coupon-based promotions are now taking a dynamic approach, based on inventory, a customer’s previous purchase, time of day, location and so on.

To enable this, multiple data streams are converging, calling for new approaches to data. This means that retailers must look for new tools to manage the data and harvest rapid insights. Current Business Intelligence (BI) tools result in reports that are packed with data, but finding insight can take time, can be resource intensive and is often inaccurate. Making strategic business decisions based on data has turned into a critical need. A 2013 Economist Intelligence Unit Report called ‘The Data Directive’ commissioned by Wipro confirms this. The report shows that 35% (1 in 3) C-suite executives agreed that data has been more useful in operational actions rather than in strategic decision-making. This means there is considerable room to further capitalize on data and incorporate it in the strategic focus of the organization.

New research indicates that other industries are getting ahead of retail in the use of modern data management and analytics in building robust management strategy. This is ironic, given that retail was amongst the earliest industries to leverage data. Amongst those leading the use of data are financial services.

The Economist Intelligence Unit report, alarmingly suggests that manufacturing (16%) and retail (13%) are the least prepared with data management strategies (see Figure 1 for a comparison between retail and other industries on data usage from the research). However, there is good news. Given that financial services are, like retail, B2C in nature, their data strategies can be easily replicated in retail.

### Figure 1

Source: Economist Intelligence Unit Survey 

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**Data Driven Industries (% respondents)**

- We have a well-defined data management strategy that focuses resources on collecting and analysing the most valuable data
- We understand the value of our data and are marshalling resources to take better advantage of them
- We collect a large amount of data but do not consistently maximise their value
- We collect data but they are severely underutilised
- We do not prioritize data collection

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<th>Financial Services</th>
<th>Professional Services</th>
<th>Retail and Consumer Goods</th>
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We believe retail must take a bold step towards managing data and analytics. Retailers should be able to say, “I know what my customer will want this evening and I’ll have it at the right stores by afternoon, along with my most effective channel-specific marketing strategy in place.” But retailers are unable to do this. The reasons are not far to see. As an example, our research (see Figure 2) shows that “one in ten retailers have no plans of collecting social media data while another 23% are still putting collection plans in place. While one-quarter do collect and analyze such information, this is still well below the rate that both financial services firms and technologies companies do.”

This is a major handicap. For retail it is time to make the Big Leap in data and analytics. Smart retailers know that the stakes are too high to run business based on traditional methods of customer understanding. Forecasting customer behavior and preferences using data and analytics is the next frontier in retail. It promises to be the battleground on which bottom lines will be built (or wrecked).

Encouragingly, retailers are warming up to the idea of using predictive analytics to remain competitive. A recent study by RIS News in partnership with Wipro called Analytics-Driven Retailing: Better Insights, Decisions and Results confirms that investments in analytics has increased in the IT budget for approximately 60% of retailers over the past three years (Figure 3).

High performance retailers have made analytics central to their business strategy. They have demonstrated results in ways that were not possible until a few years ago.
Improving business insights, decisions and outcomes

It's not surprising that analytics is evincing interest. It has demonstrated extensive and immediate impact across the retail value chain (Figure 4). Retailers are no longer curious; they are keen to see how analytics can transform their businesses.

Process areas where analytics can be meaningfully deployed:

Driving Customer Experience: With the growing threat of competition, retailers are turning to analytics to find answers to questions such as “How do I drive customers into my store? How do I increase engagement? Can I leverage events that are important to a customer such as birthdays and anniversaries to increase sales? Will an offer on a mobile, specifically tailored for the customer, help? Can I do this while the customer is driving past my store?”

Amazon and other leading retailers have shown how analytics can customize the shopping experience through an offer engine that throws up “most likely options” at the customer. They can extend it easily to create a mom-and-pop experience at stores and online, demonstrating the power of analytics.

Customers also want a uniform and consistent experience regardless of the channel. Can retailers ensure that the customer experience across channels is identical and seamless? For instance, when a customer is online, the personalization engine throws up products and offers based on past behavior and preferences. Can the same offer be made when the customer walks into a store? Can they order on-line but return at the nearby store? Can they get the same price online and at the store?

In several instances, customers walk into a store to buy a book or an electronic item. They browse the book or see a product demo, then go online to find the best deals. Can store managers “sense” this behavior using the store Wi-Fi and make a counter offer that matches what the customer wants instead of losing the customer?

Enabling Improved Financial Decisions: Margins in retail are shrinking to 5 - 6%. Financial frugality has become a hot button. Analytics is increasingly being used to drive critical decisions around locations for opening new stores, closing unprofitable ones and resizing existing ones for optimal performance.

Retailers are using data and analytics to surface intelligence on which products are the most profitable and forecast the sales volumes they can achieve. In the backrooms, analytics is helping achieve better day-to-day decision making by accurately estimating workforce demand for each department, using productivity standards and allocating workforce accordingly. In engagements with customers, Wipro has improved overall workforce allocation accuracy by as much as 4%.

Managing Merchandise Replenishment: Most retail operations use a combination of historical trends, intuition and plain guess work to decide on the merchandise to stock. When sales are sluggish or there are unexpected stock outs, hasty decisions are taken to manage the situation. Analytics is helping retailers make smarter and more effective decisions regarding replenishment of SKU types, volumes, etc. An example, Wipro has worked with a retailer to analyze data and determine the optimal composition of size packs for seasonal apparel. Using the recommended assortment packs, lost sales were reduced on average by 31%. Estimates of yearly data show projected gains of approximately US$ 14 million through the initiative.

Accurately Uncovering Store Requirements: It's often difficult to gauge what is happening within your own store. By the time data is available and a decision is taken, the environment has changed. It can be frustrating for store managers. Bottom lines are impacted because of the inability to forecast problems and take real-time decisions. Analytics has become one of the major responses to address issues typical to retailers such as shrink analysis, return analysis, stock optimization between stores, and the kinds of promotions to create based on stock movement and customer behavior. Retailers have created solutions to manage many of these issues, but shortcomings continue to persist.
One of the more widely understood solutions is the use of coupons to drive sales of slow moving or perishable goods. Coupons have a success rate of 1 to 2%. Our analytical solutions have shown that by understanding which customers will respond better -- and targeting them -- response rates can be bumped up an additional 2%.

**Optimizing Spends**: Is my coupon program giving me the ROI I should get? As we have just seen, it can be improved. Analytics is being used by smart retailers to enhance promotion and campaign effectiveness. Retailers are becoming nimble on the back of analytics. They are now able to shift their marketing dollars rapidly to more effective campaigns within the small windows of opportunity typical of the business.

Using analytics Wipro has delivered a 4% reduction in promotional spends during holidays. Our experience has shown the Bayesian forecasting can improve revenue by 2%.

**Fine Tuning the Supply Chain**: Retailers lack a global view of their stocks, the opportunities to tap vendors across geographies for volume discounts, and how to get the best fulfilment rates from vendors thereby reducing inventory and operational costs. Analytics is providing crucial inputs towards more effective supply chain management.

**The retail understanding of analytics**

A dollar store retailer found that instead of having an average customer that spends US$20 per visit it had two distinct customers that spend either less than US$10 or more than US$30. The finding required the store to create two distinct marketing and product stocking strategies to address each set of customers, increasing purchase and improving loyalty.

There are other areas where analytics is creating valuable insights. Retailers are using it to assess the lifetime profitability of a customer and adjust the level of service accordingly (or even let bad customers go).

Others are driving extreme innovation enabled by large volumes of data to leverage small windows of opportunities. For instance, a store can allow customers to order online and deliver at the railway station when the customer is on the way home. Statistical models and algorithms are offering new and low cost ways to design products and deliver service innovation that markets are demanding.

The RIS-Wipro report shows that a majority of retailers believe that on a strategic level analytics can improve margins (77.4%), improve customer satisfaction (74.2%), increase market share (67.7%) and improve comparable store sales (61.3%). On a tactical level a majority also believe analytics-driven insights will improve forecasting and planning accuracy (87.5%), retention/frequency of loyal customers (84.4%), and conversions for ad/promotion spending (59.4%).

The report however emphasizes that retailers must not stop here. They need to do more. They must “shift from using analytics to show what happened (reporting) and what is happening now (alerts) to what will happen.” To do this, retailers need access to more granular information and automated decision-enabling algorithms.

Here is a classic example that is familiar to everyone in retail: If the in-stock position is at 95% level, should the retailer be happy or dig a little more below the surface and examine the actual state of affairs? It could be that a fast-moving item is out of stock for 30 to 40% of the time. The fact that business is being lost could be obscured by the overall stock level metric -- which, at 95%, appears quite healthy. Retailers are waking up to such anomalies in the system. They are now able to anticipate low stock positions using models and algorithms.

Most retailers, says the RIS-Wipro study, are already using traditional analytics tools. 50% of retailers have up-to-date performance analytics capabilities in place and 43.5% have up-to-date customer/marketing analytics capabilities. But only 16.1% have up-to-date predictive analytics solutions in place (Figure 5). This means retailers who update their predictive analytics capabilities will harvest disproportionate benefits.
The source of the radical change

Data is proliferating at an unprecedented rate. Data sources such as historical customer information, channel data, a customer’s online clickstream, mobile interaction, CRM data, credit card usage, in-store video data, and a vast amount of unstructured social media data are available. The challenge is in managing the complexity in data sources, types and the velocity with which it is growing.

Often, when teams are overwhelmed with data the effect is of slowing down decision-making. That can soon be history. At the hands of today’s competent data scientists, domain experts, sociologists and psychologists armed with analytical tools, retailers can take never-before action to improve campaign effectiveness, sales, customer loyalty, margins and operational efficiency.

Analytics in retail has begun to work in startling and often unexpected ways. Consider the vast amount of visual data being generated by in-store video cameras conventionally meant for surveillance and security.

The same video stream can be analyzed to impact sales. Assume a customer has been examining a product for a reasonable amount of time. Analytics can help conclude that sending the customer a product offer on the mobile will create a sale. Almost from thin air, analytics can conjure sales.

Quick wins that create the future

Analytics is not only about technology, hardware and data. It requires a cultural change in thinking. Therefore, support for analytics cannot be IT driven. It has to have business ownership if it is to succeed.

The other half of success is rooted in retailers being able to invest in process, technology, mathematical and behavior models, creating an organizational structure that makes analytics part of the operating DNA and hiring people with backgrounds in sociology and psychology to get to the bottom of consumer behavior. Above all, the effort should be powered and propelled by business goals.
About the Author

P.Srinivasa Rao (PSR) is the Vice President & Global Business Head for Analytics and Information Management (A & IM) focusing on Banking, Insurance, Securities, Retail, CPG, Transportation and Government customers.

A&IM helps customers derive valuable insights out of integrated information by bringing together the combined expertise of Analytics, Business Intelligence, Performance Management and Information Management. The group provides consulting, business centric and technology specific analytical solutions and data management frameworks developed through a complete ecosystem of partners, focusing on industry specific analytics, optimization and operations analytics, Enterprise Data Warehouse, MD M, Data quality and data life cycle management.

PSR has 20+ years of experience in the IT industry, and is one of the founding members of Business Intelligence and Data Warehouse Practice in Wipro. He has authored many white papers on Business Intelligence and received several recognitions for his contribution to business growth at Wipro such as CEO’s letter of appreciation, difference in action, best people manager, etc.

He holds a Post Graduate Diploma in Software Enterprise Management from the Indian Institute of Management, Bangalore, an M.Tech from the Indian Institute of Technology, Delhi, and Bachelor's in Electrical Engineering from Osmania University.

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